UNITED STATES
INTERNATIONAL TRADE COMMISSION

In the Matter of:	)	Investigation No.
CERTAIN HIGH-STRENGTH ALUMINUM OR	)	337-TA-1402
ALUMINUM-ALLOY COATED STEEL, AND	)	
AUTOMOTIVE PRODUCTS AND	)	
AUTOMOBILES CONTAINING SAME	)	

OPEN SESSIONS

Pages: 1 through 261 (with excerpts)

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UNITED STATES INTERNATIONAL TRADE COMMISSION

Washington, D.C.

BEFORE THE HONORABLE MONICA BHATTACHARYYA

Administrative Law Judge

In the Matter of:	)	Investigation No.
CERTAIN HIGH-STRENGTH ALUMINUM OR ALUMINUM-ALLOY COATED STEEL, AND AUTOMOTIVE PRODUCTS AND AUTOMOBILES CONTAINING SAME	)	337-TA-1402

International Trade Commission

500 E Street, S.W.

Washington, D.C.

Monday, March 3, 2025

EVIDENTIARY HEARING - VOLUME 1

The Hearing commenced remotely, pursuant to the notice of the Judge, at 9:31 a.m. Eastern.

Reported by: Marjorie Peters, FAPR, RMR, CRR

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P R O C E E D I N G S

JUDGE BHATTACHARYYA: Good morning, everyone. Please be seated.

So we are here for the evidentiary hearing in Certain High-Strength Aluminum or Aluminum Alloy-Coated Steel, and Automotive Products and Automobiles Containing Same.

Welcome, everyone. Would counsel please enter their appearances.

MR. HERSHKOWITZ: Good morning, Your Honor. Benjamin Hershkowitz from Gibson Dunn on behalf of Complainant, ArcelorMittal.

We have Mark Reiter, Allen Kathir, Julia Tabat, Mr. Sun Bin Lee, Nate Scharn, and Mr. Evan Kratzer.

In the back, last but definitely not least, Monica Lin, and Mr. Ray LaMagna.

Hopefully, that did not count against my team time.

MR. MCKEON: Good morning, Your Honor. Mike McKeon with Fish & Richardson on behalf of VinFast Respondents.

I need to make introductions. At counsel table, I have Joseph Colaianni, Mr. Linhong Zhang, Ms. April Park, Mr. Brian Boyd, Mr. Jack Wilson, Mr. Daniel Lee, and Mr. Sangki Park.

We also have, Your Honor, our paralegal, Mr. John Lund, in the back, and he's going to keep us organized in the trial.

Our hot-seat guy, Mr. David Sayers.

Finally, Your Honor, the general counsel of VinFast North America is here with us in this trial, that's Mr. John Harris.

JUDGE BHATTACHARYYA: Good morning.

MR. MCKEON: With that, we're ready to proceed.

JUDGE BHATTACHARYYA: We're on the public record. Please let me know if we need to move to the confidential record.

MR. HERSHKOWITZ: Your Honor, Benjamin Hirschowitz on behalf of the Complainant, ArcelorMittal.

I'm ready to proceed. May I approach and hand you a hard copy?

JUDGE BHATTACHARYYA: Yes, you may.

MR. HERSHKOWITZ: May I proceed, Your Honor?

JUDGE BHATTACHARYYA: Yes, please.

OPENING STATEMENT BY COUNSEL FOR COMPLAINANT

MR. HERSHKOWITZ: Before we begin, I'd like to talk about the parties here, specifically, ArcelorMittal. It's one of the largest steel manufacturers in the world, tracing its roots back well over 100 years.

Importantly here, we have developed a process

dealing with proprietary aluminum-coated alloy steel. They have developed a large portfolio here around which two of the patents here are part of that portfolio. They have invested billions of dollars, including in the United States, in connection with this technology, and they have licensed widely.

We are here today because VinFast has chosen to use unlicensed, instead of licensed, steel in the cars and parts that it imports into this country.

So ArcelorMittal, as I mentioned, is a worldwide company, has significant US operations. It has facilities throughout the United States. We're going to really focus on two of those facilities.

You will see down at the very bottom of the screen, right at the Gulf of, I believe, America, we have the Calvert facility. There is a large steel manufacturing facility, and then due north, all the way at the border to the north, you will see, between Illinois and Indiana, there is the East Chicago research facility, and we'll be talking about that today.

Between them, there are clearly thousands of employees for ArcelorMittal in the United States.

If we go to the next slide, these are some of the folks that you will be hearing from today from ArcelorMittal.

Mr. Jean-Luc Thirion, recently promoted to CEO of global research and development. He has spent his entire 30-year career at ArcelorMittal. He will talk about the scale of research and development in the United States in the automotive industry involving the steel here.

You will also hear from Mr. -- or excuse me, Dr. Pascal Drillet. He is one of the named inventors. He will walk you through the development of the technology, starting back in 2005, and explain this all to Your Honor.

We next have Mr. Bala Krishnan and Dr. Mark Atkinson. I should mention each of them is actually sitting on this side in the back of the room. We have agreed with Respondents that everybody can sit in today for the openings.

Mr. Krishnan will talk about the economic activity out of that research and development lab, while -- or Dr. Atkinson will talk about the research and development activities. He will talk about the interactions of the entire ecosystem that takes place in the United States in connection with this patented steel.

You will hear from Mr. Chris Richards. He is the CEO of that Calvert, Alabama, facility where the steel is made.

Finally, from Mr. Peter LeBlanc. He will talk about the licensing of this very important technology.

You will also hear from some experts.

So this is Mr. James, Jim, Malackowski. He is considered one of the top economic world-leading IP strategists.

He was the head of the Licensing Executives Society International, its president, which is the organization -- the umbrella organization for licensing, especially dealing with intellectual property.

He has been a member of the IAM IP Hall of Fame that recognized him for his work. And just a few years ago, he received the Q. Todd Dickinson Award, Mr. Dickinson being a past commissioner of USPTO.

He has testified around the Court as well as before this very Tribunal at the ITC ten times. You will be hearing from him about economic DI, as well as remedy bonding.

We now have two technical experts. The first of whom you will hear from is Dr. Fekete.

Dr. Fekete has spent his entire career in industry and academia dealing with metallurgy and the relevant industry here.

He started out, in part, at National Steel Company, which is obviously a manufacturer of steel. He was at Novelis, which is aluminum, as we'll talk about today. This case, this investigation, is about aluminum

alloy-coated steel.

He was then an accreditor for the American Association for Laboratory Accreditation. The very labs doing the tests, he was responsible for accrediting them. He will explain why it's important to do testing at accredited labs according to a detailed set of instructions to them.

He was also in government at NIST, which is the National Institute of Standards and Technology, where he actually won an award for service, focused again on metallurgy.

Then he spent a number of years in industry, in the auto industry, at General Motors.

You will also hear from Dr. Dierk Raabe. It would be an understatement to say that he is the world's foremost authority on metallurgy and materials science.

He is the CEO of the world-renowned Institute for Sustainable Materials, Max Planck. He has won almost every award that can be granted in the field, including the Leibniz Prize, which is an award. He was elected this year to the US National Academy of Engineering, which is truly prestigious, as typically, they only award membership to people in the United States, but in light of his exceptional contributions, they have made him a member this year.

He will address validity issues, while Dr. Fekete will address technical DI and infringement issues.

You will not just hear from ArcelorMittal and its witnesses and its experts, you will also hear from a number of third parties. We served depositions on the largest of what are called Tier 1s, also known as hot-stampers. They're the ones that take this steel, this aluminum alloy steel, and press it into the parts which you see here in the courtroom, and which I managed to slice my hand on today.

Those will include testimony from Cliffs, that not only does hot-stamping via its Canada subsidiary, but it's a licensee of the technology here, and as we'll discuss, also manufactures the aluminum-coated alloy steel here in the United States.

You will hear from the other hot-stampers, Gestamp, there are dozens of others. These comprise the seven largest that are hot-stamping the aluminum-coated steel that is at issue in this investigation.

We'll also hear from and about VinFast.

VinFast is a fairly recent car manufacturer out of Vietnam who is importing VF 8 and VF 9 electric vehicles through the ports in California, and has opened showrooms around the United States.

They have specifically targeted US as one of its market. In light of its showrooms, it maintains inventory. We have a stipulation to that effect about the inventory it maintains here in the United States.

While we tested only the VF 8, as we will discuss, the VF 9 was, we just learned, imported into the United States in November of 2024, and it uses the same steel from the same mill, hot-stamped the same way, and got the same results, according to the same specifications.

So we'll talk about that.

So with that foundation, let's jump into the substance of this. We'll talk about the technology at issue; specifically, the proprietary coated steel that's here, and how ArcelorMittal has secured a large portfolio, again, of which two of those patents are at issue in this investigation.

We will talk about the entire industry has taken a license for POSCO, who is a steel manufacturer based out of Korea, and they are using the unlicensed POSCO steel here despite the fact that Hyundai, a larger steel manufacturer in Korea, is a licensee of this technology.

ArcelorMittal has literally invested billions of dollars worldwide, and there's been well over a billion dollars collectively between ArcelorMittal and the Tier 1s invested in the United States in connection with this

technology.

We tested dozens of parts, and we'll talk about that, and that will demonstrate that there is, in fact, a technical domestic industry here, too.

We also will talk about the testing we've done on the VinFast parts.

We bought a car. We ripped it apart. There were some parts we thought we could turn into a go-kart with what's left, and unfortunately, we were told it was not safe. Ms. Morgan is the one that was disappointed about that because she wanted a go-kart from what remained of the car. We tested the steel from VinFast as part of the investigation, and they met the limitations of the claims.

We will also go through that, not only does that exist, but we'll talk about validity. You will find out that the only thing that was already before the Patent Office, the same entire arguments that the Patent Office has already considered, and as a result, ArcelorMittal is entitled to an exclusion order, 100 percent bond, and a cease and desist order.

Let's jump in with respect to the technology.

What you're going to see here, Your Honor, is -- what we're talking about here is what's called body-in-white. Now, I have no idea why it's called the

body-in-white. I consider it the skeleton of the car. It's the cage that's protecting the occupants.

ArcelorMittal came up with a way of making that even better. That is what the invention is here, and it has a lot of benefits. It's there when you need it, if you're in a crash, but it also contributes otherwise because it's stronger, it's light, which improves fuel economy, reduces CO2 emissions. That is the technology that's at issue here.

What you're seeing is you will see the trade names. Those are ArcelorMittal trade names for its proprietary steel, Usibor and Ductibor. And you will see there are two types of steel here, and you will hear today about different parts of that skeleton. The A-Pillar that runs between the windshield and the front doors. The B-Pillar that runs between the front doors and the rear doors.

Here's an example of a front door assembly, which would then go onto that. So we'll talk about door rings or door assemblies today.

What you will notice is that these are all welded together. There another advantage of this is it allowed for better welding of it. You will notice that sometimes a part like a B-Pillar is made of two different types of steel here, the Usibor and the Ductibor, that are

put together and welded together, and then what's called "hot-stamped" by those companies, the same ones, the hot stampers of the world, into a single part, which is then separately welded to other parts. We'll talk about that.

Sometimes a part is even made from two different types of steel.

So how do we get to that body-in-white, how do we get to these parts.

Well, there are really two big steps to this ecosystem.

Step number one is taking that raw steel, which happens at Calvert, and turning it into what we call DI precursor product; that is Usibor and Ductibor steel that is aluminum-coated. It's known by Usibor and Ductibor trade names for the Calvert production facility. It has a AM/NS because it is a joint venture between ArcelorMittal and Nippon Steel.

The licensee who manufactures in the United States as Cleveland-Cliffs also known colloquially as Cliffs. Their brand name for this is Ultralume. We'll talk about that.

Then the giant steel rolls that are massive, they get shipped to the Tier 1. The Tier 1 then turn those into the parts by following the processing guidelines that have been laid out and that were invented by Dr. Fekete,

who is here in the room, as well as his coinventors, Mr. Kefferstein and Mr. Drillet.

If we go to the next slide.

As mentioned, here are the steel rolls that you can see, and as you notice, there are different grades. You can see Usibor 1500. I have heard the expression, you know, "1,500 angels on the head of a pin." This is so strong, it can hold 1,500 people on the head of a pin. That is the steel that's strong that protects us. I'm told that 1,500 is an understatement. That's the weight it can hold, and that's what's known as a megapascals.

What you hear from Mr. Malackowski, who is also here with us in the gallery today. He will explain the investment that was made at Calvert in developing these precursor products.

We'll then move on, and you will see we'll have that raw steel that goes to the Calvert or Cliffs facility and gets turned into that press-hardened steel, the very strong steel that is used in cages.

The way it is, you get a steel roll, and you run it through, kind of a funny name for it, a bath. It gates bathed in aluminum, and it is processed to make sure it is the coating that you want, and the coating that you need on very tightly controlled parameters, and you end up with the giant steel, aluminum-coated steel rolls.

You will hear from Mr. Richards, who is the CEO of Calvert, about how that process works, and you will also hear via deposition from Mr. James Chronister, who is the Senior Director of Business Development at Cliffs, one of the Teir 1s, those steel rolls get shipped out to the hot-stampers.

As mentioned, we took depositions, we gathered evidence, gathered parts from the seven largest that actually process the Usibor steel. And you will hear from Dr. -- from Ms. Morgan, Mr. Malackowski about the economic investment there, and you will also hear from other witnesses explaining how the process works, from including those that were deposed, to end up with the parts that we have here.

So how exactly does that hot-stamping work.

Well, Dr. Drillet, who is a named inventor, and Dr. Fekete, who is one of our experts, will explain this in more detail, but you have the giant steel rolls, the aluminum-coated steel rolls, and there's a process known as blanking, so you can cut out the rough shape of a part. You heat it, you transfer it, and hot-stamp it in the strong presses, and you end up with a final part.

I just made it sound a lot simpler than it is because each step along the way you need to control the processing parameters, the leading ring, the weld time, the

pressing ring, how you do it at each step along the way. If you don't do it right, you end up with parts that do not get the benefit of the invention here, that does not meet the claims.

Sometimes that happens, but the trick is to make sure you have a reputable and reliable hot-stamping process.

We'll talk to Dr. Fekete to synthesize all of the information that shows when they do it right, you end up with proper hot-stamped parts.

Sometimes, you will find out that they didn't do it right, and you know, we disclosed that data, too, when somebody didn't do it right. We'll explain why when it isn't done right how they ended up with a part that did not meet the limitations of the claims, even though it was intended to based on the guidance provided by the car manufacturers and the guidance provided and coordinated by ArcelorMittal.

So if we go now to the next slide, there's talks about the patents for a moment. As I mentioned, you will hear from Dr. Drillet. You will hear the deposition of Mr. Kefferstein, all of them, and sadly, Dr. Spehner passed a number of years ago.

They will explain not only the invention, but the technology too will be explained by Dr. Drillet.

We go now to the patents. What is this about.

As you see directly from the title, it's coated steel strips, stamped products, and methods for the same. In other words, they lay all of this out in the specification.

You will see it was originally filed October 30 of 2006, but we will tell, through documents, through Dr. Drillet, that actually the inventor came up with this in late 2005, and diligently worked to reduce it to practice, and they will walk you through that.

So, we see -- this on the next slide -- here's what happened. They have been working with the hot-stampers to develop the technology further, and they kept experimenting with the hot-stampers. Arcelor doesn't do its own hot-stamping, they worked with them.

Finally, in working on controlling the process parameters, they got worked on a part, and they said, eureka, we now have the final piece of the puzzle. It falls into place. Then immediately, they met with the patent attorneys, and they started the application process.

Their diligence is shown by repeated discussions with counsel, repeated additional work that took place in the lab. They hired an intern who helped them document the work they were doing. They continued with the prosecution right up until the point where they filed that application

in October of 2006.

I remember the date because it's my wife's birthday, October 30th. If I forgot it, I would be in a lot of trouble. So that's one date that has stuck in my mind.

So we have conception, diligence, reduction to practice. You will hear from the named -- one of the named inventors, Dr. Drillet, you will see the documentation.

So we turn now to what is the details of the patent.

As mentioned, it's this precoated steel. You have a steel base. You have an aluminum coating, an aluminum pre-coating, you have the processes and coating, stamped products, and one of my favorite terms in here, land motor vehicles, which I have come up with a number of different analogies for those of us that are old.

It reminded me of the James Bond vehicle that would go into the water and became submersible, or when I was talking to my colleagues who are a little younger, they have no idea what I'm talking about, so I analogize it to the duck boats. Obviously, these are for land motor vehicles, and not for boats.

The patent then describes the benefits of it. We see here -- just as an example, I have put up Claim 1.

So what is the invention? Well, the invention

starts with the special succession of layers running from the base steel outward. There are four layers with the top layer being a superficial surface layer. It is particularly good, which you see Figure 1, which is described as a preferred embodiment. It is particularly favorable for welding and is one of the benefits that is called out there. There are others.

Figure 2 is if you don't do it right, you end up with inferior results that do not correspond to the invention.

Dr. Drillet will take us through that.

We then turn to what do the asserted patents discuss.

Well, in the specification we talk about not only the benefits of the high weldability, the tensile strength, the corrosion resistance, and how we get to controlling the process parameters, the cooling rate, the pre-coating thickness, the heating rate, the process windows, and also numerous examples are given throughout the specification.

So, that's how you end up with this microstructure that has layers, that has metallurgy, the composition, as Dr. Drillet will walk us through that.

So if we turn back, what are the limitations of the claims.

Well, in general, as you see, you have layers; you have the composition, the iron composition, you have thicknesses in that last limitation of Claim 1, the dependent claims that further define those compositions more detailed, the relative weight, all while recognizing, I think this is important in that last line of Claim 3, the impurities in the process. We are operating in the real world, and the trick is to be able to do this repeatably and reliably.

And finally, we see the further definitions on the different layers and thicknesses. This is some of what you will hear today, Your Honor, and how this is met by technical DI, and also met by the parts that were tested.

So let's turn now to domestic industry.

I don't think there's any reasonable dispute that there's a significant domestic industry here. You will hear from ArcelorMittal, the Tier 1 witnesses, the experts. It is crystal clear almost none of their brief is dedicated in an effort to try to refute this. They have some argument, and we'll address those arguments through the testimony of our witnesses and experts.

Talking about experts, we'll hear from two experts, as mentioned, on DI, from Mr. Malackowski, who will walk through who gathered and synthesized all of the information on the economic side of it, and he will walk us

through that.

You also have Dr. Fekete, who made sure that he came up with a testing protocol that was provided to accredited labs to provide the results and make sure he got those results, and also compared that with the OEM, the auto companies, what they provided to those Tier 1.

He will say how those specifications point to doing things in a way that's reliable and repeatable so that you end up with the infringing parts, the domestic industry parts. We'll talk about that's exactly what the hot-stampers do the vast majority of the time. Not always. Sometimes they make mistakes as one would expect in the real world.

So what is that information? Well, as mentioned, we have the Calvert facility down in Alabama, and the Cliffs facilities in the midwest.

As mentioned, Mr. Chris Richards, and Mr. Richards is President at AM/NS Calvert. You will hear what goes on there and how that precursor steel is made.

Then we have more ecosystem here. This is showing the Tier 1 as well as ArcelorMittal research facilities that are in Indiana, and again, these are just the largest of the Tier 1s that are processing the Usibor steel that's here.

Now we get to the DI claims. There are 25 DI

claims. There are three independent claims, 1, 21, and 24, in the '602 patent, one independent claim, Claim 1, in the '227, and Dr. Fekete will walk us through how all of those are met.

If I turn to the next slide.

Here we are back in the body in white to that skeleton. What you can see here is the parts that were tested are the very parts that Usibor and Ductibor were intended for. The parts that were tested were the skeleton, the body-in-white. We have the examples of the parts, including body-in-white. This is what it looks like over here on the left, Your Honor. We have that here, and we will use that here to walk through the technology here.

Importantly, Dr. Fekete oversaw all of this testing that took place.

We'll hear how The East Chicago research center works with the auto companies, and works with the Tier 1 to make sure they do this right so that you end up with parts that meet the limitations of the claims.

So, you see here it's just an example of some of the information that was gathered as part of the testing in the upper ride right, you have what's known as an SEM, which was one type of test that was done on all of the parts, samples and coupons that were cut out and made from the parts. The lime scan that's another type of testing

that was done, and the metallurgy testings that was done. All of this was gathered together and synthesized. This was done for the Tesla door ring, which again, is an example that's to your left.

It's very, very important, I can't overstate this, that we needed a robust testing protocol. Here's where you are going to find a major difference between what we did and what VinFast did.

We set up a robust testing protocol, in advance, that was provided to the labs, and supervised. We received no testing protocol from them. It's not clear that they even followed one or gave one to the labs.

We want to make sure you're testing, all of your testing is done only at accredited labs.

Again, we did it only at accredited labs. They did some at accredited labs.

Then, you want to generate the sum-total and gather all of that information together, literally hundreds and hundreds of pages, that testing data alone fills all of those binders.

Importantly, as mentioned, often the vast majority of parts we tested infringed. When some didn't, we gave that data, too, and Dr. Fekete will explain why on a case-by-case basis what probably went wrong at Tier 1, why that particular part, even though it should and was

meant to, didn't meet the process limitations. We didn't hide anything. We gave all of that information to Your Honor. We gave it all to VinFast.

I'm not sure we got the same courtesy in return.

We then know that the OEMs themselves, Dr. Fekete looked at this, this is the recipe they are given, the OEMs for GM, others, over to the Tier 1, and say, you need to make sure you meet this with the parts that you are making for us. They effectively outsource stamping and the making of the parts.

They will say, this is the recipe that we want you to follow.

How the baker meets that recipe, we work with them, with the baker itself, the Tier 1 will decide how to do this. They want you to ignore the recipe.

If we go now to what is the response of technical DI. What I found is fascinating, ArcelorMittal's expert, Dr. Fekete relies on a single SEM of the image of certain parts to determine whether or not the claims are met; however, reliance on a single SEM image is insufficient. We could not agree more with the second statement, reliance on a single SEM image is insufficient. That's not what we did.

As a matter of fact, this is just one of the number of binders with all of the test results, with many,

many, many images, hundreds upon hundreds of pages of testing data on parts.

So we obviously agree with the second statement. The first statement I was a little surprised they submitted a corrected prehearing brief, but did not choose to correct that statement.

Again, the next slide, turning to economic DI, part of it, we will see that Mr. Malackowski synthesized all of this information and will explain that Arecelor, the licensees like Cliffs and the Tier 1s that get authorized products are not mere importers.

There is a significant, material investment here in the United States both on the precursor products as well as the hot-stamping to end up with the parts that we'll talk about in this investigation. He will talk about how the East Chicago engineering research and development helps coordinate much like a conductor, the entire symphony from the steel to the parts to the cars, working at each step along that ecosystem.

If we turn now just to give you a visual. This is the Calvert facility, and both Mr. Malackowski, the economic DI expert, as well as Dr. Fekete, the technical and infringement expert, will talk about those issues for ArcelorMittal. This is the facility to get the firsthand view of how this works.

To give you an idea of how massive that facility is, that yellow line is two-and-a-half miles long, which I am informed by my colleague, Mr. Reiter, who likes playing with Google maps, that's about the distance from the Lincoln Memorial to the Capitol.

What you can see here is that the raw iron comes in at the port. It is then processed. It is then turned into giant, iron slabs. Those giant, iron rolls then, you will see up at the top, below administrative office, you see CAL number 2 and HDGL number 4. There are four lines that will process the steel turning it into more advanced steel. That line number 4 is the line that handles the manufacture of the domestic industry steel that Usibor, that Ductibor steel.

If we go to the next slide, that's just an image of line 4, not of the whole facility. That's just line 4. It is continuously running 24 hours a day, as one steel slab gets finished, they weld a second steel slab on, so it continues to work continuously around the clock. They do processing on every step of the way to be able to get that steel that we need at the end of the day that will then get shipped out in coils again, re-coiled and shipped out.

It then gets shipped, as we said to the Tier 1, and we secured documents, parts, testimony from the Tier 1 that they follow ArcelorMittal's specification or guidance,

they call it the OEM specification.

Mr. Krishnan will talk about his interaction with those Tier 1, and that when done properly, we end up with the tech DI parts that are here.

Again, as mentioned, the entire ecosystem from the steel to the steel rolls to the DI parts, to being used in cars, with the R&D center that is based in East Chicago being the conductor to make sure that entire ecosystem works together, and you will hear from Mr. Krishnan, from Dr. Atkinson, Mr. Malackowski will explain the economics, Dr. Fekete will will explain the technology, and the tremendous investments that have gone on here.

So that East Chicago facility now seems a little bit small in comparison to the Calvert facility, but it does house 120 engineering, research and development members of the organization. It's a sophisticated research lab. Mr. Malackowski visited this, too, to understand how this all works together. There are at least five buildings on the 42 acres.

We then get, Your Honor, to not only has this work been included in cars, but they have actually won awards for this. That partnership between East Chicago and others, Arcelor working with a Tier 1, working with an OEM has won awards.

Because if you see that part, that door ring,

this is an example they came up with a way later on that they were able to weld the parts together to hot-stamp an entire door ring in one shot.

If you can see the gray on this is the coding, but if you look carefully, there are sort of lines across it. Those are where it was welded together in advance. ArcelorMittal developed later technology that allowed that to occur.

But you will notice along those lines, the reason you see that is because the coating gets peeled away. It could open up rest that goes there, but it's made of, in this case, five separate parts. Sometimes it's four separate parts depending on the particular car that it is going into. So they won a very prestigious award called the PACE Award due to that collaborative effort.

Going to the economic DI, Mr. Malackowski has synthesized all of this. He will talk about the investment at East Chicago of 14 million. The allocated investment, quantitative and qualitative that took place at Calvert, 270 million. There's an additional 40 to 600 million directly attributable here that has been allocated at Cliffs, and then the hot-stampers, themselves, just the under 40 percent of hot-stampers that are doing ArcelorMittal -- using the ArcelorMittal steel, have invested over a billion dollars. That was extrapolated out

of the two-and-a-half billion dollars.

I don't think there's any question that there's a significant economic value-add in the United States based on the technology that Dr. Drillet and his co-inventors invented.

As a matter of fact, they have an expert they put up, an economic expert, Ms. Rowe, she does not challenge the 14 million. She does not challenge the 45 to 60 million. She does not challenge the billion. The only thing she challenges is the $270 million, and based on assumptions that are frankly, incorrect.

So, Your Honor, that sums up the tech and economic DI. I'd like to now touch on infringement, and how ArcelorMittal has proven infringement.

We tested 34 separate parts. 34 parts. Every single part we tested both from vehicles we purchased, as well as the parts they gave us, came back after extensive testing according to a protocol and showed infringement.

Most of the parts infringe every single one of those claims. There were a few that infringed less, but none infringed less than 22 claims.

So if we go to the next slide, these are the automobiles, the parts that were tested, as mentioned, that came out of the VF 8. And for the VF 9, they use the same steel, the same steel manufacturer, the same hot-stampers

in Asia, according to the same specifications. And again, Dr. Fekete will explain that they can get the same results by following the same recipe.

Again, much like all of the other companies, VinFast itself has a recipe that tells me to follow, and if you look at that, it is pointing towards that there will be infringement, and the processing of the recipe is followed and done right of the parts here, and that information has been reviewed as well.

Again, as mentioned, it is the same exact steel with the same exact nomenclature that VinFast is using. Again, here are the parts. There were 34 parts in total, but it's 16 unique parts.

Again, you will see that part of that body-in-white, you are seeing it right there. These are the parts that were tested.

Again, in every single instance, infringement was found.

If we turn now, much as Dr. Fekete does for the tech DI parts, he puts together and synthesizes a process at an accredited lab, gets back the test results, reviews all of it, which is binders upon binders, which is SEM, line scans, and testing that was done.

As mentioned, he has tested 34 parts, testing protocol, accredited labs, getting back and analyzing all

of the materials which fills up, again, binder upon binder upon binder of test results.

Well, it's probably not going to surprise you that -- again, what is their attack? They spent very little time trying to rebut infringement. They have the same treatment again, believe it or not, this is from a different part of the test, Dr. Fekete relies on a single SEM image of certain parts. That is simply not true. He relied on the totality of all of the data that was collected in binder after binder after binder of material.

We agree that reliance on a single SEM image is insufficient.

Again, a corrected brief with a significant error in it.

We go now to the next slide. Let's talk about validity.

What's interesting here is VinFast, in its prehearing brief, spent 150 of its 250 pages talking about validity. It has put virtually all of its eggs in this one basket.

Well, what's interesting is I challenge them to tell us where in that 150 pages they identified any new prior art. They didn't. It was all before the Patent Office previously.

Not only that, but they conveniently do not even

mention the burden, the clear and convincing burden that they have to prove invalidity, and they have failed at that. They don't even mention it, as if by not mentioning it, it will somehow go away.

So what do we have here? Dr. Raabe will address validity issues. The asserted references information about them was before the Patent Office. VinFast has failed to prove that most of these references are even prior art. No proof of public availability. No -- several postdate the invention. As Dr. Raabe will explain, they actually fail to invalidate, alone or in combination, and furthermore, VinFast chooses to ignore the secondary considerations, arguing simply that there is no nexus.

We turn now to the Volkswagen 2006 Passat. It is not prior art.

The thin reed which they hang their case on is the Volkswagen, that it was a publicly-available part back from prior to the invention date, is a Carfax report. The Carfax report on its face says other information about this vehicle, including problems, may not have been reported. That's why many courts simply reject it outright as hearsay. "Not all accidents, issues are reported to Carfax." They say it twice. They say it again, we are disclaiming any liability because we know that that our reports are very often wrong.

As a matter of fact, there's no other thread that they are trying to hang. Why? They took no discovery of Volkswagen. They took no discovery of the first owner. They took no discovery of the second owner. None. They took no discovery of Carfax. All they have is just one hearsay document. Quintessential hearsay that their whole argument on Volkswagen is hanging upon, and that is simply not enough.

As mentioned, not only are they relying on that Carfax, but the Volkswagen information about that 2006 Volkswagen was before the Patent Office, not in one reference, but in four references.

They're saying four reference, but there are five things highlighted. Apparently, the first one got noted twice. So that Self-Study Program 339 was noted twice based on the patent. The examiner, nobody drove a Volkswagen Passat into the Patent Office, but they had extensive information about the Passat before them while considering the claims.

We see here the self-study program. This was a 76-page document, a comprehensive overview of the car body structure of the Volkswagen Passat. There was a Wikipedia article talking about the Volkswagen. It was in French. A machine translation was also provided, 16 pages.

We then have an analysis by Tata Steel, one of

the major steel companies out of Mumbai, India. They talked about an analysis on an A pillar out of the Passat. They talked about a process of hot-coated steel. And then we have a 26-page TNO report you that have the results of testing in connection with the Tata Steel report, and all of this was before the examiner, and Dr. Fekete will discuss it.

We then move to the references for art. What do we have here? They rely on Engels. Your Honor's Order Number 1, VinFast has no evidence of public availability. Moreover, Engels postdates the conception and invention today, and Dr. Raabe will further explain why Engels is insufficient along with the combination.

We then get to Cornette. As we see on the right, Cornette was also at the Patent Office. It was already considered. VinFast's public availability relies on the hearsay declaration of 2019. They did not bring that. Unsubstantiated, no chance for cross, it's unreliable. Regardless, Dr. Raabe will explain why Cornette alone or in combination will not infringe.

Let's move on to Lachmann.

Again, this is allegedly a publication. Regardless, it was considered, and they're relying on a hearsay declaration from ten years ago about what someone supposedly saw at a lecture ten years earlier.

There is a ten-year gap before they even submitted that hearsay declaration. Regardless, Dr. Raabe will explain why Lachmann is not VBL.

We now have Takagi. This is patented, so I will not be talking about how there's no information on publication.

Regardless, Dr. Raabe will explain that Takagi is not valid, no motivation to combine.

We move on to the 103 references. These do not validate in full. Here is Suehiro, we call it. It was before the Patent Office. It's an article by Nippon Steel. Nippon Steel, despite having the article, despite knowing the information, is a licensee of the technology here, and patents here, is an owner of that facility down in Calvert, Alabama. There's not even a hearsay declaration here that they are relying on. They have no information that this is their publication. They're probably going to point to the date that says 2003. That is facially insufficient.

We then go to a GM publication.

Again, Your Honor's Order 31, no evidence of public availability. All right. As indicated, it was before the Patent Office.

They next point to Laurent. Well, Laurent -- not only is Laurent there, four other publications by Laurent are there. The reason for that, Laurent is

incorporated by reference in the patents. This is an earlier patent by ArcelorMittal, and it is actually a patent that was on that base steel with the coating by itself.

So it's actually a patent that involves aspects of the Usibor steel, and it was incorporated by reference, and it is, again, you see, not only provided there four more times in articles and information about from Laurent.

If we go now to the next slide, you will hear about the Vaissiere. Again, before the Patent Office. Again, Your Honor's Order 31, they have absolutely no evidence that this reference was public. And again, Dr. Raabe will explain, much like he will do with all of the prior references, that there's no basis to use this reference.

So where does that leave us? Where that leaves us is their primary reference is information along the bottom, every single one being considered by the Patent Office, and most of them either do not qualify either because they are too late and/or they have absolutely no evidence of the public availability of that article such that it could serve as prior art.

Same with the secondary references they're relying on, number two, so they're left with Takagi and Laurent.

They also rely on three additional references that they say suggest show motivation to combine.

Well, as we discussed, GMW is not publicly available, and FR Laurent is just another Laurent publication that they point to. And again, as we talked about, five different Laurent publications, including a patent which was incorporated by reference, were already considered, and Dr. Raabe will explain how none of this shows a motivation to combine.

If we turn now to secondary considerations, again, as mentioned, there's extensive licensing since this invention has come up where the patents are included in the licensing.

Calvert represents almost ten of the worldwide aluminized steel that's made right here in the United States.

The DI precursor products have increased, the DI direct products have increased.

What you see on the right is both a historical and forecast when it was done, and the incredible ramp-up of Al-Si, which is aluminum silicon, that's what we are talking about, the product, it has increased incredibly, not exactly per this line, but an incredible increase in it. Again, this has received improvement in weldability, corrosion resistance, patentability, safety breakthroughs.

It has won an award here as there were unexpected results as part of this.

You will hear from Mr. Malackowski synthesize all of this, and you will hear witnesses talking about the PACE Award and other aspects of that.

VinFast put forth two more arguments. They raise a 112 argument. I'm not sure they're going to pursue it. Their argument is that "layer" is somehow indefinite. "Layer" is explained throughout the patent. It was a term that was well used and well known in the industry.

As a matter of fact, the very entity that they buy their steel from, POSCO, submitted a later patent, and that patent -- well, what do you see. It's used both in the specification over 100 times in the claims, "layer," in a singular manner to being used in the patents are at issue here.

We may also hear from them about a 101 argument, I'm not going to address that here, to the extent that they raise it, we will address it in the post-hearing briefing. But again, Dr. Raabe will walk through any of those arguments, and again, consistent with real-world industry, nothing is perfect. There are going to be rough surfaces. As you saw earlier, there are going to be impurities. Layer is well understood in the art.

With that, Your Honor, I will touch briefly on

the exclusion order.

What we have, Your Honor, here is that Mr. Malackowski will explain that we are entitled -- if we are entitled, we have proven, and I think we have proven, and we are entitled to an exclusion order with 100 percent bond because VinFast makes cars, not parts, not steel, and did not provide pricing information with respect to that. This is a key market of theirs, and therefore, a cease and desist order is also important. Ms. Rowe, their economic expert, doesn't address these issues at all.

In conclusion, as my hour runs thin, technical and economic domestic industry exists, and we will walk through that methodically. VinFast accused products VF 8, VF 9, infringe, and we will walk through that methodically. The asserted patents are valid. They will not be able to carry their very high burden. With respect to validity issues, an exclusion and cease and desist order is appropriate, Your Honor.

Thank you.

JUDGE BHATTACHARYYA: Thank you very much.

(Off the record.)

OPENING STATEMENT BY COUNSEL FOR RESPONDENTS

MR. MCKEON: All right. Good morning, Your Honor. It's a privilege to be before you once again.

We just heard a lot. I'm going to try to

Ex. 2009
IPR2024-01377

respond to most of that in my short time this morning. But first I want to provide some observations about this case.

You know the complete mismatch between the parties.

Within the one hand, you have ArcelorMittal, which is -- by the way, I am going to refer to it as AM this morning and probably throughout this trial to keep it simple, AM is a multinational steel manufacturing corporation headquartered in Luxembourg, and it is, of course, in the steel business, not in the car business.

In other words, you have VinFast, which is a relatively new car company based in Vietnam, and some of the relevant parts in the car is the steel that doesn't get sourced from AM.

Needless to say, VinFast is in the car business, not in the steel business. VinFast does not manufacture these precursor steel products. VinFast doesn't hot-stamp parts for the cars.

VinFast, Your Honor, is simply caught in the middle of what seems to be a broader dispute between two, big steel companies.

Now, in light of this means-plus-function, I don't know whether AM just assumed VinFast would not come to court and defend itself or maybe show up halfheartedly and dispute the issues halfheartedly. Neither of those

things happened. Here we are at trial.

What you will see, Your Honor, what the evidence will show is that AM's case has completely collapsed under the scrutiny of an ITC investigation. The breakdown actually starts from the very first page of the patents that shows the main figure, Figure 1.

Why is that.

Well, let me first tell you, Figure 1 is really, really important for their case and that's because the logic being that if a particular SEM that they rely on for infringement in the domestic industry matches, looks more like Figure 1, then the logic of their case is, oh, well, then there's infringement, and there's domestic industry.

But if the SEM looks more like Figure 2, well, then, there's no domestic industry, and no infringement. That's how they positioned this case, Your Honor.

Now, leaving aside for a moment the legal propriety of doing that analysis, as a matter of law, what we learned in this case through discovery, and what the evidence will show is that the steel part that gave rise to Figure 1, this patent, did not come from AM or the inventors.

The SEM in Figure 1 on the front cover, Your Honor, was derived from a part created and manufactured and supplied by a company called Magna.

This document, Your Honor, you will see in the evidence, CX-683, this reflects SEM images that AM took from the part that Magna gave AM.

Figure 1 that's in the patent is one of those SEMs in this document.

The layers, the four layers that are critical in this case that form the basis of infringement and domestic industry, and frankly, these patents, were created in the steel part manufactured by Magna, not AM.

Now, their case unwinds further from there, Your Honor, and I'm going to touch upon some of those points this morning, but let me briefly start by introducing my client, VinFast.

VinFast, Your Honor, is a Vietnamese automotive company founded in 2017 based in Hanoi. It's the first Vietnamese car company brand to expand into global markets as well as the first to expand into electric vehicles, which has posited in this case.

The first and only factory at this time in Vietnam in a city about two hours north of Hanoi.

It really is a start-up corporation, and now it has started to make inroads into the United States market.

In fact, you see on this slide an important step in that process where VinFast has committed to invest 2 billion into the construction of an automobile

manufacturing plant in Raleigh, North Carolina.

You see VinFast dealerships, Your Honor, popping up here and there throughout the country.

The models at issue in this case are of course, the VF 8 and the VF 9. The VF 8 was actually the first automobile that sold in the US market.

Now, AM, you have heard about AM. Of course, it's a massive company, that is the result, really, from mergers and acquisitions starting from the acquisition of Arcelor by the Mittal Steel Company in 2007.

Some of the documents you are going to see in this case will just have Arcelor on them, and that's because this merger happened in 2007.

You can see much of the operations are in Europe. It's a vertically integrated operation such that AMs do the mining of the iron ore all the way to the production of the steel. Certainly, many tons of steel on an annual basis.

What you see here, Your Honor, are of course, the two patents at issue in this case .

The specifications are shared, Your Honor, they're overlapping. It's really one specification. Of course, the claims all require the four-layered structure, that's key to the patents, and key to the claims.

The priority date as you were told was back on

October 30, 2006, so some time ago.

Now, what we have produced here, Your Honor, is the priority history of the patents at issue in this case. What we see from the '602 patent, Your Honor, it starts with the original application that claim the '680 patent that was filed in October of 2006. Then we had the '683 patent, and then of course, we have the patent at issue in this case. '602.

Similarly, Your Honor, the '227, we start with the '608, and then we have the '683 and 447, and then we get to '227.

Why are these patents worth considering when Your Honor looks at the evidence in this case.

What we have done here, Your Honor, is we have produced a timeline, and identified all of the prior cases. What you see here is the patent in this case. All what's left is the '680 patent which is based on the filing in October of 2006.

What you see, Your Honor, is that the '680 and the '447, these patents are directed to a process of making hot-stamped steel, a process of manufacturing.

If you look at the claims of those patents, they incorporate the process, the oven temperature, the oven time, the heating rates. This sort of thing that's in the process of manufacturing the steel. That's what you see in

the priority patents.

But you see, Your Honor, what's important in this case is when they come up here, and they're -- they start talking about process parameters, and you heard a bunch of it this morning, actually, about the process parameters. The process is important, and you have heard all of that, and it may be -- it may be very important. But the patents at issue in this case are not process patents, they claim a structure, and what's key is the four-layered structure. That's the patents they claim.

When you come in to court and you start talking about process, I think Your Honor should just note that that's not the case we have here.

Now, the one patent in the priority chain, as you see here, the '683, that is actually a patent directed to a product, like this case. And what you see here is that in an IPR, that patent was invalidated by the Patent Office.

We submit, Your Honor, as you know, the patents in this case share the exact same fate. Patents directed to a structure, a four-layered structure that's been known for a long time, way before the patents, and in fact, it wasn't even derived by AM. That's what your evidence is going to show.

Your Honor is probably familiar from the claims

from the reading, but this shows you what is claimed here. Of course, the four layers are critical, and you don't see a lick of these claims about the process.

This is a process of four layers that you heard about here, Your Honor, this is Figure 1, which shows the layers, and this is an embodiment of the claims according to the patent. You're going to hear a lot about these individual layers and how they're formed.

What you see here, Your Honor, is this Exhibit CX-683, this is the document that was created by AM, and the inventors here, Mr. Drillet and Kefferstein, this is the document that reflects the SEM images from a part made by Magna. This is November of 2005, so this is before even what they say is their priority conception, which is December of 2005, before that. It's of course way before the filing of the patent in October of 2006.

Of course, this part reflects the process that Magna did, in hot stamping the steel and creating the part from Usibor 1500. Usibor, 1500, Your Honor, is the same substance that you are going to see in the domestic industry case that they rely on. This was done way before the patent and Figure 1 was from a product created by Magna.

You can see, of course, there's no dispute about that. And you can just see by observing the two figures

side by side, you have the same sort of features at the top with the valleys and the mountain areas, if you will. And you are going to hear more about that, Your Honor, in the evidence.

I want to start talking about validity, Your Honor. It is a case about validity. You will recognize it when you see the evidence.

When you see the evidence here in this case, it's a really compelling case particularly because the patent they decided to bring into this courtroom is a product patent, and the four layers that are essential to the claims have been around way before the patent, and you are going to see the evidence on this, Your Honor.

You see here on the timeline, of course, since the 1980s, you see hot-stamping was a technology, manufacturing technology used for automobiles way, way back when. In fact, hot-stamping with Usibor 1500, will you hear that a lot in this trial, Your Honor, Usibor 1500, which is the basis of the domestic industry case, the Usibor 1500, the aluminum-coated steel has also been around long before the patents in the case.

You will see here, Your Honor, in the lower left, Arcelor itself was making Usibor 1500 for hot-stamping since 2001 way before the priority date of this case.

We know, of course, that Magna investigated the different process parameters to come up with the four layers, which became Figure 1 of the patent. Of course, Magna sourced the steel from Arcelor, which was the Usibor 1500, but others, Your Honor, you see on the timeline, which you will hear in the evidence, also hot-stamped Usibor 1500.

You see here, Your Honor, Chrysler was working with Magna as well to hot-stamp Usibor 1500 for use in vehicles in the US market, and of course, the evidence will show that the Volkswagen used to hot-stamp the Usibor 1500 was used -- the hot-stamped Usibor 1500 was used in the passenger cage of the 2006 Passat, which was created, Your Honor, and on sale, the evidence will show, in 2005, again, before the priority date.

All of this prior art you see here, the prior art, my friend on the other side reviewed that, I'm not going to review it in detail. That's going to be in the evidence. All of the prior art references, Your Honor, are before the filing date of the patent of 2006.

Now, what you see here, Your Honor is an internal document from AM. The timeline I just went over, Your Honor, is not even being disputed in this case. This is their own internal document. What do you see here? You see here in the document itself, that 2001 was the first

user of the precoated, prehardened steel on bumper beams. This was the A-Pillar. What did it use? It was hot-stamped Usibor 1500. This was going on in 2001.

Then in 2005, you see here a specific mention here of the precoated PHS, the prehardened steel using Usibor 1500 on platform parts. Meaning this is part of the cage, the passenger cage, what you see over here.

This happened, Your Honor, in their own documents in 2005. Look what you see there on the side. It's a Volkswagen Passat, 2005. This is their document, Your Honor.

So they come in here, Your Honor, and say there is no evidence of prior art. Into one knew about it. The Patent Office didn't know about about it. Maybe the Patent Office did know about it. What we know, the car is prior art and confirmed by their own internal documentation.

Let me start on the Passat because it is quite compelling. Of course, the CARFAX report you heard about this morning and saw in the briefing is one piece of evidence in a larger set of evidence. You see that here. The Vin number ending in 1049 matches the assignment records. This document demonstrates that the car was on sale in August 2005 in Stanford, Connecticut. I remember Connecticut because I'm from Connecticut. It was on sale in 2005, Your Honor.

The evidence is very clear about that.

We also see, of course, the timeline I just showed you from the internal document, but you see here another document. You can see the evidence.

Again, this is an AM document. What do you see here? Well, you see a discussion of the VW Passat, and what do they say? The Passat was a major breakthrough. The Passat was a game-changer, and from then, the race was on. Their documents. That's what they say about the Passat. What is the Passat? It is the Usibor 1500 hot-stamped steel with four layers.

We're dealing with a case that are product patents. The case is over with the Passat, Your Honor, and the evidence on this is absolutely compelling.

You see here, Your Honor, evidence you can see in the case of the four layers. This was prepared by Dr. Bradley, VinFast expert in this case. You can see here, the four layers of the SEM that was prepared.

If the SEM, and compared to Figure 1 is good enough for their entire case, well, it's certainly good enough on the prior art side of the case, Your Honor. This evidence is compelling that shows you what frankly their internal documents already tell you, that the Passat is a game changer.

All right. It is -- the race is on, and this is

the SEM that reflects the four layers. It's a game-changer because it was the four layers that they say they invented.

Again, what you see here, that's exactly the layer that shows up in the Passat.

Now, Your Honor, the Magna and Chrysler interaction, which I earlier -- let's talk about that briefly.

Now, what you see, Your Honor, is a document that you will see in the evidence. This is a control plan from Magna. It's a Magna document, and it has the temperatures and the oven times, all of the details to make the part. Again, this is a Magna production facility, and it's Magna that is creating the control plan to make a part.

You see this goes back to 2004 as the original date of this document. This part, Your Honor, was made by Magna in Eagle Bend, Tennessee, and, of course, it was done by hot-stamping, and of course, Your Honor, we see here, Usibor 1500. Usibor 1500 is the entire basis of the domestic industry case. All of this staph was happening in the prior art for care case. All of this was happening to create the four layers that they say is critical to their patents.

You are going to hear the testimony of the deposition of a former Magna employee, Mr. Jacob Webb. He

is going to confirm that the process they had in 2004 continued on to this day, so there's a connection between what they were doing back then for Usibor 1500 and what they're doing now for the domestic industry case.

Now, you heard a bit about this from my colleague on the other side about the conception date. Now, the October 2006 date is the filing date of the patent that at issue in this case, the '602 original patent. That's the filing date. We have the 2000 -- August 2004 date on the '680.

The control patent.

Their view is, oh, well -- their view is that this hot-stamped part was actually in August of 2006, and they actually conceived the invention in December of 2005. That's what you just heard in my colleague's opening, and that's what they're going to argue in this case.

A couple of things about that. Number one, Your Honor, this is nothing about the Passat. The Passat is prior art. The dates don't work out for them.

That's problem one.

Problem two, Your Honor, is the Magna document that's Figure 1, that the document created Figure 1 of the patent, the Magna part was in November of 2005. That's before December of 2005. That Was Magna's creation. Magna's product.

But when we look at the evidence that they rely on, Your Honor, to get to this December 2005 date, even if they -- even if they move forward with this argument at trial, what they presented, Your Honor, is a set of documents with severely redacted and significantly redacted portions.

You're not going to be able to rely on these documents, and certainly not going to be able to bring someone to this trial to testify about the details of any particular meetings that happened because they made a decision, a technical decision, to redact this, and this is what they're stuck with, and this is all they have, a bunch of generalization about timeline, but no details, and not only -- this as a matter of law is not enough.

They have to have corroboration, corroboration of the details of what they purportedly invented. They made a decision to claim this as privileged, and the problem has failed to that decision. These documents tell you nothing. What else are we going to rely on? They rely on a document generated by an intern, documents generated after the alleged conception date, after the alleged conception date.

We just think, Your Honor, that this is not good enough.

Again, this whole argument about this December

2005, Your Honor, doesn't apply to the Passat. It doesn't apply to a lot of the prior art we have on the slide. This really is a matter of the Chrysler disclosure.

But even still, the evidence is going to fail. They're not going to be able to prove another date. They're stuck with October 2006, Your Honor. That's what the evidence is going to show.

Now, in the prior art, Your Honor, here's a listing of it. We're not going to go through the details.

Needless to say, the four layers, which of course are critical to the claims, we're going to show you these four layers in the prior art.

Now, there's some discussion about well, the Patent Office considered it. The Patent Office has a boxcar of prior art. I was a patent examiner years ago, and when push comes to shove, they are going to come to court and take a broad view of their claim and a broad view of their patent. What's going to happen is the same thing that happened to the '683 patent that the Patent Office invalidated in the IPR. The result is invalidation. You can see the four layers from each of those references here on slide 27, and that's what the evidence is going to show.

You are also going to hear testimony, Your Honor, confirming what I'm telling you this morning, which is the four layers is prior art. It was done before the

patent. This is from the inventor, Mr. Drillet, who acknowledges, had to acknowledge that the four layers were created by the hot-stampers even in 2005.

Now, they're going to come in, well, it was random. Couldn't really do it with certainty. We didn't know. Everybody didn't know what they were doing. They didn't know anything. That's what we told them. That is the kind of thing you're going to hear.

What I respond to that, Your Honor, what we're going to say, what our evidence will say, well, these aren't inventive patents, these are not process patents, they are product patents. Is the patent for your patent? This is acknowledged by Mr. Drillet, the product with four layers are prior art.

Your Honor, the case is over with that.

Now, what do they say? Well, one of the things that they say, and that we didn't hear it this morning, so maybe they're going to drop this, Your Honor, they say, oh, well, this prior art is not enabled, is what they say.

In fact, Your Honor, they're pretty aggressive about it, Your Honor. They say all of the prior art is not -- is not -- their experts will tell you, maybe they'll drop this, I don't know, none of it is enabled.

We just think, Your Honor, with respect, it's far-fetched. The prior art is certainly enablement, Your

Honor. Quite literally, the Volkswagen Passat was driving around Connecticut in 2005. It's enabled. The car was driving around, and they made that.

Of course, Your Honor, we see some details in these disclosures that you're going to see in the evidence. For example, these are figures from the patent, the '602 patent. We see here some specification in the process, three to six minutes at 930 degrees Celsius for a thickness of 1.5 -- up to 1.5 millimeters. This is their process detail.

If we look at some prior art, we are going to see this in the evidence, Your Honor, well, it gives you the same kind of process detail. The same kind of process detail. It fits squarely in the same parameters that you just saw in the specification. The thickness is 1.5 millimeters, you have five to ten minutes at 889 to 950C.

The prior art is certainly enabling, and that's what the evidence is going to demonstrate.

Finally, the 112 issue. This issue is a product of their making, because when they come into court and they base their case on the domestic industry, is it Figure 1 or is it Figure 2, that's their case, well, then, they have created the zone of uncertainty that's the problem with 112, because now we're basing the scope of the layer on comparing it to a figure, and walk right into the zone of

uncertainty, that, of course, the case law deals with when you deal with 112 problems.

So it's not that the layer is an automatically indefinite term because it's in one patent, it's indefinite in all patents.

Now, they're applying in this case -- Your Honor, I'm going to look at Figure 1 and Figure 2, and make a judgment call, particularly when you hear the evidence. At one point in time, Figure 1 is one SEM, and Figure 2, at another point in time, is another SEM. The reason it's important is because it's based on their analysis, based on the way they're applying the claim.

With that, Your Honor, I'm going to jump into the noninfringement issue.

You have heard about the two vehicles, and my friend over here did mention the VF 9 vehicle. Your Honor, there's zero evidence we're going to see an VF 9 in terms of the technical implications. There's no SEMs you're going to see. There's no analysis you're going to see. It's just going to be a "me-too" type of proof.

We just think, Your Honor, that that's just not enough evidence. They have got to show you the technical infringement. They're not going to be able to do that because they just didn't do it. They didn't do any SEMs, they didn't do anything with respect to the SEMs and I

think what you are going to see in this case, what my colleague already admitted candidly to you, you're going to see situations where suppliers of the parts, where sometimes they're not going to be Figure 1 of the patent, in their parlance. I'll talk about that when I get to DI.

It's not the case, and I think the term I wrote down here, if you don't do it right, you don't get the four layers, is what my colleague said. If you don't get it right, you don't get the four layers. So we know that the process is real important. It's not claimed, for sure, but it's real important to get the four layers, as they indicated in their opening this morning and in their briefing.

Well, they didn't do any analysis on the parts for the VF 9, so we think that's a matter of burden of proof. The VF 9 is not infringing for that reason. There's no shortcuts or quick off-ramps for them.

I have already mentioned sort of the analysis from the expert that they have presented in this case, Your Honor. This is it. This is the Figure 1 versus Figure 2 analysis. That's what they have done to make their case here.

The case law, Your Honor, we think is very clear. Infringement is a very clear standard compared to the claim. We don't compare it to the figures of the

patent. It's in the claim. The word "layer" has a plain and ordinary meaning in this case, Your Honor. The parties have agreed on that. You are going to hear some testimony of what it means.

The testimony is, well, it's a continuous and homogeneous layer. You will hear testimony that that's the plain and ordinary meaning. But you have got to look at the claim as interpreted by, ultimately, Your Honor, but here, we have a plain and ordinary agreement of the parties.

Figure 1/Figure 2 analysis, which is the basis of their case, Your Honor, I think just fails as a matter of law

Your Honor, this is a diagram of the VinFast VF 8, and the red areas are the areas that are part of the infringement case.

What you see here, Your Honor, on the right-hand side is a piece of one of the pillars that AM's expert is relying on. You see three red boxes. The parties in this case have been calling those coupons. They're really just little cutouts. What they rely on in this case, what you are going to see, is basically an SEM in one of the cutouts.

These parts -- that ruler is about 7 inches, I believe, so the part is about 12 inches in length. It's a

small part. We have these coupons, and you have a single SEM that they're relying on.

You see another view, Your Honor, here on the next slide.

Again, you have this coupon, they have this SEM created from the single coupon. And these dimensions, Your Honor, are quite small. A hair is 60 microns, so we're dealing with human hair type of dimensions here.

So for each part AM says infringes, what they rely on, Your Honor, is a single SEM, that's the scale of a human hair.

Now, we heard something about, oh, they have binders and binders of SEMs. Well, Your Honor, we're going by what their experts rely on. Their expert report relies on a single SEM for this part. That's what they're relying on. Then they're doing that for, you know, a large part, and saying, there's four layers based on the single coupon SEM.

So, you know, if you -- if the plain and ordinary meaning is continuous and homogeneous across the layer, across the part, we submit, Your Honor, the amount of evidence of the single SEM image on the order of a human hair, Your Honor, is not enough for them. They have got to at least give you some analysis or statistical analysis of how this applies more broadly across the part, not one

little dot, if you will. That's what the evidence is going to show that they rely on.

We think that's a failure of evidence.

You see here, Your Honor, some more images that they rely on for the VF 8 part, the SEM that was used.

Again, Your Honor, if continuous, homogeneous is the plain and ordinary meaning that's going to govern in this case, and of course, what you see here is a lot of Swiss cheese and non-continuity in the SEM images. You are going to hear more about this in the evidence, Your Honor.

Dr. Bradley also prepared some SEM images of the VF 8 part, Your Honor, and you will see his work here. You can really -- you don't see any defined layers at all from what we can tell.

We just think, Your Honor, it's a failure of proof problem on the VF 8, and of course, they have nothing on the VF 9.

Let's talk about the domestic industry products, Your Honor.

So you heard about this. My colleague did a really good job explaining sort of the larger picture of the domestic industry case, but you have heard about the DI precursor products. They're listed here on the left-hand side of the slide.

The one that's relied on most, Your Honor, you

will hear about most in the trial, is Usibor 1500. I have already said that a couple of times today, and that was done way before the products in this case. Hot-stamped Usibor 1500, creating four layers. Prior art before the patent.

So all of these different variations of precursor products are at issue in this case.

You just note right off the bat, Your Honor, that they have different labeling because they're different. So it's important to keep in mind that you can't extrapolate what might happen to one stamped part, Usibor 1500, with respect to the 2000. We have to be more robust in our analysis. On the right are the products in this case. You don't have a patent covering the product, a patent covering the product with the precursors. Until they're hot-stamped, the layers don't form. It's the hot-stamping where the action is.

And then on the right, you have the DI products, call it the DI red box hot-stamped product. Of course, they end up in the automobiles. You see here some of the OEMs that are at issue in this case.

You heard about the precursor products of manufacturers, Your Honor. There are just two on the DI side of the case.

You heard about Cleveland-Cliffs, and you heard

about the joint venture between AM and Nippon Steel. Those two companies are creating the precursors that are supplied to the seven Tier 1 hot-stampers. They supply a lot more than that, but the evidence in this case, Your Honor, you're going to see -- the only evidence you are going to see are the seven hot-stampers. These are the hot-stampers that were subpoenaed that supplied evidence in this case.

That's important to keep that in mind, the seven here that were subpoenaed, they don't have -- AM is not going to give you any information about all of these other hot-stampers. Turns out there's 51 total. So there's 51 other hot-stampers that you are not going to get any information about that are also part of the supply chain with respect to the domestic industry case.

We think it's a gaping hole in their evidence, Your Honor. You are not going to get any evidence that's over 60 percent of the domestic industry that they rely on.

Now, we summarized, Your Honor, attempted to summarize here in an easy, digestible way, the problematic analysis that they have moved forward with on the domestic industry side of the case.

What you see here, Your Honor, are the 13 parts that they rely on for domestic industry, and each one is manufactured by one of those hot-stampers. Magna, frankly, is the majority of this. Then you have an alleged DI

precursor product, and you have single SEM images that their expert relies on for each one of these.

This is the state of the record, and this is what you are going to hear about.

One of the problems out of the gate here is what we have highlighted in yellow are four parts. These parts, an SEM was created from each of these, and AM admits, acknowledges, that they're nonpracticing.

So four of the 13 here are not practicing the patent. So of course, they cannot be included. They can't be included in any domestic industry economic analysis even though they were.

But more fundamental than that, Your Honor, this goes to the point that you can't take a shortcut on the technical domestic industry case because we know that -- and as my friend acknowledged this morning, sometimes, you know, the method -- they don't do it right, is the language that was used. And we see that here, they don't do it right.

These domestic industry products are non-fungible. Some may be covered under their analysis, Figures 1 and 2. We know that four, under their own analysis, are not covered.

So there's no, oh, it's Usibor 1500; therefore, it must practice the claim when it's hot-stamped. We have

evidence that that's, in fact, not the case. Their evidence. That's a fundamental problem, Your Honor, we see with their case.

We also see some disconnect because we don't have a clear identification of the precursor product that's used by the hot-stamper.

To break down their evidence, we know of one case, Your Honor. In the case of Honda, the information we have, and the discovery we have on that is it was produced not by these two, the Calvert Company and Cleveland-Cliffs, it was produced by a third precursor supplier, and there's no analysis on the economic side.

We know one of the parts was produced in Canada, which cannot be the basis of an economic product. This is the breakdown of the domestic industry case, and we just think it's a fundamental failure of proof.

This is an example, Your Honor, of the SEMs, they're created for two of those four parts that are not covered, under their own admission.

You see the SEMs, they say it doesn't look like Figure 1. This looks more like Figure 2. That's the analysis that they have given us in this case.

What they say is for manufacturing anomalies, they say. I think, just to quote my friends, is they just didn't do it right. The point is just because it's a

hot-stamp Usibor 1500, doesn't mean you are going to get four layers. You can't draw that conclusion, and that's what they're doing in this case.

We have created this graphic to simply illustrate the problem.

So the left to the right. On the left we have the two precursor suppliers, and they're supplying to the hot-stampers. We know, I believe the number -- I heard this morning it was 37.3 percent is the seven that were subpoenaed making the 62.7 percent -- 37.3 and 62.7 percent. 62.7 were not subpoenaed. We have no information about that. You have no technical domestic industry on most of the domestic industry case.

And because we know that you can't assume, because it's a Usibor product that's hot-stamped, that it meets the four layers, it's a failure of evidence. You can't consider any of the domestic industry numbers with respect to the non-subpoenaed parties.

Then we go into the subpoenaed parties. We know that some of these parts, the vast majority of the parts, when you hear the evidence, Your Honor, weren't even tested. Weren't even tested.

Then the ones that were tested, as we've already discussed, there are many that are not even practicing the patents.

So this is a fundamental breakdown of the domestic industry case, Your Honor. Some of the numbers are large, to be sure. We saw some of the numbers on the slide from my colleague this morning, but you've got the technical case. The technical case has to be tied to the numbers. They can't do that. They are not going to be able to prove that in this case because of the breakdown of the analysis that they performed. It's just an evidentiary gap, Your Honor, that is not solvable based on the record.

Then finally, Your Honor, I want to take a moment to introduce our witnesses.

Ms. Nguyen is the VinFast CEO, the SMO. She is based in Hanoi, she will be here, Your Honor, later in the week to provide background about VinFast's operations.

Dr. Brown was formerly an MIT Professor, and he went on to a consulting firm, and started his own firm where he is now.

He will be here to explain his views on the technical issues in the case and the domestic industry and infringement, and of course, validity.

Dr. Bradley, Your Honor, is a research scientist at the University of Hawaii. He is actually renowned in material testing including the imagining he did with respect to the NASA Stardust mission where the spacecraft collected materials from the tail of a comet, and then came

back to earth, and the person at NASA that was called to do the analysis on the precious samples taken was Dr. Bradley. He collected it, prepared the samples and imaged the samples.

So he's very renowned in the field, and he's going to explain his experience, and also the imagining work that he did.

Of course, you know Ms. Rowe, Your Honor, who will be providing some of the economic aspects of the domestic industry issues and provide some testimony.

With that, Your Honor, we look forward to presenting our case.

JUDGE BHATTACHARYYA: Thank you.

Let's take a 15 minute break, and hopefully try to deal with the sound issues.

MR. MCKEON: Thank you, Your Honor.

(A recess was taken at 11:15 a.m., after which the hearing resumed at 11:42 a.m.)

JUDGE BHATTACHARYYA: Please be seated. On the public record.

Is everything fine now?

Thanks, everybody, for your patience. We'll add about 15 minutes on the end of the day to make up for the technical issues.

Are we ready to start?

MR. HERSHKOWITZ: Yes, Your Honor. But before we call our first witness, parties have an agreement that at the start of each party's case-in-chief, they can introduce depositions and the exhibits from folks that are not here. So, for example, those Tier 1s.

So with your permission, I'd like to invite Mr. Lee up to make that introduction into the record of that material.

Thank you.

JUDGE BHATTACHARYYA: Sounds good. Thank you.

MR. LEE: Your Honor, Sung Bin Lee on behalf of the Complainant.

For the record, the Complainant submitted by e-mail this morning its list of deposition designations, including the agreed-upon third-party designations and accompanying exhibits.

At this point, I'm ready to hand off to the Court, if I may approach the bench?

JUDGE BHATTACHARYYA: Yes, please.

I have before me a list of deposition designations entitled "Complainant ArcelorMittal's submission of witness testimony by deposition designation from March 3rd, 2025."

I understand there's no objection to admission of the exhibits on this list.

MR. COLAIANNI: No objection.

JUDGE BHATTACHARYYA: Then the exhibits on that list are hereby admitted.

(Exhibits, as submitted by counsel and reflected in the attached index, were received into evidence.)

MR. LEE: Your Honor, would you like me to read off the names of the deponents on the list for the record?

JUDGE BHATTACHARYYA: It's not necessary, but if you would like to do it for clarity of the record, I have no problem with that.

MR. LEE: I'll just read off the names. Mr. Jacob Webb, Mr. Brad Pepper, Mr. Brent Yeager, Mr. James Chronister, Paul Belanger, Jennifer Hong, Rick Nafziger, Haroldo Kavamura, Praveen Prakash, Nguyen Thi Lan Anh, and Ronald Kefferstein.

JUDGE BHATTACHARYYA: Thank you, and please make sure that Ms. Peters receives a copy of that list as well.

MR. LEE: Will do, Your Honor.

MR. HERSHKOWITZ: Your Honor, Benjamin Hershkowitz on behalf of Complainant, ArcelorMittal.

We'd like to call our first witness. I'd like to note for the record, the first two witnesses the native language is French, not English. They have agreed to testify in English, but just so we have a crutch in case, we'll have a translator available will sit in the

translator seat. Her name is Ms. Lily Olm. I don't know what procedure you want, if you want to swear in the translator first, and then the witness, and then we can proceed.

JUDGE BHATTACHARYYA: Yes.

I'll swear in the translator first.

Good morning, Ms. Olm.

Whereupon--

LILY OLM,

a French Interpreter, was first legally sworn to interpret.

MR. HERSHKOWITZ: Your Honor, if I may now call the first witness,

Mr. Jean-Luc Thirion, to the stand.

JUDGE BHATTACHARYYA: Good morning. Could you please raise your right hand.

Whereupon--

JEAN-LUC THIRION,

having been first duly sworn, was examined and testified as follows:

JUDGE BHATTACHARYYA: Thank you.

MR. HERSHKOWITZ: May I begin, Your Honor?

JUDGE BHATTACHARYYA: Yes.

MR. HERSHKOWITZ: Thank you.

DIRECT EXAMINATION

BY MR. HERSHKOWITZ:

Q. Mr. Thirion, could you please introduce yourself to the Judge and the court reporter?

A. I'm the Jean-Luc Thirion, and I am the CEO of the global research and development organization at ArcelorMittal.

Q. Where are you based, Mr. Thirion?

A. I'm based in France.

Q. Mr. Thirion, do you have a business degree?

A. I have a business degree, an MBA, on top of an engineering degree.

Q. How many years have you been with ArcelorMittal?

A. 34 years.

Q. What are your current responsibilities as CEO of the global R&D organization at ArcelorMittal?

A. My role is to work with the external customers to understand the trends and the needs of the market, and to work with internal customers to align the innovation policy with ArcelorMittal.

Q. What position did you hold at ArcelorMittal prior to becoming the CEO of the global R&D organization?

A. I was already a member of the leadership team of the research and development organization at ArcelorMittal, and my role was general manager in charge of product research and development.

Q. During what time period did you hold the

position of general manager of products at the R&D organization?

A. In 2009 and 2024.

Q. What did you do in that role, what were your responsibilities?

A. My responsibility was to lead the product R&D activities, especially defining the strategic point, working with external customers to define -- or to understand and define their needs. Also, working with internal customers to align our innovation policy with their strategy.

Q. Which products were you responsible for as general manager of research and development?

A. All steel products.

Q. What markets did those steel products cover?

A. The steel product cover multiple markets, multiple applications.

First of all, automotive, which is a major market for the steel industry, but also construction, packaging, metal processing, and energy.

Q. What are ArcelorMittal's lines of business?

A. We have two lines of business.

First, steel products, and then I run all mining.

Q. What industries does ArcelorMittal serve in its

steel business, line of business?

A. We are serving quite all the applications of steel, first of all, automotive, but also as mentioned, construction, energy, packaging and processing.

Q. What industries does ArcelorMittal serve in the United States?

A. In the United States the same industries are served. The breakdown between the regions might be different, but in the United States, the major market is automotive.

Q. Does ArcelorMittal have a significant operations in the United States?

A. Yes, indeed. Through ArcelorMittal North America, we have a number of sites, more than 20 sites in the United States. For instance, a huge production plant in Calvert, Alabama, but also production of iron in Corpus Christi, Texas.

We have mentioned also the production of laser welded blanks in Detroit, Michigan, and the last example is our research center in East Chicago, Indiana.

Q. Why is there a research center for global R&D in East Chicago?

A. The automotive market is extremely important in the USA, and our resources in Indiana is an historical research center dedicated especially on R&D.

Q. How many research and development centers does ArcelorMittal have worldwide?

A. 14 research centers.

Q. How many employees work for ArcelorMittal's global research center?

A. Currently, we have 1700 employees.

MR. HERSHKOWITZ: Your Honor, if we could just go on the confidential record for a few questions.

JUDGE BHATTACHARYYA: Yes.

Going on to the ArcelorMittal confidential record.

Could counsel for both sides please confirm there are no unauthorized people on their sides.

MR. HERSHKOWITZ: We are confirmed, Your Honor.

JUDGE BHATTACHARYYA: All right. You are confirmed for your side, or for both?

MR. HERSHKOWITZ: Both.

JUDGE BHATTACHARYYA: Thank you.

(Whereupon, the trial proceeded in confidential session.)

Ex. 2009
IPR2024-01377

O P E N S E S S I O N

BY MR. HERSHKOWITZ:

Q. How many ArcelorMittal research and development employees are based in the United States?

A. We have around 150 employees in the United States.

Q. How many of those ArcelorMittal US-based research and development employees are dedicated to the automotive industry?

A. Most of them are directly or indirectly dedicated to the automotive business for product research or for process research to support the development in the automotive business.

Q. Where are those US-based employees located?

A. The vast majority of the employees are located in East Chicago, Indiana, research center.

Some of them are closer to the customers, for instance, in the Southfield, Michigan or in Nashville, Tennessee.

Q. Who can explain US research and development organizations' activities in more detail?

A. Bala Krishnan who leads the activities in relationship with carmakers, and Mark Atkinson, who is the head of our research center in East Chicago can give more details on that.

Q. Generally, what kind of products does ArcelorMittal provide to the US automotive industry?

A. We provide to the automotive business flat products, which are produced in coils.

Q. Are there any other types of products that are provided?

A. Yes. We produce also intermediate products called laser ready blanks, which are produced in Detroit by our subsidiary, ArcelorMittal Tubular Blanks.

(Clarification requested by the Realtime Stenographer.)

Q. Generally, how are flat products used in automotive applications?

A. Flat products and coils are used for the so-called body-in-white. That means the frame, the structure of the vehicles. They are used also for hang-on parts like doors or hoods or tailgates.

Q. Are Usibor and Ductibor examples of flat steel products?

A. Yes.

Q. In what ways does ArcelorMittal's US-based research and development organization support the Usibor and Ductibor products?

A. Our US organization supports Usibor and Ductibor in at least three ways.

The first one is contributing to the development

of new product. That means organizing the industry on trials with our plants in Calvert, for instance.

The second point is to support the daily production in Calvert of this product in order to improve for the betterment of the plant, and the third way is in direct relationships with our external customers to promote the product and organize improvements of new product.

Q. You mentioned Calvert. Is the Calvert facility considered an internal client?

A. Yes. Absolutely.

What we mean with internal customers are the business unit's operations and professional organization of our business.

Q. You also mentioned external clients. Who are the external clients for the ArcelorMittal US-based research and development organization?

A. Typically, external clients are carmakers, companies like General Motors, Ford, Toyota, but also Tier 1 suppliers. Tier 1 suppliers are companies like Magna or Gestamp. They are in charge of producing parts or models and to ship these parts and these models to the carmakers.

Q. Now, are you an expert in hot-stamping?

A. I am not.

Q. At ArcelorMittal, were you ever involved with

developing processes or process parameters for hot-stamping?

A. No.

Q. Who at ArcelorMittal can explain the scientific details of hot-stamping?

A. Pascal Drillet is our senior scientist in this domain, and he can explain that.

Q. Who can explain how ArcelorMittal's Tier 1 customers, those hot-stampers, conduct their hot-stamping operations?

A. Bala Krishnan can explain that.

Q. How does the US research and development organization interact with external clients such as the Tier 1s?

A. So, first of all, our teams in charge of the customer contacts promote the products; that means that they showcase the performance of our products, and once the customers are convinced they are in charge of organizing the approval actions, that means testing the products for the carmakers.

Q. Who can explain the technical and commercial aspects of these interactions?

A. The commercial aspects can be explained by Peter LeBlanc who is the chief marketing officer of ArcelorMittal in North America.

Q. Who can explain the technical aspects of these interactions?

A. Technical aspects can be explained by Bala Krishnan.

Q. Did you review the two patents being asserted against VinFast for this investigation?

A. No, I did not.

Q. Does ArcelorMittal have other patents on aluminized steel?

A. Yes. We have broad portfolios of patents in this domain because this is a regular domain for ArcelorMittal and for the market.

Q. Does ArcelorMittal license its patent portfolio on aluminized steel?

A. Yes. We license especially some competitors.

Q. Who can speak to ArcelorMittal's licensing practices for its aluminized steel?

A. The licensing policy can be explained by Peter LeBlanc.

Q. Switching gears, what are the trade names for ArcelorMittal's aluminized steel sold in the United States?

A. Usibor and Ductibor.

Q. In what industries are Usibor and Ductibor sold into in the United States?

A. Mostly for the automobile business.

Q. Are there several different types of Usibor and Ductibor?

A. Yes. There are several types of products, depending on the mechanical properties that we want to reach on the final parts. For instance, the main product is called Usibor 1500, meaning that we reach 1500 Mega Pascals on the final product.

Q. Who at ArcelorMittal can best explain the details on the marketing and sale of the Usibor and Ductibor products in the United States?

A. For marketing and sales, Peter LeBlanc.

Q. Who at ArcelorMittal can best explain the metallurgical properties of these products?

A. Pascal Drillet will explain the metallurgical.

Q. At a very high level, how are aluminized Usibor and Ductibor made before hot-stamping?

A. The base material goes into a pot, which is filled with liquid metal, liquid aluminum, and the liquid aluminum is then cooled down quickly. So the product is coated by mag aluminum.

Q. Where are the Usibor and Ductibor products manufactured in the United States?

A. It is manufactured in Calvert, Alabama.

Q. Who can best explain the manufacturing process for Usibor and Ductibor at Calvert?

A. At Calvert, Chris Richards is the CEO of the plant.

Q. We have mentioned Usibor and Ductibor for a while. So what is Usibor?

A. Usibor is a product dedicated to hot-stamping. This is a product which is coated with an aluminum silicone coating. And this is a product which after hot-stamping allows to reach a very high level of strength.

Q. How is Usibor used in cars?

A. It is used in cars to protect the passengers, to protect the cage of the vehicle, in case of a side or forward crash.

Q. What specific parts of an automobile is Usibor used for?

A. Multiple parts, but very important parts for this product are the A-pillar and the B-pillar.

Q. What is Ductibor?

A. Ductibor is also a product for hot-stamping coated with aluminum silicone, and this is a product, which is more ductile than Usibor. That means it is more deformable than Usibor.

Q. What parts of an automobile is Ductibor used for?

A. It is used for the lower parts of the A-pillar and B-pillar because it allows to absorb the energy and

avoid transmitting the energy to the passengers.

Q. You mentioned both Usibor and Ductibor can be used to construct a B-pillar. How does that work?

A. In many cases, it is done through the technology of laser welding.

Q. At ArcelorMittal, are laser welded blanks the same thing as another name for that tailor welded blank?

A. Yes.

Q. What is the benefit of laser welding Usibor and Ductibor into a single part from a business perspective?

A. For the carmakers, it is a way to put the right metal with the right thickness at the right place. It's a way to save metal, to optimize the use of the metal. So optimize the cost, improve the passenger safety, improve the weight of the vehicle.

Q. What is the benefit of combining Usibor and Ductibor in a single car part for the occupants of the vehicle, the passengers?

A. Really, it's a drastic improvement in terms of passenger safety, but also as it saves -- reduces the weight of the part, it allows to improve, for instance, the fuel efficiency, and to reduce the CO2 emissions.

Q. Does ArcelorMittal hot-stamp Usibor and Ductibor commercially?

A. No, we don't.

Q. Who does the hot-stamping of Usibor and Ductibor?

A. So hot-stamping can be done sometimes by carmakers, but more often by Tier 1 suppliers.

Q. Does ArcelorMittal provide the Usibor and Ductibor to those Tier 1s?

A. Yes. We provide the Usibor and Ductibor in cars to the Tier 1 or in laser welded blanks.

Q. Does ArcelorMittal consider Usibor and Ductibor to have been successful products for ArcelorMittal?

A. Yes. It has been a very significant business success. For instance, in 2023, in North America between ArcelorMittal and our licensees, more than half a million tons of this product was sold.

MR. HERSHKOWITZ: Thank you, Mr. Thirion.

Your Honor, I pass the witness.

JUDGE BHATTACHARYYA: Thank you.

MR. COLAIANNI: Your Honor, I'm going to have a few questions on the ArcelorMittal confidential record, so perhaps we can just take care of that now.

JUDGE BHATTACHARYYA: Okay. We're moving on to the ArcelorMittal confidential record.

Could you please confirm there are no unauthorized people present on your side of the room.

MR. COLAIANNI: Yes. That's confirmed, Your

Honor.

JUDGE BHATTACHARYYA: All right. Thank you.

MR. HERSHKOWITZ: All set, Your Honor.

JUDGE BHATTACHARYYA: Great. Thank you.

(Whereupon, the trial proceeded in confidential session.)

O P E N S E S S I O N

MR. HERSHKOWITZ: Your Honor, we're just getting the next witness who was sequestered until his testimony.

Please, bear with us for a moment.

JUDGE BHATTACHARYYA: Very well, thank you.

MR. HERSHKOWITZ: Your Honor, to start the next witness, we don't need to be on the confidential record. We've invited everybody back in, but we should probably confirm the sign.

JUDGE BHATTACHARYYA: Yes.

MR. HERSHKOWITZ: Thank you.

JUDGE BHATTACHARYYA: We're on the public record.

MR. REITER: Good morning, Your Honor.

JUDGE BHATTACHARYYA: Good morning.

MR. REITER: Mark Reiter for the Complainants.

We are now ready to call our next witness, Dr. Pascal Drillet.

JUDGE BHATTACHARYYA: Good morning, Dr. Drillet.

MR. REITER: If I may approach, Your Honor.

JUDGE BHATTACHARYYA: Could you please raise your right hand.

Whereupon--

PASCAL DRILLET, PhD,

having been first duly sworn, was examined and testified as

follows:

THE WITNESS: The truth and only the truth.

JUDGE BHATTACHARYYA: You're supposed to swear or affirm that the testimony you will provide will be the truth.

THE WITNESS: Yes, the testimony I will provide will be the truth.

JUDGE BHATTACHARYYA: Thank you.

(Off the record.)

MR. REITER: Your Honor, Dr. Drillet is going to testify in English. But as you can tell, he's a native French speaker. We have the translator. If there are things that he needs help with, if it's okay with the Court, he may ask.

JUDGE BHATTACHARYYA: Yes. Of course.

MR. REITER: Okay. Thank you.

DIRECT EXAMINATION

BY MR. REITER:

Q. Good morning, Dr. Drillet.

A. Good morning.

Q. Could you please introduce yourself for the Court. What is your name?

A. My name is Pascal Drillet.

Q. Where do you live, Dr. Drillet?

A. I am living in France.

Q. Where in France?
A. East of France, near Metz.
Q. Is that the western part of France or the eastern part of France?
A. Eastern part of France.
Q. Near the German border?
A. Near Germany. Not very far.
Q. Where are you employed?
A. I'm employed by ArcelorMittal.
Q. What is your current position at ArcelorMittal?
A. My current position is I am a program manager of the development of press-hardened steel for steels and coatings.
Q. Program manager for press-hardened steel?
A. Yes.
Q. How long have you worked for ArcelorMittal?
A. I started to work for the company in 1991.
Q. Was it called ArcelorMittal then?
A. No. At that time, it was UC, which was a laboratory near Paris. So after that, we became Usinor, Arcelor, or ArcelorMittal. We changed a lot of the name of the company.
Q. Many different iterations of the company?
A. Sorry.
Q. I said there was many different iterations, many

different names of the company?

A. Yes.

Q. Before we get into the substance of your testimony, I'd like to introduce you to the Court a little bit more.

Could you explain to the Court your educational background.

A. Yes, I can summarize my education.

I started with a master in physical chemistry from the School of Chemistry of Rennes. After that, I have also made master in engineering from Rennes also.

I finished with a PhD in material science and engineering at the School of Chemistry of Rennes.

Q. When did you get your PhD?

A. In 1991.

Q. What did you do after you received your PhD?

A. I come to UHC, the company, just after my PhD.

Q. And that company was later acquired through a number of transactions and became ArcelorMittal?

A. Yes.

Q. What are your current responsibilities as R&D program leader for hot-stamping?

A. Concerning program, I am responsible for the development of new steel and new coatings dedicated to press-hardened steel. Also, an understanding of the

process, we'll see that later as hot-stamping and the specific process regarding --

(Clarification requested by the Realtime Stenographer.)

A. The process we use regarding that in our company. ArcelorMittal is quite a hot-stamper.

Q. Let's continue on and talk about your patents or the problem that you faced when starting with the patent. Let's go to the next slide, please.

Do you recognize these two documents, Dr. Drillet?

A. Yes.

Q. What are they?

A. The two patents we have filed on Usibor.

Q. Are you one of the inventors on this patent?

A. Yes.

Q. Let's talk a little bit about the work that you did that led to your invention. What were you doing, and what did the company ask you to do that got you on this project that generated the two patents that are at issue?

A. So after the original patent, we had seen this solution had probably a very interesting potential for the automotive market.

Q. Let me interrupt you. What are we seeing on the screen right now? What is on the screen?

A. On the screen is -- it is the original patent.

Q. The original patent?

A. Yes. At that time, we had only a few parts made by hot-stamping. So the company asked me to try to increase the number of parts for the automotive market particularly to try to put this kind of part in the body-in-white, and we will explain later for the body-in-white. In the beginning, it was made --

(Clarification requested by the Realtime Stenographer.)

Q. Can repeat your answer, please. In the beginning, it was made -- Dr. Drillet, can you repeat what you just said?

A. My last -- all the answer?

Q. Just the last part of your answer.

A. The last part. Yes. Okay. Sorry.

At the beginning, the main part made by Usibor was also this original patent was bumper beam of the car.

Q. Bumper beam?

A. Bumper beam. Few parts. The challenge was to increase the market.

Q. You had been using the name Usibor.

What was Usibor? What was Usibor?

A. Usibor is a coating solution with steel glaze to make -- if you are talking about Usibor 1500. Usibor 1500 is steel with aluminum pre-coating.

Q. When did the company ask you -- what year did

you start on this project when the company asked you to increase the sales?

A. So I have -- I entered this topic between the end of 2003 and the beginning of 2004.

Q. Let's go to the next slide, please.

What do we see on this slide, Dr. Drillet?

A. This one is an example of the body-in-white I discussed previously.

What you can see -- what is the body-in-white, first. The body-in-white is the skeleton we have around the area of the driver and the passenger in order to give sort of a safety area for crash, mainly for crash.

So on this picture, you can see that you have two kinds of product, two kind of colors. The Usibor is on red, and the aim of the Usibor is to give an intrusion property during crash to avoid any damage inside the area of the driver and the passenger.

Q. What is the other color; what type of steel is that?

A. The other color is the Ductibor type of -- Ductibor 500 point here. The name of this material. This product is more tight ductile. It is more ductile. The aim of this matter is to absorb the energy during a crash.

The red part is outward intrusion, and the other part is for absorption part.

Q. How are all of these parts put together for the body-in-white? How does the carmaker assemble those?

A. The Usibor with the Ductibor, it is also welded blanks application.

Q. So you were explaining that the steel is very strong, high-strength steel. I think we have a video --

A. Yes.

Q. -- that shows this.

Can you explain what this shows.

A. It shows the capabilities, the very high capability of this high-strength material to resist deformation and also to resist any breakage during the crash.

You have an example there of a three bending test, which is also a crash test. You can see that this part resists a break. You have no breakage of the part.

Q. Is it important that the part -- the steel not break?

A. Yes. Yes. For the safety of the driver.

Q. So when we are talking about this high-strength steel, we heard something during the opening about 1500 Mega Pascals.

Can you explain what that is in terms that I can understand.

A. Just to give you an idea. So you have the

translation of 1500 MPa, parts per square inch on this graph, just to imagine what kind of pressure is it, it should be like to have 1500 elephants on your head.

Q. Elephants. I thought that might be something that you weren't expecting.

So that's -- how many pounds per square inch does that equate to?

A. 225,000. 225,000 pounds per square inch. It's written here.

Q. I know that you're used to talking about metric system and all, and I appreciate the conversion.

Earlier, you had mentioned 22MnB5 steel.

What is that?

A. What is the 22MnB5, is quite old steel. It's like patented by ArcelorMittal. The nomenclature of this quality of steel is also quite old. What does it mean 22MnB5? It means that 22 carbon. 22 that means 00.22 percent of carbon. Mn means you have manganese inside the chemistry. B is for boron. You have boron inside. And 5, the number 5 gives an idea of the concentration of manganese to divide by 4.

Q. Is 22MnB5 steel ultrahigh-strength steel?

A. No. This metal is not a high-strength steel. This metal became a high-strength steel during hot-stamping. During the austenization of the material.

Q. Now, you also referenced a coating on this 22MnB5 steel. What do we see on this next slide?

A. So on this slide, we have a cross-section of the pre-coated steel. On the -- you can see the steel at 22MnB5 steel microstructure on this graph. It's a ferritic-pearlitic steel.

(Clarification requested by the Realtime Stenographer.)

A. The pre-coating is made by hot dip. So during the transfer of the steel inside the bath, we have a chemical reaction of dissolution/precipitation of the surface of the steel, which led to a layer you can see here on the screen with the dissolution/precipitation layer. And the rest of the coating is a composition of the bath.

So when we are talking about aluminized coating, we have to take into account both layers. So this dissolution precipitate reached Al-Si.

Q. Al-Si.

I'm looking at the slide, and I think I noticed a typo. My fault.

Is this before or after hot-stamping, this image?

A. Yeah.

Q. Which is it, before hot-stamping or after hot-stamping?

A. This one exactly is a pre-coated steel at

delivery before any hot-stamping coming from our aluminizing line -- using the aluminizing line.

Q. So now, in trying to meet the challenge that your company put to you, to develop this steel, what were some of the challenges that you had?

A. So when we were asked to present this solution for the carmakers market, we had to -- three main challenges.

The first one was safety. We have seen in France this kind of matter of the crash in test.

The second one is corrosion against -- the protection against corrosion because we have to give certain durability to our customer.

The third one will be due to the CO2 emission. So the carmaker are asking for, at that time, for a huge weight reduction of the cars. So the use the highest strength steels help us to get to weight reduction.

Q. I see weldability and paintability. What do those have to do with it?

A. This one, the carmakers, weldability, paintability and so on, parameters dealing with these properties because, of course, we need certain protection against corrosion, we need to have a good paintability of the steel, coated steel.

As we have to mount different kinds of parts on

the body-in-white, now, you have to mount these parts by spot welding process. So that means that this kind of -- we need to provide metallurgy which is spot weldable.

Q. So let's go to the next slide.

Can you explain --

JUDGE BHATTACHARYYA: Sorry to interrupt, Mr. Reiter.

As you are going through the slides, it would be helpful if you could identify exactly which slide you are asking questions about.

MR. REITER: I'm sorry, Your Honor. Judge McNamara made me do that, too, the last time I was here.

I'm bad at that.

BY MR. REITER:

Q. So we're on slide 12 now.

Could you explain, Dr. Drillet, what this slide is showing with respect to the product before its process.

A. This slide is showing us the pre-coated step before any treatment.

So at this step, the aluminizing coating, we have at the surface of the steel prevent any corrosion or oxidation with the process.

Q. What about during processing on slide 13, the next slide; what does this show?

A. This one, it's the step, we have the

hot-stamper. So we can see here that during the austenization -- so austenization is made at the very high temperature, so we have to prevent the surface of the steel from any oxidation during this step.

So the purpose of this aluminizing pre-coating solution is to prevent, protect, the surface of the steel for -- from any oxidation.

Q. Now, did the coating provide or create any problems for the processing?

And perhaps we can look at slide 14, the next slide.

A. So concerning the -- here there are two examples.

One was concerning the hot-stamper.

Another concerning the carmaker because the press-hardened steel product, we have two kinds of customer, Tier 1, which is the hot-stamper, and the last customer, which is the carmaker.

So concerning the hot-stamper, as the coating has to be transformed inside the oven at a very high temperature, we have this risk to deposit a lot of liquid, and this was aluminum, mainly the aluminum coating will melt during austenization. We have to be careful not to put an excessive deposition of liquid to the surface of the rolls of the hot-stamper.

So the main -- the first topic we have to be careful.

Q. Okay.

What about the welding that's shown here on slide 14?

A. On the second one, it's the carmaker are asking us a certain range of spot weldability, so it is necessary for us to ensure that the material we give to the carmaker will be spot weldable in the good range requested by the carmaker.

Q. This statement of problems, where does that come from? What are we reading from?

A. This concerning the spot weldability?

Q. Yes.

A. That we -- the spot weldability would have come from the steel -- sorry, the coating surface, and you will see that later. But the coating surface at the end of the whole process, the full austenization, the quenching of the part as well, is very important for the use properties of the carmaker, the spot welding and painting because everything is done at the surface of the coating.

Q. So let's talk about the process a little bit, if we could go to slide 15, please.

What does slide 15 show, Dr. Drillet?

A. This one, it's a scheme. You have already seen

the scheme. The scheme, which describes the different steps of the full hot-stamping process.

The first step is to -- for us -- to deliver us a coil, a pre-coated coil that you can see here at the hot-stamper. The hot-stamper will be a carmaker, because some carmakers are also hot-stampers.

So the coil has to be cut into blanks with specific shape with regard to the final part. For a pillar, the shape of the blank will be close to the shape of the pillar. The blank has to be transferred into the oven at a high temperature, around 900 degrees C.

In order to transform the ferritopearlitic microstructure into the full microstructure. So the first step, which is important to control of the hot-stamping, which the reason why we talk the austenization because we have to make the full austenitic state of the steel. It is the first austenization we have inside the oven.

The second one is the coating. You can imagine that the coating at such high temperature will completely transform -- will be completely transformed.

As soon as we are finished with this fast austenization, we exit the blank from the oven into the press.

Q. What happens at the press?

A. So the press is -- it's a quite complex

phenomenon because inside the press we have a simultaneous reaction between quenching, the transformation of the austenite, martensite on deformation. We make the press, and we quench at the same time.

Q. What is quenching? What does that mean?

A. The quenching, it's transformation of austenite to martensite.

Q. Austenite to martensite.

Is that at a high temperature, the quenching?

A. The quenching, no. It will ensure that we have -- the quenching is made into the austenitic state, so it's at a high temperature for the steel.

Q. During quenching --

A. During quenching, you have to wet or cool the dies in order to ensure that the critical temperature will be high enough to get martensite.

Q. What is important about martensite? Why is martensite important?

A. Martensite, when we talk about ultrahigh-strength steel, ultrahigh-strength steel is given by the martensite, by the martensite state.

Q. Do you have a video that briefly walks us through the hot-stamping process?

A. Yes.

Q. If we could start the video, and you can

explain, Dr. Drillet, what we're seeing here based on your description.

So what is this?

A. This is a video from the stamper.

Q. Let's start it back up, please.

A. What we can see on this movie, the first coil, delivering coil, pre-coated coil, you can see here the cutting step of this coil into blanks.

Q. So what's happening here, are they shaping the parts?

A. Yes.

You can see it has a specific shape.

So these blanks are transferred into an oven by a robot.

Q. What kind of oven is this?

A. This one is a tunnel oven with bars inside.

Q. How long is this type of oven?

A. Between 25 and 50 meters. It's quite long of the tunnel oven.

(Clarification requested by the Realtime Stenographer.)

Q. So we saw the blank come out, and what -- that's after the heating; is that right?

A. After the heating, the blanks is transferred into the press. You can see here the water cooling device inside the dies of the press.

Q. What is happening at this point besides the forming inside the press?

A. Inside the press, we make the part, and we made the martensitic transformation.

Q. Is this also the quenching?

A. Yes. It's the quenching.

Q. Then we can continue the video.

A. But when we open the dies, then we have at the end the part with a good shape.

Q. Thank you, Dr. Drillet.

So we can move to the next slide, number 17.

What are we seeing on this slide, Dr. Drillet, slide 17?

A. On this slide, it's a summary of what I have explained previously. You have on the left-hand side, you have already seen this picture before. It was -- pre-coated Usibor with the steel coating. You can see that during martenization and quenching, at the end we have the coating of the top of the image on the right-hand side. You can see that the coating microstructure is completely different from the delivery one.

You can see also, that the microstructure of the coating is completely different also once we are -- it's martensitic steel microstructure.

Q. The image at the bottom, the martensitic steel,

is that the coating or is that something different?

A. It is a coating. So we have a part of the steel below, but we much of this dimension is a cross-section is the coating.

Q. The image in the lower right-hand corner, is that the coating?

A. Yes.

Q. The image in the right-hand corner or lower?

A. No, the lower is martensite.

Q. Is that the steel or the coating, the martensite?

A. The martensite, it's the steel.

Q. Now, you've been talking about how hot-stamping has been around.

Did you invent hot-stamping?

A. No.

Q. Hot-stamping has been around.

Did you invent Usibor, the pre-coated steel?

A. No. Usibor, the pre-coated steel has been invented by the team before me.

Q. You identified some problems from your patent.

What does this slide show, slide 18?

A. So concerning the thing we had to solve particularly due to the fact that we have increased also the number of hot-stampers involved in this process.

At the beginning, we had only one hot-stamper, which for the original patent.

We have decided to increase this market. We have to increase the number of hot-stampers involved in this. So with different kinds of ovens, different kinds of welds inside.

So the first thing we have to solve is deposition, when you talk about that before, is the deposition of liquid on the rolls, and you can see it here on the scheme on the left-hand side.

Q. When does that liquid -- when does that problem occur?

A. This liquid is coming from the coating during the fast transformation. The problem is, as you can see here, on the bottom left-hand side, excessive transfer of liquid to the surface of the rolls. This one is --

(Clarification requested by the Realtime Stenographer.)

A. You can see here in the excessive transfer of liquid at the surface of the coils.

Q. Excessive transfer of liquid to the surface of the coils.

What about on the right side? What are we seeing on the right side of the slide?

A. On the right side, it's another -- so this one is an issue that we have at the hot-stamper. On the

right-hand side, it's an issue we have at the carmaker. You can see here the influence of the top surface of the coating. Because just the picture below, you can see the rough surface, the smooth surface, with regard to the time inside the oven of -- we could have different kind of microstructure at the surface of the coating as well.

When the coating is too smooth, it is impossible to get a good paintability. Then you observe that you have completely by the scratch test, you can see that the paint doesn't -- we have no adhesion of the paint on the smooth surface, which is completely different when we take the rough surface, when we succeed in getting this surface.

So what does it mean? It means that we have to control the coating surface microstructure to ensure that it is paintable, for example, for the carmaker.

Just an example of the influence of the hot-stamping parameters on the final product.

Q. How did your patent resolve these problems? What did you do to solve these problems?

A. What we have seen during the works made also in our labs is that we have probably a harder microstructure to control. This is the microstructure we have on Figure 1.

What we have also -- this one is targeted microstructure because for example, when we are talking

about paintability, we have seen that we have this kind of layering, that if you are talking about the top layer on Figure 1, we have to get this kind of top layer that has good paintability.

So we have to find that we had to target specific coating microstructure, this four-layer microstructure, and we have also explained the way to obtain this four-layer microstructure.

Q. Does that four-layer microstructure happen every time Usibor is hot-stamped?

A. It's --

(Clarification requested by the Realtime Stenographer.)

Q. Do you get the four-layer structure every time Usibor is hot-stamped?

A. No. Unfortunately not.

Q. So let's talk about your work to solve these problems in the invention.

So who did you work with to do this? Who was Ronald Kefferstein?

A. So Ronald Kefferstein was the person really in charge of the relationship between the customer, hot-stamper and the carmaker and the R&D, and the research.

Q. What about Dominique Spehner, your other coinventor?

A. Dominique Spehner was involved in the quality

control of the coating at the exit of the aluminizing plant.

Q. You and Mr. Kefferstein and Mr. Spehner, you had the Usibor, and you had these problems. How did you -- what equipment did you use? How did you solve the problem?

A. As the main problem we had is the fact that ArcelorMittal is not a hot-stamper. So we know that to better understand what is happening, what is the influence of the different parameters on the final result, we have to invest in some simulators, hot-stamping simulators in order to make our own trials.

Q. Are these computer simulators?

A. No. It is, you can see here, tool simulator.

Q. That's what's shown on slide 22, the simulator?

A. This one is historical simulator, and we have much better simulators now, but what we can see here it was quite simple, and we have an oven that makes austenization, and we have some tools, water tools, but it was flat tools. We made only blanks at that time.

You can see on the right-hand side, that it was also manual transfer between the oven to the press. Here, you have an idea of the size of the sample we have provided.

Because what we have done during also all of these years, we have produced a lot of blanks for a lot of

customers in order to have feedback in order to keep them -- have them test our material. So we have delivered -- we are still delivering these kind of samples. We had right around -- between 2 and 3,000 blanks per year to all of the hot-stampers or carmakers, mainly the carmakers.

Q. So let's go to slide 23, and maybe you can -- what does this slide, slide 23, show?

A. This one, it's an example of the delivery we have done to Honda in February of 2024.

Q. If we can go to slide 24, what are we seeing here? What are these images?

A. We have sent two sets of material to Honda. The first set of material of 1.5 millimeter is steel thickness. Honda was mainly interested in spot weldability of our material.

After our first delivery, Honda was very satisfactory by the result. They obtained good spot weldability. So they asked us to make an additional delivery of 1.2 millimeter. Unfortunately, we don't succeed in getting good weld range.

Q. Were these blanks that you sent, were they commercial products for actual cars?

A. Sorry?

Q. Were the blanks that you sent, were they for

real cars; were they real parts?

A. No, no.

So on this kind of simulator, it is only for prototype, or mainly to get the feedback of our customer.

Because we like to know the spot weldability, the corrosion resistance, the small crash behavior.

Q. So if we go to slide 25, please. I think you said the 1.5 millimeter blank worked well?

A. Yes.

Q. What about the 1.2 millimeter?

A. 1.2, we don't find any range of spot weldability. We know that it's kind of -- this kind of issue is mainly due to the surface. So we have made some cross-sections. We have made some analysis of our lab in order to understand the difference we have between the good material, the bad material, and we have the bad material that we had a quite disturbed surface of the coating. You can see there on the left-hand side, we have quite a uneven surface with a different kind coupon with a lot of porosity also. So it is probably due to this very unstable surface that we had.

Q. The part on the left side, was that Usibor that was hot-stamped?

A. Yes.

Q. The left-hand side, was that a good or a bad

part?

A. The left-hand side --

Q. The left-hand side, is it a good part or a bad part?

A. No, no. It's not a good part.

Q. But it was hot-stamped with Usibor?

A. Yes.

Q. So after you did this testing for the Honda part, what did you do next?

A. What we have seen that because in that case, we have had to change the steel thickness. We thought at the beginning to have made the same trial at our lab.

So we had discovered that there is a very sensitivity of the steel thickness on the final result, so that means that there is probably a use sensitivity to the heating rate, because of course, the heating rate inside the oven is different from -- with regard to the steel thickness. It is easier to heat 1.2 with regard to the 2 millimeters, for example.

Q. Let's go to slide 26.

Can you explain what you mean by the heating rate.

JUDGE BHATTACHARYYA: Mr. Reiter, we should break for lunch soon. If this is a good stopping place, that is fine, or if you'd like to do a couple more slides,

that's also fine.

MR. REITER: We can break now.

JUDGE BHATTACHARYYA: Okay.

All right. We're on break for one hour.

(Whereupon, at 1:02 p.m., a lunch recess was taken.)

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A F T E R N O O N S E S S I O N

(2:05 p.m.)

MR. REITER: Thank you, Your Honor. Ready to proceed. I think it's on now. She's giving me a look. I didn't even start my first question.

CONTINUED DIRECT EXAMINATION

BY MR. REITER:

Q. Welcome back, Dr. Drillet. Thank you.

So I think before the lunch break, we were up to slide 26, and you had explained about the heating rate, and how important that is.

Could you explain for the Court what we see on slide 26, Dr. Drillet.

A. Yes, I could.

On the slide, you have a scheme of the curve in orange, right. We have to try to follow during austenitization particularly, during the fast transformation of the coating because we have things as soon as we make liquid, we have to ensure that the liquid has been fully transformed to solid.

We follow the solid use of the system, the solid use curve of the -- it was determined by the certain range of the heating rate of the temperature.

(Clarification requested by the Realtime Stenographer.)

Q. Is the heating rate an important parameter in

developing the four-layer coating?

A. Yes.

It's key in this case, yes.

Q. So let's go to the next slide, slide 27.

And we have been talking about this coating, and the layers. If you could step us through the layers, starting, I guess, with the base steel, the steel substrate, and work our way to the surface, Dr. Drillet.

What do we see on slide 27?

A. Well, on this slide, you have an illustration, again, of the targeted microstructure we like to get for the weldability, and we have seen this kind of microstructure, particularly, the microstructure of the coating of the surface, which is key.

We have seen that this microstructure, this particular microstructure is suitable for all in-use property of the carmaker. The weldability, the formability and paintability and so on.

To determine -- because after that, we of course we had to determine what kind of process parameter we have to control because we have also process parameter at the steel shop at the cold stamper.

If we made a full investigation around more than one year in order to find the best -- the most important parameter.

Q. How does one understand the different layers? How did you discern between one layer and the next layer?

A. We can see here the targeted microstructure it's a layer one separated into different layers. You can see here, (a), (b), (c), and (d). This one is a scanning scope picture, but of course, we have made some more deeper analysis of this layer. This kind of picture is not enough alone.

Q. Is the SEM enough to tell whether or not the microstructure is the desired microstructure?

A. It gives us -- sorry, it gives us an idea of the stratified microstructure, but it is not enough to have an idea of the chemical composition of this layer.

Q. So you had mentioned that there are different parameters that are important.

If we could go to slide 28, please.

Could you explain what those parameters are, sir.

A. So on this slide, we have two kind of parameters important to control.

The first one, the parameter to control at our aluminizing plant at our delivery.

We have seen, for example, with the other case that the coat -- the steel thickness is very important in the final result. If we don't take into account the change

in steel thickness.

We have seen also concernings of pre-coating that we have to -- steel pre-coated with a coating with a very homogeneous thickness on both sides because the steel is coated on both sides. It was the main challenge we had at our aluminizing plant.

Now, concerning the hot-stamper. We have two kind of parameters. The parameters of the oven, because of -- of course, we have with regard to the hot-stamper, we have different kind of oven. We could have tunnel oven as we have seen on the movie before, but we could also have a pizza oven. We can have a different type of oven, with of course, different kinds of parameters with different kinds of heating rate.

We have seen that two points inside this oven is also very important for the result at the end.

The other important step with the quenching on the dies. Of course, the transfer times has to be controlled to ensure that we make all of the deformation in the austenitic state to have a fully martensitic microstructure.

The cooling rate is also important because if the critical cooling rate is not high enough, there is a risk to miss the fully martensitic fast transformation.

One thing to discover what is also in this

pattern, the effect of the deformation on the quickly cooling rate.

Q. Dr. Drillet, there's a lot of parameters here.

How did you and your coinventors figure all of this out?

A. We have -- make some common -- for example, the critical cooling rate is inside the pattern, yes. It is an important parameter, like the others.

Everything that is described in the patent.

Q. You had mentioned before the lunch break on the simulator you have in your lab, you had made many thousand of blanks?

A. Yes.

Q. A lot of trial and error?

A. Yes.

Q. So in this process, were you working with -- did you teach the hot-stampers what you learned?

A. In Europe, it was a very, very important step at the beginning of the story because at the starting point we had only one hot-stamper, as I explained this morning. It was Sofedit, it was quite easy to -- Sofedit is the name of the company.

Q. Sofedit, S-O-F-E-D-I-T.

A. It was the hot-stamper. We had to make the first part.

Of course, as we had to increase the market, we had to increase the number of new incomer into the hot-stamping of pre-coated because the hot-stamper is that new. What was new was the hot-stamping of pre-coated solution.

We had to make a lot of work with this new incomer in order to teach them about a very important parameter, which is the process window. The range of the way to succeed a good part at the end.

Q. Let's turn to the next slide, slide 30, which is CX-683C.

What is this document, Dr. Drillet?

A. This document is a very good example of that. This one is not a Magna document. It is an ArcelorMittal document.

Q. Who prepared this document?

A. This thing has been done by our team in our lab.

Q. At ArcelorMittal?

A. Of course. Of course.

For example, in the case of Magna -- Magna had a part to test. It was for her prototype part in that case. So we have given some advice to Magna to make its part -- their part. Magna sent us -- sent to Ronald Kefferstein and was in direct contact with Magna.

Q. Sorry.

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In the upper left-hand corner we see Mr. Kefferstein's name; is that right?

A. Yes.

Q. Why is he on this document?

A. He's on the document because there is no -- there were no relationship -- direct relationship between our lab and the customer.

All documents coming from R&D never goes to a customer. It is the first time to take this document to see if they could take some data to some advice to the customer, but this kind of document has never been sent to any customer, of course. It is an internal document.

Q. What was the problem that Magna was experiencing with the process that you had told them?

A. The problem of Magna was quite different than the problem of the number of layers, as we are talking about up to the beginning. The problem of Magna was the breakage they had on one part of their process. What we have done, we have made first an analysis in our lab.

Q. What kind of part was it?

A. It was a B-Pillar.

Q. The B-Pillar, what was it made from?

A. The B-Pillar was made from Usibor aluminizing coating with 1.6 millimeter in thickness.

Q. Did your lab do tests on the B-Pillar that you

received from Magna?

A. Yes.

We have made some analysis on this part. This is a figure you know.

So what we have seen, we have seen that it is not a problem of coating itself. While this coating, what you have also seen it was very nice for us because Magna has made a process with -- leading with the upper side of our process window in terms of thickness, and because you can see on this picture that alloying of this coating is quite high. Due to that, we have determined the upper limit of our process window.

But for Magna, it was not the issue of Magna. So by discussing, by working with Magna, they said that they should have probably an issue of dew point, a regulation of the dew point inside the oven. So that changed, we adapted, we make new trials with dew point.

Q. Were the new trails based on information that --

A. Yes.

Q. -- you provided to Magna?

A. Yes.

Based on our examination. But Magna has never obtained this kind of result because for us it was not a problem of coating. It was a problem of control of the atmosphere.

Because the breakage we had was a problem of delayed fracture due to hydrogen, is has nothing to do with the coating.

Q. Delayed fracture due to hydrogen.

A. Delayed fracture due to hydrogen.

Q. Did this study and analysis that you did based on the information that you had given to Magna, did that inform you and your inventors about what to do?

A. It was interesting to complete our analysis we had done previously because in that case, as Magna, as tests -- high -- long time, for example, in that case, we have taken this example as a parameter of the process window.

Q. Just so the record is clear, Dr. Drillet, this SEM image that we see on the screen, who prepared that SEM; was it Magna or was it your lab?

A. No. It's our lab.

Q. What did you do with this SEM image? Did it -- what does it represent as far as your patent goes?

A. This image is an image we have decided to take for the patent, for different kinds of reasons. For the first one, we thought that it was the most easy picture to understand what is the four layer.

On the second fact, it's that we have also taken this picture to make a more deep analysis of each layer,

because, of course, it is easier to make an analysis of each layer if the coating is at the upper limit, it's thicker than for thinner materials in terms of coating.

Q. So after you did this analysis of the part you received from Magna, what happened next?

A. After that, we are always convinced that we have all data enough to try to patent our process window. The way to get this four layers.

So due to that, we had a meeting with the patent attorney at that time.

Q. So what do we see on slide 36, CX-893?

JUDGE BHATTACHARYYA: I believe there's an objection. Can you hold it? There's an objection.

MR. ZHANG: Your Honor, I think -- so we discussed this last night, and there's a shield and sword issue here where the documents were redacted, and we were not given the contents, the underlying contents under the redactions.

So I think this testimony, if he's reading off what's here, we're fine with it. But if he goes anywhere beyond that, they could have waived the privilege previously during fact discovery. They didn't. They made that strategic decision not to. They should not be allowed to do that here.

MR. REITER: Your Honor, we have no intention of

getting into the substance. This is just to corroborate that there was activity that was going on towards the patent. That's very apparent from the face of the documents.

Dr. Drillet will testify to that.

But we're not getting into the substance. We're not waiving privilege.

MR. ZHANG: Your Honor, the concern is we don't even know what the meeting is about.

So he is adding additional information beyond what's on the document by saying that it's part of him trying to patent the invention. There's nothing there about his invention, right.

So I think he is going beyond what is on the document itself.

MR. REITER: Your Honor, I think they can argue this in their post-hearing briefing, but if you look at the cover of the patent, Oblon filed the patent. Oblon filed. There is a series of documents that come next, e-mails and so forth and bills that deal with this work.

It's just a corroboration of the activity that was going on. It's the same exact type of information that would be on a privilege log. It identifies that there were communications between the client and the attorney, and those communications were ongoing. They relate to the

patent. Dr. Drillet, Mr. Spehner, the other coinventor is on this document, and we'll see other e-mails and other documents with the other inventors without the substance.

So there's no waiver of privilege. There's no sword/shield. This is very much just a corroboration of the timeline that went from the conception, the final puzzle piece, as we just saw, with that TAV document that Dr. Drillet talked about until the filing of the patent.

MR. ZHANG: Well, Your Honor, you will see this with the next five or ten slides, around there, that all of the documents were redacted. There was no information that we could gather from those documents other than the date and the name.

So if they want to do that, that's fine, but going beyond that to say, these documents relate to his invention, and his trying to patent the invention, that's not information we were privy to during fact discovery. That's information they chose to withhold from us, and they should not be adding it now.

MR. REITER: Your Honor, we --

JUDGE BHATTACHARYYA: Was there disclosure that these documents related to his invention?

MR. REITER: I'm sorry, Your Honor.

JUDGE BHATTACHARYYA: Was there a disclosure during discovery that these documents relate to his

asserted invention?

MR. REITER: We produced these documents, Your Honor, during fact discovery.

Your Honor in fact had an order that allowed them to redepose Dr. Drillet after the documents were -- the documents were produced the evening after he testified in Brussels at his deposition.

They asked his coinventor, Mr. Kefferstein about some of these documents, but Your Honor ruled that since Mr. Kefferstein was not a corporate witness, not a 30(b)(6) witness, they could have more time with Dr. Drillet. They never followed up with that.

JUDGE BHATTACHARYYA: Okay.

MR. ZHANG: Your Honor, we didn't follow up because we looked at the documents. They identified the documents as supporting conception and reduction to practice. We looked at them, and we decided that we didn't need to because those documents do not corroborate their alleged conception and order to reduction practice.

JUDGE BHATTACHARYYA: Understood. Let's take just a short break. I'll be back with the guidance.

MR. REITER: Okay.

(A recess was taken at 2:25 p.m., after which the hearing resumed at 2:26 p.m.)

JUDGE BHATTACHARYYA: I'm going to allow the

witness -- the questioning to go forward. The witness may testify generally that these relate to his invention. I understand there was an order allowing him to be deposed further on documents that had been produced after his deposition.

To the extent it goes into substantive content or well beyond that, then Respondents can renew their motion to strike.

MR. ZHANG: Thank you, Your Honor.

MR. REITER: All right. Thank you, Your Honor.

BY MR. REITER:

Q. You understand -- you were explaining? Okay.

MR. REITER: Just wanted to make sure he understood what was going on.

JUDGE BHATTACHARYYA: I think you should be careful in your questioning.

MR. REITER: Of course.

JUDGE BHATTACHARYYA: I don't want to take up too much time on this, so we're going to go through the questions. Respondents can seek to move to strike certain testimony if it appears to go beyond what I've discussed.

MR. REITER: No. Totally understood, Your Honor.

BY MR. REITER:

Q. Dr. Drillet, turning back to slide 36, and

CX-893C, who are the people that are identified on this slide, just who are they?

A. So the people who are involved in this meeting that was involved, Dominique Spehner and me, and our internal lawyer, which is Dominique Kaplan, are the Oblon lawyers.

Q. Let's go to the next slide, 37, please.

A. These are just the confirmation of the application.

Q. Who is Mr. Treanor? Do you see that at the bottom, who signed it?

A. An Oblon lawyer.

Q. Again, at the top, Mr. D. Kaplan, who is that?

A. Mr. Kaplan is our internal lawyer.

Q. Let's go to the next slide.

A. This one you just --

Q. 38. I'll ask the question, and -- he's prepped.

What is this document, Dr. Drillet, 38?

A. This document is an invoice coming from Oblon for the work that was done in January 2006.

Q. Is it addressed to Dominique Kaplan?

A. Yes. Yes.

Q. Let's turn to the next slide, 39.

What is this document?

A. This document is an exchange with Oblon, also,

to our internal lawyers, Dominique Kaplan and to Sylvie Floury and Sophie Plaisant.

Q. Who is Sylvie Floury?

A. Sylvie Floury and Sophie Plaisant are working for us.

Q. And Sophie Plaisant?

A. Also?

Q. She is in the legal department?

A. Sophie Plaisant was manager of Dominique Kaplan.

Q. The next document, please.

What do we see on this document, slide 40?

A. Again, it's an invoice of Oblon with all of the work made in March 2006.

Q. Let's go to the next document.

What is this document, Dr. Drillet?

A. This next document is just an exchange between Dominique Kaplan and us on the patent project.

Q. The next document, slide 42.

So this is a little bit different, so can you explain who Raisa GrigorÆeva is.

A. Raisa GrigorÆeva was with the company, but as a trainer. She wasn't engaged at that time. She has made a master in our lab on the fast transformation of the coating during austenitization.

Q. What it -- I'm going to call her by her first

name. What did Raisa do for you?

A. Raisa helped us to build a more robust database for, as I explained previously, we had to make a lot of work at the lab scale to build some database to have a better understanding on confirmation of the parameters of the coating.

Q. Did Raisa contribute to the idea of the invention?

A. No. Not to the idea.

Q. Let's turn to the next slide, 43, please.

What is this document?

A. This document is again a document, which in that case between Dominique Kaplan and Dominique Spehner about the precision concerning the patenting.

Q. The next slide, 44?

A. The slide is coming from Oblon to tell us that the draft is finished.

Q. The date of this e-mail is October 20, 2006?

A. Yes.

Q. The next slide, what do we see here?

A. Here, it's the date of the filing patent application.

Q. The original patent was filed October 30, 2006?

A. It's -- yes.

Q. October 30?

A. Yes.

Q. Okay. Thank you.

Now, let's -- new subject. We're done with that. Let's talk about your patents just a little bit. In your own words, Dr. Drillet, what's your invention?

A. Our invention, so -- this invention has two parts. The first one is the determination of a targeted coating microstructure. It's what I have explained a lot of time, is four-layer microstructure, but four-layer microstructure is not enough.

We have also of course to describe how to get this microstructure.

So the reason why in this patent we have a lot of details about the kinetic of the heating rate, about the effect of the deformation on the -- on the critical cooling speed.

Q. So does your patent disclose all of the different features of the coating and the parameters needed to obtain the coating?

A. Yes.

Q. What do we see on this slide, 48?

A. Here, it is a different extract, description of the way to get -- for example, here, we have two kinds of things here.

The way to get good properties at the process

window on the way to get the good properties at carmaker.

For example, if you look at the pre-coating thickness, we have seen that a good control of the pre-coating delivery, particularly in terms of the homogeneity --

(Clarification requested by the Realtime Stenographer.)

A. You have to avoid any high disruption in the thickness of the coating.

We have -- see that it is very important to avoid, for example, liquid deposition. We can understand that if you have an extra coating thickness on one side of the blank, with regard to the other side, we will have, of course, extra deposition of the liquid phase, in other words, on the extra side coating.

We have also discussed about heating rate. The heating rate is -- I've already discussed about that before.

Q. Let's pause.

A. Yes.

Q. Let's talk a little bit about the claims just very briefly.

So I've put on the slide, slide 49, Claim 1 of the '602 patent, and I want to walk through that just briefly.

I've got the preamble highlighted.

"Pre-coated steel product," what is that referring to, Dr. Drillet?

A. What is important to -- in this Claim 1 is highlighted in yellow here. It's a fact that at first, that the resulting coating is coming from interdiffusion reaction between the base steel and the aluminum, or the aluminum alloy on the coating. So that means that it's directly related to process parameters, because this diffusion between the base steel and the aluminum is done by the hot-stamper.

Q. In the middle there, in the second paragraph, second full paragraph, I think you're talking about the coating results from interdiffusion; is that what you're referring to?

A. Yes.

Q. What is interdiffusion? I think we have a graphic for that.

A. Interdiffusion, so it is an important reaction between the steel and the coating inside the oven.

We have two kinds of effects of diffusion. We have a diffusion of iron from the steel into the coating, and we have diffusion of aluminum from the coating to the steel side. Due to this reaction, we promote the interdiffusion layer, which is written here.

What is also important to see on this picture

that, of course, this outer diffusion layer has a gradiant of composition inside. We have a higher composition of iron from the side in contact with the steel. We have a higher concentration of aluminum in the opposite side of this intermediate layer.

Q. Did the iron and the aluminum have the same kinetics when they diffuse?

A. No, no, no, no, no.

Q. Does that affect the type of four-layer coating you may later get?

A. So kinetic -- the difference of kinetic or diffusion between the iron and the aluminum doesn't affect the outer diffusion layer itself.

Q. Does it affect the interdiffusion layer and create a gradient?

A. It affects the gradient, yes, of course.

Q. So going across the interdiffusion layer, the first layer closest to the base steel, is that homogenous in that layer?

A. No, in that case, we have -- when we are talking about homogeneity, we have two kinds of things. Homogeneity in terms of thickness and homogeneity in terms of composition.

What I could say concerning the composition, if your question is about composition, of course, the outer

diffusion layer is not homogeneous.

Q. Let's go to the next slide, 51.

This is Figure 1 from the patent.

What is this showing, Dr. Drillet?

A. This figure shows the layered microstructure of the coating we have target -- targeted, sorry, with the different layers, (a), (b), (c), and (d), which has their own composition.

Q. When you say "their own composition," on the slide it says, composition of iron or aluminum; is that significant?

A. Concerning the -- I should say, concerning the layer (a), as I explained previously, we have a gradient of composition, so this one is particular, but for the rest of the layers, the (b), (c), and (d), we have the mean composition inside each layer.

Q. So if we could -- I think we've talked about this already, slide 52, you mention a gradient at the interdiffusion layer; is that correct?

A. No, but that case...

Q. This is --

A. As I explained, this layer is not homogenous in that case. We have a gradient inside.

Q. Let's talk about the surface of the steel, the coated steel, after the hot-stamping.

So does the layer at the surface have to be entirely continuous?

A. Concerning the continuity or the homogeneity of the top layer, if you are talking about the top layer, the extreme surface of the coating, what we have put in the patent is we accept a 10 percent of -- discontinuity of 10 percent of another compound.

For example, on this picture, you can see that sometimes the layer which is just below the upper layer could go to the upper surface.

Q. Does your patent explain --

A. Yes.

Q. -- this?

A. Yes. So it is described in the patent. And we have seen that up to 10 percent of this heterogeneity, I should say, has no impact on the final properties.

That's the reason why it is not continuous, fully continuous, but it is -- when we talk continuous, it is continuous in the description -- in the definition of our patent with 10 percent of exigent phases at the surface.

Q. After the patent, after your discovery of the significance of the four layers, and the process parameters by which one could reliably get those, what happened to the sales of Usibor?

A. By communication of -- it helped us to define a robust way to get a good material, we have observed a very great extent application of this product on the automotive market.

So we had a huge increase involvement of the PHS on body-in-white.

MR. REITER: Thank you, Your Honor. I pass the witness.

JUDGE BHATTACHARYYA: Thank you.

MR. REITER: Thank you, Dr. Drillet.

MR. ZHANG: Good afternoon, Your Honor. Linhong Zhang for the Respondents.

May I proceed?

JUDGE BHATTACHARYYA: Yes. Please go ahead.

CROSS-EXAMINATION

BY MR. ZHANG:

Q. Good afternoon, Dr. Drillet. It's nice to meet you.

Now, you started by talking about the original Usibor patents.

Do you recall that?

A. Yes.

Q. I believe that is slide 6 in your demonstratives?

Mr. Sayer, could I have slide 6.

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A. Just this one. Okay.
Q. Specifically, you're talking about the '805 patent; is that right?
A. Yes, it is. This one is the first -- it's the patent of 2001, yes. It's about 2001. Yeah.
Q. This is the original Usibor patent; correct?
A. Yes.
Q. You're not an inventor on this patent; correct?
A. I'm not an inventor of this patent.
Q. One of the inventors is J.P. Laurent; correct?
A. J.P. Laurent, yes.
Q. The only thing you can tell me about J.P. Laurent is that he was an inventor on this patent; correct?
A. Sorry?
Q. The only thing that you can tell me about J.P. Laurent is that he's an inventor on this patent?
A. Yes, yes.
Q. So you didn't work with Mr. Laurent, did you?
A. No, because I enter -- as I explained this morning, I enter in this topic in beginning -- probably beginning 2004, and no, I had no -- never worked with J.P. Laurent at that time.
Dominique Spehner is a coinventor of this patent, he worked with Jean-Pierre Laurent.

Q. You testified that you were brought in to work on increasing the sales of Usibor; correct?

A. Yes.

Q. So fair to say Usibor was already on sale by the time you started working on Usibor; correct?

A. Of course. Yes. Correct.

Q. Of course, Usibor -- well, let me step back.

Of course, AM was making tons and tons of Usibor between the time it was on sale, and when you got started working with Usibor; correct?

A. Tons and tons, I'm not sure, sir. I'm not -- we had -- as I explained, between 2001, 2002, 2003, unfortunately for us, the volume was not so high.

As I explained, we were mainly focused on bumper beam. Concerning the bumper beam, it was a completely different story, because the bumper beam protected against corrosion, for example. So the coating -- had to be accepted to the fact that the coating has to prevent oxidation of the steel during austenitization. The coating was -- for example, the bumper beam has not to be spot weld also. So at that time, it was only a problem of steel we had during all these years.

We had made a lot of study to ensure that with this new solution, because it was quite new at that time to have a pre-coated solution, to ensure that in terms of

crush, in terms of density properties, and so on, the material is okay, but I should not say that we had a lot of volumes at that time.

Q. Fair to say, Usibor was on sale between 2001 and 2006; correct?

A. Yes.

Q. When Usibor was sold, it was sold to hot-stampers; correct?

A. Of course.

Q. Hot-stampers, they would be hot-stamping the Usibor that they received; correct?

A. Yes.

Q. You'd agree with me that each hot-stamper would have their own processing parameters; correct?

A. Yes.

Q. Their processing parameters for each hot-stamper, they would differ from each other; correct?

A. Each hot-stamper has their own practice, if that is your question, yes.

Q. Now, you testified that the four-layer structure in the '602 and '277 patents could be created before your patents; correct?

A. It's a question if -- is there any chance to observe the four-layer before the patent, my answer should be yes, yes.

Q. What that means is that the hot-stampers that bought the Usibor before your patents, they could create the four-layer structure; correct?

A. They could -- if you want to create something, it's a means that you target something.

At that time, nobody targeted any coating microstructure. So it is -- when we like to create something, you create something to get a target.

If the hot-stamper could have, by chance, four layer, yes, it is physics.

Q. So the hot-stampers did create the -- let me step back and rephrase.

So the hot-stampers that purchased Usibor before your patent, did create the four-layer structure; correct?

A. To be honest, the coating was not our focus. I -- we have not a lot of pictures focused on the coating.

So it is impossible for me to say to you that they never made four layer, but I have -- it was not our focus at that time.

The microstructure was the coating element. The microstructure of the coating was a focus. As soon as we had issue, which as I explained with the possibility of painting and so on.

But at the beginning, I have -- I don't remember, to be a paper dedicated to the description of

each layer on -- particularly of the four layers.

Q. Sir, I'm going to try it one more time. I don't think you focused on my question, so I'm going to ask it one more time.

The four-layer structure could be created through hot-stamping before the filing of the '602 and '227 patents; correct?

A. I have already answered your question, yes, it could happen. It was not done on purpose.

Q. Dr. Drillet, do you remember having your deposition taken in this investigation?

(The Witness consulted with the Interpreter.)

A. I don't, no, no. I have never testified, no, never.

Q. Do you remember having your deposition taken in this investigation?

A. In the Brussels, yes. My first deposition was in Brussels.

Q. Mr. Sayer, could I have Dr. Drillet's transcript at page 109, lines 22 to page 110 at line 3.

"Question: Hot-stamping aluminum-coated steel could create four layers in the coating before you filed your patent; correct?

Answer: Yes."

A. Yes, it could, yes. I said the same thing,

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yeah.

Q. Now, you'd agree with me that the four-layer structure is not your invention; correct?

A. The four layer is not our invention, no. Our invention is -- we have -- the invention is not natural. Our invention, the patent is the -- the fact that you have decided to target this four layer because -- not to get to targets a four layer, like this sometimes, it's alive.

What we have in this invention, we had to -- we had to get this four layer, the first thing.

The second one is also to get this four layer you have to make -- to control some parameters on the way we have described in the patent. But the difference is that we would like to obtain these four layers, and always, in a robust manner, not sometimes like this.

Q. So if I understand your testimony, sir, the invention is how you generate the four layers; correct?

A. The invention, yes, it's about -- we claim is a four layer.

Q. Sir, the invention -- your invention is how you generate the four layers; correct?

A. How we generate, yes, yes, sir. I would say that.

Q. And the invention is defining a process in a repeatable, robust way to generate the four layers;

correct?

A. Yes.

Q. And therefore, you cannot disassociate the four layers from the process by which you get the four layers; correct?

(Clarification requested by the Realtime Stenographer.)

Q. You cannot disassociate the four layers from the process by which you get the four layers; correct?

A. Yes.

Q. The key parameter for creating the four layers is the heating rate; correct?

A. Are you asking me, yes.

As I described, we have different kinds of parameters, but the key parameter is the heating rate, yes.

Q. The heating rate is controlled by modifying the temperature; correct?

A. Is -- sorry?

Q. Is controlled by modifying the temperature; right?

A. Yes.

It's to control -- yes, to -- the heating -- the heating and to modify the temperature. For example, if you have a tunnel oven, to modify the temperature in each zone, the different zones of the tunnel oven.

Q. Sir, I will get there, but could you just focus

on answering my question, please.

So the heating rate also depends on the thickness of the steel; correct?

A. No. No -- it depends -- yes, it depends on the steel thickness, but depends also of the heating curve inside the oven.

So you could heat it -- what I explained previously, by putting different temperatures in different zones of the oven, for example.

In that case, it doesn't depend to the steel thickness. It's a combination.

Q. The heating rate depends on the thickness of the steel; correct?

A. Sorry?

Q. The thickness of --

(The Witness consulted with the Interpreter.)

A. Yes, but not alone.

Q. I'm sorry, did you say "yes"?

A. Yeah. I said -- if you are talking about the hot-stamper process, the heating rate depends, of course, on the steel thickness, but it depends also on the oven of the hot-stamper. The choice of the technology of the hot-stamper.

It's not so simple that we have -- of course, if you are heating a steel of 2 millimeter in thickness, it

will -- the heating rate would be lower than 1 millimeter, but what we have is -- work with the hot-stamper is try to lower this difference.

Q. So, Dr. Drillet, I'm going to ask you to just answer my question. You're getting to my next question. I will -- and you could explore, if you want, my questions with your counsel on redirect.

So the heating rate also depends on the heating technology used in the furnace; correct?

A. Yes.

Q. And it depends on the furnace; correct?

A. I'm sorry?

Q. The furnace.

(The Witness consulted with the Interpreter.)

A. Yes.

It depends on the technology used by the heating rate, and the lab oven has nothing to do with the heating rate in the initial oven, even if we are working on the same steel thickness.

Q. Now, Mr. Sayer, could we have demonstrative 49 from Dr. Drillet.

Now, Dr. Drillet, these -- your demonstrative 49, you have Claim 1 of the '602 patent; correct?

A. Yes. It's Claim 1, yes.

Q. You'd agree with me there's nothing in Claim 1

about heating rate; correct?

A. Concerning the Claim 1, there is nothing clearly about each parameter. When we have written that the coating result for the interdiffusion between the steel aluminum base coating, that means, of course, it depends on the process of the diffusion of the formation of this phase.

So that means that this formation of this coating is the result of interdiffusion, so it is a result of the process.

Q. You're not claiming how to get -- you're not claiming the process as to how to get to the four-layer structure; correct?

A. We have claimed that it is important to the process due to the fact that it is an important for the diffusion reaction.

So the process is behind this sentence.

Q. Now, Dr. Drillet, you also testified about Figure 1 of the patent; correct?

A. 1, yes.

Q. Specifically, I think you show it on your demonstratives, 35.

A. Okay.

Q. The four-layer structure is shown in Figure 1 of the patent; correct?

A. Yes.
Q. I think on your demonstrative 35, you also have what's the TAV analysis on the left-hand side, the image from the TAV analysis; correct?
A. Yes.
It is Magna TAV, yes.
Q. You testified that it was ArcelorMittal that took the image, that image; correct?
A. Yes.
Q. But you'd agree with me it was Magna that performed the hot-stamping; correct?
A. Magna has performed this part on the advice at that time. Yes, it is a Magna part. It's not an accurate part.
Q. The four-layer structure is found on the Magna part; right?
A. Yes.
Q. It's found on the B-Pillar that Magna sent you; right?
A. Yes.
Q. And Magna was the one that took Usibor 1500, and placed it in the oven; correct?
A. Yes.
Q. Magna was the one that fired up the oven to a certain temperature?

A. Magna -- before making this part, we had given some process window to Magna. The process window, what I'm talking about since the beginning, it's a sort of guideline we have given to a lot of hot-stampers in order to succeed in this microstructure.

So Magna has made this part under our advice, yes.

Q. Magna set the temperature for the oven; correct?

A. Set the temperature for --

Q. Temperature.

A. Yes.

Q. It was Magna.

And Magna was the one that decided how long to keep the blank in the oven; correct?

A. Magna -- so it is -- the reason why Magna asked us for technical support because they don't respect completely our advices, particularly, concerning the time inside the oven, and also the point. But the reason why -- but all this -- this part, it's the question, if this part has been processed with the internal parameters of Magna, or if this part has been processed with the process window given by ArcelorMittal.

My answer is that Magna at that time has made this part under the process window given by us.

And we have never given this stuff to Magna.

Q. So Magna stamped the heated part; correct?
A. Yes, yes.
Q. Magna sent the heated part back to you; correct?
A. Yes.
Q. Now, I understand your suggestion that the -- you told Magna how to stamp the part.
That's your testimony, sir?
A. (Nods head up and down.)
Q. But you'd agree with me that the TAV request is a customer request; correct?
A. The customer request is technical support, but this kind of document, we have made a lot of documents like this with different kinds of customers.
This kind of document is an internal document for R&D. We never give this document to any customer. Usually, this document is for -- in that case, it is Ronald Kefferstein who was in direct contact with the customer. Ronald has to discuss with us the best way to help our customer, not to distribute this kind of paper.
In that case, as was explained, it was not a problem of coating. So we are no -- we have no reason to give this picture to Magna, because Magna has an issue of delayed fracture due to hydrogen.
Due to that, we know that usually when we have this kind of issue at hot-stamper, it is a combination of

two parameters. Probably a too long time inside the oven, it's the reason why they have obtained something at the upper limit of our process window, but plus, too high dew point inside the oven.

So it was the case at Magna. So we had just asked Magna to check the --

Q. You'd agree that for the B-Pillar that's at issue in this TAV request, Magna was stamping Usibor 1500 for Ford; correct?

A. Yes.

Q. This TAV request -- let's bring up Dr. Drillet's demonstrative at slide 30.

Do you see that this TAV request is dated November 25, 2005; correct?

A. Yes.

Q. That's before December 2005; right?

A. It is, just before.

Q. That means Magna was performing hot-stamping in November -- at least in November 2005; correct?

A. Yes.

Q. And Magna was able to get -- sorry.

Magna was able to generate the four-layer structure claimed in your patents as of November 2005; correct?

A. No. As I explained, in order to perform good

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parts, we have never discussed at that time without any customer of the targeted coating microstructure to get.

What we have done is we have discussed about, for example, weldability issues, so we have discussed about homogeneity of the extreme surface in the case of Honda without talking about the fact that this kind of good microstructure at the surface is given by the four layer, and we have never told about that.

So usually, what we have done, when I talk about process window, we have given some guideline in terms of temperature inside the oven, inside the -- it was also -- it was also for --

Q. I'm going to ask my question again, sir.

Magna was able to create the claimed four-layer structure before December 2005; correct?

A. Yes.

Q. Now --

A. But Magna doesn't know that, because Magna was not equipped to make analysis of the -- so the analysis has been done in our lab.

This picture of the four layer has never been shared with Magna. So Magna was able to do that, yes, but that's it.

Q. So, sir, if I understand your testimony, you're saying Magna created the part, and you took the picture;

correct?

A. Yes.

Q. Now, the TAV request that you see here, TAV is an acronym for after-sale service; correct, sir?

A. Yes.

Q. You were performing after-sale service for Magna to promote the sale of Usibor; correct?

A. Yes.

Q. I want to highlight the top middle, the 64/05 on top.

A. Yes. It's an internal reference of -- it's a number of -- for example, it's a number of TAVs we have done in 2005. 64.

Q. So, sir, let me ask my question. This TAV request is the 64th TAV request made in 2005; correct?

A. Yes.

Q. That means there were 63 other TAV requests that were made before this November 25, 2005; correct?

A. Of course. We have -- yeah.

Q. So 63 other instances of someone who bought Usibor and hot-stamped Usibor; correct?

A. No, no. It's not correct.

Because this -- this number is not the number of hot-stamping -- what is the TAV? The TAV is after-sales, as you said, but not only for PHS. So this one is done by

a team dedicated to metallurgical exercise. It has not been done in my team, for example.

In the 65, I don't know exactly the number of issues coming from PHS at that time, but we could have call of the PhDs and so on. This one is an internal number of the department dealing with expertises. It is not the number of PHS analysis.

(Clarification requested by the Realtime Stenographer.)

A. Of press-hardened steel issue, I don't -- to be honest, I don't remember the number of TAVs dedicated to PHS in 2005.

Q. Now, for this TAV request, you did not work on investigating the issues shown in this TAV request; correct?

A. Sorry.

Q. You did not work on investigating the issues shown in this TAV request; correct?

(The Witness consulted with the Interpreter.)

A. No, it is -- it is the same lab. In the same lab, each work is divided into different teams.

So in that case, I have not made -- the TAV work was not made by my team. It has been done by a metallurgical team, which is working for us, because if you look at the diffusion of the result, the main diffusion of result was, when it is for PHS, it is -- the diffusion was

on Ronald and me. The rest of the people are people of the lab, and of course, it depends of the issue for PHS that had done the job for us.

Q. I apologize. Part of it is I just cannot fully comprehend what you're saying, and I apologize about that, so I'm going to reask my question.

You did not work on investigating the issues shown in the Magna TAV request; correct?

(The Witness consulted with the Interpreter.)

A. Okay. I try to be more clear.

So the PHS team is made, as explained, by R&D team, the customer team on plant quality.

In that case, when we had the issue coming from a customer, it is the customer team, which is represented by Ronald Kefferstein. Of course, I know because I am also one of the owners of this result.

But what I explained is in our lab organization at that time, we had a team dedicated to development, and a team dedicated to any expertises coming from the customer.

The people who were making their expertise are coming from another team, but we are all in the same team so it is no problem about that.

Q. Mr. Sayer, could I have Dr. Drillet's testimony at page 105, lines 22 to 24.

So, "Question: Did you work on investigating

the issue that is shown in Exhibit 5?

Answer: No."

A. Yeah.

Q. That was your testimony; correct, sir?

A. Yes, correct. It is this metallurgical team.

Q. You understand Exhibit 5 from your deposition is this TAV request; is that right?

(The Witness consulted with the Interpreter.)

A. Yes, yes, yes.

I have not made the analysis, if that is your question. We have a team dedicated to that who have made the analysis. So, yeah, it is the answer I have. Perhaps it's not clear, but it is how we are organized.

Q. For hot-stamped parts that are created by hot-stampers, you only find out about the parameters when there's an issue; correct?

A. Concerning this TAV?

Q. I'm sorry?

(The Witness consulted with the Interpreter.)

A. Yes, yes. Okay.

It is key, what you are asking. Usually, when everything is going well, we never receive anything from our customers.

Usually -- and it is also very difficult to -- it was also -- one key of our work was we have made a lot

of work in order to convince the hot-stamper that it could be interesting for them -- for us, sorry, to get -- to have information concerning their parameters, because usually, hot stampers parameters are quite confidential.

As ArcelorMittal is working with all hot-stampers, we had some issues, right, to get data coming from one hot-stamper, they could think that we could discuss with another.

So usually, only -- we obtain sometimes parameters when we have issues, that's right.

Q. In fact, there are many parts, even production parts, that you do not know the hot-stamping parameters for; correct?

A. Yes, yes.

Q. All right. I want to move on to one last thing really quick.

Mr. Sayer, could I have slide 42.

Dr. Drillet, I think I heard in your testimony that you testified that Ms. Raisa was a trainer.

Did I have that right?

A. Yes. That's right.

Q. What you mean by that was that she was an intern; correct?

(The Witness consulted with the Interpreter.)

A. Yes.

Q. Her internship at ArcelorMittal started on March 1, 2006; correct?

(The Witness consulted with the Interpreter.)

A. In March, yes. The 1st of March, 2006.

Q. And it ended on August 31, 2006; correct?

A. In August, yes, she finished, that closes her internship, yes.

MR. ZHANG: I'll pass the witness, Your Honor.

JUDGE BHATTACHARYYA: Thank you.

MR. REITER: Just a few additional questions, Your Honor.

REDIRECT EXAMINATION

BY MR. REITER:

Q. Dr. Drillet, I just have a few additional questions to follow up on some of the things you just discussed.

If we could put up slide 29, please, from our deck.

Dr. Drillet, we talked about this, I think, before the lunch break. Were you and your team teaching the hot-stampers what to do in the 2005 time period?

A. Yes.

Q. Is that what you did with Magna?

MR. ZHANG: Objection, Your Honor. Leading.

JUDGE BHATTACHARYYA: Respond.

MR. REITER: "Is that what you did with Magna?" I don't think that's a leading question.

MR. ZHANG: It's suggesting an answer.

JUDGE BHATTACHARYYA: The objection is overruled.

MR. REITER: Okay. I'm sorry?

JUDGE BHATTACHARYYA: The objection is overruled.

You may proceed.

BY MR. REITER:

Q. Is that what you did with Magna?

A. What I have explained, what I have explained is we have given some advice to Magna. Yes, it is what I discussed.

Advice, when I talk about advice, we have to talk about process window with them to try to respect.

Q. You were asked some questions about the TAV document that we were looking at, if we could skip a couple of slides forward just to have it. There we go.

Slide 30 of our presentation, CX-683.

Now, you were asked about whether or not you were involved in this investigation.

What did you mean by that? Did you do the testing itself?

A. Ronald Kefferstein was working in direct contact

with the hot-stamper. So we had some trials at Magna, and Ronald went and visited Magna. Magna tells him that we have made some parts, B-Pillar under our process window, and unfortunately, we have a break -- breakage of the lower -- upper part of the B-Pillar.

What I tell to Magna that, send us your part.

Q. Who actually did the SEM image in this analysis?

A. It was the metallurgical team I am talking about before.

Q. Did you receive this report?

A. Yes.

Q. Did you study it?

A. I received. Yes, I have studied this report.

Q. Did this report influence your invention?

A. This report was important for us because we have, for the first time, the upper limit of our process window. It sort of is the last part of a puzzle because the process window is quite difficult to define because we have to find the lower limit, the upper limit, the main range, and so on.

Due to that, we had gotten the last part of the puzzle, which there is the upper limit, which is at the boundary, in that case.

So due to that, we have discussed internally with Ronald and with Dominique to say that now we have all

of the parts of this puzzle.

So perhaps it's time to protect something.

Q. Let's skip back to when you first started this project, I think you said late 2003 and early 2004; is that right?

A. Early 2004, yeah.

Q. There's been testimony, and you confirmed that Usibor before 2004 when you started, had been an sale; is that right?

A. Very small volumes.

I explained with part of this bumper beam. You can imagine that the bumper beam has nothing with the body-in-white, as I described previously. So it is unnecessary to spot-weld this part on the body-in-white. We just weld, but another way, the crush box on this.

At that time also, it is also the case, most of the bumper beam are not coated because the protection against corrosion is not necessary. So we have a lot of -- at that time we have a lot of explanation why we were not dedicated to the coating. We were most dedicated to the fact that we should get 1000 MPa on all of the parts, even with the pre-coated solution.

Q. When you started your work, did you look at those bumper beams and analyze them to understand what the project was?

A. No, no.

The only thing we had made it's the tensile properties to see if you are in a good -- if you were so in a good range of tensile property, but that's it.

We have never conducted such a detailed TAV at that time on this kind of part.

Q. We've talked a lot about this -- this morning, but every time that Usibor 1500 is hot-stamped, every time, is it possible to always get the four layers?

A. No.

Of course, it should be very easy for us, if it has likely -- so we don't have to spend so many euros to define the parameters.

Q. So the answer is no?

A. No. Of course not.

MR. REITER: No further questions, Your Honor.

JUDGE BHATTACHARYYA: Thank you.

MR. ZHANG: No further questions.

JUDGE BHATTACHARYYA: All right.

Thank you, Dr. Drillet. You may step down.

(Witness excused.)

MR. REITER: Your Honor, do you want the next witness now or do you want --

JUDGE BHATTACHARYYA: Yeah. Let's go ahead with the next witness.

(PAUSE in the proceedings.)

MR. SCHARN: Thank you, Your Honor.

The Complainants would like to call Bala Krishnan.

I have got some binders. May I approach?

JUDGE BHATTACHARYYA: Yes, you may.

We're on the public record.

Could you please raise your right hand, Mr. Krishnan.

Whereupon--

BALA KRISHNAN,

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. SCHARN:

Q. Good afternoon, Mr. Krishnan.

A. Good afternoon.

Q. We have a couple of mics in front of you there. If you can be sure to speak into the mic, I think that would help everybody to be able to hear.

Can you please introduce yourself.

A. I'm Bala Krishnan.

Q. Where do you currently work?

A. I work at ArcelorMittal.

Q. How long have you worked there?

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A. I worked there for 37 years.
Q. Has it always had the same name the whole time you have worked there.
A. ArcelorMittal is a predecessor companies.
Q. Can you briefly describe your education starting with your undergraduate degree?
A. Sure.
I did my undergrad degree at Alard College of Engineering and Technology in India in mechanical engineering, and I did my graduate degree at Illinois Institute of Technology also in mechanical engineering.
Q. So Illinois Institute of Technology, that's in Chicago area?
A. That's correct.
Q. Do you still live in the Chicago area?
A. Well, actually, I live in northwest Indiana, which is considered to be the Chicago area.
Q. Where is your office?
A. Well, my primary office is located in East Chicago, Indiana.
I also have a secondary office in Southfield, Michigan.
Q. You mentioned East Chicago, is that at an ArcelorMittal facility?
A. Yes.

East Chicago is where we have our research lab, and we also have office spaces in there, and that's where I work out of.

Q. What's your current role at ArcelorMittal?

A. I am the director of portfolios for automotive, energy and industry markets.

Q. Does ArcelorMittal supply steel in the automotive market?

A. Absolutely.

Q. Is press-hardened steel one kind of steel that ArcelorMittal supplies for automotive?

A. Absolutely.

Q. What is press-hardened steel?

A. Press-hardened steel is steel which actually when heat treated and quenched achieves a very high-strength and ductility, and makes complex parts, and enables complexity to interaction.

Q. Are there any particular brand names that ArcelorMittal sells its press-hardened steel under?

A. Of course.

They are primarily the Usibor and the Ductibor family of steels.

Q. I'd like to ask a little bit about you and your team.

About how many people in your team are related

to automotive?

A. I have 40 people in North America that are related to automotive.

Q. Where are those individuals located in North America?

A. They're located usually within about four hours from a customer, so we can actually go meet the customer, and interact with them.

Q. Does ArcelorMittal have what it considers to be strategic customers?

A. Oh, definitely, yes.

We have original equipment manufacturers like Ford, Tesla, General Motors. And we also have Tier 1s that are strategically aligned with our business plan, they would be Gestamp, GNS, Magna, Simwon, you can name -- Multimatic. Many of them, yes.

Q. In working with these strategic customers, what's your team's role?

A. Well, my team's role is really in a nutshell, we are the voice of the customer to ArcelorMittal, and we are the voice of ArcelorMittal to the customer.

Q. I'd like to look at a little bit about how that plays out in real life. So we're going to get into a confidential exhibit here, Your Honor, so we'd like to go on the confidential record.

JUDGE BHATTACHARYYA: We are moving on to the ArcelorMittal confidential record.

(Whereupon, the trial proceeded in confidential session.)

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O P E N S E S S I O N

MS. MORGAN: Ashbey Morgan on behalf of Complainants.

We call our next witness, Mark Atkinson.

I have a few binders. May I approach?

JUDGE BHATTACHARYYA: Yes, you may.

Could you please raise your right hand, Mr. Atkinson.

Whereupon,

MARK ATKINSON, PhD,

having been called as a witness, was legally placed under oath, testified as follows:

THE WITNESS: Yes, I do.

JUDGE BHATTACHARYYA: You may be seated.

MS. MORGAN: You can take a seat, Dr. Atkinson.

THE WITNESS: Thank you.

DIRECT EXAMINATION

BY MS. MORGAN:

Q. Good afternoon, Dr. Atkinson.

A. Good afternoon.

Q. Would you please introduce yourself.

A. Yes.

My name is Mark Atkinson.

Q. Where do you currently work?

A. Currently, I work for ArcelorMittal, and I'm

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based in East Chicago, Indiana.

Q. Before we get into what you do at ArcelorMittal, could you please describe your educational background for us.

A. Yes.

I have a bachelor of science degree in energy technology and management, and I have a PhD in mechanical engineering.

Q. What did you do after you graduated?

A. Well, first, I worked for Rite Aid, but seriously, then I joined National Steel in 1990.

Q. Just at a high level, what did you do for National Steel?

A. For National Steel, I started at National Steel as a research engineer in iron-making. Then I moved through a series of managerial positions in R&D at National.

Q. Did you do anything after National Steel?

A. Yes. National Steel was acquired by US Steel, and so then I worked in research and development at US Steel.

Q. When did you join ArcelorMittal?

A. In November 2007.

Q. What is your current role at ArcelorMittal?

A. Currently, I have three roles. Currently, I'm

senior director of operations at East Chicago. I also have a role as head of project management and global R&D. And then I also oversee or lead our quality management process in global R&D.

Q. Let's focus on your role at the East Chicago Center.

What is the East Chicago center?

A. The East Chicago center is a facility in Indiana. I think you saw earlier today an aerial view of our campus. We have a 42-acre campus, and then a number of buildings on that campus.

Q. What do you do as the senior director of operations?

A. My role is -- I characterize it as keeping the show on the road. So my role is to enable the technical people to do their technical work.

In that regard, for example, I'm the top management representative of our quality management system, our safety management system. I oversee the labor contract with our represented technicians, and then I have other duties, too, but basically, ensuring that we have a facility so that the technical people can do their technical work.

Q. Now, as part of your responsibilities, do you regularly work in the laboratories?

A. No, I don't.
Q. How long have you been based out of East Chicago?
A. I have been based out of Chicago continuously since 2007, except for a time period in 2012 to 2013. At that time I was based in Global R&D in MaiziΦres, France.
Q. How long have you been in the steel industry?
A. Since 1990.
Q. I want to focus a little bit on what happens at the East Chicago center.
Can you describe that work from a high level?
A. Well, at a high level, our mission is product development, developing new products, and enhancing existing products, and then providing the support for the mills to be able to manufacture the products that are being developed.
Q. Does the East Chicago center work on press-hardened steels?
A. Yes.
Q. Which press-hardened steel products?
A. The Usibor and Ductibor products.
Q. Are there any other press-hardened steel products that the East Chicago lab works on?
A. No.
Q. Do you have an understanding of which products

offered by ArcelorMittal are at issue in this investigation?

A. Yes.

Q. Which products are those?

A. The Ductibor and Usibor products.

MS. MORGAN: At this time, I'm going to move into the confidential record, if we could seal the courtroom.

JUDGE BHATTACHARYYA: Moving on to the ArcelorMittal confidential record.

(Whereupon, the trial proceeded in confidential session.)

C O N T E N T S

WITNESS	DIRECT	CROSS	REDIRECT	RECROSS
Jean-Luc Thirion	74	91		
Pascal Drillet PhD	99	148	169	
Bala Krishnan	174	208	223	226
Mark Atkinson PhD	228	246		

AFTERNOON SESSION: 125

CONFIDENTIAL SESSIONS: 79-80; 91-97; 179-227; 223-end.

E X H I B I T S

Deposition Designations:

Jacob Webb

CX-0023C

CX-0346C

CX-0347C

CX-0348C

CX-0349C

CX-0350C

CX-0351C

CX-0352C

CX-0353C

CX-0354C

CX-0355C

CX-0356C

CX-0357C

CX-0358C

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CX-0360C

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CX-0364C

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CX-0768C
Brad Pepper
CX-0022C
CX-0334C
CX-0335
CX-0336C
CX-0337C
CX-0338C
CX-0339C
CX-0340C
CX-0341C
CX-0342C
CX-0343C
CX-0344C
CX-0345C
Brent Yeager
CX-0024C
CX-0385
CX-0386C
CX-0387C

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CX-0388C
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CX-0390C
CX-0391C
CX-0392C
CX-0393C
CX-0394C
James Chronister
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Paul Belanger
CX-0028C
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Jennifer Hong

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CX-0407C
CX-0408C
CX-0409C
CX-0410C
CX-0411C
CX-0412C
Rick Nafziger
CX-0026C
CX-0395
CX-0396C
CX-0397
CX-0398
CX-0399C
Haroldo Kavamura
CX-0017C
CX-0307C
Praveen Prakash

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CX-0019C
CX-0315C
CX-0316C
Nguyen Thi Lan Anh
CX-0016C
CX-0300C
CX-0302
RX-1009C
RX-1010C
RX-1260C
Ronald Kefferstein
CX-0011C

CERTIFICATE OF REPORTER

TITLE: CERTAIN HIGH-STRENGTH ALUMINUM OR ALUMINUM-ALLOY COATED STEEL, AND AUTOMOTIVE PRODUCTS AND AUTOMOBILES CONTAINING SAME

INVESTIGATION NO: 337-TA-1402

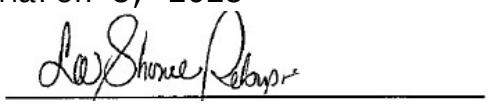
HEARING DATE: MONDAY, March 3, 2025

LOCATION: Courtroom A

NATURE OF HEARING: Evidentiary Hearing

I hereby certify that the foregoing/attached transcript is a true, correct and complete record of the above-referenced proceedings of the U.S. International Trade Commission.

Date: March 3, 2025

SIGNED: 

Signature of the Contractor of the Authorized Contractor's Representative
1150 Connecticut Avenue, Suite 305
Washington, D.C. 20036

I hereby certify that I am not the Court Reporter and that I have proofread the above-referenced transcript of the proceedings of the U.S. International Trade Commission, against the aforementioned Court Reporter's notes and recordings, for accuracy in transcription in the spelling, hyphenation, punctuation and speaker identification and did not make any changes of a substantive nature. The foregoing/attached transcript is a true, correct and complete transcription of the proceedings.

SIGNED: 

Natalie Bourlier, Proofreader

I hereby certify that I reported the above-referenced proceedings of the U.S. International Trade Commission and caused to be prepared from my tapes and notes of the proceedings a true, correct and complete verbatim recording of the proceedings.

SIGNED: 

Marjorie Peters, FAPR, RMR, CRR Court Reporter

UNITED STATES
INTERNATIONAL TRADE COMMISSION

In the Matter of:	)	Investigation No.
CERTAIN HIGH-STRENGTH ALUMINUM OR ALUMINUM-ALLOY COATED STEEL, AND AUTOMOTIVE PRODUCTS AND AUTOMOBILES CONTAINING SAME	)	337-TA-1402

OPEN SESSIONS

Pages: 262 through 573 (with excerpts)

Place: Washington, D.C.

Date: March 4, 2025

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UNITED STATES INTERNATIONAL TRADE COMMISSION

Washington, D.C.

BEFORE THE HONORABLE MONICA BHATTACHARYYA

Administrative Law Judge

In the Matter of:	)	Investigation No.
CERTAIN HIGH-STRENGTH ALUMINUM OR ALUMINUM-ALLOY COATED STEEL, AND AUTOMOTIVE PRODUCTS AND AUTOMOBILES CONTAINING SAME	)	337-TA-1402

International Trade Commission

500 E Street, S.W.

Washington, D.C.

Tuesday, March 4, 2025

EVIDENTIARY HEARING - VOLUME 2

The Hearing commenced remotely, pursuant to the notice of the Judge, at 9:31 a.m. Eastern.

Reported by: Marjorie Peters, FAPR, RMR, CRR

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P R O C E E D I N G S

JUDGE BHATTACHARYYA: We're on the public record.

I understand there's some evidentiary disputes that have arisen. If it's all right with the parties, I'd like to hear argument on those disputes before we start with the next witness.

MR. MCKEON: Thank you, Your Honor.

I suppose, since they are our objections, we will go first, and Mr. Wilson will cover the first bullet point that you received by e-mail related to the domestic industry expert.

JUDGE BHATTACHARYYA: Okay. Let us know if we should go on the confidential record.

MR. WILSON: Thank you, Your Honor.

I don't think we'll need to go on the confidential record.

MR. SCHARN: If we're talking about the slide and the data in there, I think we would want to go on the confidential record.

JUDGE BHATTACHARYYA: Okay. Then we're moving to the ArcelorMittal confidential record; is that correct?

Are we good to go?

MR. WILSON: Yes, Your Honor.

(Whereupon, the trial proceeded in confidential

session.)

O P E N S E S S I O N

MR. LEE: May I approach, Your Honor?

JUDGE BHATTACHARYYA: Yes, you may.

I have before me a list of exhibits entitled "The Parties' Joint List of Admitted Exhibits, Day 1."

I understand there are no objections to admission of these exhibits into evidence; is that correct?

MR. WILSON: No objection.

JUDGE BHATTACHARYYA: All right.

Then the exhibits on that list are admitted into evidence.

("The Parties' Joint List of Admitted Exhibits, Day 1 was received into evidence.)

MR. LEE: Thank you, Your Honor.

MR. SCHARN: Thank you, Your Honor.

May we proceed with the evidence?

JUDGE BHATTACHARYYA: Yes. Let's go ahead.

MR. SCHARN: Complainant calls Mr. Chris Richards.

JUDGE BHATTACHARYYA: Good morning, Mr. Richards. Could you please raise your right hand.

Whereupon--

CHRIS RICHARDS,

having been first duly sworn, was examined and testified as follows:

MR. SCHARN: May I approach, Your Honor, with the witness binder?

JUDGE BHATTACHARYYA: Yes.

DIRECT EXAMINATION

BY MR. SCHARN:

Q. Good morning, Mr. Richards.

Can you please introduce yourself.

(Clarification requested by the Realtime Stenographer.)

Q. We can try that one again.

Mr. Richards, can you please introduce yourself.

A. Yes.

My name is Chris Richards.

Q. Where do you currently work?

A. I work at AM/NS Calvert.

Q. Where is that located?

A. It is located 40 miles north of Mobile, Alabama.

Q. What is your role at AM/NS Calvert?

A. I'm the CEO of the facility.

Q. Tell us what is AM/NS Calvert.

A. So AM/NS Calvert is a 50/50 joint venture between ArcelorMittal and Nippon Steel.

Q. You've got a binder in front of you with some exhibits. If you could turn to CX-777.

Mr. Smith, if we could get that on the screen.

Can you tell me what this is.

A. Yeah.

This was an announcement that was made in 2014 on the successful acquisition of the facility previously owned by ThyssenKrupp, and purchased by ArcelorMittal and Nippon Steel.

Q. When was AM/NS Calvert formed?

A. It was formed at the close of the acquisition in February of 2014.

Q. Were you involved in the formation of AM/NS Calvert?

A. Yes, I was. I led the operating due diligence team that evaluated the assets before purchasing.

Q. What was the time frame for your involvement in the diligence?

A. That started in 2012 and went through 2013.

Q. So did the AM/NS Calvert joint venture or any of the parties to the joint venture, did they build this facility from the ground up?

A. No, they did not.

Q. Who did?

A. ThyssenKrupp built the facility.

Q. Do you know about how much ThyssenKrupp spent on building this facility?

A. It is estimated that they spent around $5 billion building the facility.

Q. How much did ArcelorMittal and Nippon Steel pay for the facility?

A. They paid $1.55 billion, along with any working capital at the time of close.

Q. Are you aware of products made at AM/NS Calvert that are at issue in this investigation?

A. Yes, I am.

Q. What products are those?

A. Those are the Usibor and Ductibor press-hardened steels.

Q. Were Usibor and Ductibor part of the reason for evaluating this facility at Calvert?

A. Can you say that again.

Q. Were Usibor and Ductibor, those products, were they part of the reason for evaluating this facility at Calvert?

A. Yes, they were. We wanted to make sure that the assets could produce those products.

Q. Now, CX-777 states that the Calvert facility has the most "modern steel finishing facility in the world."

How does that fit with your view of the facility at the time you were doing the diligence on it in 2012 to 2014?

A. Yeah. The partners that did the due diligence considered these to be world-class assets.

Q. I want to understand the parties' relationship a bit in the AM/NS Calvert joint venture.

What do "AM" and "NS" stand for in the title?

A. Sure.

"AM" stands for ArcelorMittal, and "NS" stands for Nippon Steel.

Q. Now, being CEO of the joint venture, who do you report to?

A. The operating arm of this is controlled by ArcelorMittal. They appoint the CEO. My direct boss is the CEO of ArcelorMittal North America.

Q. Do you also report to the joint venture in any way?

A. Yes, there is an equal-numbered management committee board that govern the facility as well.

Q. So with the facility as a joint venture between Nippon Steel and ArcelorMittal, are the Usibor and Ductibor products we talked about a moment ago, are those viewed as Nippon Steel products?

A. No, they are not.

Q. Whose products are those?

A. Those are ArcelorMittal products.

Q. I'd like to talk about the Calvert facility itself, and walk through that a bit.

If you could turn in your binder to CX-664, if

we could get that.

So, first of all, can you identify, what is CX-664.

A. Yeah.

This is a layout of the AM/NS Calvert facility showing the flow of production.

Q. What's on the cover slide here?

A. So this is the way we bring slabs into the river terminal. Those are our raw material. And then it shows how they eventually work their way through the hot strip mill, the cold rolling mill, one of the finishing lines, and then to storage and ultimate shipment.

Q. Now, there's a yellow arrow overlaid on the facility here.

To give us a sense of scale, about how long would that arrow be if you measured that on the ground?

A. Yeah. It's about two-and-a-half miles from one end of that to the other.

Q. Can you see your office in this figure?

A. Yes, I can. It is the admin office that's located in the center, upper portion of the picture.

Q. How many people work in that office?

A. Approximately 300 people in that office building.

Q. I'll advance the slide here.

Are these industries listed on slide -- this is actually slide 1, I believe.

Are these the industries that Calvert made steel for in 2018?

A. Yes, they are.

Q. I see automotive is the biggest here.

Was that accurate in 2018?

A. Yes, it was.

Q. Is automotive still the biggest today?

A. Yes, it is.

Q. At Calvert, what products generate the most profit overall?

A. So our most profitable products at Calvert are the press-hardened steels, the Usibor and Ductibor products.

Q. Let's talk about how those products are made. We'll skip ahead here to slide 4.

What's being shown here?

A. So this is one of the steel slabs that is delivered to our facility from various suppliers.

Q. What are the dimensions of those slabs when they come in?

A. Yeah. The slab weight can be up to 40 metric tons. The thickness anywhere from 220 to 255 millimeters in thickness, from 5400 to 11,500 millimeters long, and

from 10,040 millimeters to 19,030 millimeters wide.

Q. So I don't think of tons all that often, so by my math, 40 tons is about 88,000 pounds.

Does that sound right to you?

A. That is correct.

Q. So what happens to these, you know, 40-ton, up to 30-foot slabs by the time they leave the facility?

A. So on a macro basis, you take a slab, you heat it up, you go through three or four different processes. In the case of Usibor and Ductibor, it reduces that slab to the final customer dimensions. We apply a coating, test it, and then ship it to the final customer.

Q. Is it still sort of a block of steel when you ship it to a customer?

A. No. By the time it goes through the facility, I guess the best way to visualize it, it can be at the thickness of a playing card.

Q. About how long is it, is it still about 40 feet long?

A. No. For the Usibor and Ductibor products, a typical length is around 4,000 feet.

Q. Can you tell me -- we're now on slide 5.

Can you tell me what's being shown here.

A. Yeah.

These are the slab sources for AM/NS Calvert

back in the 2018 time frame.

Q. Are these still up-to-date, all the slab sources?

A. No, they are not. We no longer receive slabs from, number one, in Ternium Brazil. We now receive from another ArcelorMittal facility called Pecem in Brazil.

Then number four, ArcelorMittal USA Indiana Harbor is now owned by Cleveland-Cliffs.

Q. Let's skip ahead to slide 10.

Mr. Richards, can you walk me through what's being shown on slide 10.

A. Yeah.

This is the Alabama State Port Authority. This facility was built for ThyssenKrupp when they originally built the facility at Calvert.

Q. So the people that work at this Port Authority, are they AM/NS Calvert employees?

A. No, they are not.

Q. But what do they primarily support?

A. Pinto Island, as this location is referred to, is dedicate to serving Calvert.

Q. What do we see in this slide?

A. So this slide here is the -- showing the cranes down at the port as they unload the steel slabs from the oceangoing vessels with magnets.

Q. I'm sorry. Did you say "magnets"?
A. Magnets.
Q. So that's a magnet that can pick up a 40-ton slab of steel?
A. That is correct.
Q. Then what do we see here?
A. So the vessels can carry anywhere from 50 to 75,000 tons of material. They get offloaded down at Pinto Island into barges, and then are transported up to Calvert.
Q. Thank you.
For the record, that's slide 12.
Let's skip ahead now to slide 15.
What's being shown here?
A. Well, it's about a 48-mile nautical journey up to Calvert. This is the river terminal at Calvert where, again, slabs are unloaded from the barges with magnets and cranes.
Q. So the folks who captain the barges and otherwise staff the barges, are those ArcelorMittal employees?
A. No, they are not.
Q. Who do they primarily serve?
A. They primarily serve our facility.
Q. What happens to the slab next?
A. So it's unloaded from the barges at the river

terminal and placed on these trailers, anywhere from three to five slabs per trailer, and then transferred into one of a number of slab yards we have on-site.

Q. That was shown in slide 16 and 17 that we just looked at?

A. Yes, it is.

Q. Let's go to slide 21.

So for a slab that is destined to become Usibor and Ductibor, after it's unloaded into the storage facility, what happens to it?

A. So once it's scheduled to process, it is loaded onto a roller table and fed into a reheat furnace in through the hot strip mill. This is a picture of a slab as it comes out of the reheat furnace.

Q. Go to slide 22.

Can you tell me what is shown in the middle of the slide here.

A. Yeah.

This is a schematic of the major processing steps in the hot mill.

Q. To, again, try to get a sense of scale, about how long is this line?

A. This building and facility is approximately 2100 feet long.

Q. At a high level, what happens to the slab from

the beginning to end of this line?

A. Sure.

In order to get to a coil at the end, you have to heat the slab up, as it shows in step 1, to over 2,000 degrees.

It then goes through a series of rolling processes where it reduces the thickness of that.

It then goes through a cooling section in number 7 to get some of the metallurgical properties required before it is finally rolled into a coil. You can think of that as a paper towel roll or something in number 8.

Q. Is this hot strip mill, is that used for products other than Usibor and Ductibor?

A. Yes, it is.

Q. Could Calvert convert slabs into Usibor and Ductibor without this facility?

A. No, we could not.

Q. So after it comes off of this line, where does it go next, the slab steel that will become Usibor and Ductibor?

A. Well, the coil is shipped into a storage yard, and for Usibor and Ductibor, it will stay there until it's scheduled in the next step, which is the PL-TCM.

Q. Look at slide 23.

Is this the PL-TCM you just mentioned?

A. Yeah, the pickling line and tandem cold rolling mill, we call it the PL-TCM, is the facility that we send that product through.

Q. Let's go to the next slide, 24.

Can you tell me what's in the middle, depicted in the middle of this slide.

A. Yeah.

This is a line schematic of the PL-TCM, and again, it identifies the major components of the process.

Q. What's the main purpose of the PL-TCM for Usibor and Ductibor processing?

A. So we weld -- it's a continuous process, so we have to weld one coil to another that's already in the line.

The primary purpose is to clean the steel, and that is in the pickle process. Acid takes off the scale that was formed from the hot mill. It then gets trimmed and eventually rolled down to the thickness and shape that's required for the customer order.

Q. Now, is the PL-TCM used for products other than Usibor and Ductibor?

A. Yes, it is.

Q. Could Calvert convert slabs into Usibor and Ductibor without the PL-TCM?

A. No, it could not.

Q. Let's skip ahead to slide 39.

So after a coil of steel comes off the PL-TCM that's been destined to become Usibor and Ductibor, where does it go next?

A. Sure. It will go into our ST3 storage area until it is scheduled on, in this case, the number 4 hot-dip galvanizing line.

Q. So the number 4 hot-dip galvanizing line, is that what we see in the middle of this slide here?

A. Yes, it is.

Q. Is HDGL 4, is that one of four finishing lines that Calvert has?

A. Correct. We have four finishing lines.

Q. Are any of the other finishing lines besides line 4 used for Usibor and Ductibor?

A. No, they are not.

Q. Is there one product that gets the most time on this line?

A. Yeah. Usibor and Ductibor products, the aluminized press-hardened steels are primarily rolled on this line.

Q. Out of Usibor and Ductibor and the different grades, is there a particular grade that gets the most time on line 4?

A. Usibor 1500 is our primary grade there.

Q. Now, in some instances, is line 4 also used for other things, besides Usibor and Ductibor?

A. Yes, it is.

Q. Could Calvert manufacture Usibor and Ductibor without line 4?

A. No, we could not.

Q. I want to talk a little bit about line 4.

When the coil comes into the line, what happens first?

A. So again, it is a continuous process to ensure uniformity of the final material. So it gets welded to the coil ahead of it at the welder in step number 2.

Q. And then where does Usibor and Ductibor receive its aluminum coating?

A. So in step number 6 is the coating pot. This is a bath of a molten metal. In this case, the aluminum silicon coating. The material comes out of the furnace as a single thickness of strip. It goes into that molten bath, comes out of it, and goes through a set of air knives, which then take the excess coating off to achieve the desired customer coating weight.

Q. You mentioned desired customer coating weight.

What coating weights does Calvert offer or make for Usibor?

A. So the two coating weights we're doing today are

AS80 and AS150.

Q. Does Calvert make any coating weights besides AS80 and AS150?

A. No, we don't.

Q. Does it make more of one coating weight than the other?

A. AS150 is the predominant coating.

Q. So after it's coated and goes through some of these other processing steps, what happens to the Usibor and Ductibor at the end of the line?

A. Yeah. At the end of the line, the coil is sampled for any testing requirements, rolled back into a coil form, and then goes on to the next step, which is our storage and packaging area.

Q. So you mentioned some of the testing. I'd like, if you could, to turn to 635C in your binder.

And if we could get that on the screen.

Can you tell me, what is 635C.

A. Yeah.

This is a mill certificate that accompanies every coil that leaves Calvert.

Q. So for this particular mill certificate, where is the -- sorry about that.

So where is this particular coil associated with this mill certificate headed?

A. This coil will ultimately be sold to Ford Motor Company.

Q. It says, "Ship To: Precision Strip."

What is that?

A. That is the intermediate point that the mill will ship the material to.

Q. Does this mill certificate tell you the coating weight for this coil?

A. Yes, it does, in the Steel Grade Customer Spec line, it shows that it is an AS150 coating weight.

Q. You might have mentioned this a moment ago, but does every coil of steel that leaves the facility headed for a customer, does it get one of these?

A. It gets a mill certificate, yes.

Q. Let's look at the next page.

Does this show anything related to coating weight?

A. Yeah.

The top section there, this customer required coating weight to be certified, and in this case, you can see the top side and bottom side in grams per meter squared, showing that total, they meet the 150 -- AS150 requirement.

Q. So we can set that exhibit aside.

I want to talk now about what happens to the

coil when it leaves the Calvert facility.

Do you have a general understanding of what happens to the coil between when it leaves and before it's used for a finished part in an automotive product?

A. I'm generally aware that these coils go for a press-hardening stamp -- hot-stamping process. Get blanked put into a furnace, get formed into a part, that's about the extent of my knowledge on the process.

Q. So do you consider yourself to have expertise in hot-stamping?

A. No, I don't.

Q. Is that something you need to know about as the CEO of AM/NS Calvert?

A. No, it isn't.

Q. Let's talk a bit more about the size of some of the different buildings at the Calvert facility.

Did you supply some data for this investigation on the square footage of various facilities?

A. Yes, we did.

Q. Did you prepare a demonstrative to help you talk about that today?

A. Yes, we did.

Q. Let's have that demonstrative. It should be CDX-6. If we go to the next slide.

So sticking with about the same order, can you

walk me through the size of the various areas that Usibor and Ductibor touch.

A. Sure.

As the slab comes off the river, and is placed in the slab yard, you can see that that yard there is approximately 543,000 square feet.

It then enters the hot strip mill, which is 502,000 square feet.

Coming off the hot mill, it goes into storage location 1. The size of that facility is approximately 725,000 square feet.

If it's going on for further processing, it goes into the cold rolling mill, which is 421,000 square feet.

Q. Does Usibor and Ductibor go on for further processing?

A. Yes, it does.

Q. I want to ask briefly about the cold rolling mill before you go on.

So are there multiple lines in the cold rolling mill?

A. Yes, there are. It contains the PL-TCM and the CPL.

Q. It's impossible to do this question without a little bit of alphabet soup, but with the PL-TCM and HSM -- oh, sorry, PL-TCM -- well, strike that.

Let me just ask you: How much of this building is related to the PL-TCM?

A. Approximately 50 percent.

Q. Thank you.

What happens to the steel after the cold rolling mill?

A. So when the coil comes off the PL-TCM, it goes into storage location 3, ST3. The size of that building is approximately 154,000 square feet.

Then in the case of Usibor and Ductibor, it will go into building 2, which contains CAL Number 2 and HDGL Number 4, and that building is approximately 265,000 square feet.

Q. You mentioned that only HDGL4 is related to Usibor and Ductibor.

How much of that building is dedicated to HDGL4?

A. Approximately 50 percent.

Q. Where does it go next?

A. Once it leaves there, it goes into storage location 4, and the size of that building is approximately 780,000 square feet.

Q. You've got the lab and admin building square footages here, too.

A. Correct.

Q. Can you tell me what those are, and if those are

related to Usibor and Ductibor in any way.

A. Yeah.

The lab is where we do all of our mechanical property testing and investigations, and it's approximately 27,000 square feet.

The admin building houses all of the support people that support these types of products, and it's about 80,000 square feet.

Q. Thank you.

I'd like to get now some specifics about the coating weight volumes. If we could go to CX-689.

Is this data that your team provided for this investigation?

A. Yes, it is.

Q. Now, looking at 2015, what was the approximate split or percentage for AS150 versus AS80?

A. So AS150 represented about 96.9 percent of our production volume for 2015, and AS80, 3.1 percent.

Q. So 2024, is that a full year's data?

A. No, that is from January through June.

Q. So in January through June of 2024, what's the split of AS150 versus AS80?

A. AS150 represented 87.7 percent of the production volume of those products, and AS80 represented 12.3 percent.

Q. Let's change gears a bit to talk about what keeps all these lines we have been looking at running. We could set this exhibit aside.

About how many people does AM/NS Calvert employ?

A. Approximately 1600 full-time team members.

Q. How is that compensation, how would you describe it?

A. We are generally considered one of the highest wage-earning facilities in the manufacturing area for the Mobile region.

Q. Does ArcelorMittal also engage contractors, or I should say, does AM/NS Calvert also engage contractors?

A. Yeah. We typically will have around 300 contractors on-site.

Q. Let's pull up CX-685.

Can you tell me, what's CX-685.

A. These are the internal labor costs by department for AM/NS Calvert.

MR. SCHARN: Sorry. I should say we should go on the confidential record here.

JUDGE BHATTACHARYYA: Moving on to the ArcelorMittal confidential record.

(Whereupon, the trial proceeded in confidential session.)

O P E N S E S S I O N

MS. MORGAN: Ashbey Morgan on behalf of Complainants. We will call our next witness, Mr. Leblanc, and I have a few binders and slides for you.

May I approach?

JUDGE BHATTACHARYYA: Yes, you may.

We don't necessarily need the binders of exhibits.

MS. MORGAN: I have separated them out, so hopefully -- it will be interesting. Wait a minute.

JUDGE BHATTACHARYYA: Could you please raise your right hand.

Whereupon--

PETER LEBLANC,

having been first duly sworn, was examined and testified as follows:

THE WITNESS: I do.

JUDGE BHATTACHARYYA: Thank you.

DIRECT EXAMINATION

BY MS. MORGAN:

Q. Good morning, Mr. Leblanc.

A. Good morning.

Q. Would you please introduce yourself?

A. Yes. My name is Peter Leblanc, and I'm the chief marketing officer for ArcelorMittal.

Q. Can you describe your educational background, please.

A. Sure.

I have an engineering degree from a school called Hauser University located in Halifax, Nova Scotia, Canada. I furthered my education through some executive programs I have taken at Kellogg Northwestern, as well as McMaster University also in Hamilton.

Q. What did you do after you graduated?

A. When I graduated, I joined a steel company called Dofasco.

Q. What is Dofasco?

A. Dofasco is a fully integrated steel company. It's located in Hamilton, Ontario, Canada.

Q. Can you tell us generally what you did at Dofasco.

A. When I entered the company, I was a young engineer, so I did project management.

Eventually, I moved into more of the customer technical work tied to automotive. Then eventually, I moved into commercial roles within Dofasco.

Q. What do you mean by commercial roles?

A. I was assigned the sales and commercial responsibilities for a group of customers we called the new automotive manufacturers. They would be the Asian car

companies; basically, Honda, Toyota, Hyundai at the time.

Q. When did you join ArcelorMittal?

A. I joined ArcelorMittal in 1987, a long time ago.

Q. Have you always worked in the steel industry?

A. Yes, I have always -- for almost 38 years, I have been working in the steel industry.

Q. You mentioned earlier that you're chief marketing officer. Can you describe what you do?

A. Well, the chief marketing officer -- I'm the chief marketing officer for ArcelorMittal's North American automotive business. In that role, I'm responsible, really, for all aspects of the business, all of the relationship aspects, all of the selling, price negotiations, as well as setting the company up for future success by understanding and projecting what the future needs of this market are.

Q. And part of your role is sales; is that correct?

A. Pardon me.

Q. Part of you role is sales?

A. Absolutely. Sales is a big part of the roll.

Q. What products do you sell?

A. We sell flat rolled steel. These large coils of steel.

Q. Have you heard of the term "press-hardened steel"?

A. Yes, I have.
Q. What is that?
A. Press-hardened steel is material that leaves our plant as a large coil of steel, and then will go to a hot-stamper to be converted into a part.
Q. What products fall under the press-hardened steel family of products?
A. We have four today. We have Usibor 1500, Usibor 2000, Ductibor 500, and Ductibor 1000.
Q. And can you generally describe those products?
A. Yeah. These are very innovative products that we brought to market. They leave our plant, kind of in a semifinished state, but when they arrive at the hot-stampers, they are blanked. They are heated, and then they're formed into their final shape.

At that point, these materials have very, very high strength properties.

Q. Does ArcelorMittal do all of the steps of the manufacturing process you just described?
A. No. We just produce the large coils of steel.
Q. Is there a difference between press-hardened steel and hot-stamped steel?
A. Press-hardened steel, or hot-stamped steel -- well, press-hardened steel is the material, and hot-stamping is the process of converting it into a part.

Q. Do you sell the PHS product shown here on slide 2 with the intent that they be hot-stamped?
A. We do, yes.
Q. Who hot-stamps these products?
A. These parts are hot-stamped by the Tier 1 stampers.
Q. Can you give some examples of Tier 1 hot-stampers.
A. Sure.
We have -- there's many, but Magna, Gestamp, Simwon, Multimatic, GNS, Magna, Cannon. There's a few listed on this slide, but there's actually many more beyond this, so...
Q. Do the PHS products have a coating?
A. They have a coating. They have aluminum silicon coating.
Q. Are there two different coating weights that are offered with these products?
A. There are only two different coating weights offered in these products. We only make them as AS150, or AS80.
Q. What is AS150?
A. AS150 is aluminum silicon coating that's applied to the surface of the steel, really in its final operation in our plant. The 150 represents 150 grams per meter

squared, and that would be total both sides or 75 grams per meter squared per side, and that would be a target coating.

Q. You mentioned also AS80.

What is that?

A. The same, just a thinner coating. So that would be 80 grams per side target or 80 grams per meter squared total both sides.

Q. Which coating weight is more popular?

A. AS150 is vastly more popular than AS80.

Q. Who are your customers for the PHS products?

A. The customers -- the way we would define customers would be the OEMs, the car companies are where the commercial relationships exists between us and the car companies.

MS. MORGAN: Your Honor, if we could move into the confidential record.

JUDGE BHATTACHARYYA: Moving to the ArcelorMittal confidential record.

Please proceed.

(Whereupon, the trial proceeded in confidential session.)

O P E N S E S S I O N

MS. TABAT: Good morning, Your Honor. Julia Tabat on behalf of the Complainant, ArcelorMittal. I'd like to call our next witness, Mr. James Malackowski.

We'll have some demonstratives that we'll be using with Mr. Malackowski.

May I approach?

JUDGE BHATTACHARYYA: Yes, you may.

Mr. Malackowski, would you please raise your right hand.

Whereupon--

JAMES MALACKOWSKI,

having been first duly sworn, was examined and testified as follows:

THE WITNESS: I do.

JUDGE BHATTACHARYYA: Thank you.

DIRECT EXAMINATION

BY MS. TABAT:

Q. Good morning, Mr. Malackowski.

A. Good morning.

Q. Please introduce yourself.

A. Yes. My name is James Malackowski. I grew up on a small family farm in Indiana.

Today, I live with my family in Florida, two kids, one graduated from college two years ago. One is a

senior in college.

Q. Where do you work?

A. So I am a senior managing director for Ocean Tomo, which is a part of JS Held, which is a large engineering consultancy.

Q. Where are Ocean Tomo's offices located?

A. So our offices are located throughout the United States. Our parent company is throughout the world.

I report to the Chicago office, which is the headquarters for the intellectual property practice.

Q. What are you here to talk about today?

A. So I have been asked to provide my opinion on the economics related to domestic industry, as well as remedy and bond.

Q. Did you prepare any slides to assist with your testimony today?

A. Yes, ma'am, I did.

Q. Are those pulled up? Okay.

Are these the slides that you prepared?

A. They are.

Q. Before we get to your analysis, could you please tell us about your education?

A. Yes.

So I was the first in my family to go to college. I went to the University of Notre Dame, which is

only about an hour-and-a-half down the road from where I grew up. I studied accounting and philosophy. And following graduation, I went straight to the workforce.

Q. What did you do after graduation?

A. So I went to work for a consulting firm that focused on dispute accounting, mostly litigated some damages, but also utility rate-making.

Your Honor, this was shortly after the creation of the fed circuit, so we got our first patent infringement case, which I volunteered for, so they gave me the second, and then pretty soon, that was all I was doing for a period of three years. Became one of a select group within the firm focused on patent litigation and intellectual property damages.

Q. I think you said you did that for three years?

A. I did.

Q. What did you do next?

A. So almost on my third anniversary, a client came and asked me to value a patent outside of the litigation context, and that was not within the mandate of the firm, and I was told it was not covered by the insurance of the firm.

So I left, Your Honor, and started what I believed to be the first ever intellectual property valuation and dispute accounting boutique.

We started with five people, and we got lucky. We grew to just under 300 when we sold it to a public company in 1999.

Q. What did you do after that?

A. So I actually went in-house with the investment firm that supported us and began to look at making investments in companies with strong, underlying intellectual property, primarily patented technology.

Q. I think you said your current role is with Ocean Tomo; is that right?

A. Yes. So I was in the investment space for about three years and started Ocean Tomo in 2003 to bring all of that work together.

Q. What are your responsibilities at Ocean Tomo?

A. Well, as the former cofounder and chairperson, I have administrative responsibilities across the whole practice. So today, we have four groups. The opinion group, which is the litigation support, kind of what we're doing today; the valuation practice, of course; and investments practice; and then an analytic practice where we look at patent analytics and evidence of use, and that sort of thing.

So I have administrative responsibility, and then actual client responsibilities.

Q. Do you have any other credentials you draw upon

when you are performing your responsibilities?

A. I do. Some of them are shown on the screen. There are certain certifications I hold, teaching experience I have, and fiduciary responsibilities.

Q. Can you touch on the certifications that you have?

A. Yes. Your Honor, I show two. The first one, I'm guessing you're familiar with the certified public accountant. So I have been a registered CPA ever since the late 1980s, and continue to be so.

The second one, people are less familiar with. It's called a certified licensing professional, or CLP. That's someone who has a degree of experience and passes a certain examination regarding technology licensing and technology transfer, including the subject of valuation, negotiation, deal terms.

Q. So you have mentioned a lot of experience with intellectual property valuation. Have you ever taught classes related to IP?

A. I have. Probably part of my job I enjoy the most. I certainly teach to newer people in the firm, but mostly to lawyers teaching the financial aspects, for example, damage calculations or valuations.

Then I've taught at a number of academic programs from Harvard to California, either as a guest

lecturer or as a full-time semester course. Not full-time for me, but full-time for those students.

Q. Do you have any industry organizations you're associated with that you draw upon when performing your responsibilities?

A. There are several, but the one that I think is most noted shown on the screen here is, Your Honor, I -- a past president of the Licensing Executives Society. If you are not familiar with that group, when I ran it, we had about 10,000 members in 32 countries. Our goal was the business of licensing on a global basis. So focused on patent licensing, valuation, very similar to the issues we'll talk about today.

Q. Mr. Malackowski, have you testified as an economic expert before tribunals before?

A. I have. In district court, tax court, bankruptcy court, international courts. I have testified just over 100 times on intellectual property matters.

Q. Have you ever testified before the International Trade Commission?

A. I have. I'm happy to say, this is I think my tenth visit to the Commission as a witness. So I have been here over the years.

Q. What was the context of your past ITC testimony?

A. It's similar. Focused on domestic industry,

remedies, bonds, and then also public interest factors.

Q. With respect to the time that you've spent working on this case, how is your firm being compensated?

A. So my time and my colleagues' time is billed at an hourly rate, and the firm charges that way.

Q. Does your or your firm's compensation depend in any way on the outcome of this case?

A. No, of course, we are an independent expert, so the outcome is irrelevant to our opinion or to our work.

MS. TABAT: Your Honor, ArcelorMittal offers James Malackowski as an expert in the assessment of the economic prong of the domestic industry requirement under Section 337 of the Tariff Act of 1930, as amended as well as certain issues related to bonding and remedies.

JUDGE BHATTACHARYYA: Any objection?

MR. WILSON: No objection, Your Honor.

JUDGE BHATTACHARYYA: At this time, Mr. Malackowski is admitted as an expert in the assessment of economic prong of the domestic industry requirement under Section 337 of the Tariff Act of 1930, as amended as well as certain issues relating to bonding and remedies.

MS. TABAT: Thank you, Your Honor.

BY MS. TABAT:

Q. What types of information did you rely upon in performing your analysis in this investigation?

A. Well, it was significant, much of which we have heard over the last few days, but in all of my assignments, Your Honor, I start by looking at the patents. That's been the focus of my career. I'm a patent holder. So I try to understand what the technology is.

Then, as shown on the graphics, I agree to confidentiality, and then have an opportunity to review the business records, do my own independent research, and then of course, look at the other expert reports, both the technical expert reports, which I rely upon, but if there's an opposing economic or accounting expert, I will always look to that to see if there's something further I should be considering.

Q. Have you been listening to the evidence that's been presented at this hearing?

A. Yes. I have been sitting in the back row the entire period.

Q. Can you remind us of what your assignment was in this investigation.

A. Yes. It's as described on the screen, to provide my opinions regarding the domestic prong of domestic industry, the economic prong of domestic industry, and certain issues related to remedies and bonds.

Q. How did you go about undertaking this assignment?

A. So there's basically three steps in my process. The first is factfinding, the investigation to bring myself up to speed on the issues.

The second is to put on my accounting hat, and to quantify various investments and other metrics that I believe will be helpful for the Commission.

Then lastly, to me, it's important to always step back and look at the results of that math for significance or testing. So I completed all three of those in this case.

Q. Let's start with fact-finding.

Where did you begin there?

A. So I began by understanding what the domestic industry product is here, as well as then investigating the market, the facilities that are at issue, and the parties that are at issue.

Q. Did you review the patents when you began this investigation?

A. Yes. As I indicated, that is really where I start.

Q. What did you learn from your review of the patents?

A. So from not only my review of the patents, but also the opportunity to discuss them with Dr. Fekete, the technical expert, who I believe is after me, what I learned

is what they generally address and cover, but as well as the technical aspect of those inventions, that are going to be important to the industry, and in particular, the customers and the market.

So I refer to that as sort of the nexus between what these patents cover, and what actually customers want and pay for.

Q. What was the next step in your fact-finding process?

A. So parting by looking at the marketplace, and generally, I refer to that as the supply chain.

So I'll be brief because I know we have covered this many times, but this starts with the commodity product, which is the steel slabs. It's processed for example, through Calvert, to create the aluminized PHS. That's sent to the hot-stampers to create the parts. That's sent to the auto companies to create the consumer product that has the features and benefits of the inventions.

Q. Why was it important for you to consider the supply chain in your analysis?

A. Well, two reasons. One is to understand which investments would be particular, relevant to the question of domestic industry, and then also to understand the benefits of that technology from that nexus or demand

standpoint.

MS. TABAT: Your Honor, at this time, I'd like to move to the confidential record. We may be touching on confidential information from here on out from non-parties.

JUDGE BHATTACHARYYA: Okay. We're moving on to the all-parties confidential record.

(Whereupon, the trial proceeded in confidential session.)

Ex. 2009
IPR2024-01377

O P E N S E S S I O N

JUDGE BHATTACHARYYA: Please raise your right hand.

Whereupon--

JAMES FEKETE, PhD,

having been first duly sworn, was examined and testified as follows:

JUDGE BHATTACHARYYA: Thank you.

DIRECT EXAMINATION

BY MR. REITER:

Q. Good afternoon.

Could you please state your name for the record, sir.

A. James Fekete.

Q. Could you tell us a little bit about yourself, Dr. Fekete.

A. Sure.

I'm a metallurgist, I've had roles in science and in engineering, also in quality management. Fundamentally, I'm a metallurgist.

Q. How did you get involved in metallurgy? And if you could maybe move the microphones a little closer to you.

A. There we go.

Q. How did you get involved in metallurgy?

Ex. 2009
IPR2024-01377

A. Well, I grew up in western Pennsylvania and in the heart of the steel industry, and the steel industry was interesting. It was interesting to grow up around it.

I also from a small child was kind of a car guy. I still am. I still enjoy my cars.

If you wanted to work in the auto industry, and you kind of were around steel, becoming a metallurgist was the way to go. I even read an article or a -- an editorial in Hot Rod Magazine in 1969 that said, if you want to be in the auto industry, go be an engineer. So that's kind of the path I took.

Q. All right. Well, let's take a look at your CV and how you were able to fulfill that objective.

So I have got on the slide, slide 3, CX-90.

What is that?

A. That's my CV.

Q. Okay. Let's walk through that briefly. Where did you go to school?

A. I have a bachelor's in metallurgy from Carnegie Mellon, a master's degree from Case Western Reserve in Cleveland and a PhD from University of Michigan all in material science and metallurgy.

Q. When did get your PhD?

A. 1986.

Q. What was your dissertation?

A. Deformation behavior of tungsten bi-crystals.
Q. It sounds exciting.
A. It worked.
Q. After you got your PhD in 1986, where did you go work?
A. I went to work for Allied Signal, it was a company that made automotive brakes and I worked mainly on what's called the foundation break, which is the part that attaches to the hub in the wheel. We worked on developing advanced materials which included aluminum, aluminum composites, steel and cast iron.
Q. I see you left Allied in 1988 and started at National Steel; is that right?
A. That's correct.
Q. What did you do there?
A. At National Steel, I was in their R&D lab. I managed a team that was responsible for developing new advanced steel products, especially high-strength steel products.

One of the interesting projects that we worked on was using heat-treated steel to improve the fatigue life of road wheels and performance of steel bumper beams, which is really kind of a precursor to hot-stamping, a version of hot-stamping, just not stamping.

Q. A precursor. Okay.

After National Steel, where did you go?

A. General Motors, where I was responsible for developing new steel products, which included working with the suppliers, working on manufacturing process guidelines for our plants, and developing performance requirements.

Ultimately, I was elected a technical fellow, which is a position that's selected by senior leadership based on your achievement and expertise in the industry.

Q. Do you still work for General Motors?

(Clarification requested by the Realtime Stenographer.)

A. I do not.

Q. Where did you go after General Motors?

A. I went to work for the National Institute of Standards and Technology, also known as NIST. I was chief of the applied chemicals and materials divisions where we did research on developing materials and measurements for advanced steels and advanced chemicals, which included design and performance assessments of advanced steels.

Q. What is the National Institute of Standards and Technology?

A. It's the National Metrological Institute for the United States. It manages all of the fundamental measurement standards. It's also an acclaimed research laboratory, within the federal government. I personally worked with three different Nobel laureates during my time

there.

Q. Where did you go after National Institute?

A. Then I went to Novelis where I rose to become the director of the R&D lab at the Americas. Novelis is the leading producer of sheet aluminum in the world and also the world's largest recycler of aluminum.

There we were doing development of advanced steel products, once again, sheet products, mainly to increase the strength of aluminum alloys and also to increase the amount of recycled material used in those alloys.

Q. Did you leave Novelis?

A. Yes, I did. I retired in December of 2023.

Q. What do you do now?

A. I'm an independent consultant. I have my own LLC, JRF Technical Consulting.

I work with other science and engineering organizations around metallurgy. I also do laboratory assessments as a contractor for the American Association of Laboratory Assessments.

Q. Over the course of your career, have you ever taught metallurgy or material science?

A. When I was at NIST, I taught a course as an adjunct Professor at the University of Colorado Boulder, manufacturing processes and systems.

It was a required senior level class that included a number of manufacturing technologies. We taught machining and forming and welding and other sort of manufacturing techniques.

Q. How about technical papers or presentations?

A. Yeah. There's been over 40 technical papers. I have written two book chapters on automotive steel specifically, and I've had over 20 invited presentations to international conferences.

Q. Through the course of your career, have you received any awards recognizing your work?

A. Yeah. I have received an award from the Department of Commerce for some failure analyses we did for the Chemical Safety Board on industrial accidents.

I worked from GM R&D, working with them on formability databases, and the first, really, expression of formability databases.

A couple of awards from the Auto/Steel Partnership and the US Council for Automotive Research for a long-term contribution to the high strength steel stamping programs.

Q. Are you being paid for your time in this case?

A. Yes.

Q. How much?

A. $450 an hour.

Q. Does your compensation depend on the outcome of this case?

A. It does not.

MR. REITER: Your Honor, at this time, I'd like to offer Dr. Fekete as an expert in material science, including the development of steels and the technology of the asserted patents.

MR. MCKEON: No objection, Your Honor.

JUDGE BHATTACHARYYA: Thank you.

At this time, Dr. Fekete is admitted as an expert in material science, including the development of steels and the technology of the asserted patents.

MR. REITER: Thank you, Your Honor.

BY MR. REITER:

Q. Let's talk a little bit about the patents at issue.

On the screen, I have JX-1 and JX-2. Have you reviewed those?

A. Yes.

Q. Briefly, what is your understanding based on that review of what the invention is?

A. The inventions are the hot-stamped steel products that have a special succession of coating layers, these four layers we have been talking about, when blanks are stamped into -- and hot-stamped from these coated

steels.

Q. We've heard some things about interdiffusion, does that have anything to do with this invention?

A. Yeah. When you take that precursor material with aluminum silica alloy and you hot-stamp it, you must end up with a interdiffusion process happening that creates -- for the structure.

Q. On the next slide, 16, can you explain what this shows.

A. Yeah.

This is Figure 1 of both of those patents.

It shows the preferred embodiment of the invention which discloses the four layers starting from the steel substrate out. It's the interdiffusion layer, the intermediate layer and aluminum-rich intermetallic layer and a superficial layer.

Q. I see interdiffusion layer, is that something different than an interdiffusion process?

A. The interdiffusion process results in interdiffusion layer among other things.

Q. Do the patents describe any benefits that are achieved as a result of this invention?

A. Creating the four-layer structure as disclosed in the patent results in a couple of good things.

One is high weldability, or improved

weldability. It also provides resistance to corrosion, and it also provides a good capacity for painting and gluing, mainly because the material allows that paint and glue to adhere to the coating.

Q. What do you mean by weldability? What is that?

A. Well, in the context of this patent, these parts that we're talking about are generally assembled into a body using a process called spot wedding.

Spot welding is a process where, you know, you've got two copper electrodes that clamp down two or more sheets of metal, add current, and -- to heat it and then hold it for a certain amount of time, and when you improve weldability, what you're doing is you're improving the window of minimum to maximum current, minimum to maximum time to get a good weld.

Now, these welds are very important to the structure of the vehicle. They're really non-negotiable. If the body designers design a weld in, that weld has to be there in order for the body-in-white to perform its function, which is really hold the car together, but also keep you safe in a crash.

These bodies have a lot of welds. They can have 3,000 or more welds in them, the spot welds. They have to be done efficiently, and they also have to be done correctly.

When we improve the weldability of a material, that's a big enabler for being able to produce a body with high quality and very productively.

Q. Let's get into that a little bit more concretely.

You mentioned body-in-white. Let's turn to the next slide, 18.

What is this showing?

A. Well, this is showing the schematic of a body-in-white, which is basically the structural body parts of a car, which -- to which pretty much everything is connected to. The engine connects to it, the transmission, the suspension and everything, and the interior piece as well.

This picture actually shows a component we call a door ring, which is manufactured from hot-stamped components.

Q. What is that that's behind you, Dr. Fekete?

A. This here is a -- it's a door ring. It's a hot-stamped door ring from a Tesla Model Y.

Q. Is that one piece of steel?

A. That started out as five pieces of steel. There are laser welds that you can -- well, can I get up and show you?

JUDGE BHATTACHARYYA: That's fine.

MR. REITER: Yeah.

THE WITNESS: Sorry about that.

BY MR. REITER:

Q. You will have to speak up.

A. I will speak up my normal voice.

So this piece of steel has welds. You can see that they're kind of orange here. That's actually the corrosion because when you do the laser welding, the coating is burned off, so the steel underneath can corrode.

So you see one here. You see one here. One down here. And one here.

So the way this part was manufactured, it started out as five different blanks that were then welded together, and then that part was hot-stamped. It was heated up in an oven, and then taken out, put into a tool, and it was stamped into this part as you see it here.

So it started out as five pieces, it was welded together as blanks, and then it was stamped.

Q. On the slide, we see an A-Pillar and a B-Pillar.

Are those on this door ring that you are standing in front of?

A. Yeah.

The A-Pillar is the part that goes next to the windshield. It's a structural component to the part, too. It performs a very important aspect of crash management,

crash energy management.

The B-Pillar is the pillar between the front and rear door, and that pillar, among other things, protects you from impact intrusion in a side impact.

So they're very important pieces.

Q. Is that B-Pillar just one piece of steel?

A. No, this is just one of the components of the B-Pillar. There could be others. There's others -- there's an inner and outer panel that come together, and there's also likely some reinforcements -- I don't know specifically this vehicle, but there's usually a reinforcement in there, too.

Q. Thank you, Dr. Fekete.

So you were talking about welding things together.

If we go to the next slide, is that an illustration of what you were saying would happen with this part?

A. Yeah.

When you show -- when you see that component, the way it's being pushed into the car, it would be welded into all those components, usually with spot welds.

Q. Let's talk about what you were asked to do.

So what were you asked to do?

A. Really two things. I was asked to assess

whether the VinFast accused products infringe the asserted patents, and whether the domestic industry direct products practice the asserted patents.

Q. In the process of doing that evaluation, what materials did you consider?

A. As listed here, the patents and their file histories.

Depositions from Tier 1 hot-stampers and other documents.

The OEM manufacturing specifications. When we talk about OEMs, it's the original equipment manufacturers. These are the automobile companies, people that make the cars, as a rule.

Documents produced by VinFast and ArcelorMittal in this investigation.

The testing results, of which we're going to talk about in some detail later on, both for the VinFast accused products and the DI direct products.

Then I did review the rebuttal expert reports of Dr. Brown and Dr. Bradley, the VinFast experts, as well as their depositions.

Q. Okay.

What are the products that are accused of infringement?

A. The products that are accused are the VinFast

VF 8 and the VinFast VF 9.

Q. What parts from those products did you evaluate?

A. We evaluated the 16 parts you see on the slide here, all of which were components of the body-in-white, and all of which have an important role to play in the structural performance of that vehicle.

Q. Does the blue shading in the image indicate where these parts are in the car?

A. That shows you where the parts are in the car schematically, yes.

Q. What about the DI products; what did you evaluate?

A. We evaluated the products you see in the table on the left, which is a subset of the parts you see in the picture on the right. We didn't test all the parts in the picture on the right, but they were all products made from hot-stamping aluminum alloy-coated steels in the US.

Q. We have been talking about aluminum alloy-coated steels that are hot-stamped.

Where do those -- what are examples of where that pre-coated steel comes from?

A. Some of the alloy steel coated -- the aluminum alloy-coated steels for hot-stamping come from ArcelorMittal, their Usibor and Ductibor products, and also from Cliffs, their Ultralume product.

Q. I see underneath the ArcelorMittal logo, something about coating weight.

What does that refer to?

A. Well, ArcelorMittal produces that with two thickness of the precursor aluminum silicon alloy layer, they call it AS80 and AS150, and those numbers refer to the thickness of the coating or the weight of the coating on the steel.

Q. Is that before or after hot-stamping?

A. It's before hot-stamping.

Q. And Ultralume, did you consider any products from Ultralume -- or from Cleveland-Cliffs, I'm sorry?

A. Well, the Cliffs product is the Ultralume. They call it 60G/60G, and that refers to 60 grams per square meter of the coating, the precursor aluminum silicon coating on the steel sheet, which is the same as the -- it's equivalent to the AS150 product.

Q. Between the AS150 and the AS80 coating weight, is there one that's used more predominantly or predominantly in the industry?

A. Yes.

As the ArcelorMittal sales data that's already been admitted into evidence in this proceeding, the OEMs purchase substantially more AS150. The OEM specs from Ford, GM, and Honda require AS150 as well.

And what we heard from Mr. Chronister from Cliffs, in his deposition, is that Ultralume 60G/60G is generally required by the OEMs.

Q. We have heard throughout the day about testing.

Did you -- were you here in the courtroom when we had argument, and when you heard -- when opening statements occurred?

A. Yes, I was here.

Q. Did you hear counsel say that you relied on a single SEM image to do your analysis?

A. I did hear that.

Q. Is that all you did?

A. No. We looked at substantially more data than that when we made our assessment.

Q. Well, let's talk about what you did.

How were the parts that you analyzed tested?

A. Along with Dr. Don Baskin, we developed a protocol for which all of the parts would be tested that we communicated to the folks that did the testing for us.

Q. How did you develop this protocol?

A. Well, Dr. Baskin drafted the first draft, and he and I worked together to refine it over several more drafts.

I approved the protocol before we used it for testing. Among the changes that I made to it, because I

thought we needed it for this proceeding, was the addition of line scans that I will talk about in more detail later, but I added that to the protocol.

Q. Did you yourself actually do the testing?

A. No, I did not.

Q. Who did it?

A. We had three labs that we contracted to do the testing, ETS, SGS, and Secat.

And then Secat subcontracted some of their testing to IMR Test Labs.

Q. Did you directly oversee the testing?

A. Well, Dr. Baskin directly oversees it. I didn't directly oversee it. I did some of that work myself with him.

Q. Did you speak with Dr. Baskin about the testing?

A. Yes, of course.

Q. What did Dr. Baskin do with respect to the labs?

A. Well, he took kind of the lead role dealing with the labs.

He ensured that they understood the protocol. He ensured that they had the right equipment and experience to do the tests, they were really able to do the tests we were asking for.

He reviewed the sample preparation techniques that we used in the -- in this work, confirmed that the

equipment was properly calibrated.

As the work was going on, he communicated with the labs, make sure things were going well.

And he did physical visits to ETS and SGS, and he virtually visited Secat.

Q. Why did you have Dr. Baskin do that?

A. Mainly because we were under a tight timeline. There was a lot of work to do, so we split it up.

Q. What did you do?

A. Some of the roles that I did was I visited the Calvert plant in Alabama, which we have discussed in here.

I visited Special Projects, which is a company in Plymouth, Michigan, where the VF 8 vehicle was taken and dismantled. I did review the results as they were come in to see how they were doing.

But Dr. Baskin really worked with the labs directly to oversee the testing.

Q. In your opinion, based on the data that you've seen, did the labs do a proper job?

A. Yes.

Q. Why do you believe that to be true?

A. One of the main reasons I have high confidence in the lab testing is that we were careful to choose laboratories that were accredited for the tests that they were producing.

Q. What are we seeing on this slide 34?
A. We're seeing the actual tests. Basically, the scope of testing for which these laboratories was certified. Their certificates, if you will.
Q. If we go to the next slide, is there a particular accreditation that is important in this type of work?
A. Well, the standard that they're being accredited to is ISO/IEC 17025 which is general requirements for competence in testing and calibration laboratories.
Q. What does this certification or accreditation mean?
A. It ensures that a laboratory that follows the standard is producing valid and reproducible results. It's really -- they're demonstrating their competence in the tests for which they earning their caliber -- their scope of certifications.
Q. Any experience with this certification outside of this case?
A. Well, I've -- I have worked in laboratories that have been certified or assessed to this standard. I have led laboratories that have been assessed to the standard. Novelis, our laboratory, was ISO 17025 certified. I'm also a contract assessor for the American Association for Laboratory Accreditation. So I have been working on both

sides of the table on this for a while.

Q. Let's walk through the protocol that you and Dr. Baskin prepared.

Let's go to slide 36, please. What does this show?

A. Well, we shipped the parts to the laboratories, and the first thing they did upon receipt is photograph the hot-stamped components as they received them.

Q. If we go to the next slide, 37, what does this show?

A. This is an example of one of the parts, and I'll be referring to this part as an exemplar, as we go through this process. It's the 7022 part, it's a front crash management part, and the photo you see is how it was -- how it appeared when it was delivered to ATS.

Q. Okay.

Were other photos of the parts taken?

A. Yes.

We photographed all of the parts. In this case, you're looking at a part, a door ring, similar to the one I just showed you. We define hot-stamped component as a piece of steel that has been hot-stamped.

Parts can have multiple components. This one behind me does. The one on the screen does. It's actually started out as six different sheets of steel that were

laser welded together, and pressed into a part.

Now, what we asked the laboratories to do is to test each hot-stamped component.

So in this example here, they would have tested six different hot-stamped components corresponding to the six different sheets of steel that were used to make the part.

Q. Who put the annotations on the photograph?

A. The laboratories did that. Those yellow lines indicate the laser welds.

Q. Let's go to the next step of the process, on slide 39. What are we seeing here?

A. Well, what we're seeing here is for each hot-stamped component, and like I say, we defined it by each individual piece of sheet that went into a part, so from each component, we took three squares, 50-by-50 millimeters.

Q. How were those squares removed?

A. They were removed -- those squares were removed with an angle grinder or a band saw.

Q. Then what happened to those squares?

A. Well, those three squares, then, we used a -- sort of a more sophisticated tool, this IsoMet low-speed saw. The reason we use that is to protect the coating when we actually cut through it this time. So that when we had

two pieces, we would have two good samples. Then we ended up with two 10-by-20 millimeter coupons from each square.

Q. What happens to those coupons?

A. Those coupons are metallographically prepared. What that means you take that coupon, and put it on an edge so the two sides of the coating can be analyzed.

You put it -- clip it together with a metallurgical clip you put it in a mold or epoxy and let the epoxy cure, and you end up with basically what we call a puck, with the two pieces of the steel -- coated steel in the puck.

Q. Once the coated steel is in the puck, in the epoxy, what happens next?

A. Well, the next thing you do is now you want to prepare it for metallographic examination. So you sand it with sandpaper to finer and finer levels. Then you go to a diamond suspension.

You ultimately end up with a mirror-like surface. After you have the mirror-like surface and you etch in the 3 to 5 percent nital, which is nitric acid and water solution, to basically bring out some of the features in the part.

Q. I know the labs did all of this testing in this case. Have you ever done this?

A. I have done hundreds of these. I did them as an

undergraduate, I did them in graduate school, and I did them as a professional.

Q. So let's go to the next slide, 43.

What do we see here?

A. You're seeing basically the upper left image is a puck. It's, once again, from the 7022 part which we show the pictures of below.

Q. How do we know that the puck has the 7022 part?

A. Well, the way we asked the labs to do it is they actually added the part number to each of the pucks.

Q. Do you see the part number in the lower right-hand corner?

A. Yeah.

Q. For the raw or the original part?

A. That's the original part number as it was sent to the lab.

Q. I think you just picked up a puck; is that right?

A. I did.

Q. Is that the 7022 puck?

A. It is the 7022 puck. It's written down on the bottom of the puck.

MR. REITER: Your Honor, I can bring one up if you'd like to see it.

JUDGE BHATTACHARYYA: That's fine. I can kind

of see it from here.

MR. REITER: Pretty exciting.

BY MR. REITER:

Q. All right.

MR. REITER: Do you want to see it?

MR. MCKEON: I love it. It's beautiful.

BY MR. REITER:

Q. You got the part and the puck all polished up.

What happens next?

A. Well, next, we take it to a scanning electron microscope where we perform a number of tests.

Q. Okay.

What did you do with the scanning electron microscope?

A. The first thing we do is take micrographs of the coating, basically what has been referred to in a number of our discussions around here is the SEMs. So we take the micrographs of the coating and the steel substrate, and we also make some measurements, specifically around the thickness of the coating, and the layers that make up the coating, as well as the elemental composition of each of the layers.

Q. The SEM machine can do more than just take a picture?

A. Yes. A lot more.

Q. Well, let's walk through these different tests that were done.

Did your protocol include what to do?

A. Yeah. The first thing we did was take those micrograph images, and we asked for images at 500x and 2000x.

Q. Let's go to the next slide, please.

Are we seeing some of the images here?

A. Yes, those are an example, once again, of the same exemplar part, the 500x and 2000x images.

Q. Why 500?

A. 500x was the image that we used in Figure 1 and Figure 2 of the patents.

Q. What about any other images that were taken?

A. We took images of the steel substrate, mainly for the purpose here was to confirm that the microstructure was martensitic, which was also one of the claims in the patents.

Q. You say steel substrate, is that different than the coating?

A. Yes. It's different than the coating. It's the steel underlying the coating.

Q. What's so important about this martensite or martensitic?

A. Well, one of the other claims in the patent is

it has to have a high mechanical strength over a thousand MPA and the way you accomplish that with steel is the hot-stamping heat treatment to create a martensitic microstructure. You see the structure here is it's common to have these angle or needle-like features in those and they basically tells me as a metallurgist, yeah, that's martensite.

Q. Were measurements of the coating thickness taken?

A. Yes.

We asked the labs for each of these coupons to take five thickness measurements in the labs. We asked them to do a measurement of each layer, and we asked them to do measurement of the total coating thickness. We asked them to do it in five locations in the samples that they selected.

Q. I see highlighted on the screen something ASTM B748-90 on slide 48.

What is that?

A. That is the standard test method for measurement of thickness of metallic coatings by measurement of cross-section with a scanning electron microscope. Exactly what we did.

Q. That's what you asked the labs to do?

A. Mm-hmm, yes.

Q. You were talking about chemical composition of the SEM machine can do that. How is that done?

A. We use the technique called energy-dispersive x-ray spectroscopy, or EDS. Basically when you illuminate a piece of metal with an electron beam, several things happen. One of them is you scatter electrons, and those are the -- those electrons that are scattered create the image that you will get.

You also create electrons and scatter -- I'm sorry, x-rays -- you scatter x-rays, and they're characteristic to the element that's being illuminated by the x-ray machine. So you can use those x-rays to do a chemical composition measurement of the sample.

Q. This slide also talks about line scans. What are line scans?

A. Well, yeah, we did line scans. A line scan is basically where we take that electron beam, and rather than just holding it in place, we actually traverse it through the coating from the substrate.

You look at the yellow line in the picture on the slide, that -- where it terminates at the left is the steel coating interface. We traverse from there out to the edge of the coating, and along the way we're measuring the chemical composition, specifically, silicon, iron, and aluminum as a function of distance away from that.

You look at the picture on the left, it's showing you that -- of the pictures you've seen before, this one is 90 degrees. It's just taken at 90 degrees away from our normal way.

So based -- rather than the steel sheet being parallel to the ground, the sheet is now perpendicular, and the coating, we can take a shot through it to the right.

Q. Do these line scans tell you anything about the different layers in the coating?

A. Well, they do.

They really are -- the patent defines the layers as having different mean compositions. So this is why I wanted the line scans in the data because that's what the patent asked for.

So you can see here, layer (a), which is the interdiffusion layer, its composition is changing as you go through the layer, which you kind of expect for a layer where the interdiffusion process is happening.

Then you have layer (b), which is the intermediate layer with a different composition. And then different layer (c), and you can see the composition changes. And then you go to layer (d), and the composition changes back.

So this is really important data to assess whether the claims of the patent that relate to mean

compositions are being met.

Q. Back on the spot EDS, or EDS, could you explain that in a little more detail?

A. Yes.

The patent did ask specifically for mean compositions. So along with the line scans, we took what we call spot measurements. That's where you are taking an electron beam, and you're just planting it on the sample, and taking x-ray measurements there to get that chemical composition of the whole coating, which would be a mean composition.

You take -- what we asked the labs to do was to take that at three different locations in each layer, and then average them together.

Q. Was there any kind of standard that governed the way in which these EDS tests were done?

A. Yeah, there's an ASTM standard for quantitative analysis by energy-dispersive spectroscopy. We asked the labs to use that standard, and we recognize that they did.

Q. I believe there were a few more tests that you did.

A. Yeah, we took now some measurements of the steel substrate. One of the measurements to get to the strength of the material, one of the claims, was Rockwell hardness.

Q. What is Rockwell hardness?

A. Well, Rockwell hardness is a test where you take a sharp indenter, sharper than the material you're testing, and you put a known weight on it, you press that indenter into the sample, and the distance that you push it into the sample is a measurement of hardness. If it goes in further, that means the hardness is lower.

So we removed the coating, and we removed anything on top of the steel until we had just plain steel, and then we ran this hardness test.

Q. Is there a standard governing how this test should be performed?

A. Yeah. ASTM E18, the standard method for Rockwell hardness.

Q. What about the base steel elemental composition, was that tested?

A. Yes, the same -- in this case, we used spark atomic emission spectroscopy, AES, to ASTM E415, after we ground off the paint layer and the coating so we just got the steel.

Q. A lot of tests.

A. A lot of tests.

Q. In performing these tests, did you tell the labs what you were looking for?

A. When we gave them the protocol, we told them they should be looking for a four-layer structure. They

should expect to see one.

Sometimes they did, sometimes, you know... most of the time, they did. But that's all.

We told them to measure thickness, but we did not tell them where.

We told them to measure chemical composition, but we did not tell them where.

We just basically said, here's the tests we want you to run, give us the data.

Q. You tell them what thickness you were thinking you should be -- should be found?

A. No. We never showed them that. I never showed them that.

Q. So how were these -- all of this data reported to you, how did they summarize that?

A. Well, here's an example of a report that we would get back from the laboratories, giving us the data for each of the parts.

So this is a shot, once again, from the 7022 exemplar part.

Q. Who put this format together?

A. Dr. Baskin and I created the template.

Q. You asked the labs to fill it in?

A. Right, and this is what we asked them to fill in.

Q. So let's walk through what's shown on --

MR. MCKEON: Your Honor, I just wonder if I may interrupt for a second. I apologize.

JUDGE BHATTACHARYYA: Yes.

MR. MCKEON: I just wanted to have an objection on the underlying exhibits here. It gets to the binders, and the documents we talked about earlier.

There's -- for example, one of the exhibits is 650 pages. Vast majority of the documents were not cited in Mr. Fekete's report at all.

So I want to speed this along, but I just wanted to object to the underlying exhibits, as many compilation of tons of paper, and SEMs and everything.

I think the best way to proceed is to let this go forward, and we can file a motion, I guess, to strike the particular portions of these exhibits where there's no citation in the report.

That's my proposal for moving this along.

MR. REITER: Obviously, I disagree, Your Honor. We do want to move this along.

JUDGE BHATTACHARYYA: Okay.

MR. REITER: The data was produced. The data was produced in files.

This is the summary of all the data that was produced based on the protocol that we just went through,

which was also produced.

So happy to have them file a motion, then we can respond to it, but it was all given. I'm not going to repeat everything I've said before.

JUDGE BHATTACHARYYA: Does he say something in his report about we received lab testing reports?

MR. REITER: Yeah, that was what I showed you in the materials considered. It says, all of the test data.

And then in the exhibits that we talked about before Dr. Fekete took the stand, each of those exhibits identifies the different type of data, which I'm about to walk through, that was reported and collected. We just segmented that data by data type rather than by part.

JUDGE BHATTACHARYYA: Okay. Let's move forward, and we'll discuss how to resolve this and any remaining disputes later.

MR. REITER: Understood. Thank you, Your Honor.

BY MR. REITER:

Q. All right. Well, let's walk through the summary chart, Dr. Fekete.

So we see the chart. What information is included in this summary chart, what data?

A. Well, it includes the SEM images. All the things we talked about, the SEM images, the thicknesses of the coating, the line scan, the EDS spot testing

compositions, the hardness data and the base steel elemental compositions.

Q. Okay. Let's take those one by one.

So in the next slide, I see at the bottom of -- this was an Excel spreadsheet; is that right?

A. Correct. This was reported to us as an Excel spreadsheet.

Q. Okay.

At the bottom, there are three different tabs.

What does that refer to?

A. Well, if you remember from the protocol, we asked them, for each hot-stamped component, to take three squares. So the data for all three squares is shown in each of the three tabs.

Q. In that Excel spreadsheet?

A. In that Excel spreadsheet, yes.

Q. Okay.

Now, let's walk through of this example of the spreadsheet for square 1 of the 7022 part.

So on slide 62 of 847C, CX-0847C, what do we see here?

A. Well, what we see here is that we've identified their blank number, our part number, the square number that they did, and then we've got the two coupons that we took from each square. So we have each coupon tested -- or the

results shown separately.

Q. Okay.

I see in the column to the right of coupon, there's layer, substrate, 1, 2, 3, 4.

What does that represent?

A. Well, as we said, we asked them to look for four layers. So they basically reported, you know, substrate information, where it was appropriate, and then layer 1, 2, 3, 4, which is layer (a), (b), (c), (d) in the patent, and then where appropriate, overall measurement, like, for example, for thickness, and then we did that for both of the coupons.

Q. Did the report include a thickness measurement?

A. Yes.

Q. What do we see on this slide, 63?

A. Well, on this slide, now here's how we reported the thickness measurements.

As I said, we asked them to take five measurements of thickness, and give us the measurements for all four of the layers, plus the overall thickness.

And then they took that, and they averaged it, and that average is what you will see in the tables we used during the infringement analysis.

Q. I see the Rockwell hardness.

Does that relate to the thickness of the

coating?

A. No. As you see, it's in the Substrate row, and it really is the hardness measurement in Rockwell C for the substrate.

Q. Moving to the right on the spreadsheet, what is the next set of data?

A. The next set of data is the spot EDS analyses.

Once again, for each layer, we asked them to measure three times. So you will see columns for iron, columns for aluminum, columns for silicon, which are the three main components of the coating.

Q. Moving further to the right, what do we see?

A. So here, we see EDS or SEM images, and the labs were also asked to label the four, layers, so the labs did that.

MR. MCKEON: Objection, Your Honor. Again, I'm going to state the objection, and in kindness to the expert report the four layers. We have very specific SEMs in his report on the four layers. These are not them.

So I want to make that objection very clear.

JUDGE BHATTACHARYYA: Understood.

MR. REITER: Do I need to respond?

JUDGE BHATTACHARYYA: No. We're going to do that as part of the deferred issue.

MR. REITER: Okay.

BY MR. REITER:

Q. Moving further to the right on this spreadsheet, what do we see here?

A. These are the line scans. We accompanied each line scan, with, you know, the area of the coating that we actually looked at, so the yellow line.

Above the line scan is the area that we traversed with the electron beam to produce the data you see below the image.

Q. I think at the bottom of this spreadsheet, there's another micrograph.

What is that?

A. That's the steel substrate micrograph that we took to confirm the presence of martensite.

Q. Okay. I think finally there is a set of data at the bottom left-hand corner of the spreadsheet.

What is that?

A. Yes. That's the composition, the chemical composition of the steel substrate.

Q. Why did you have the labs fill out the spreadsheet that you and Dr. Baskin prepared?

A. It was -- we prepared this so that it would make it as easy for us as possible to do the assessment of whether VinFast was infringing and the DI was practicing. We were trying to get it into a place -- because there was

a lot of data here, as I think you can see. There is many images. There was many thickness measurements. A lot of things. So we tried to pull it into a way that we would actually use the data.

If we just had the binders, that would have been unusable. That's why we asked the labs, do this so we can do the analysis.

Q. Does this have any relationship to what you did when you were at General Motors or at other places in the industry?

A. Yes. We would often -- you know, we would request certain data from the labs. They would write us reports of the data. You know, and the reports would tell us the answer that we're looking for. It's -- you know, is it this thick or this strong or whatever. So it would be very common in my experience, that's how you would report data. You wouldn't provide every data record, and you know, with the report, if it wasn't asked for.

Q. Switching to the next slide, 70, what does this show?

A. This shows that we tested 50 parts. We tested 34 VinFast parts, and we tested 16 DI direct parts.

MR. MCKEON: Your Honor, just one more time on this to make a record.

This includes the three --

MR. REITER: No, it doesn't.

MR. MCKEON: The door rings.

MR. REITER: We took those off. You're talking about the door rings?

MR. MCKEON: The three Tesla door rings, 2, 3, and 4, which was not in his report. He has 13 DI products in his report, not 16.

So that's subject to our objections as well.

MR. REITER: As I explained, Your Honor, that was covered in footnote 9 on page 119.

I explained to Your Honor with Mr. Colaianni present on November 21st that more data was coming, that it would be imminent. That's exactly what happened. And we produced that data with Dr. Fekete's report, just as I promised Your Honor we would do. He included it. He included the analysis, and just as Mr. Colaianni asked for, they had an opportunity to respond.

MR. MCKEON: With respect to the exhibits, Your Honor, that he cites, with respect to each product, Tesla door ring 2, 3, and 4, are not cited. We don't -- they're just not there. So I --

JUDGE BHATTACHARYYA: Okay.

MR. MCKEON: We walked through the different exhibits. They supplemented the expert report from Volkswagen, but they didn't supplement it -- I'm not

talking about the footnote, Your Honor.

JUDGE BHATTACHARYYA: Is this an issue for cross-examination, if he doesn't have these products, can you --

MR. MCKEON: We can take it up on cross-examination for certain, Your Honor. I plan on doing that, but I did want to make a fundamental objection of it not being in the report. I can show that in cross-examination as well. I just wanted to note the objection, Your Honor, so I'm not waiving.

JUDGE BHATTACHARYYA: All right.

Mr. Reiter, can you point to --

MR. REITER: Well, yes, I can. I have already pointed to the footnote where he explains the data that had just come in. We have a chart that -- on page 22.

JUDGE BHATTACHARYYA: Page 22 of his opening report?

MR. REITER: 22 of his report.

Tesla door ring x4, and it identifies each of the four parts. This is in his original report on page 22.

Then as I have already talked about, we have footnote 19, which talks about all of the different parts that we had just gotten the data in. We said we were reproducing the data with Bates numbers, so we produced it before we even had Bates numbers.

We provided the reports. We provided the data. We provided it with Dr. Fekete's report. He analyzed the data.

As I said, Your Honor, sorry to be a broken record, but this was previewed to Your Honor on November 21st, that this data was coming in. We put off the expert report by a weekend. Due on Friday. We moved it to Monday. We added this additional information. Just as I promised.

JUDGE BHATTACHARYYA: What pages?

MR. REITER: 119.

The results for the other door rings were received shortly before the deadline for service. The results are not detailed in the exhibits, but also practiced. We identify them, and then we provided all of it by -- we produced all of the data with the report, and then we provided Bates-numbered copies.

JUDGE BHATTACHARYYA: All right. How is one supposed to figure out if that adds up to 50 or --

MR. REITER: I'm sorry?

JUDGE BHATTACHARYYA: It seems like the dispute is whether it adds up to the number of products on the slide.

MR. REITER: Yes.

I think what Mr. McKeon is saying is that my

number should be 13 instead of 16, on the DI parts.

JUDGE BHATTACHARYYA: How many products are on page 22?

MR. REITER: How many products are on page 22. Let me go back to page 22. There were three, that Your Honor excluded, and that's not included in the counting. That would have been 19.

I am told there are 15 parts identified here, but then we had a supplemental report, four -- four what -- four Cleveland-Cliffs parts came later, which were put in the supplemental report.

JUDGE BHATTACHARYYA: So you're saying there are 12 parts listed on page 22 of the report. 12?

MR. REITER: No. There's 15 there, and then we did a supplemental report, which I can show right here, that had an additional four parts. Additional four parts.

So 15 plus 4 is 19. You struck three, so we're down at 16. Yeah.

So all of the data was provided. We had 15 originally, in the original report. When we talked on November 21st, we said there were some additional data from Cleveland-Cliffs that was coming.

JUDGE BHATTACHARYYA: Okay.

MR. REITER: We provided a supplemental report for those parts. 19, you struck three, we're down to 16,

which is what we have.

JUDGE BHATTACHARYYA: Okay.

So I'm counting 12 on page 22, but that's -- I assume that's because three have been taken out.

MR. REITER: Yes.

JUDGE BHATTACHARYYA: Okay. Then you're saying that footnote 10 on page 120 refers to four additional products?

MR. REITER: No, no, no. Sorry.

So there are 15 on page 22. You take out three. That 15 on here covers the total of four on footnote 9 on page 119, okay.

JUDGE BHATTACHARYYA: Okay.

MR. REITER: So there's four. You can see what I highlighted, four Tesla door rings we identified here. That's part of the 15 we counted.

Then in the supplemental report, we had four additional parts that were tested, and an analysis produced.

JUDGE BHATTACHARYYA: Okay. So that's 19.

MR. REITER: That's 19. You excluded 3.

So again, what we have in the slide is 16.

JUDGE BHATTACHARYYA: Okay.

So problem with that math, Mr. McKeon?

MR. MCKEON: Yes, Your Honor, I mean, yeah --

Your Honor, the issue is with respect to the Tesla door rings.

They say x4, but they give us in the report just a single SEM associated with one of the door rings. They've never gave us a report from Dr. Fekete. They say they produced stuff in production, but they never gave us a report where Dr. Fekete points to the SEM, and says, for this door ring, here are the SEMs with the four layers. That's -- that's what they have done. That's my problem.

So we don't have it. We don't have any corresponding evidence with respect to any other door ring except for the one Tesla door ring.

So that's why our math is 13, not 16. That's the only evidence they presented in the case.

MR. REITER: What we're looking for is -- it was also in the prehearing brief, as I previewed this morning. There was no motion to strike. This was all on our exhibit list, Your Honor.

I don't understand why we're interrupting this testimony with information that should have been raised a long time ago.

JUDGE BHATTACHARYYA: Let's move on. We'll talk about it at the end of the day how to resolve this.

MR. MCKEON: Thank you.

BY MR. REITER:

Q. All right. 50 parts.
A. 50 parts.
Q. Do you recall at your deposition you were asked how much data you looked at?
A. Yes.
Q. What was your answer?
A. Like 100 pieces.
Q. Why did you give that answer?
A. At the moment, I hadn't thought that hard about it, and it just felt like a lot of data. Because it felt like I looked at a lot of data. So that's how I responded.
Q. Was it 100 pieces of data?
A. No. We have looked at quite a bit more data than that.
Q. Does the analysis that you performed include the summary spreadsheets of each of the parts that we have talked about, the 50 parts?
A. Yes. Each part, I have personally reviewed each of those spreadsheets.
Q. Did you look at underlying data for --
A. Some of it.
Q. Did you look at it all?
A. No, I didn't look at all of it. I did look at some of it.
Q. All right.

Now, let's move on to the actual analysis that you performed, and why you believe the products infringe.

So if we go to the next slide, you've talked about the materials you considered, but I want to dig into, as you testified earlier, the OEM specifications.

What are those, at a high level?

A. Well, the OEM specifications for a given part disclose the expectations, the performance requirements of those parts.

Q. Did you see any OEM specification from VinFast in this case?

A. I did.

Q. What is shown on slide 74?

A. Yeah. This is VinFast's specification materials for components made of hot formed steels with aluminum silicon coating. It's their 68701 patent -- or 68701 specification.

MR. REITER: I believe we should go on the confidential record. We're going to be getting into VinFast confidential information now, Your Honor.

JUDGE BHATTACHARYYA: Let's move on to the VinFast confidential record.

MR. REITER: All right.

JUDGE BHATTACHARYYA: Could you please confirm that we are all right to proceed?

MR. REITER: The VinFast people can stay; right?

JUDGE BHATTACHARYYA: Yes.

MR. REITER: All right.

(Whereupon, the trial proceeded in confidential session.)

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C O N T E N T S

WITNESS	DIRECT	CROSS	REDIRECT	RECROSS
Chris Richards	304	328		
Peter Leblanc	332	350		
James Malackowski	357	428	439	
James Fekete PhD	454			

AFTERNOON SESSION: 428

CONFIDENTIAL SESSIONS: 269-302; 325-331; 338-356; 368-453; 501-end

E X H I B I T S

EXHIBIT NO:	RECEIVED
JOINT	
The Parties' Joint List Of Admitted Exhibits, Day 1	303

Ex. 2009
IPR2024-01377

E X H I B I T S

EXHIBIT LISTS SUBMITTED FOR ADMISSION:

Deposition Designations:

RX-1277C

RX-1273C

RX-1278C

RX-1279C

RX-1286C

RX-1283C

RX-1280C

Complainant ArcelorMittal's Submission of Witness Testimony by Deposition Designation for March 3, 2025

Jacob Webb (RX-1277C)

CX-0346C

CX-0347C

CX-0348C

CX-0349C

CX-0350C

CX-0351C

CX-0352C

CX-0353C

CX-0354C

CX-0355C

CX-0356C

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CX-0766C
CX-0767C
CX-0768C
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RX-0057C
RX-1082C
RX-0058C
RX-1084C
Brad Pepper (RX-1273C)
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CX-0335
CX-0336C
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CX-0345C
Brent Yeager (RX-1278C)
CX-0385
CX-0386C
CX-0387C
CX-0388C
CX-0389C
CX-0390C
CX-0391C
CX-0392C
CX-0393C
CX-0394C
James Chronister (RX-1279C)
CX-0413C
CX-0414C
CX-0415C
CX-0416C
CX-0417C

CX-0418C
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Paul Belanger (RX-1286C)
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Jennifer Hong (RX-1283C)
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Rick Nafziger (RX-1280C)
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CX-0397
CX-0398
CX-0399C
Haroldo Kavamura (CX-0017C)
CX-0017C
RX-1258C
Praveen Prakash (CX-0019C)
CX-0019C
CX-0315C
CX-0316C
Nguyen Thi Lan Anh (CX-0016C)
CX-0300C
CX-0302
RX-1009C
RX-1010C
RX-1260C
Ronald Kefferstein (CX-0011C)
The Parties' Joint List of Admitted Exhibits (Day 1)
JX-0001
JX-0002
CX-0041C
CX-0466C

CX-0561C
CX-0565C
CX-0611C
CX-0640C
CX-0646C
CX-0647C
CX-0683C
CX-0684C
CX-0818C
CX-0890C
CX-0891C
CX-0892C
CX-0893C
CX-0894C
CX-0895C
CX-0896C
CX-0897C
RX-0109C

CERTIFICATE OF REPORTER

TITLE: CERTAIN HIGH-STRENGTH ALUMINUM OR ALUMINUM-ALLOY COATED STEEL, AND AUTOMOTIVE PRODUCTS AND AUTOMOBILES CONTAINING SAME

INVESTIGATION NO: 337-TA-1402

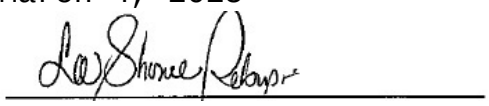
HEARING DATE: Tuesday, March 4, 2025

LOCATION: Courtroom A

NATURE OF HEARING: Evidentiary Hearing

I hereby certify that the foregoing/attached transcript is a true, correct and complete record of the above-referenced proceedings of the U.S. International Trade Commission.

Date: March 4, 2025

SIGNED: 

Signature of the Contractor of the Authorized Contractor's Representative
1150 Connecticut Avenue, N.W., Suite 305
Washington, D.C. 20036

I hereby certify that I am not the Court Reporter and that I have proofread the above-referenced transcript of the proceedings of the U.S. International Trade Commission, against the aforementioned Court Reporter's notes and recordings, for accuracy in transcription in the spelling, hyphenation, punctuation and speaker identification and did not make any changes of a substantive nature. The foregoing/attached transcript is a true, correct and complete transcription of the proceedings.

SIGNED: 

Natalie Bourlier, Proofreader

I hereby certify that I reported the above-referenced proceedings of the U.S. International Trade Commission and caused to be prepared from my tapes and notes of the proceedings a true, correct and complete verbatim recording of the proceedings.

SIGNED: 

Marjorie Peters, FAPR, RMR, CRR Court Reporter

UNITED STATES
INTERNATIONAL TRADE COMMISSION

In the Matter of:	)	Investigation No.
CERTAIN HIGH-STRENGTH ALUMINUM OR	)	337-TA-1402
ALUMINUM-ALLOY COATED STEEL, AND	)	
AUTOMOTIVE PRODUCTS AND	)	
AUTOMOBILES CONTAINING SAME	)	

OPEN SESSIONS

Pages: 574 through 870 (with excerpts)

Place: Washington, D.C.

Date: March 5, 2025

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UNITED STATES INTERNATIONAL TRADE COMMISSION

Washington, D.C.

BEFORE THE HONORABLE MONICA BHATTACHARYYA

Administrative Law Judge

In the Matter of:	)	Investigation No.
CERTAIN HIGH-STRENGTH ALUMINUM OR ALUMINUM-ALLOY COATED STEEL, AND AUTOMOTIVE PRODUCTS AND AUTOMOBILES CONTAINING SAME	)	337-TA-1402

International Trade Commission

500 E Street, S.W.

Washington, D.C.

Wednesday, March 5, 2025

EVIDENTIARY HEARING - VOLUME 3

The Hearing commenced remotely, pursuant to the notice of the Judge, at 9:31 a.m. Eastern.

Reported by: Marjorie Peters, FAPR, RMR, CRR

Ex. 2009
IPR2024-01377

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P R O C E E D I N G S

JUDGE BHATTACHARYYA: Good morning. Please be seated.

Before we begin, I want to address certain objections that were made yesterday to Dr. Fekete's testimony and exhibits.

Based on review of the expert reports -- we can be on the public record.

Based on review of the expert reports and the parties' arguments, the general objection to CX-826 through 878 is overruled; the general objection to CX-870 to 872 is overruled. I'll issue a written order with the reasoning.

To the extent Respondents believe that there is objected-to testimony that is not addressed by the record order, they may let me know, and we'll address that at that point.

Other than that, I understand that some new issues have been raised with respect to the demonstratives that will be provided today.

MR. HERSHKOWITZ: Your Honor, Benjamin Hershkowitz from Complainants.

You will be happy to know that one of the two was resolved this morning.

JUDGE BHATTACHARYYA: Okay.

MR. HERSHKOWITZ: So the one involving Bradley

has been resolved.

JUDGE BHATTACHARYYA: All right.

MR. HERSHKOWITZ: As to the one concerning Dr. Brown, my colleague, Ray LaMagna can address that, if you would like.

JUDGE BHATTACHARYYA: All right. Let's do that.

MR. LAMAGNA: Thank you, Your Honor.

We regrettably have one minor issue that we weren't able to address.

Can I see slide 186 from Dr. Brown's proposed slides. Are you able to bring that up.

(PAUSE in the proceedings.)

MR. LAMAGNA: If we could go back one slide to 186.

There's a build of slides that they have. This is the final build. We don't believe that this is anywhere in Dr. Brown's report. He doesn't have this image in his report, and some of the predicate information that you see here is not in his report.

We're not taking issue with some of the quantification down at the bottom, which I think has been resolved by, you know, the rulings you just had. The issue is simply that this image and the math that necessarily goes in to reflect this image is just not in his report.

If we can pull up, for example, Dr. Brown's

report. This is his invalidity report at Paragraph 72. If you could just do those callouts that I was identifying for you.

In Paragraph 72, Dr. Brown says that there is an unspecified number of DI products that are at issue in this case. He also says that there is an unspecified -- that there is no evidence concerning the number of Tier 1 hot-stampers.

If I could just show that second callout further down in Paragraph 72.

Sorry, we're getting our technology spun up.

There we go.

There's an unspecified number of DI products. So what is in Dr. Brown's report here is that there is an unknown quantity of DI products, and there's an unknown quantity, that he's not aware of, of hot-stampers. That's all that we have in his report.

What he does not do is then present the quantification or the argumentation that is reflected necessarily in the flowchart.

If we could go back to the flowchart.

That's the basis for our objection.

I think, if you recall, yesterday, we had argumentation regarding Dr. Malackowski's report, and whether there was math that was shown or not in his report,

and that, as Respondents argued, was the basis for exclusion. Here, you have an argument that is being made that is just simply not reflected in his report.

JUDGE BHATTACHARYYA: All right.

So which portions of this demonstrative are at issue? So the "not subpoenaed," there's a question mark. Is that all right?

MR. LAMAGNA: Well, I think that is the point, is that we have here a number of precursor products that are entering on the left of the screen.

Like I said, this image is not -- you know, this analysis is not directly in his report.

At the top, you see that there's a number of "not subpoenaed" products. At the bottom, there's a number of parts. And there's a relative characterization established between those.

Necessarily, when we graphically represent this, we have to be making decisions as to which lines are going to be fatter, which lines are going to be thinner, et cetera, visually in order to show this.

So he's making a quantification here. There's no legend here that says, not drawn to scale, for example. He says in his report, expressly, I don't know what these numbers are.

So this is really something that would have been

appropriate to cross-examine with Dr. Malackowski who does know whether or not one number is bigger than the other number, or to what extent, et cetera.

Having Dr. Brown as the mouthpiece for what is essentially a pseudo-econometric analysis of the flow of products is not appropriate, especially given that there isn't -- that analysis is not presented in his report.

JUDGE BHATTACHARYYA: How about the bottom, do you have an objection to the numbers at the bottom, the seven subpoenaed, 170-plus parts, the tested 13 parts, and the four parts not practicing?

MR. LAMAGNA: Well, I think, yes, a small bit, which I think is addressed in Your Honor's ruling.

The 170-plus parts, no, but we do have the issue where the 13 should be 16 because they've omitted the three Tesla door rings that I believe I understand Your Honor just ruled on, and -- or overruled the objection that Complainants had. And the nine should also then be 12 to reflect that there's actually three extra products.

But the gravamen of the objection here, Your Honor, is the analysis as a whole is not present, and this is not something -- you know, Dr. Brown did not opine on the comparative value of that which is subpoenaed versus that which is not. That's something that's in Dr. Malackowski's camp, and Dr. Brown is a technical expert

and not presenting an econometric analysis, balancing what has been subpoenaed and what hasn't been.

JUDGE BHATTACHARYYA: All right. Thank you.

MR. WILSON: Good morning, Your Honor. Jack Wilson.

We disagree that this was -- may I proceed?

JUDGE BHATTACHARYYA: Yes, you may.

MR. WILSON: We disagree that this was not presented in his report.

I'm going to try to use the ELMO here.

We can see that he -- in Paragraph 72, following the portion that you were just shown, Mr. -- excuse me, Dr. Brown identifies that there are hundreds of other DI direct products from the Tier 1 manufacturers. That's the rest of Paragraph 72 that counsel just identified.

If we continue in the paragraph, it identifies that there are 123 hot-stamped products from one of the manufacturers, 16 from the next, 39 from the next. So that's how we get to that 170 number. And he continues. So he's identifying that there are a specific number, and there's also additional ones.

Then he continues in the next paragraph, and identifies that Dr. Fekete has only provided testing results for a small fraction of the alleged DI direct products.

He then goes on to identify what those DI direct products are, so this is where we narrow down to the 13 -- obviously, that's a disputed number -- well, no longer disputed, but we're down to that very small fraction, and he continues at length in the rest of his section.

So we think this -- although this specific figure, we agree, was not shown, the analysis is Dr. Brown is not going to provide an economic opinion that says, specifically, you know, it's 64.-whatever percentage. He's showing the relative share of the tested products and subpoenaed products.

We think this is squarely within his report, Your Honor.

JUDGE BHATTACHARYYA: Okay. Thank you.

Could I have a copy of the expert report.

And Mr. Lamagna, did you have anything else you wanted to say?

MR. LAMAGNA: I'll just address that very briefly, Your Honor.

Again, I think that it's telling that at the bottom of this particular slide, I think it's probably the only slide they have, doesn't have a citation on it.

The point I'm making is not about the lower band. You know, my -- Respondents' counsel pointed you to places in his report where he describes what is the other

170 products that were not tested, that is in that lower swoop in the demonstrative.

The question really is that Dr. Brown had no basis to make a comparison between the hot-stampers that are subpoenaed versus the hot-stampers that are not subpoenaed, because that analysis and that comparative data is not in his report.

Thank you.

JUDGE BHATTACHARYYA: Understood.

If we could get copies of the expert report, that would be helpful.

MR. WILSON: Yes, Your Honor.

If I could approach, Your Honor?

JUDGE BHATTACHARYYA: Thank you.

I'll rule on this before Dr. Brown's testimony.

MR. WILSON: Thank you, Your Honor.

JUDGE BHATTACHARYYA: Is there any other housekeeping matters that we should discuss or address before we begin again with our witness?

MR. MCKEON: Not from Respondents, Your Honor. Thank you.

MR. LEE: Your Honor, I believe the parties are still trying to confirm the list of exhibits to be submitted today, so we're happy to do that as soon as it's ready, perhaps after lunch if that works for Your Honor.

JUDGE BHATTACHARYYA: Yes. That's fine. Thank you.

MR. LEE: Okay. Thank you.

MR. REITER: Nothing further from Complainant, so we can resume with Dr. Fekete.

JUDGE BHATTACHARYYA: Excellent.

MR. REITER: Thank you, Your Honor.

Your Honor, with all of the excitement yesterday, I realized I forgot to provide you with copies of the demonstrative slides. Is that okay?

JUDGE BHATTACHARYYA: Yes.

Just as a reminder, we are on the public record.

MR. REITER: We should probably go on -- this is technical DI, so I don't know whose confidential record -- it's third-party confidential record.

JUDGE BHATTACHARYYA: So we're on the all-parties confidential record, including third parties.

MR. REITER: Yeah.

JUDGE BHATTACHARYYA: Could I have confirmation from counsel that we can proceed.

MR. MCKEON: We're all clear, Your Honor.

(Whereupon, the trial proceeded in confidential session.)

O P E N S E S S I O N

MR. MCKEON: May I approach?

JUDGE BHATTACHARYYA: You may, but it's not necessary for us to have binders of the exhibits.

MR. MCKEON: May I proceed, Your Honor?

JUDGE BHATTACHARYYA: Yes, please, go ahead.

MR. MCKEON: Thank you.

CROSS-EXAMINATION

BY MR. MCKEON:

Q. Good morning, Dr. Fekete.

A. Good morning.

Q. My name is Mike McKeon. It's nice to meet you.

I have to say right out of the gate here, we share a common love because one of my majors in engineering school was metallurgy, so I love metals like you love metals. It is really a quite fascinating topic, so congratulations on your successful career in that business.

Now, we know based on your testimony that you've offered yesterday and today that your work in this case involved infringement issues and technical domestic industry issues; isn't that right?

A. Correct.

Q. Of course, you've reviewed the two patents at issue, and the claims at issue in arriving at your conclusions; isn't that right?

A. Correct.
Q. There is no dispute in this case, of course, that all the claims at issue require these four layers that we've heard a lot about in this trial; isn't that right?
A. Yes.
Q. In fact, these are really critical elements of the claim.
You agree with that; right?
A. Yes.
Q. Let's pull up Claim 1 of the '602. Let's just reference that as we discuss the claim and what's required.
You recognized this as the Claim 1 of the '602 patent; is that right?
A. Yes.
Q. Of course, you understand the claim and all the language in the claim; isn't that right?
A. Yes.
Q. The claims, of course, recite base steel.
We agree on that?
A. Yes.
Q. Of course, on top of the base steel, you have the four different layers that are required by the claim; isn't that right?
A. Yes.
Q. One thing I know we're going to agree on, the

claims do not recite any parameters of the process of obtaining the layers on top of the steel; isn't that right?

A. The claims do not disclose process parameters. Is that --

Q. Yeah, so there's no process parameters that are required at all by the claims of these patents; isn't that right?

A. Correct.

Q. So, for example, you don't see oven time, for example, in the claim; isn't that right?

A. Correct.

Q. You are not going to see the temperature of the oven, not required by any of the claims; isn't that right?

A. Yes.

Q. Heating rate, that's not required, either; isn't that right?

A. Not in the claims.

Q. To determine whether a material has the four-layer structure, your analysis involved looking at SEM images of steel products; right?

A. That was part of what we used for our analysis.

Q. You keep saying "we."

When you say "we," who are you referring to?

A. The laboratories that produced the testing.

Q. The laboratories that produced the testing.

Okay. We'll get to that in a minute.

Of course, you heard Dr. Drillet testify on Monday.

Were you here for his testimony?

A. Yes, I was.

Q. He mentioned again and again in his testimony about the process parameters, the process parameters of the patents.

Do you recall that?

A. Yes.

Q. But of course, in this case, with respect to the infringement and technical domestic industry issues, process parameters are irrelevant, isn't that right, because the claims don't require that; is that fair?

A. The claims don't require the process parameters. The process parameters are not in the claims.

Q. So we're not really required to look at them or consider them, in this case, at least; isn't that right?

A. For doing the analysis of whether parts practice or infringe.

Q. Is that right? You agree with me, then?

A. That you would not need to know the process parameters in order to -- I'm just trying to understand the question.

Q. You don't need to know the process parameters in

order to determine whether there's infringement and technical domestic industry?

A. Yeah, that was not part of the analysis, that's correct.

Q. You recall in the testimony we heard from Dr. Drillet on Monday that, you know, he got this part from Magna, and there was this SEM in it with the four layers, and he testified that this was the last part of the process puzzle for him, because it was the upper limit of the process window.

Did you hear something to that effect on Monday?

A. Yes.

Q. You agree, though, that despite what Dr. Drillet said about the sort of eureka moment where he got the last process window, the last process window doesn't matter for the purposes of this case; isn't that right?

A. In order to result in materials that practice the patent, you do have to process it correctly.

Q. Well, did this process involve -- we all know that these are being made. We heard a lot about that, right, but for the purposes of your analysis, whether it was infringement, technical domestic industry, you're just looking at the claim, and see if it's satisfied, and that doesn't account for any process parameters; right?

A. The claims of the patent are looking at the

product and the characteristics of the product, yes.

Q. To do your infringement analysis, you relied on these SEM micrographs; isn't that right?

A. In part. We reviewed those as part of the analysis.

Q. Okay.

Of course, you agree that the SEM micrographs that you reviewed had sufficient resolution to resolve the presence, or not, of the claimed four layers; isn't that right?

A. Well, once again, we didn't rely solely on the four layer of the SEM micrographs to assess that.

We could assess based on chemical composition data whether the four layers were present.

Q. All right. Well, we're going to get to that, okay?

A. To answer your question. If I understood the question, do we rely on them.

Q. The micrographs --

A. In part we rely on the micrographs, but we don't rely on them completely for the analysis.

Q. Okay. We'll get to that.

But one thing we know for certain is that you believe that looking at a micrograph is the only way to really know whether there is a four-layer structure

required by the claims; correct?

A. No.

Q. Well, let's get to your deposition, sir. You took a deposition in this case.

Do you recall that?

A. Yes.

Q. You were under oath.

Do you recall that?

A. Yes.

Q. Let's get your deposition at 48, line 6 to 14, please.

"Question: What else would you need to do to determine whether it would form the four-layer structure or not?

Answer: I mean, the only way of really knowing is to look at a micrograph of the material."

Did I read that correctly, sir?

A. Yes.

Q. Now, despite the SEMs being very important in the analysis that you conducted in this case, you yourself did not take the SEM micrographs; isn't that right?

A. That's correct.

Q. You relied on a guy named Dr. Baskin; is that right?

A. No, that's incorrect.

Q. Well, we know that Dr. Baskin oversaw all of the testing that resulted in the data you rely on for your opinions; isn't that right?

A. We worked together on that. He did the direct oversight of the laboratories. I reviewed all of the results. We really worked together on that.

Q. Okay. Well, let's get your deposition at page 98, 12 to 15.

"Question: And Dr. Baskin oversaw all of the testing that resulted in the data that you relied on in your report; correct?

Answer: That is correct."

A. Yes. That's correct.

Q. And Dr. Baskin himself actually didn't conduct the testing. It was the labs that conducted the testing; isn't that right?

A. Yes, correct.

Q. We don't know. We haven't heard anything in this trial about the names of these people, and who they were and what their experience are. You didn't provide any testimony on that in your direct testimony; isn't that right?

A. Yeah. What was that question again?

Q. Let me -- you identified the labs that you relied on, the three labs that you relied on for testing;

isn't that right?

A. Yes.

Q. Okay. But we -- in your direct testimony, you mentioned Dr. Baskin, correct, as overseeing?

A. Yeah, he oversaw the testing, yeah.

Q. But you didn't mention anybody else that was involved in the project specifically by name; is that right? In the testing.

A. No. We've talked about the testing quite a bit, and we disclosed in our presentation that we contracted labs to do the testing.

Q. That's precisely my point. So you contracted labs --

A. Yeah.

Q. -- but we don't know if it was Tom, Dick, Harry, Jane, or Sally that did the testing at the labs; correct?

A. I don't need to know that.

Q. Okay. Well, let's talk about that.

We did establish that Dr. Baskin, he just oversaw the testing performed by the testing labs; right?

A. Yes.

Q. In fact on one of your slides, slide 33, you say that you had the responsibility to visit places like Calvert and Special Projects, and Dr. Baskin had the responsibility to oversee testing.

Do you recall that slide?

A. Yes.

Q. Just so I get a handle on the process here of collecting the data, I believe you testified that you worked with Dr. Baskin to come up with protocols; is that right?

A. Yes.

Q. Then the labs were given the protocol; do I have that right?

A. Yes.

Q. Then the labs did the testing, including looking at the compositions, taking all of the SEM micrographs; is that right?

A. Yes.

Q. These are the people in the labs that we don't know what their names are; is that fair?

A. No, we do not.

Q. Then the labs collected all of that information and put it together; isn't that right?

A. Yes.

Q. And one of the things that the labs did is they created a -- what your counsel referred to yesterday as a summary chart; isn't that right?

A. Yes.

Q. In fact, of your -- a couple of your slides had

an image of the summary chart; isn't that right?
A. I would characterize it as a report.
Q. A report, but --
A. Yes.
Q. -- but the lab created that report?
A. Correct.
Q. Not you; isn't that right?
A. Correct.
Q. Then you came here and told the judge about the report that the lab created; isn't that right?
A. Correct.
Q. The lab chose in that -- in that report, the lab chose what numbers to put in there, and the lab chose what SEMs to put on the report, isn't that fair?
A. Correct.
Q. Then the -- you got the materials from the lab, and then you identified all of that collection of materials in a bullet point in the materials considered in your expert report; isn't that right?
A. All of the materials were considered were cited in the report.
Q. Right, well, let's be specific about it. I'm going to pull up Exhibit A of your expert report. For the record, this is RX-1146.0220 to 227.
Then this is -- okay, I cannot get the ELMO, and

I'll take care of this.

Okay. Sorry about that, Dr. Fekete.

Do you recall this entry in your expert report, the "The test results found at," and there's a series of Bates numbers here.

Do you recall that?

A. Yes. Yes.

Q. Just so we're all grounded here, that's the collection of the materials that the testing lab put together and gave to you; is that right?

A. Correct.

Q. That collection of materials we can see here, that's on the table here in the courtroom; isn't that right?

A. I can't confirm that it's all here, but I'm guessing some of it is here.

Q. Okay.

Well, we do know that there's a number of CX exhibits that apparently they're binder exhibits, all of the collection of the different materials that the lab put together; isn't that right?

A. Yes.

Q. Now, one thing that caught my eye yesterday, or caught my attention yesterday was you had said that the testing labs were told to be looking for a four-layer

structure. They should expect to see one.

Do you recall saying that?

A. Yes.

Q. Now, isn't that really kind of a big no-no to tell your testing labs to go look for a particular structure?

A. No. Not in this case.

Q. Well, I mean, the labs are paid for their work; isn't that right?

A. Yes.

Q. You're telling them what to see; isn't that right?

A. No.

Q. Well, at least indirectly, you are; isn't that right?

A. We're telling them what to look for, yes.

Q. Go look for four structures because you need to show four layers to show infringement of domestic industry, so you tell the lab, go look for the four layers, isn't that what's going on here?

A. We told the labs that they should expect to see four-layer structure in these. They didn't always find four-layer structures, and in fact they told us whether they didn't find a four-layer structure.

But in order for them to do all of the analysis

that we asked them to do, because we were just telling them, well, we need you to tell us the thickness, and we need you to tell us the composition, we needed to tell them what they were looking for.

Q. Is it fair to say, then, that it was really the lab that determined whether the four-layer structures were there or not; is that fair?

A. Ultimately, they reported the data that they thought represented those parts best, which was their decision.

When they create a report, they're providing the data that best represents that part, or you know, whatever that sample is that they're doing. That's their job is to tell us the truth about what's going on there.

Q. Okay.

Well, one thing we do know, there's a lot of detail that goes into testing the sample; isn't that right?

A. Yes.

Q. It starts with preparing the sample; isn't that right?

A. Yes.

Q. If you don't prepare the sample correctly, that could really throw off the SEM images, for example; correct?

A. Yes.

Q. But you don't know whether they prepared the sample correctly or not, sitting here, you don't know?
A. No, I don't agree with that.
Q. Well, you weren't there watching them prepare the samples. You just don't know sitting here in the court today?
A. I'm highly confident that they did.
Q. You are confident because these are certified labs, but you don't know whether Tom, Jane, Dick, or Harry, who prepared the sample did it correctly, you don't know here. You can't tell the judge that I know they did it?
A. I can tell the judge that I'm highly confident they did by the quality of the labs that we chose, and our oversight of the work.
Q. You don't know whether the SEM instrument was properly calibrated; right?
A. No. That's not true.
Q. Well, again, you weren't there, you don't know if the lab technician actually calibrated the instrument before taking the pictures; isn't that right?
A. Well, I'm highly confident that they did.
Q. Highly confident, but you don't know; correct?
A. I'm highly confident.
Q. Okay.
You don't know whether the person who did the

EDS measurements, whether they calibrated the EDS detector.

You don't know that, either; do you?

A. I don't think I agree with that.

Q. Well, sir, you --

A. I know -- I mean, I -- we picked laboratories that are accredited, that accreditation is founded on their business practices and their traceability. You know, it's a system of just technical competence that we all depend on. You know, every time you get into your car, and you believe that, you know, you're going to survive if your car hits -- you know, gets hit by a bus in the door, you're depending on laboratories like that to save your life.

I mean, that's the foundation of our system.

Q. I understand that, and I'm not going to quibble with you on this, but I just want to make sure it's clear.

You just don't know for certain. You think they did it, but you just don't know for certain; that's fair, right?

A. That's not fair. I don't think that's fair at all.

Q. Okay.

But one thing we do know, other than your conversation with Dr. Baskin, and your lawyers over here, you do not know how the testing labs produced the test data you rely on for your opinions; correct?

A. Can you repeat that question, please?
Q. Yes.
Other than the conversation with Dr. Baskin and your counsel, you do not know how the testing labs produced the test data you rely on for your opinions; correct?
A. When you say produce, what do you mean by produce, like, how did they collect it and report it, or how did they --
Q. How they generated it, how they produced it.
You don't know?
A. I'm not sure that's -- I guess -- I don't think that's a fair question. I mean, we issued a contract to do certain testing. We received the results. I reviewed the results. Dr. Baskin oversaw the testing.
It's sort of a chain of competence that's there. I don't --
Q. All right. Well, let's get your deposition, and we can get some clarity on this.
At page 100, 7 to 12. Ms. Park took your deposition. Let me get the document camera -- is it Respondent 3? I'm sorry, the -- let me get the system back up here.
Let me read it. Ms. Park took your deposition and the question is:
"Other than your conversation with Dr. Baskin

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and counsel, you have no knowledge as to how the labs conducted the tests that produced the testing results that you rely on in your report; correct?

Answer: That is correct, yeah."

Did I read that correctly?

A. Yes. You read it correctly.

Q. Of course, Dr. Baskin is not going to come to this courtroom, and provide testimony to the Court; isn't that right?

A. That's correct.

Q. Now, getting back to the patent issues and the infringement DI analysis, you agree that the specific process parameters for the hot-stamping process are not things that need to be considered when doing an analysis of whether a product is covered by the claims; correct?

A. Correct.

Q. So to determine whether the claims are met in your expert report, you did not consider the temperature of the oven; isn't that right?

A. Correct.

Q. You didn't consider the amount of time the steel was in the oven; correct?

A. Correct.

Q. You didn't consider the heating rate of the steel; isn't that right?

A. Correct.

Q. Now, what you did, though, in your expert report, is to determine that the required four layers are present, you compared the SEM images you obtained from the testing labs to Figures 1 and 2 of the asserted patent; isn't that right?

A. That was a part of the overall analysis.

Q. Okay.

Well, let's get your deposition, at 59, 12 to 17.

Again, Ms. Park took your deposition and the question is:

"And when you were doing the element-by-element analysis for the claimed layers, you compared the SEM micrographs taken from the parts with the four-layer structure depicted in Figure 1 of the asserted patent; right?

Answer: Correct."

Did I read that correctly, sir?

A. Yeah. That's an accurate statement.

It was part of the analysis.

Q. Let's look at Figure 1. Why don't we pull that up from the patent.

And of course, the patent describes Figure 1 as preferred embodiment; isn't that right?

A. Yes.
Q. It actually labels each of the layers, interdiffusion layer, intermediate layer, aluminum-rich intermetallic layer, and the superficial layer.
Do you see that?
A. Yes.
Q. Of course, that's on the steel substrate in Figure 1; isn't that right?
A. Yes.
Q. Of course, you believe that Figure 1 showed the claimed structure; isn't that right?
A. It's not a complete representation of the claimed structure.
Q. You believe that Figure 1 shows the claimed four-layer structure; isn't that right?
A. It's a picture of a four-layer structure.
Q. Well, let's get your deposition, sir. 59, 18 to 21, please.
"Question: And that's because you believe Figure 1 shows the claimed four-layer structure; correct?
Answer: Correct."
A. That's what I just said, I said it's a picture of the four-layer structure. It's a photograph. It's a photograph of an SEM image.
Q. All right.

Well, let's look at -- by the way, Figure 1, we established in this trial actually came from that Magna-related TAV report.

Do you recall that testimony in this case?

A. I do recall that testimony.

Q. Now, we go to Figure 2, if we can, of the patent, and you considered Figure 2 as well; isn't that right?

A. Yes.

Q. And Figure 2 has -- it shows an interdiffusion layer; isn't that right?

A. Yes.

Q. It shows an intermetallic layer; isn't that right?

A. What the figure says.

Q. So it's got two of the four layers?

A. Yes.

Q. Okay.

But of course, the patent establishes that Figure 2, the layer morphology of Figure 2 is not practicing the claims, is what the patent says; correct?

A. Yes.

Q. You agree with that; right?

A. Yes.

Q. Now, interdiffusion, of course, you hear from

Dr. Drillet, and he talked about how interdiffusion was a part of his invention.

Did you recall something to that effect?

A. Yes. I was here for his testimony.

Q. But you and I are going to agree, and since today is Ash Wednesday, the beginning of Lent, I can call upon the Lord above, the interdiffusion is sort of the law of nature, no one invented interdiffusion; isn't that right?

Well, you put two pieces of metal together, and you heat them up, you get interdiffusion; right?

A. Yeah.

Diffusion is a physical process.

Q. Physical process, sort of a law of nature. No one invented it.

Isn't that fair to say?

A. No one invented it, but certainly people discovered it.

Q. Okay.

Well, discovered it, fair enough, but certainly Mr. -- strike that.

Certainly, Dr. Drillet didn't invent it, and he didn't even discover it.

Isn't that fair to say?

A. That's fair.

Q. In your analysis for DI and infringement, you essentially took the SEM, and if it looked like Figure 1, you established in your mind, okay, you concluded, that this was covered by the patent.

If it looked more like Figure 2, you concluded it was not.

That was your analysis with respect to the SEMs; isn't that right?

A. No.

Q. All right.

Well, let's get your deposition again, at 64/13 to 65/6.

Okay.

Let me read this. 64/13 to 65/6. Let's see here. Let's see here. Do I have 64/13 and 65 -- 64; right?

64/13. Okay.

So here we go.

"Question: I see. So you were comparing it with Figure 1 and Figure 2 with the image?

Answer: Right.

Question: And thought it was closer to Figure 2?

Answer: Correct. You got it.

Question: Okay.

So aside from comparing it with Figures 1 and 2, did you have to do anything else to determine this product did not meet the claim?

Answer: Well, the other feature that we looked at in this figure, if you are comparing it to Figure 1 and 2 of the patent -- in the patent, is whether there is a preponderance of an intermetallic layer at the surface. In this micrograph, there's evidence of some intermetallic material at the surface, but not -- it wouldn't have enough, in my opinion, to say it doesn't practice.

So really, for me, the reason it didn't practice was the morphology of this layer, which was a layer, but it looked more like Figure 2." (As read.)

Did I read that correctly?

A. You read it correctly.

Q. You take an SEM, you got an image, Figure 1, it's Figure 2, it's Figure 1, it's Figure 2, that was the analysis that you conducted in this case; isn't that right, sir?

A. No.

Q. All right.

Well, we talked about the testing results that were generated by the testing labs.

Do you recall that this morning, we already talked about that?

A. Yes.
Q. And the testing results, there were car parts relating to the VF 8 on infringement issues, and testing results for car parts relating to the DI products.
Do you recall that?
A. Yes.
Q. It's been represented in this courtroom that the collection is 5,786 documents generated from the testing.
Do you recall that?
A. Yes.
Q. Of course, those are the ones that are listed in your materials considered; isn't that right?
A. Yes.
Q. Of course, in conducting your analysis in this case, in reaching your conclusions, you did not review each and every one of those documents; isn't that right?
A. 5,786, no, I did not.
Q. In fact, of the over 5,000 pages that you referenced as materials considered, you reviewed only upwards of 100 test results; isn't that right?
A. No, I reviewed more than that.
Q. Let's get your deposition.
107/25 to 108/1. 107/25 is where I need to start, and I need to go to 108/1.
Just so the record is -- 107/25 to 108/1. Okay.

I'm going to read this.

Question: Again, by Ms. Park, "Do you know roughly how many you actually reviewed from this set of 5,000 test results?

Answer: Oh, probably -- probably upwards of a hundred."

Did I read that correctly?

A. Yes, you did.

Q. So at least based on your deposition testimony, you reviewed a hundred of the over 5,000 files, less than 2 percent of the actual documentation from the testing lab that you cited as additional materials considered, you reviewed less than 2 percent based on your deposition testimony; isn't that right?

A. Based on the deposition testimony.

Q. All right.

Now, there was an issue that came up in this case, as you've heard from the lawyers wrangling before the Court, about your expert report, and what you actually cited as evidence of the four layers.

Do you recall that?

So I want to talk a bit about that, but you understand that your expert report is the opportunity for us to understand your opinions, so when we come to trial, we know what you're going to say.

You understand that's what the purpose of it is?
A. I understand that.
Q. You think that process is fair, right, so we have notice; right?
A. Oh, I have no idea whether it's fair or not. I'm not a lawyer.
Q. Well, good for you, because that's lawyer stuff, so I won't get into that.
But needless to say, you produced an opening expert report, and then you did a supplemental expert report; isn't that right?
A. Correct.
Q. That's all we got from you in terms of the reports in this case; isn't that right?
A. I would have to ask counsel if that was the case.
Q. Well, but in terms of what you prepared, you prepared two reports, an opening report, and a supplemental report; isn't that right?
A. Those are the two reports I prepared.
Q. I'm not missing a report out there, am I?
A. No, you're not.
Q. Okay.
So I want to take some time to go through that. One of the things I'd like to do is mark, if we can, and we

can discuss what we received from you in your expert report.

You recall this document or this chart that was prepared in your opening report.

Do you recall that?

A. Yes.

Q. The reason we have -- you probably understand, the reason we have some blacked-out portions is because of an order by the Court.

So what was relevant at the time of your report, for the purposes of this case, we see here in the chart; isn't that right?

A. Yes.

Q. Okay.

Now, we have this dispute, I guess, and we're going to talk about it, between nine -- or strike that -- 13 and 16 products.

Do you recall that debate we were having?

A. Yes.

Q. So let's just talk a little bit about that first.

At least with respect to what you showed us in your opening expert report, we have one, two, three, four, five, six, seven, eight, nine identified description of products in your list; isn't that right?

A. There are nine rows on that table, yes.
Q. Okay.
We have a dispute about the Tesla door ring. You have a x4 there.
You think that's four separate products; isn't that right?
A. Four separate parts.
Q. Four separate parts. Okay.
So if it's four separate parts, then you agree with me, at this point in your report, you identify 13 different products; is that fair?
A. Yeah, including the four parts of the --
Q. Including the four.
If it's four, it's 13; if it's the nine -- if it's not the four, it's just one, it's nine.
Is that fair in terms of how I look at this?
A. Yeah, if you consider -- if you consider that row as one part, then that's correct. If you consider it as four parts, then it's the bigger number.
Q. Okay.
Then we got your supplemental report, and do you recall the supplemental report, you had the four Volkswagen -- I'm going to -- just for the record, that page I put on the ELMO was RX-1146.38. And now I'm going to put on the ELMO 1147 -- RX-1147, pages to 4 to 5.

You recall, sir, this is an excerpt from your supplemental report. I'll turn the page here, but you can see the Volkswagen parts we got in your supplemental report.

Do you see that?

A. Yes.

Q. One that we know for sure that in the supplemental report, the Volkswagen parts were the only one that you supplemented for the supplemental report; isn't that right?

A. In the supplemental report, that's correct.

Q. In the supplemental report, you didn't include any additional Tesla door rings in your report; isn't that right?

A. That's correct.

Q. The one thing you say here, "I understand that when my Opening Expert Report was submitted, testing was still in progress for parts received from Cleveland-Cliffs."

Do you see that?

A. Yes.

Q. There, you are -- I assume, you're referring to the Volkswagen parts, isn't that right, because that's what we see in this supplemental report; isn't that right?

A. Yes.

Q. Then, of course, you refer to Exhibit Z, which are the charts, photographs and scanning electron microscope -- micrographs; isn't that right?

A. Yes.

Q. Is it fair to say that with this supplemental report, you included Exhibit Z with attached additional material; isn't that right?

A. Yes.

Q. Now, with respect to the domestic industry issue in this case, in your report, when you did your analysis, you -- and of course, the products that were presented in your opening report, shown here on the ELMO, which is, again, 1146.38, you referred us to Exhibit U of your report for the SEMs showing the four layers; isn't that right?

A. Yes.

Q. Let's take a look at that.

1146, page 150. Let me get the laptop back. 1146.150 is the page, and if I can get Paragraph 213, please.

Again, we have a redaction because it was based on a court order, but we see Paragraph 213 is very clear with respect to the intermetallic layer. You say, "SEM micrographs of the DI direct products tested as part of this investigation show that the DI direct products each comprise a coating with four layers."

Do you see that?

A. Yes.

Q. Of course, you go to -- you tell us to go to Exhibit U to see that evidence; isn't that right?

A. Yes.

Q. Here, you're talking about the intermetallic layer; isn't that right?

A. Yes.

Q. Why don't we just do another one for good housekeeping.

If we can get Paragraph 216 of the report, which is 1146.152.

Again, this is for the superficial layer, and here, again, you say, for the DI direct products, each comprise a coating with four layers. You tell us to go to Exhibit U for that evidence; isn't that right?

A. Yes.

Q. We could do the same with the interdiffusion and the intermediate layers. In those paragraphs, you also tell us to go to Exhibit U; isn't that right?

A. Yes.

Q. You didn't tell us to go anywhere else with respect to the four layers in these paragraphs with respect to the SEMs; isn't that right?

A. Yeah. In these paragraphs, that's correct.

Q. Okay.

JUDGE BHATTACHARYYA: We're still on the public record. I just wanted to make sure you --

MR. MCKEON: Thank you, Your Honor. I think we're good with this. Thank you.

BY MR. MCKEON:

Q. So I'm going to put -- if I go back to the document camera, and I'm going to -- we got Exhibit U that you told us to go to; isn't that right?

A. Yes.

Q. In Exhibit U, I see -- let's just kind of walk through it together. Can you see it, sir? If I zoom out, you can see it.

I got the Honda Odyssey A-Pillar here; right?

A. Yes.

Q. In the SEM; correct?

A. Yes.

Q. Again, this was taken by the lab; right?

A. Correct.

Q. I got the GM Chevrolet Silverado part here. Again, that was taken by the lab; am I right?

A. Yes.

Q. That's two I got; right? That's two SEMs you told us to go to; isn't that right?

A. Yes.

Q. So far.

Let's flip the page. I got a Toyota reinforcement.

Do you see that?

A. Yes.

Q. Of course that's the redacted portion, so we'll skip that. Another redacted portion. We'll skip that. I have the Chrysler door ring.

Do you see that?

A. Yes.

Q. Flipping the page, and I have the Tesla door arm, do you see that?

A. Yes.

Q. Then that's it, right, that's it for this?

A. For the exhibit, that's correct.

Q. Okay.

So in this exhibit, you told us, hey, this really important issue in this case for the domestic industry issue on the four layers, I want you to go to Exhibit U, and you gave us five SEMs; isn't that right?

A. Exhibit U contains five SEMs.

Q. That was the collection of SEMs you pointed to in your expert report for us to review for the four layers; isn't that right?

A. It's what was in Exhibit U, but it's not the

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complete set of what I was -- used for my analysis.

Q. Well, sir, you got a lot of stuff cited in the report, and I know you worked hard to put it together, okay. So I'm not debating that.

What I'm focusing now is on the four layers.

When you were making your conclusion on the four layers, you pointed us to Exhibit U, to those particular SEMs; isn't that right?

A. Those are what was in Exhibit U, yes.

Q. It was just five of the products, isn't that right, that we have here in your report, according to Exhibit U; is that right?

A. Yes.

Q. Then the Ford parts, the three Ford parts that we have here on the diagram, which is RX-1146.38 those three Ford parts, you also had SEMs for; isn't that right?

A. Yes.

Q. They were contained in a separate exhibit; isn't that right?

A. Yes.

Q. You pointed to us that exhibit as well in your expert report; isn't that right?

A. Yes.

Q. In fact, that exhibit was Exhibit W.

Do you recall that?

A. Yes.
Q. For the record, that's RX-1146.371 to 374.
Just for completeness, I'm going to put W on the ELMO, and I got one Ford part, SEM, two Ford part SEM, three Ford part SEM, and then the final -- I guess -- that's the final page.
Did I go through that correctly?
A. To the best of my knowledge here, yes.
Q. So those are the three Ford parts. So far I've got three for the Ford, and I have got Exhibit U, I've got five. So far I've got nine -- so far I have eight SEMs that I'm looking at; isn't that right?
A. That's what you have shown so far.
Q. Of course, the Kia, the Kia product, you put an SEM in the body of your expert report; isn't that right?
A. Yes.
Q. That was the SEM that was your -- included your analysis regarding the four-layer issue; isn't that right?
A. What --
Q. Let me strike that. Let me ask a better question.
You put that SEM in your report to demonstrate that the Kia did not have four layers; isn't that right?
A. No, that's incorrect.
Q. Well, it didn't meet the thickness requirements

required in the claim; isn't that right?

A. That's correct, but it did meet the four-layer structure. It does have a four-layer structure.

Q. You determined it wasn't a proper technical domestic industry product because it wasn't covered by the patent?

A. That's correct.

Q. Okay.

So, so far, I have got -- we've got an accounting we just did here, and you agree with me, so far in total, I've got 13 SEMs that we've seen in your expert reports regarding the four layers, isn't that right, that you referred us to; isn't that right?

A. That's what's referred to, yes.

Q. Importantly, it's what was referred to for the four layers; isn't that right?

A. Once again, it's part of the analysis. It's not all of the analysis.

Q. You testified about some of the other analyses, but for this critical issue of the four layers, and the requirement based on your prior testimony that we need an SEM to determine whether it had the four layers, those are the SEMs you identified in your report, we just went over; correct?

A. The SEMs' micrographs are insufficient to

disclose whether you've got the four layers, because you need the chemical compositions as well, which also comes from the SEM, just not shown in the micrograph.

Q. Okay.

But from the micrograph, you see the visual, the way to see the four layers, to visualize them is in the micrographs; isn't that right?

I mean, in order to see them, you've got to have a photograph, and that's the micrographs; right?

A. But that's not how the patent describes the definition of a layer. The definition of a layer is by its chemical composition. Its mean chemical composition.

Q. Okay, well, we'll get to that.

Okay, so then I just want to do one other exhibit to your report, and this is Exhibit Z. Exhibit Z was the -- we referred to it when we looked at your supplemental report earlier, that was the exhibit you said, hey, go to Exhibit Z to see my additional materials regarding the Volkswagen parts; isn't that right?

A. Yes.

Q. I'm going to put that one again on the ELMO. For the record, it's RX-1147.18 to 37. If you see Exhibit Z on the ELMO, and you actually have a collection of different things here, including composition, data that you supplemented your report with, but I'm going to turn

the pages, and then you have sort of the pictures of the parts, the Volkswagen parts, and you supplemented your prior exhibits with that.

But now I'm turning the page to RX-1147.29. Here, you're supplementing Exhibit U, and it's upside-down, so let me turn it correctly here.

Here you're supplementing Exhibit U to include the Volkswagen parts; isn't that right?

A. Yes.

Q. And, again, Exhibit U was what you referred to in the opening report for those critical four layers; isn't that right?

A. Yes.

Q. We have got one Volkswagen SEM, and I got another two, I got three, and I got four, and that was it for Exhibit U. This next one is Exhibit V.

So for Exhibit U in the four layers, for the Volkswagen analysis, you've got the four SEMs in your supplement; correct?

A. In the report, correct.

Q. Now, the Tesla door ring, 2, 3, and 4 that we've heard a lot about in this case, in the opening expert report, and in the supplemental expert report, you didn't cite to a single -- not one -- Tesla, which became to be known as the Tesla door ring, 2, 3, and 4, you didn't cite

to a single SEM, with respect to the four layers for those parts; isn't that right?

A. In the opening expert report?

Q. Opening, and in the supplemental expert report with respect to this four layers, the issue of the four layers for this what came to be known as Tesla door ring, 2, 3, and 4, you didn't cite to a single SEM; correct?

A. Correct.

Q. All right.

Now, let's go back to the laptop here, and I want to talk about some of the SEM images now, all right.

One of them is the GM Chevrolet Silverado. That was one of the parts you considered; isn't that right?

A. Yes.

Q. We'll go, again, to your Exhibit U, but we'll just pull it up on the screen here at page 357, it's 1146.357.

This is the image that was in your Exhibit U for the Silverado; isn't that right?

A. Yes.

Q. This part was over 40 inches long; isn't that right?

A. Yes.

Q. We can see that, and why don't we just -- just to put a pin in that, or just to bring that home before the

Court, go to page 349 of 1146, and this is the photograph that you had of the part, and the ruler there indicates this is about 48 inches; isn't that right?

A. Yes.

Q. Now, going back to the SEM, which is at 357, we see this SEM, and there's a scale bar of 100 microns; do you see that?

A. Yes.

Q. The whole SEM image is about 250 microns across based on the scale bar; is that fair?

A. Yes.

Q. Of course you understand that a human hair is 60 microns; isn't that right?

A. Well, I'll assume you've given me good information. I don't know that myself.

Q. Well, this is what my colleague over here told me, so I assume that's right.

But it's in the order of a micron level?

A. It's in the microns, yeah.

Q. So if we assume it's 60, with respect to this SEM, we're talking about four human hairs, if you assume a human hair is 60; isn't that right?

A. Okay.

Q. Well, you have got 250, and you do the math, it's 240, it's four human hairs. Okay.

And we just discussed that the part is 48 inches long; isn't that right?

A. Yes.

Q. Of course, a human hair is a lot less than 48 inches.

We agree on that?

A. Hair is --

Q. A lot less than 48 inches?

A. Yeah.

Q. So for the SEM that you examined out of the 48 inches, we're talking about 250 micron SEMs is what you used in terms of the micrograph imaging to establish the four layers; isn't that right?

A. No, it's not.

Q. Well, that's what you cited with respect to the micrographs in the exhibits to your report; isn't that right?

A. It's not what we used to do the full analysis.

Q. All right.

Well, let's take another one.

A. We looked at much more data than what you're showing me on the screen.

Q. All right.

Well, let's look at another one, sir.

If I can go to 1146, again, RX-360.

This is the Tesla door arm; isn't that right?

You used this SEM image for the Tesla door arm in your report, you cite to it; isn't that right?

A. Yes.

Q. This is a magnification 2000x; isn't that right?

A. Yes.

Q. We have a scale bar of 20 microns.

Do you see that?

A. Yes.

Q. This image is about 60 microns; is that fair?

A. Yeah.

Q. Across?

A. Yes.

Q. About a human hair -- if we go with the 60 as a human hair, it's about one human hair width?

A. Yes.

Q. The Court has already been informed about the -- I guess, which -- is that a Tesla door ring there -- over there?

A. Both every these are.

Q. Both of them are. Okay.

The Tesla door ring, at least for the Tesla 1 part is -- is that the Tesla 1 part, or -- which part is the Tesla 1 part?

A. I don't -- they're not labeled, one of them.

Q. They're not labeled, so we don't know, but it looks like this if it's not it; is that right? All right.

Again, the SEM that you pointed to in Exhibit U as support for the four layers is human hair, and then we have got -- that was -- and the conclusion that you reached based on the human hair was that door ring had the four layers; isn't that right?

A. No.

Q. Well, that was the only SEM micrograph that you considered to draw that conclusion; isn't that right?

A. No.

Q. It's the only micrograph, sir, that you cited in your opening expert report with respect to the four layers for the Tesla door ring; isn't that right?

A. The only image that was shown in the direct report, and not cited in other ways.

Q. All right.

Now, with respect to infringement, so shifting now to infringement issues.

Are you with me?

A. (Nods head up and down.)

Q. Similarly, you pointed to Exhibit L in your opening expert report for the SEM micrographs for the four layers on the infringement side of the case; isn't that right?

A. Yes.

Q. Let's just take a look at that as an example, 1146.48, we have Paragraph 68, if we can draw that up, going into, I guess page 47. Well, you can actually see it here.

You see here, it's "SEM micrographs of the VinFast parts tested as part of this investigation, show that the VinFast parts each comprise a coating with four layers."

Do you see that?

A. Yes.

Q. The collection of micrographs that you point to is Exhibit L of your report; isn't that right?

A. Yes.

Q. And we can go through it, but you confirm for the Court that with respect to the other three layers, it's the same thing.

You refer to Exhibit L for that; isn't that right?

A. For what?

Q. Well, you got the intermetallic layer, and then we have three other layers; right?

A. I gotcha, yes.

Q. Okay.

Then you tell us for each of those, you tell us

to go to Exhibit L, for infringement; isn't that right?

A. Yes.

Q. That's where we're going to find the micrographs, according to your opening report, that show the four layers for the VinFast V 8 -- strike that.

The VinFast 8 vehicle; correct?

A. You will find some of them, yes.

You will find all of them that were cited in the report. You won't find all of them that I used for my analysis.

Q. Well, I got your analysis, sir, and you know, you gave us a whole lot of materials considered in your opening expert report, but you understand that I can't -- I don't know what's in your mind, I got to rely on what you cite to us.

With respect to the micrographs that are critical in this case for the four layers, on the infringement for the VF 8, you told us to go -- for the four layers, you told us to go to the micrographs in Exhibit L; correct?

A. Exhibit L contains the micrographs that were shown in my opening expert report.

They are not the sum total of SEMs that we used to do our analysis.

So that's where we're at.

Q. You did some other analysis, but with respect to the four layers, the micrographs that you pointed to were L; isn't that right?

A. That's not the sum total of micrographs we looked at to do the analysis.

Q. Well, so, your testimony is you looked at micrographs in this pile over here, but for me, when I'm looking at your report, I got to go to L, which is what you cited to in your report for the four layers; isn't that right?

A. I don't know if that's all you had.

All I know is that was what was in the expert report, with citations to other information that we used to do the analysis.

Q. Okay.

Well, let's just -- I'm going to go through L with you briefly now; okay?

I want to do a count so we can count the micrographs that you cited in L for the four layers; okay?

If you can get the document camera again.

Just going through the exhibit, sir, we're going to do a simple count, and it's one, two -- follow along -- three, four, five, six, seven, eight, nine, ten, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 -- 19, 20 -- strike that. 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33.

33 SEMs were in Exhibit L, which you told us showed the four layers; isn't that right?

A. There are 33 micrographs in Exhibit L.

Q. Exhibit L is what you said in your expert report showed the four layers; isn't that right?

A. Those were the micrographs we put in Exhibit L, and I'll repeat that -- that was not the sum total of the micrographs we looked at to do the analysis.

Q. All right.

You looked at a bunch of stuff, but at least what you told us in your expert report was go to Exhibit L, and I can pull up the paragraph again if you would like, but that's what you told us to look at; right?

A. That's what's in the expert report, yes.

Q. Then I believe the number we just arrived at was 33; isn't that right?

A. Yes.

Q. If we go to your slide 78 -- oh, yes. Thank you.

This is the slide you presented to the Court yesterday.

Do you recall this slide, sir?

A. Yes.

Q. You told the Court that you had considered 34 parts; isn't that right?

A. Yes.
Q. So at least with respect to the SEMs, and I don't want to cover old ground here, but at least the ones in Exhibit L that you told us were the four layers, you're short one, aren't you?
A. That's what it looks like.
Q. All right. All right.
So let's, if we can, pull that down, and if you can get the Magna Chevy Silverado SEM again at 1146.357.
This is the example of the -- of the SEM that you analyzed in your report; isn't that right?
A. Yes.
Q. Okay.
Of course, this part was made by Magna by hot-stamping coated steel; isn't that right?
A. Pardon?
Q. It was made by Magna, this part?
A. Yes.
Q. At the time of your expert report, you said that these four layers you see here are evidence to you, the four layers of the patent, is what you said?
A. Yes.
Q. Now in your deposition, of course, as you recall, we showed you some SEM images, and asked you whether those images looked like Figure 1 or Figure 2.

Do you recall that exercise?

A. I recall looking at photographs. I didn't know if they were SEM images or not. There was no information on them. They had clearly been altered from the folks that had taken them.

Q. Okay.

Well, let's take a look at that. If we can get RX-1148. Pull that up. I have to go back to the -- yeah -- the laptop.

Do you recall this image from your deposition?

A. Yes.

Q. It was marked as Exhibit 9.

Do you see that?

A. Yes.

Q. When we asked you in your deposition, well, was this a Figure 1 or a Figure 2, do you recall telling us that this looked more like Figure 2 of the patent; isn't that right?

A. That's correct.

Q. Of course, if you look more at Figure 2 of the patent, it wouldn't be covered by the claims; isn't that right?

A. Correct.

Q. Of course, you now know if we put this image, 1148, next to RX-1146.357, next to each other, you now know

that it's the same image; isn't that right?

A. No, I do not.

Q. Well, let's take a look at that.

The one on the left is from your report; isn't that right?

A. The one on the left is from my report.

Q. You are convinced there, you say, oh, the four layers are there in that image, it's Figure 1 of the patent; isn't that correct?

A. That's correct.

Q. On the right, you see -- you understand it's the actual image -- it doesn't have the bottom black line of information, but the image is otherwise identical.

Do you understand that?

A. No, I don't.

This was an image that you threw in front of me in my deposition that, at that moment in my deposition, I didn't know what it was, and all I knew for sure is that it had been altered from its original state. That's all I knew.

So the exercise that you were giving me was to look at a photograph, and tell me -- and just tell you whether it looked more like two other photographs, figures in the patent.

Q. Well --

A. So that's not a reliable way of doing an analysis of this type of a situation.

Q. Well, we went through that earlier --

A. It just isn't. It just isn't.

It was an exercise I did not understand, and still do not understand, and the only thing I knew in that moment is that I was looking at a picture that had somehow been altered, and I didn't know how that picture had been altered.

Q. Let's not rehash your prior testimony about Figure 1 versus Figure 2. Okay? Let's just focus now on what happened in your deposition. Okay?

In your deposition, you told us what's on the right here, which is RX-1148. You said this looked like Figure 2, not figure Figure 1.

That's what you said in your deposition; isn't that right?

A. Correct.

Q. In fact, if your deposition testimony is to be credited, that would mean this would not be the morphology that's required by the claims of the patent; isn't that right?

A. No, that would not be correct, because I wasn't looking at a four-layer structure. I didn't know what I was looking at. That was the point. I did not know what I

was looking at.

Q. So you didn't see a four-layer structure in -- well, let me ask you this question:

What's on the left here, do you see a four-layer structure --

A. Yes.

Q. -- which is on the left, which is from your expert report?

A. Yes.

Q. Looking to the right, do you see a four-layer structure there?

A. I don't know what I was looking at. I was looking at photographs. I was trying to figure out what you people were doing when I was looking at that photograph. It was the first one you put in front of me, and it was like, what is this?

It's clearly something that has been changed, and if you tell me that it is an SEM image, then it's been altered; otherwise, I don't know what I'm looking at here.

So it was -- to me, it was a nonsensical exercise because it was not giving you the information you needed, whether that was a four-layer structure.

Q. Let's take another one. Okay? We'll go to 1146, expert report, .360, which is the Tesla door arm.

Again, this was in your -- the SEM in your

Exhibit U to the report; isn't that right?

A. Yes.

Q. By the way, just the -- well, let's do this first:

This is made by Simwon, isn't that right, this part?

A. Yes.

Q. Of course, at the time of your expert report, you told us that, yes, this is the four layers that practices the claims of the patent, looks like Figure 1; isn't that right?

A. It was part of the analysis that we used.

To continue to be clear about this: When you talked to me about whether an SEM micrograph gives me some information, that it's the only thing we looked at, which is the implication I'm hearing. Maybe I'm wrong, but it's the implication I'm hearing. I just want to be clear that it's not all that we looked at when we were doing our infringement analysis.

Q. We have the record all clear on that, sir. Okay? We are not going it rehash that. We'll looked at a lot of things. I'm just focused now on the exhibits that you told us to look at in your expert report. That's all I'm focusing on now. Okay?

A. Gotcha. Yes, sir.

Q. Okay.

Of course, again, in the deposition, we showed you another SEM. So let's just pull that up, it's RX-1150. And you recall this on the right was from your -- was marked at your deposition.

Do you recall that?

A. Yes.

Q. We asked you, was it more like Figure 1 or Figure 2. At the time of your deposition, you said, well, actually, it doesn't look like either one of them.

Did I get that right?

A. Correct.

Q. So you couldn't tell whether it was a Figure 1 or Figure 2 at the time of your deposition; isn't that right?

A. It didn't matter. It didn't matter. I didn't know what it was. It was an altered something. I didn't know what it was.

So I was just sort of -- you know, you asked me a question, does it look more like that or like that? Okay. But it's not an analysis of a micrograph as to whether or not you have the four-layer structure. It was a nonsensical exercise.

Q. Let's just do a few more for the record. Okay?

1147.30 is one of the Volkswagen parts. We can

pull up the comparison.

This is one of the Volkswagen parts. Again, in you supplemental report, you took us to the Exhibit Z, which supplemented Exhibit U.

Do you recall that?

A. Yes.

Q. This is one of the four you pointed to; isn't that right?

A. Yes.

Q. Again, this was -- at the time of your opening report, this was -- you were convinced this was covered by the patents; correct?

A. Yes.

Q. So you were convinced it had the four layers; isn't that right?

A. Using other analysis, yes.

Q. Okay.

A. We concluded that the part was practicing.

Q. Well, let's look at what we showed you in the deposition, which is RX-1159.

Again, we have put 1159 in front of you. We said, hey, does this -- is this covered by the claims? Does this look like Figure 1 or Figure 2? And again, here, you couldn't --

A. No, no, no. Wait a minute. No, that's not what

the -- the question was very specific.

It was -- the question -- there was never a question about whether we were practicing the claims.

The question on the table for all of these exhibits was, does it look -- does this photograph look more like Figure 1 or Figure 2.

Q. All right. Well, let's -- I don't want to rehash the analysis that you did in this case, sir, all right. We already went through that. We cited your depositions on that. Okay?

With respect to whether this looks like Figure 1 or Figure 2, at the time of your deposition, you couldn't -- you didn't think it looked like either figure; isn't that right?

A. That's correct.

Q. Let's pull up, then, if we can, just to speed this along, RX-1147 next to RX-1160.

This is another Volkswagen part, sir.

Do you see that?

A. Yes.

Q. Again, on the left, you said it was covered by the claims, and on the right, you said this didn't look like, to you, either figure; isn't that right?

A. Deposition, that's what I said.

Q. Now, can I ask you a question in terms of the

process.

We established earlier that the markings, as I recall, the markings for the SEMs you received from the lab, the labs put the markings on it; isn't that right?

A. That's correct.

Q. On the left, you said, oh, there's four layers. This is from your expert report. You said there's four layers here; isn't that right?

A. Yes.

Q. Do you see four layers here, sir?

A. Yes.

Q. You see the four layers?

A. Yes.

Q. And you don't see them on the right?

A. I don't know what I'm looking at on the right.

Q. Well --

A. We go down this path again if you want to.

I looked at that picture in my deposition, did not know what it was. Did not know if it had been altered beyond having the information at the bottom removed. Didn't know that at the time. Was asked a question, does it look like Figure 1 or Figure 2, and I answered the question to the best of my ability. That's what happened in the deposition.

Q. All right. Let me ask you this question:

You see on the left, you -- you are telling the Court you see four layers in the SEM micrograph on the left that was attached to your report; isn't that right?

A. Yes.

Q. You are convinced of that; isn't that right?

A. What this picture shows me, yes.

Q. But on the right, you just have no idea, whether that's four or not, the image on the right?

You don't know one way or the other whether the image on the right has four layers or not; right?

A. Well, given the fact that now you have told me what it is, you have told me where it came from, you have basically represented that they are the same, then I would come to the same conclusion.

But in the deposition, when I did not have any of that information, and you just threw a picture in front of me, and said, it is more like picture 1 or Figure 2, I gave you a different answer.

Q. The one that we do know is that the lab put the 1, the 2, the 3, and the 4 on the SEM micrograph on the left; isn't that right?

A. I don't know who put that on there because I -- at the time of the deposition, I did not know where that picture came from. All I knew is that it was an SEM image that had been altered by virtue of the fact that the

information at the bottom had been stripped away from it, so I didn't know what I was looking at.

Q. Make sure I'm clear on my question. All right. I don't want to confuse you.

I'm talking about the micrograph on the left now. Okay? This is the one that was attached to your expert report.

You with me?

A. Yes.

Q. The lab put the 1, the 2, the 3, and the 4 on here; isn't that right?

A. Yes.

Q. You don't actually know who at the lab put the 1, the 2, the 3, and the 4 there; right?

A. I don't think I need to know that.

Q. You don't need to know, but you got an SEM, and you told the Court earlier, yeah, you see four layers there, but somebody, we don't know their name, we don't know -- we don't know anything about them, somebody --

A. We know something about them. They work at an accredited laboratory. We know they are trained. We know that they are calibrating their instruments correctly. We know all that. That's why we went with accredited laboratories so we could be confident in the quality of the testing that we were getting, and that's how every

laboratory works. It's how industry works. It's how the system works.

Q. All right.

A. So I'm -- once again, I'm highly confident that a very skilled operator of a scanning electron microscope looked at that image, put on those four layers.

Q. But one thing we know, though, sir, is that they're the ones that put the 1, the 2, the 3, and the 4 on the micrograph; correct?

A. That is correct.

Q. It wasn't you?

A. That is correct.

Q. When you received this micrograph from the lab, it had the 1, 2, 3, 4, and of course, your conclusion is going to be there's four layers here because you told the lab to look for four layers, and they put the 1, the 2, the 3, and the 4 there in the micrograph, it was already cooked up, wasn't it?

A. No.

Well, let me rephrase that.

We did tell them that when they're analyzing these structures, they should find four layers, and if they find the four layers, then to make the measurements we requested them to make.

So yes, they were looking for four layers,

there's no question about that, but we did not tell them they had to find four layers. We just told them that they should be looking for four layers. I admit that freely, that that's what we told them in our protocol.

If they found them, then, yes, they identified them, but that -- once again, you know, a laboratory is trying to give us a valid, reproducible -- they're an honest broker of our results, and they gave us what they gave us.

But yes, you're right, they did tell us that -- you know, we did tell them they should be look for a four-layer structure.

JUDGE BHATTACHARYYA: Mr. McKeon, could we take a 15-minute break.

MR. MCKEON: Perfect timing, Your Honor. Thank you.

JUDGE BHATTACHARYYA: On break for 15 minutes.

(A recess was taken at 11:17 a.m., after which the hearing resumed at 11:36 a.m.)

JUDGE BHATTACHARYYA: We're still on the public record.

MR. MCKEON: Thank you, Your Honor.

May I proceed?

JUDGE BHATTACHARYYA: Yes.

MR. MCKEON: Thank you.

BY MR. MCKEON:

Q. All right. Dr. Fekete, staying with the domestic industry issues, there are two types of domestic industry products at issue; isn't that right?

Well, let me ask a direct question.

You're aware, of course, that one of the domestic industry products that the economic experts relies on is DI precursor products. Do you understand that?

A. I understand what a DI precursor product is, yes.

Q. Okay.

Of course, the DI precursor product is a product that hasn't been hot-stamped yet; isn't that right?

A. That's correct.

Q. So based on the patents in this case, of course, that means that the DI precursor product is not practicing the patent; is that right?

A. In the state as they roll off the steel mill processing line, no, they don't practice. They don't practice until they're hot-stamped.

Q. They got to be hot-stamped, then you may have a practicing product, you may not, depending on the result?

A. Right. Right. Yes, sir.

Q. Then, of course, we have the DI direct products; do you understand what I mean by that?

A. The hot-stamped products.
Q. Yeah, the hot-stamped.
A. Yes.
Q. Okay.
In this case, of course, the DI precursor products are based on Usibor; is that your understanding?
A. In part.
Q. There's Ductibor as well?
A. Other products.
Q. And there's another name, I'm forgetting it now. It's luminim (phonetic) or something like that.
A. Usibor and Ductibor, and something else.
Q. So -- but Usibor and Ductibor are two of the types of the precursor products; isn't that right?
A. Yes.
Q. In fact, you heard Dr. Drillet testify that Usibor has been around since 2001; isn't that right?
A. Yes.
Q. It's been hot-stamped since then; isn't that right?
A. Yes.
Q. You understand that what we have been calling the Tier 1 manufacturers, there are a set of Tier 1 manufacturers which were the hot-stampers that actually were subpoenaed in this case and provided information.

Do you understand that?

A. Yes.

Q. There were a whole bunch of others that were not subpoenaed, and we don't know much about them; is that right?

A. Well, I wouldn't say we don't know much about them, but they weren't subpoenaed.

Q. Okay. We'll talk more about that in a moment.

But with respect to the ones that were subpoenaed, it is that universe of products that are part of your test, isn't that right, the ones that were subpoenaed; isn't that right?

A. Yes.

Q. There's a debate about whether there's 13 or 16 products. Let's leave that aside for a moment.

It was those set of products that were tested; isn't that right?

A. That's correct.

Q. Now, as far as we can tell, only three of them, of the Tier 1, three of the seven, provided a list of products that they hot-stamped for the auto manufacturers; are you aware of that?

A. I'm sorry. Could you repeat that one?

Q. So three of the seven provided lists of the parts that they were hot-stamping for automobile

manufacturers.

Do you recall that?

A. I don't recall that offhand. Is that in my -- I don't. Sorry.

Q. We'll look at that. No problem. We can look at that together.

But what you do understand is that Gestamp, Magna and Topre, there are at least 150 parts hot-stamped by these three Tier 1 manufacturers; isn't that right?

A. I don't know that I have that information.

Q. All right. Well, let's just refresh your recollection on that, sir.

A. Yes, please.

Q. I'll just publish the deposition. 129/15 to 20. Do you see here in your deposition, you agreed that with respect to Gestamp, Topre and Eagle Bend, which is Magna; right?

A. Yes.

Q. With respect to those three, there's at least more than 150 parts hot-stamped in total; correct?

A. Yes. I recall that conversation at the deposition.

Q. Okay. Well, we can take that down now.

Of course, one of the Topre parts is the Toyota reinforcement part; isn't that right?

A. Yes.
Q. If we look at the -- why don't we pull up, if we can, CX-341. This is a document -- are you familiar with this document?
This is the list of Toyota parts, that Toyota has hot-stamping for; isn't that right?
Strike that.
This is a list of Topre parts that are hot-stamped by Topre; isn't that right?
A. Yes.
Q. And you see here there are 35, and I'll represent to you there's 35 in this list.
Do you see that?
A. Yes.
Q. Okay.
But only one of the hot-stamped parts from Topre was tested in this case; isn't that right?
A. Yes.
Q. So of the 35 from Topre, your testing just did one; isn't that right?
A. Yes.
Q. Okay. That ended up in a Toyota vehicle; isn't that right?
A. I believe that's correct.
Q. If we put this down, you can see there's Topre

parts that also go into Nissan and Honda as well; isn't that right?

A. This was the Topre list.

Q. Yeah. The Topre list.

A. Okay.

Q. Okay.

So of the 35, your testing was just of one of the parts; isn't that right?

A. Right.

Q. For Gestamp, we can do the same exercise, but you agree that Gestamp has 16 different hot-stamped parts; isn't that right?

JUDGE BHATTACHARYYA: Excuse me. I believe there's an objection.

MR. REITER: I'm sorry. We should be on the confidential record.

MR. MCKEON: Can we go on the all-parties confidential record.

JUDGE BHATTACHARYYA: Move to the all-parties confidential record.

Let's wait for the room to clear.

Can we proceed?

MR. MCKEON: Yeah. Your Honor, yes, we can proceed. On our end. All right.

(Whereupon, the trial proceeded in confidential

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session.)

O P E N S E S S I O N

BY MR. MCKEON:

Q. Now, we have already established with respect to the products that you tested, and if I can get the document camera, the ELMO.

Looking at the ELMO in RX-1146.38, this is the chart that you provided in your report.

Do you recall that?

A. Yes.

Q. We have established already that the three Ford parts here don't have the four layers; isn't that right?

A. That was -- yes.

Q. Okay.

Just for our recordkeeping, I'm going to mark -- I'm going to highlight -- these are the four -- the three parts that you looked at -- at the testing, and the results was your conclusion that they didn't have the four layers; isn't that right?

A. Yes.

Q. Those are made by Magna; isn't that right?

A. Yes.

Q. We already discussed Kia and you said, well, it had four layers, but it didn't have the right thickness.

Did I get that right?

A. You got that right.

Q. Why don't we go back to the laptop here, and look at RX-1146.372.

This is the -- this is the SEM that was attached to -- for the Magna Ford parts that you attached to your report; isn't that right?

A. Yes.

Q. Do you see that?

With respect to what we see here, this -- you concluded there was no layers; isn't that right?

A. I concluded -- not based on this, individual micrograph, the entire analysis of the data that we looked at came to the conclusion that it didn't practice.

Q. Didn't practice the patent, but yet the hot-stamp people -- strike that.

The testing lab -- somebody in the testing lab, put these markings on this document, 1146.372; isn't that right?

A. That's correct.

Q. When they did this, the people in the testing lab were measuring ostensibly thickness of layers; isn't that right?

A. Yes.

Q. But we don't have the four layers in this case; isn't that right?

A. This part, after we considered all of the

evidence and all of the data, we concluded that this part did not practice.

Q. Okay.

Just so I'm --

A. We didn't use just this micrograph to come to that conclusion.

Q. Again, sir, just to be clear, you keep saying "we," I want to make sure that the "we" is you; right?

A. The "we" is me.

I apologize for the inconsistency.

Q. Well, I want to make sure that the record is clear.

A. No. That's great. I appreciate that.

Q. Then we can go to 1146.373, which is the second part that's in your Exhibit W to your expert report.

This second part also, you concluded, doesn't practice the patent; isn't that right?

A. That's correct.

Based on all of the evidence that we collected, all of the data.

Q. Looks more like Figure 2 than Figure 1; isn't that right?

A. Once again, we used a lot of other evidence to come to that conclusion.

I didn't look at this particular picture --

actually, I might have, but I looked at many pictures, and compared them to the data, and compared them to the claims.

The figures are not -- the Figures are a preferred embodiment, but they are not the claims.

We were doing an analysis against the claims.

Q. Well, I understand that's what you are saying here in court, sir, but when we took your deposition, that's not what you said in your deposition; right?

Your deposition was about Figure 1 versus Figure 2.

A. But I didn't do any review of the patents in your deposition.

I looked at photographs that had been altered, compared them to Figure 1 and Figure 2 from the patent, but they had no relevance because I had no information about them.

You didn't supply any information. You changed the pictures.

So -- once again, it was not what we based our entire analysis on. So...

Q. Let's put away the comparisons that we went through in your deposition.

I'm just talking about your analysis in your deposition.

You told us what you did for your analysis in

this case was you looked at an SEM, and to decide whether it was a practicing product, you compared it with Figures 1 and 2.

We went through that, and that's the analysis that you conducted; isn't that right?

A. It was part of the analysis. It was not the complete analysis. As I'm sure you realize from our direct testimony, we did a lot of other data because in order to do a complete claim construction, you need more than knowing whether a picture looks more like a picture in the body of the patent, or not. That's not how you do the claims construction. You do the claims construction against the claims or --

Q. With all respect, sir --

A. -- the claim.

Q. -- you didn't say that in your deposition. In your deposition --

A. You didn't ask me in my deposition -- you did ask me, and I told you, I didn't do it.

You did ask me. You asked me, does this picture -- and you -- I don't have the citation because I can't do it, but I remember the conversation.

We said -- you said -- or your colleague said, you know, does this picture practice the four-layer patent? I said, no, it does not.

Then finally, you started saying, well, does it look more like picture 1 or picture 2, and then I started answering the question, but the answer to whether it practices the four layers is not there.

Q. Let's be clear on this.

All right, sir, I want to just put this to bed. This is your first expert report. This is what we got in your expert report. We're going back to the document camera, the ELMO.

This is what you said in your expert report. You're talking about the VF 8 and the VF 9.

Are you with me?

A. Yes.

Q. "To determine whether the SEM micrographs of the VinFast parts tested according to the protocol developed by Dr. Baskin and me, I compared the SEM micrographs taken of the VinFast parts with the four-layer structure of Figure 1 of the asserted patents, which Mr. Drillet confirmed the deposition shows the four-layer structure." (As read.)

Did I read that correctly from your report?

A. Yes.

Q. So before your deposition, in your expert report, you told us that, my analysis consisted of comparing it to Figure 1; correct?

A. That -- among other things. You're taking one

piece of the analysis out of there.

Yes, we did do that, but we did much other work to come to a conclusion about the patents. You will find a number of sections of that report where we looked at compositions, and we looked at thickness layers, we looked at all of the elements of the claim.

You can't do that from one micrograph. You can't do it.

Q. Let's go through the report as evidence. Sir, this is your report.

You cite to Figure 1 of the patent in the report, after that paragraph; correct?

A. Correct.

Q. Then we have the infamous paragraph where you tell us to go to Exhibit L. "SEM micrographs of the VinFast tested parts -- tested as part of this investigation show the VinFast parts each comprise a coating with four layers (see Exhibit L)." (As read.)

Did I read that correctly?

A. Yes.

Q. Then you specifically referenced the interdiffusion layer.

Did I read that correctly?

A. Yes.

Q. Now, going to page 29 of your report.

Are you with me?

A. Yes.

Q. And you cite an SEM image pointing to an interdiffusion layer from the VinFast SEMs; isn't that right?

A. Yes.

Q. Then you talk about -- in Paragraph 63, you go on about the composition issues with respect to the layers; isn't that right?

A. Yes.

Q. That's it for that element; isn't that right? That's what you gave us in your expert report.

A. There's more in the expert report than that.

Q. Well, with respect to this element, sir, about whether you got the four layers or not, that's what you told us?

A. The element in the claim is defined by composition, and you can't even do that from looking at a picture. That's -- this is the point. I'm trying to come to some understanding on this, is that you can -- Figure 1 is an image in a patent, but to do the claims analysis, you have to do a lot more work.

Q. Let me read it again.

"To determine whether the SEM micrographs of the VinFast parts tested according to the protocol developed by

Dr. Baskin and me, I compared the SEM micrographs taken of the VinFast parts with the four-layer structure depicted in the Figure 1 of the asserted patents." (As read.)

That's what you did in your opening expert report?

A. It's true, but it's incomplete.

Q. Now, one thing, though, we can agree on is that -- give me a moment here.

Going back to the ELMO, sir, the four parts, and you've got three of them that are not covered by the claims of the patent; isn't that right?

A. Yes. That's what our analysis showed.

Q. We have a total of six Magna parts; isn't that right?

A. Yes.

Q. And then the Kia is also not covered by the claims of the patent; isn't that right?

A. Correct.

Q. And that's a Magna part?

A. Correct.

Q. So four of the six Magna parts are not covered by the claims of the patents; correct?

A. Correct.

Q. You, in your direct testimony, referred to a manufacturing anomaly.

Do you recall that testimony?

A. Yes.

Q. You said, oh, the Ford parts are manufacturing anomalies.

Do you recall that?

A. Yes.

Q. So what we have in this case, sir, is a situation where we have six parts you tested. Four of them don't practice the patent.

So isn't the manufacturing anomaly actually the two parts that do practice the patent, because four of six, majority, don't practice the patent?

A. No, that's not accurate.

Q. Well, you agree with me that four of six don't practice the patent?

A. Yeah. Four parts don't practice.

Q. And you're basing your entire opinion on all of these other products out in the world from the seven subpoenaed parties that we went over, and these other 51 stampers out there, you're basing your entire analysis -- you say, oh, they're all -- these -- they are all practicing the patent.

Yet, I have got here right in front of you, we know that four of six Magna parts don't practice the patent; isn't that right?

A. That's what our testing showed.
Q. Despite that, you're telling the Court -- you want the Court to accept your testimony that all of these other parts out there, from the 51 hot-stampers, and all the other parts that you didn't test from the seven subpoenaed parties, they're covered by the patent.
This is what you're telling the Court; isn't that right?
A. Yes, that is my opinion.
Q. Despite the fact that four of the six Magna parts don't practice the patent; isn't that right?
A. Yes.
Q. All right. Let's get the laptop.
Now, one reason why I believe you said yes to that -- well, let me ask you this question: And one way is to look at slide 184, which is a slide you presented to the Court. Okay? This is CDX-3.184.
Do you recall presenting this to the Court?
A. Yes.
Q. What you showed the Court here in your demonstrative slide at 188 -- actually, this is 184, sorry -- your demonstrative slide at 184, is the two stars indicating to you that the Magna process parameters to be within the process window; isn't that right?
A. Yes. The information that they had given us, I

showed on the slide previous, on 183, gave the temperature that the furnace was set to, and then what the process time was supposed to be. We translated those numbers to the red stars on this chart.

Q. Okay.

You believe that if the process parameters are within the process window, that means the Claim 4 structure will be created; correct?

A. Just barely, but yes.

Q. Thank you.

You can take that down.

Now, you testified yesterday about some OEM specifications. Do you recall that testimony?

A. Yes.

Q. There's a lot of OEMs -- by the way, when we say "OEM" in this case, we are talking about the car manufacturers, like GM and Honda?

A. Correct.

Q. You spent some time talking about OEM specifications.

Do you recall that testimony?

A. Yes.

Q. Just so we're clear on this, of all the OEMs at issue in this case, the only specifications that you rely on with respect to the -- let me reask this question.

The only OEM specifications that you cited that you rely on that's going into the evidence in this case is the OEM specification from GM and the one from Honda; isn't that right?

A. Oh, and the one from VinFast.

Q. And one from VinFast. Okay.

So just stick with the DI case, the two that you got are GM and Honda.

Did I get that right?

A. Correct. I believe we took the Ford one out even though we looked at it.

Q. Okay. Well, we can put that aside.

A. Right.

Q. I just want to focus on GM and Honda, all right.

You believe it is the expectation of the OEMs through their specifications for the OEMs to need a product that practiced the patents; isn't that right?

A. Yes.

Q. In particular, I think you said something about the requirements of weldability and corrosion resistance; isn't that right?

A. Weldability and corrosion resistance are benefits that the OEMs expect from the material they're purchasing.

They write into the specifications the

characteristics of the product that they want in order to bring those benefits to their products.

Q. Well, you agree with me, of course, that good weldability does not necessarily lead to the conclusion that the four claimed layers are part of the structure; isn't that right?

A. Would you repeat that?

Q. There's other ways to get good weldability in this business, isn't that right, other than the four claimed layers of these patents; isn't that right?

Are you with me?

A. No. I'm not. Not at the moment.

Q. Okay.

A. I'm trying to parse that question.

Q. Let me get a better question, then, okay?

You say that -- I believe you said yesterday that because of the invention here, the four layers, you get good weldability. Are you with me?

A. Yes.

Q. But you agree with me that you can get good weldability through other mechanisms; correct?

A. I --

Q. This patent, the technology here in these patents is not the only way to get good weldability; right?

A. I don't know that I can answer that question,

honestly, without thinking about it some more because it's a very complex issue.

I mean, you're talking about materials trying to meet a part requirement. There's a lot of moving parts in there.

Q. You just can't answer that one way or the other.

A. No. Not really, not that --

Q. How about corrosion resistance, these patents are not the only way to get good corrosion resistance. You agree with that, don't you?

A. Yeah. There's other ways to get corrosion resistance.

Q. Now, just to put a pin on it, you got the GM and the Honda spec, we already established that; am I right?

You tested Tesla parts; isn't that right?

A. Correct.

Q. But in your report, you did not consider Tesla OEM specifications; correct?

A. That's correct.

Q. You tested Chrysler parts; correct?

A. Yes.

Q. But in your report, you do not consider the Chrysler OEM specifications; correct?

A. That's correct.

Q. You tested Kia parts, correct, but in your

report, you did not consider Kia OEM specifications; correct?

A. Correct.

Q. You tested Toyota parts; correct?

A. Yes.

Q. But in your report, did you not consider Toyota OEM specifications; correct?

A. Correct.

Q. Now, you didn't test any Mercedes-Benz parts; correct?

A. No.

Q. You didn't cite and --

A. That's correct.

Q. Correct. Yes.

You didn't cite to any Mercedes-Benz OEM specifications either; isn't that right?

A. That's correct.

Q. But, of course, your technical domestic industry opinion applies to parts that go into Mercedes-Benz vehicles; isn't that right?

A. Yes.

Q. So you're saying that you don't have SEMs, you don't have analysis of the Mercedes-Benz parts, you don't have OEM specifications, and in your view, the parts going into the Mercedes vehicles practice the patent?

A. No, I won't be able to say that in court. I don't know the answer to that. I don't know if they practice.

Q. So with respect, is it fair to say, then, with respect to parts you didn't test, and parts where you don't have an OEM specification, is it fair to say you don't know one way or the other whether the parts that go into these vehicles practice the patents?

A. Yeah, I don't know that. I don't know that. I suspect that, just because it's that -- that is a -- the benefits of the material are known widely throughout the industry, and the industry has been building a lot of vehicles with those parts because of that, but to know it, no, I do not.

Q. A fine point.

With respect to the Mercedes-Benz, with respect to Nissan, with respect to Acura, with respect to Cadillac.

A. Acura is a Honda company. I would not speculate to that.

Q. Acura is a Honda company?

A. Acura -- yeah, Acura vehicles are made by Honda?

Q. You don't have an Acura OEM spec; is that right?

A. No, they would use Honda specs. They wouldn't have their own.

Q. How do you know that?

A. Experience in the industry.
Q. Just speaking by experience that Acura OEM is going to use an OEM from a different brand; is that right?
A. It's built by Honda. Honda makes the cars.
Q. With respect to Mercedes, with respect to Cadillac, with respect to Acura.
A. Cadillac, that's built by General Motors. That was a spec we looked at.
Q. You're just saying that based on the OEM spec; is that right?
A. Yeah. Cadillacs are built by General Motors, so, sure.
Q. Okay. So let's put a fine point on this. Let's take it one a at a time. I was trying to short-circuit, but let's be very clear here in your testimony.
With respect to Mercedes-Benz, you've already testified, because you didn't do any testing, you don't have OEM spec, you don't know whether the parts going into the Mercedes-Benz practice the patents; correct?
A. Correct.
Q. With respect to Acura, you don't have OEM spec. You didn't do any testing of the parts. You don't know whether parts going into the Acura vehicle practice the patents; correct?
A. Incorrect.

Acura vehicle is built by Honda, would use Honda specifications for those parts.

Q. Again, you are drawing the conclusion based on another specification from Honda to conclude that the Acura practices the patent; am I right?

A. Say again. Sorry.

Q. You're drawing a conclusion based on -- you didn't do any testing for Acura; correct? You didn't do any testing for the Acura parts.

Are with you me?

A. I'm with you.

Q. Do you agree with that?

A. I'm thinking, sir. I'm thinking.

Q. Okay.

A. I'm thinking about my answer.

Once again, I -- they're built by Honda. I guess that's all I can say. They would be using Honda's material specifications for those parts.

Q. You just know that based on your experience, but you don't have evidence to present to this --

A. My experience in the industry, yes. That's exactly right. Yes, sir.

Q. All right.

Let's put a finer point on this.

The one spec I know you relied on in this case

is the GM spec; right?

A. Yes.

Q. You told the Court that based on the GM spec, you were able to conclude that the four layers are present in the parts made by GM; is that right?

A. Yes.

Q. Of course, you tested at least one GM part; isn't that right?

A. Yes.

Q. But let's focus on the GM spec that you testified earlier to the Court about, and let's pull up CX-638.22.

Do you recognize -- well, let's -- do you recognize this as the GM spec?

A. Yes.

Q. Okay.

Of course, you see the diagram that we have brought up here is within the spec; isn't that right?

A. Mm-hmm.

Q. And you see this spec is very clear that there's an interdiffusion layer; do you see that?

A. Yes.

Q. Now, but the GM spec does not say anything about the creation of the remaining three layers, the intermediate, intermetallic, and superficial layers;

correct?

A. You're correct. It does not say that.

Q. In fact, we can review your expert report, but in your expert report, you don't cite the GM spec as evidence of any of those layers; do you agree with that?

A. Yes.

Q. So with respect to the GM spec, then, at least, you can't draw a conclusion that the four layers are present in the vehicles; isn't that right?

A. Repeat that question.

Q. Just based on the OEM spec, the GM spec you relied on, there's an indication SEM in here that specifically shows products without the four required layers; correct?

A. It only discloses the interdiffusion layer and the total thickness. That's what this image discloses.

Q. This part, to Chrysler -- I'm sorry.

This part to GM is a qualified part. It's okay to put in its vehicles; correct?

A. It's a qualified part. It's okay to put in the vehicles, and GM will be looking for the weldability benefit that is being delivered by the product.

They aren't going to really write their specification around the patent, but they are going to write a specification that's going to deliver them the

benefits of the patented material.

Q. Well, GM doesn't care if it's got four layers, three layers, 50 layers, according to the spec; isn't that right?

A. They care about getting the good weldability that the patented material will give them.

Q. Well, but there's a lot of ways to get good weldability; isn't that right?

A. Not really. Not for this product, no. Not for this product.

Q. You're saying GM wants good weldability, it says that in their spec; therefore, domestic industry products, they're covered by the patent. Is that what your conclusion is?

A. Basically. I mean, it's based on experience in the industry. Once it gets out, once word gets out that we have now a hot-stamped, aluminum silicon coated product with good weldability, everybody's going to want it. I can tell you that for a fact. Everybody's going to want it.

Q. All of the products that are out there from the General Motors companies, all of the product lines, based on the spec that doesn't even show the four layers, because they say we want good weldability, you're telling the Judge, all of the General Motors cars out there in the universe practice the patents; correct?

A. They are out there getting the benefit -- the weldability benefits of that material.

That's what I'm telling the Court.

Q. The specification doesn't require the four layers of the patent; correct?

A. That is correct.

Q. All right.

Let's take a look at the Honda spec, which is -- well, actually, let's pull up a slide you had on Honda, CDX-1963C.

This is one of your slides that you presented to the Court.

Do you recall this slide you presented to the judge yesterday?

A. Yes.

Q. I believe your testimony is you believe that the Honda specification describes the creation of the four layers; is that right?

A. Correct.

Q. Based on what you told the judge, you could extrapolate that any Honda part would have the four layers because the spec would require it.

Is that what you're telling the judge?

A. That would be the expectation of the OEMs if they're buying to this specification, yeah, it's going to

have four layers.

Q. But you didn't tell the judge the whole story on the Honda spec; isn't that right?

A. Say more.

Q. Well, let's take a look at it.

If we could pull up CX-719.

This is the --

MR. REITER: Your Honor.

(Clarification requested by the Realtime Stenographer.)

MR. REITER: I'm sorry.

We need to go on the confidential record for this document.

MR. MCKEON: Okay.

JUDGE BHATTACHARYYA: All right. Moving to the -- which party?

MR. MCKEON: All parties?

MR. REITER: Yeah.

MR. MCKEON: All parties, Your Honor.

JUDGE BHATTACHARYYA: Moving to the all-party confidential record.

MR. MCKEON: All right.

I think we can proceed, Your Honor?

JUDGE BHATTACHARYYA: Yes.

(Whereupon, the trial proceeded in confidential session.)

O P E N S E S S I O N

REDIRECT EXAMINATION

BY MR. REITER:

Q. Already afternoon. Good afternoon, Dr. Fekete.

A. Good afternoon.

Q. Let's start where Mr. McKeon left off about your prior opinion.

So do you recall submitting an expert report in a prior case?

A. Yes.

Q. When was that?

A. It was in 2010.

Q. Was that case about the patents that are at issue in this case?

A. No, it was not.

Q. I'll put up -- or put on the ELMO, RX-1144C.

Is there the portion of your prior expert report that you were asked questions about at your deposition?

A. Yes.

Q. Was your opinion in that prior expert report related to the patents here?

A. No, it was not.

Q. What was it related to?

A. It was related to the '805 patent, prior hot-stamping patent from I guess what is now ArcelorMittal.

Q. Have you considered your opinions on commercial success in submitting this report 15 years ago?
A. Yes, since --
Q. With respect to the patents at issue here, what is that opinion?
A. Well, I believe there's been commercial success of the product, and it really is founded on the benefits that the patented products are bringing in terms of weldability, corrosion resistance, painted surface appearance -- or painted surface adhesion, yeah, it's been a big commercial success.
Q. What is that commercial success attributable to?
A. To the patented material, to creating that structure.
Q. So you were also asked by Mr. McKeon some questions, I think, about this chart. You went through and highlighted some things, and I want to focus on the Tesla door ring.
Do you see that I have circled that on the chart?
A. Yes.
Q. How many Tesla door rings did you analyze?
A. We looked at four.
Q. Were they all the same?
A. No, they were four different parts.

Q. Are any of those parts in this courtroom today?
A. Well, yeah, two of them. One behind me, one before we. One's, I think -- this one is the door outer, that one is the door inner. A door --
Q. Are those the same parts?
A. -- armature inner.
What.
Q. Are those the same parts?
A. No.
Q. How many different components make up each one of those parts?
A. This one -- that one's five. I think that one's five, too. I'd have to go count them up.
Q. Did you just test one piece of those parts?
A. No, we -- like I think I said in direct, we had -- those parts are made from five separate blanks, five separate pieces of material that are laser-welded together and hot-stamped.
So we would have tested basically five hot-stamped components, and then gone through our test protocol with each one.
Q. Did you consider all of the tests from each of the components in your analysis?
A. Yes.
Q. Put up slide 110 from your presentation. Oh.

Ex. 2009
IPR2024-01377

Do you recognize this slide, Dr. Fekete?

A. Yes.

Q. I'm just really putting the slide up just so we can all see the three independent claims from the '602 patent.

Do you recognize those?

A. Yes.

Q. You were asked some questions by Mr. McKeon about interdiffusion.

Do you recall that earlier this morning?

A. Yes.

Q. Is there an interdiffusion component besides the layer associated with this claim?

A. No. The only reference to interdiffusion is the interdiffusion layer.

Q. Okay.

But how is the layer -- how is the coating formed?

A. The coating is formed through diffusion, interdiffusion between the iron and the aluminum silicon in the coating.

Q. Is that in the claim?

A. Yes. It's in the claim. It's in the --

Q. Does interdiffusion just happen randomly?

A. No. It happens as a function of the heat that

you put into the material.

Q. Does any interdiffusion process result in creation of the four layers required by the claim?

A. No. It would need to be a very specific process.

Q. You need to know the parameters?

A. You need to know the parameters.

Q. Let's go to slide 99.

Mr. McKeon spent quite a bit of time asking you questions about how you discern the four layers.

We all agree the four layers are important; right?

A. Correct.

Q. Was it just one SEM?

A. No.

Q. What else?

A. Well, we depended on, mainly, the chemical composition data from the SEM, the line scans, which do a better job of relating directly to the patent, because the patent is talking about mean compositions, whether you are talking about an iron composition, aluminum composition or total composition.

The chart in the upper right basically shows that in a way that's actually better than the image. The image gives you an idea, because they use back -- in this

particular image, they use backscatter electron imagining, which gives you atomic number contrast.

So you should be able to see, you know, iron -- you know, heavy iron layers versus heavy aluminum layers, you have different images, but that doesn't tell you anything about the chemical composition.

The way we got the chemical composition was to actually use the SEM, but we used the electron spectroscopy detector to actually measure those compositions, both in these line scans so you could really visualize where the coating was.

And then we did the spot analyses, too, just really confirmative and to answer more clearly the claims of the patent.

Q. Why do you have -- under the line scans, why do you have layer (a), (b), (c), and (d) labeled there; why is that there?

A. Because that relates to the layers, that are disclosed in the patent. Layer (a) being the interdiffusion layer in this case, layer (b) being the intermediate layer, (c) being the intermetallic layer, and (d) being the superficial layer.

Q. Shortly before he sat down, Mr. McKeon was asking about a lot of different OEM specifications. He was talking about Honda, talking about GM. I think there was

some discussion between the two of you about whether Honda and Acura were the same.

Do you recall that?

A. Yes.

Q. You worked at General Motors, didn't you?

A. Yes.

Q. How long did you work there?

A. 15 years.

Q. Were you involved in any of the specifications at all?

A. Yes, I was.

Q. How so?

A. I wrote some myself.

I worked with our sheet metal specialist team and our global steel team to approve some others.

We worked with the suppliers to develop the materials.

Worked with our product engineers to make sure that the product performance requirements we were writing in the specs would meet their needs.

So quite a bit of work around specifications.

Q. Those were metallurgical related?

A. The ones we worked on, yes.

Q. When you wrote or worked on a spec for General Motors, did you write one for Chevrolet, one for Cadillac,

one for -- I'm thinking of Oldsmobile, but I know they're no longer around, but --

A. Try Buick.

Q. Okay. Buick. There we go.

Did you write separate ones for each of those different brands?

A. No. The General Motors engineering standards were written for the whole company.

Q. Did that have anything to do with your explanation to Mr. McKeon about Honda and Acura?

A. Yeah.

I mean, effectively, it's the same situation. You know, the Honda Motor Company manufacturers vehicles under the Honda brand and also under the Acura brand. They're engineered by Honda engineers. The structures certainly are, the power trains are, too.

So, you know, I'm very confident in saying that, an Accura vehicle, if you went and found the specs for that, those would be Honda specifications.

Q. A lot of questions about whether or not you can conclude, based on the testing of the parts that you've done, that other non-tested parts would be covered by the patent.

Do you recall that?

A. Yes.

Q. Do you stand by your opinion?
A. Yes.
Q. Why?
A. I stand by that opinion, because we looked at -- you know, in evidence we have the GM and the Honda specification. I also looked at the Ford specification, to where that one, it does show the four-layer structure in their patent or in their specification documents.

Then as I think I said, when I was talking with Mr. McKeon that, you know, the world -- you know, ArcelorMittal made sure the world knew when this material came out, and they made this substantial improvement in weldability and corrosion resistance and paint adhesion, that all of the OEMs knew it.

So, you know, I'm -- like I say, highly confident that, you know, if ArcelorMittal or their licensees are manufacturing the precursor materials for hot-stamping, that those hot-stamped parts are very likely to be practicing the patent.

Q. I'd like to pull up your expert report, just briefly touch upon some portions of your report that perhaps Mr. McKeon overlooked.

So if we could go to page 18 of your report, which is CX-79C.

What does page 18 begin with, or there at

Section VIII?

A. On testing?

Q. I'm sorry?

A. On testing?

Q. Yes, on testing. Why did you include that?

A. Well, we were asked -- I was asked to provide an opinion as to whether the VinFast parts, you know, infringed and DI parts practiced.

In order to do that, you know, as part of the analysis, we decided to test parts to be able to really do a strong claims -- you know, claim analysis.

So that was the methodology that we put together to do reliable testing of all of those parts.

Q. Now, was it just taking an SEM picture?

A. No.

Q. Go to Paragraph 50, please, on the next page.

What does Paragraph 50 explain?

A. It talks about the fact that, you know, we felt -- I felt it was important that we get reliable test results. Because we're going to be getting a lot of test results. We're going to be relying on those test results. So we want to ensure we're getting, you know, valid and repeatable test results. So we chose to go with laboratories that were accredited to ISO 17025.

It's an industry -- it's common -- I read in the

report, it's common for the OEMs. I know GM, it was. It was a requirement that our supplier labs be accredited. I think the same for Ford and Stellantis. I don't know about the others. We didn't work too much with them.

But, you know, all of the OEMs, as part of their quality systems, would be demanding, you know, reliable test results, and they would be doing some level of understanding whether laboratories were competent to do their testing.

So we thought that was important -- I thought that was important here.

Q. We talked about OEM specifications for the tech DI. You just explained that. We talked about testing, and I'm going to come back to that in a moment.

But I think during your testimony, and you mentioned this to Mr. McKeon, there were -- VinFast documents were produced. So maybe we can look at page 24.

Did materials other than just the testing of the parts influence your opinion about whether VinFast infringes?

A. Yeah. Just -- and we talked about it a lot on direct, but we looked at control plans. We looked at process flow diagrams for all of the VinFast parts that we tested, and also the same parts or similar parts for the VF 9, as part of the analysis.

Q. Are some of those documents listed here in this --

A. Yeah.

Q. -- these footnotes?

Let's just briefly turn to -- back to the testing, and this idea that it was just a single SEM. I want to turn to Exhibit 846C, and we talked a lot about that. I believe that's the 7022 part that --

A. Yeah.

Q. -- you used throughout.

So this came up yesterday. It was produced -- the first page was produced native.

Do you recognize what this is?

A. Yes.

Q. What is that?

A. This is the data report we got from the labs that they reported on an Excel spreadsheet for us.

Q. If we go to the next page, what is that?

A. Oh --

Q. Not of the -- of the -- the next page of the exhibit. Sorry. Yeah.

What is that?

A. That's pictures of the parts as they were received from the laboratory.

Q. We scroll a couple of more pages in. Keep

going.

What is that?

A. That's one of the line scans that we -- that was presented by the lab.

Q. Was it just one line scan? We can do another page.

A. No. There's a number of line scans in there.

Q. Can we kind of scroll through that. We can see each of the page numbers, moving forward.

So it's more than just one line scan?

A. Yes. Substantially more.

Q. Now, there was also a question -- if we can go to Bates Number 2942. This was also in the exhibit.

What is this?

A. Well, that's a calibration grid for SEM distance measuring application.

Q. This was part of what the labs did?

A. Yeah. They provided those to us.

Q. If we go to the next -- a couple of more pages, we see -- I think what's important, because I'm not going to go through this, but 2944 is the Bates number.

Do you see that in the lower right-hand corner?

A. Yes.

Q. We can scroll through quickly. Go to the -- what are all of these?

A. These are all of the SEMs that the laboratory took as part of the investigation on this part.

Q. We can go to the last one, which is 3033.

So 3033, to the first one, I have to admit, I cheated while Mr. McKeon was doing his cross-examination. That's 89 different micrographs.

Were all of this part of your report?

A. Was all -- yes. It was all part of the report.

Q. Now, you didn't look at all of the micrographs, did you?

A. No, we didn't look at every one. We looked mainly at the ones that were in the Excel spreadsheet report that we got from the labs.

Q. Did you look at every Excel spreadsheet for every part that you considered and you provided an opinion on?

A. Yes. Every one.

MR. REITER: I have no further questions, Your Honor.

JUDGE BHATTACHARYYA: Thank you.

MR. MCKEON: Just briefly, Your Honor, may I?

JUDGE BHATTACHARYYA: Yes.

RECROSS-EXAMINATION

BY MR. MCKEON:

Q. Just a couple of questions, all right,

Dr. Fekete?

I'm a little -- I want to get clarification of your last answer.

You said it was all part of your report, what counsel just walked you through.

Do you recall that?

A. Yes.

Q. What you gave us in your report, sir, was a reference to materials considered, which we see here on the desk. That was in Appendix A; isn't that right?

A. The references, yes.

Q. What you say -- what Mr. Reiter just walked you through, when you say it was all part of your report, it was because in the materials considered attached in Exhibit A; correct?

A. Yes.

JUDGE BHATTACHARYYA: Thank you.

MR. REITER: Nothing further, Your Honor.

JUDGE BHATTACHARYYA: All right.

Thank you, Dr. Fekete.

It's good timing. It's time for lunch. We'll be on break for one hour.

(Witness excused.)

(Whereupon, at 12:45 p.m., a lunch recess was taken.)

A F T E R N O O N S E S S I O N

(1:51 p.m.)

MR. HERSHKOWITZ: Good afternoon, Your Honor.

JUDGE BHATTACHARYYA: Good afternoon.

MR. HERSHKOWITZ: Ben Hershkowitz on behalf of Complainants.

Two things.

We resolved all of the issues regarding the exhibit list from yesterday, so Mr. Lee will move that in.

That was our final witness on our case-in-chief, so I will turn it over now to Respondents.

JUDGE BHATTACHARYYA: Okay.

MR. LEE: Your Honor, may I approach with the parties' agreed list of Day 2 exhibits?

JUDGE BHATTACHARYYA: Yes, you may.

I have received the list of exhibits entitled "The joint list of admitted exhibits, Day 2."

I understand there's no objection to admission of those exhibits into evidence; is that correct?

MR. COLAIANNI: That is correct, Your Honor. No objection.

JUDGE BHATTACHARYYA: Very well, then. The exhibits on that list are admitted.

(Joint List of Admitted Exhibits, Day 2, was received into evidence.)

MR. LEE: Thank you.

JUDGE BHATTACHARYYA: Thank you.

Before we start, I can provide a ruling on the issue regarding the Brown demonstratives.

The objection is overruled.

MR. COLAIANNI: Good afternoon, Your Honor. Joseph Colaianni for Respondents.

We are prepared to present our case-in-chief, and our first witness will be Ms. Lan Anh Nguyen.

Ms. Nguyen will be using an interpreter for her testimony.

JUDGE BHATTACHARYYA: Okay.

Okay. Thank you. Please move to your places, and I will swear in the translator first.

Whereupon--

PHUONG-ANH NGUYEN,

a Vietnamese Interpreter, was first legally sworn to interpret, and continued as follows:

JUDGE BHATTACHARYYA: Ms. Nguyen, could you please raise your right hand.

Whereupon--

NGUYEN THI LAN ANH,

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. COLAIANNI:

Q. Good afternoon, Ms. Nguyen.

Could you please introduce yourself to Judge Bhattacharyya.

A. My name is Thi Lan Anh.

Q. What is your current title at VinFast?

A. At the moment, I am the chief financial officer of VinFast Auto Limited.

And I am also a member of board of directors of VinFast Auto Limited.

At the same time, I am also the head of finance of VinFast Trading Production, TSC, in Vietnam.

Q. How long have you been with VinFast?

A. I joined VinFast in October 2023.

Q. What are your job responsibilities in the role that you just described?

A. My responsibility is to be in charge of the finance and accounting of the entire VinFast company.

Q. Could you tell Judge Bhattacharyya a little bit about VinFast, please.

A. VinFast is a company established in Vietnam in the year 2017. We manufacture EV. VinFast have the manufacturing facility in Haiphong, Vietnam, and we are opening another facility in other countries.

Q. Approximately how many employees does VinFast

currently have?

A. At the moment, VinFast has more than 20,000 employees worldwide.

Q. What are some of VinFast's key markets?

A. The main market for VinFast is Vietnam; however, we are expanding other markets also. The other market we are planning to expand into including the US, Canada, Middle East, and other Asia countries.

Q. Could you talk a little bit about VinFast's US operations.

A. In the US, we have totally four entities.

The first one is Vingroup USA, LLC.

The second one is VinFast Auto, LLC.

The third one is VinFast USA Distribution, LLC.

And the fourth one is VinFast Manufacturing US, LLC.

Q. At a high level, what do those US entities do; what operation do they perform?

A. VinFast imports automobiles from Vietnam, and then distribute to American users.

In the US, we have two distribution channels.

The first one is we import automobiles from Vietnam, and sold it to the dealership.

In the second one, we import, and then we will sell it directly to the end user through our showrooms.

Q. Approximately how many VinFast showrooms are there in the United States?

A. At the moment, we have 13 showrooms under VinFast in the US.

Q. Approximately how many dealers does VinFast associate with in the United States?

A. We have 38 dealers in the US.

Q. Does VinFast currently manufacture any vehicles in the United States?

A. At the moment, we have not yet manufactured automobiles in the US.

Q. Do you have plans to do so?

A. Yes. We established VinFast Manufacturing US, LLC, in North Carolina.

Q. Is there any activities of that LLC in the United States currently?

A. This project, with the support of $20 billion -- $2 billion US of investment, and last year, we came out with the announcement that we will delay this project until the year 2028.

Q. What's the reason for the delay of the factory in North Carolina?

A. Because we would like to balance our resources, and also focus on the near-future objectives of the company.

Q. What are the current VinFast models being sold in the United States?

A. At the moment, we have two, VF 8 and VF 9.

Q. What types of vehicles are those?

A. That is SUV in which VF 8 is a five-seater and VF 9 is seven-seater.

Q. Does VinFast offer a warranty program for its customers?

A. VinFast provides total warranty for our customers, which is either 10 years warranty or 125,000 miles, whatever comes first.

Q. For US customers, where does the warranty repair work take place?

A. We provide guarantee for the US customer in our service center, and the service center of the dealers in the US.

Q. Does VinFast utilize suppliers in its manufacturing?

THE INTERPRETER: Could you repeat again.

MR. COLAIANNI: Sure.

BY MR. COLAIANNI:

Q. Does VinFast work with suppliers as part of its manufacturing process?

A. Yes. VinFast, the same as other automobile companies, we have source of the part from suppliers.

Q. Does VinFast apply any criteria in selecting suppliers for its parts?

A. Yes. VinFast has a special process to outsource for suppliers, and we choose among the global supplier what are reputable.

We actually source suppliers from the global -- we source the supplier from global recognized and reputable suppliers in the world.

Q. Does VinFast produce the pre-coated steel that is at issue in this investigation?

A. VinFast doesn't produce that kind of steel, coated steel.

Q. Does VinFast utilize suppliers for that purpose?

A. (In English) Can you say the question again.

THE INTERPRETER: Can you rephrase your question.

BY MR. COLAIANNI:

Q. Does VinFast work with suppliers for purposes of obtaining steel for its cars?

A. Yes, we work with the supplier for parts.

Clarification: We work only with the supplier for parts, not for the steel material.

Q. Do the suppliers provide VinFast parts made of steel?

A. Will you clarify your question.

Q. Sure.

Do VinFast suppliers supply it with parts made of steel to use in assembling its vehicles?

A. Yes. We work with the supplier of parts, and those supplier of parts work with the supplier of steel.

MR. COLAIANNI: Thank you.

I'll pass the witness.

JUDGE BHATTACHARYYA: Thank you.

We're on the public record, by the way.

MS. TABAT: I plan to stay on the public record. I have one exhibit, not witness binders.

Julia Tabat for ArcelorMittal, Complainant.

May I approach the witness to give her the exhibit?

JUDGE BHATTACHARYYA: Yes.

MR. COLAIANNI: Thank you.

CROSS-EXAMINATION

BY MS. TABAT:

Q. Good morning, Ms. Nguyen, or good afternoon.

A. Good afternoon.

Q. I have handed you CX-0066.

Do you recognize this as a printout from VinFast's website?

A. Yes. Correct.

Q. Do you see this printout is dated January 2,

2024?

A. Yes. Correct.

Q. Below that, it says there are five dealers in four states across the country, referring to the US; is that right?

A. Yes. Correct.

Q. I believe you testified on your direct that there are now about 15 dealers; is that correct?

A. The figure you have is from January 2024, and the figure I provided was the most updated information we have.

Q. Thank you for the clarification.

So it's safe to say that since January 2024, VinFast has expanded its US dealerships; is that right?

A. Yes. Correct.

Q. I'd like to direct you now to the last sentence of the article before where it says "About VinFast."

A. Do you mean highlighted in yellow?

Q. That's correct.

Do you see that?

A. Yes. I see it.

Q. There it says that VinFast expects to expand its dealer network to 125 points of sale across the United States.

Do you see that?

A. Yes. I see it.
Q. Is that still what VinFast expects to do?
A. The correct number as of this time is 13 retail stores -- 13 dealer store, and the number here you see -- 13 retail stores is correct.
The number you see here, 125 points is for the long-term objective.
As of this time, until 2025, we expect to open up to 45 points.
Q. Thank you.
MS. TABAT: No further questions.
MR. COLAIANNI: Nothing further.
JUDGE BHATTACHARYYA: Thank you. Thank you, Ms. Nguyen.
(Witness excused.)
MR. LEE: Good afternoon, Your Honor. Daniel Lee for the Respondents.
We would like to call our next witness, Dr. Bradley. We have a demonstrative for Dr. Bradley's testimony, and may I approach the bench to give you the slides?
JUDGE BHATTACHARYYA: Yes, you may. Thanks.
Good afternoon, Dr. Bradley.
THE WITNESS: Good morning, Your Honor. Good afternoon. I'm sorry.

JUDGE BHATTACHARYYA: Could you please raise your right hand.

Whereupon--

JOHN PHILLIP BRADLEY, PhD,

having been first duly sworn, was examined and testified as follows:

THE WITNESS: I do.

DIRECT EXAMINATION

BY MR. LEE:

Q. Good afternoon, Doctor.

A. Good afternoon.

Q. Can you please introduce yourself.

A. John Philip Bradley.

Q. Did you prepare a demonstrative to help with your testimony today?

A. Yes, I did.

Q. There we go. Is that what we see on the screen?

A. Yes.

Q. For the record, this is RDX-4.

What is your current profession?

A. At present, a senior research scientist at the University of Hawaii. I also hold an honorary affiliate faculty position at the National Center For Electron Microscopy at Lawrence Berkeley National Laboratory.

Q. What is your educational background?

A. I have a BSC and MSc in chemistry from the University of Canterbury in Christchurch, New Zealand, and a PhD in chemistry from Arizona State University.

Q. Have you held other roles before?

A. Yes, from 2014 to 2022, I was a full professor at the University of Hawaii.

Prior to that, from 2002 to 2013, I was the director of a University of California Academic Institute embedded within the Lawrence Livermore national security complex at Livermore, California.

Prior to that, 1992 to 2001, I was primarily a technical and scientific consultant to industry and federal agencies.

Q. Please tell us about some of your research experiences.

A. So some of them are listed here. I will just highlight a few of them.

The US Treasury, Bureau of Engraving, I was engaged to examine US currency bank notes, specifically the ink on bank notes. More specifically, in my case, the ink lines on George Washington's coat.

For the United States Navy, this is a current project, we're looking at corrosion layers on steel coupons from the Navy's Red Hill fuel storage complex adjacent to their lab at -- on Oahu.

For NASA I have been working on space hardware. This is the surfaces of spacecraft and other surfaces exposed to the space environment as well as astromaterials. These include samples of astroids and comets that have been returned to Earth by Japanese and American spacecraft missions.

Q. How many papers have you published?

A. In excess of 300.

Q. What type of publications have you published in?

A. Mainly, mainstream material science, astromaterial science, and environmental sciences. They include at least 20 papers in some of the more prominent international journals, for example, Nature and Science. These three examples here contain papers, which the journals chose to highlight on the front covers of the issues.

Q. I see that one of the covers you highlight is the Science cover with the caption, "Stardust."

A. Yes.

Q. Can you tell us a little bit more about that, please.

A. In brief, Stardust was a mission we launched in 1999. It traveled to a comet close to the orbit of Jupiter. It used aerogel. You can see an example here. Aerogel cells which is an ultralow density silica, and

particles coming out from the comet as the spacecraft traversed the coma, impacted into the --

(Clarification requested by the Realtime Stenographer.)

A. The coma, the nucleus of the comet.

Particles traveling at high velocity impacted into the aerogel, and left these bulbus-shaped tracks which contain cometary materials.

We collected a total -- in two minutes we collected a total of about a milligram of a sample at a cost of $200 million. These samples were returned to Earth, parachuted into Utah and flown over to Johnson Space Center in Houston.

Q. Is that what that photo on the left shows?

A. Yes.

This is the stardust curatorial facility at Johnson Space Center.

On the left, you see the collector, this is the two-dimensional array of the aerogel cells. The individuals of the preliminary examination team or the PET team, the job was to remove the sample from the capsule and photo document the cells individually and prepare a brief report about what we were seeing.

Q. Who is that young man on the left of the photo?

A. That's me in a bunny suit.

Q. Seems like it's a while ago?

A. Yes. It was. Yes.
Q. What happened next after that photo?
A. So after returning to our home institutions, we subsequently received samples from NASA of the collected samples. In my case, I was at Livermore, and I received them in the Livermore labs. Which I should point out I'm not an accredited testing facility.
Then I proceeded to prepare the samples and analyze them using electron microscopy.
Q. NASA didn't require their precious stardust to be tested in an accredited laboratory?
A. No.
Q. In fact, they trusted you to extract and test the stardust sample.
A. Yes.
MR. LEE: Your Honor, Respondents tender Dr. Bradley as an expert in the field of microscopy and preparation of samples for electromicroscopy.
JUDGE BHATTACHARYYA: Any objection?
MR. HERSHKOWITZ: No objection, Your Honor.
JUDGE BHATTACHARYYA: At this time, Dr. Brown --
THE WITNESS: Bradley.
JUDGE BHATTACHARYYA: Sorry. At this time, Dr. Bradley is admitted as an expert in the field of microscopy and preparation of samples for

electromicroscopy.

MR. LEE: Thank you, Your Honor.

BY MR. LEE:

Q. Could you please summarize your opinions for this case, Dr. Bradley?

A. Yes, they're based on the physical characteristics of multiple samples, for example, I examined the coating microstructure, elemental composition and mechanical strength of samples from a Volkswagen 2006 Passat.

In addition, I also examined the coating microstructures on multiple VinFast parts, and also the coating microstructures on several technical domestic industry parts.

Q. In forming those opinions, what materials did you consider?

A. In addition to the physical properties of these samples. I also reviewed a declaration of a Mr. Bartosek from the Roush Corporation. These are the folks that acquired and tore down a 2006 Passat.

I had some work performed at IMR, that's an accredited testing laboratory in Portland, Oregon. I also reviewed technical documents, for example, ASTM procedures and the like, as well as additional documents relevant to the ASTM testing I carried out in the case.

Q. Those materials are on slide 9; is that right?
A. Yes, correct.
Q. Let's now talk about your testing methodology.
What is the equipment that you show here on slide 11?
A. Okay. This is the scanning electron microscope or SEM I used for this investigation.
So the SEM enables one to take images of magnifications ranging from about 100 times to in excess of a million times.
This particular instrument is manufactured by Thermo Fisher Scientific, one of the major manufacturers of electron microscopes. It's also equipped with an x-ray detector, specifically an energy-dispersive x-ray system or EDS system. That's manufactured by the German company, Bruker. They are also a major manufacturer of x-ray detectors for electron beam instruments.
Q. What types of imaging modes do those scanning electron microscopes or SEMs have?
A. So when we say SEM image, they're actually multiple types, and I use so-called secondary electron images which primarily provides information about the surface morphology of a sample.
I also use backscattered electron images that provides information primarily about the composition of a

sample.

It does this because the yield of backscattered electrons coming off a specimen under electron radiation depends on the atomic number of the target material. So, for example, a high atomic number, species like iron, will give bright contrast in a backscattered image.

Conversely, lighter elements, for example, aluminum silicon, will give less brightness or contrast in the backscattered image.

For example, in this backscattered image here, the brightest regions is the middle substrate, which of course is rich in iron, and darker regions within the coating on that substrate usually contain more aluminum and silicon relative to iron.

Q. The next slide.

What type of maintenance is performed on the SEM that you used?

A. So the instrument I used is maintained in a service contract, which means that every three months or so, a service engineer comes out and checks out the microscope. This includes checking out the calibrations on the instrument itself.

In this example -- in this slide here, I show two examples.

On the left-hand side, we show a certified image

calibration standard that enables us to confirm that the magnification reported by the instrument is, in fact, accurate.

On the right, we have about a one-inch puck containing elements and compounds of many different compounds -- many different elements throughout the periodic table.

Now, these materials have been previously analyzed using other analytical techniques and subsequently certified -- their compositions have been certified. So thus, we use the certified standard to calibrate the detector on the SEM.

Q. Independently of the service contract, did you also verify the calibration?

A. Yeah.

I have a long habit of performing the calibrations myself, as I did in this study.

Q. Specifically, what elements did you verify the calibration for for the EDS measurements?

A. For x-ray detection, I calibrated specifically aluminum, silicon, and iron.

Q. Something you do in the course of your regular work?

A. Yes.

Q. Now turning to your sample preparation.

What were the initial steps for your preparation?

A. So Dr. Fekete briefly described the sample preparation earlier this morning, and I use essentially the same preparation with some slight differences.

So upon receiving the samples from Roush, the coupons, first thing I did was extracted about a 1-centimeter-by-1-centimeter piece of the coated metal. And you can see this in the image on the left. It's mounted on a platform.

Now, to look at a surface coating, one needs to present the sample in the scanning electron microscope in a vertical orientation. We use these clips we see here in the image on the left to hold the sample vertically positioned.

Now, immediately upon doing that, I attach the label, which you see on the image on the right, to the outside surface of that clip.

I did this because that -- there could be no subsequent ambiguity about which sample is which as you proceed downstream with the analyses.

Now, I was able to fit up to three different samples on each of those substrates on the left.

Once I had done that, I put a sleeve over the platform, and poured in low-viscosity epoxy. That was

allowed to cure for about 24 hours at about 45 degrees C.

The product of this curing, as seen on the right, this is a solid block containing three deeply embedded metal samples in this case.

Note once again, each of those samples is labeled, and that label is also fixed in the epoxy so that there can be no subsequent ambiguity about which sample is which, or any evidence of subsequent tampering, because once you cure epoxy, it cannot be uncured.

Q. Once cured, what were the next steps?

A. So this is a standard metallographic polisher. You have seen them in laboratories all over the planet.

What happens here is the puck is inserted in a holder sitting on a rotating substrate. This is a felt substrate.

Then as the felt substrate is rotated, various abrasives are put on the substrate, and they slowly polish the sample downwards through the epoxy overburden, and then deeply into the metal samples within that puck.

Now, we start off with a coarse grit, usually silicon carbide, work our way down from 60 microns with various grits, each time taking the sample out after one grit, cleaning it and --

(Clarification requested by the Realtime Stenographer.)

A. Solvent, and then ultrasonicate, and then return

it to the polishing substrate.

Finally, we transfer the diamond paste. We start off with 3 microns, then down to 1 microns, and sometimes down to .5 microns. What we end up with is a puck with a highly polished surface with highly polished metal samples, cross-sections exposed at that surface.

Q. Why this endeavor to achieve that finely polished surface?

A. So this is critical for high-quality SEM imaging, and also for the quality of the x-ray spectroscopy.

Q. Once you are done polishing, what additional steps you have taken?

A. So on the left, in this image, we see a highly polished puck with two samples, in this case, two pair set samples.

Now, the next step is to apply -- there's a nice shiny surface, highly polished surface of the samples.

So the next step is then to apply a 3 percent nitric acid solution to the surface of the metals. This is for about 15 to 60 seconds, and you will see a slight change in the color, or the reflectivity of the metal. This is because the acid is etching the steel substrate, and bringing up the indigenous microstructure of the steel.

Then the sample is prepared to go into the SEM.

Now, epoxy charges under electron radiation. This can degrade the quality of the SEM imagining. So to mitigate this effect, I also apply conductive copper straps on the top of the puck as close as possible to the samples.

In addition, I also label the samples on top of the puck. So in the SEM where the view is top-down, I'm able to confirm which sample I'm looking at in the SEM.

Q. Now, let's move on to your testing of the 2006 Volkswagen Passat. Turning to slide 18.

What is the box that you show on this slide?

A. So this is a box that I received from the Roush Corporation in October of last year.

So when I received the box, I checked it out for any signs of damage or tampering. There were none.

Q. Who is Roush?

A. Roush are the folks who acquired and tore down the Volkswagen Passat.

Q. What did the box that you received from Roush contain?

A. It contained seven coupons, metal coupons of various sizes from the Volkswagen Passat.

Q. Is that what you show here on the slide 19?

A. Yes, correct.

Q. How do you know that these metal coupons are that of a 2006 Volkswagen Passat?

A. So I reviewed a declaration by a Mr. Bartosek of the Roush Corporation, and I believe he's the individual who physically tore down the Passat and produced these parts.

Q. Do you have any additional bases for knowing that this is the coupons off the 2006 Volkswagen Passat?

A. Yeah.

So subsequent to reviewing the declaration, I spoke to him by telephone, and once again, he confirmed that these were Passat parts.

Q. When you say Mr. Bartosek's declaration, is that what you mean that's shown on slide 20?

A. Yes.

Q. What other information did you learn from the Bartosek declaration?

A. They actually purchased the vehicle, they had taken title of it, and the VIN number of that vehicle is shown in the upper right of this slide.

Q. For the record, this is slide 21.

What did you do with the 2006 Volkswagen Passat coupons that you received?

A. So using the sample preparation procedure that I described initially, I prepared two pucks of the Passat sample.

The top row shows one puck, which contains the

two samples, BL1 and BL2, and the lower row of images shows the second puck, which contains Passat samples BL3, BL4, and BL5.

Q. What did you do once you had prepared those Passat pucks?

A. So then I examined them in the SEM.

Q. What is it that we see on slide 23?

A. This is an example. This is Passat sample BL1, this is a backscattered electron image.

Q. What is the analysis that you show on this slide?

A. On this slide, it's the same field of view, but here, I have measured the thickness of the various regions within the coating throughout -- across that field of view at seven different locations.

Q. Does the table on the right of slide 24 summarize your thickness measurements that are shown on the left?

A. Yes, it does, yeah.

Q. Believe these thickness measurements that are summarized in the table to be representative of the image that is on the right -- on the left, rather, which is Exhibit 86?

A. I do.

Q. For the record, that's RX-86.

What do you see on the slide 25?

A. So this is a backscattered electron image of a second Passat sample labeled BL5.

Q. What analysis do you show here?

A. Again, in this field of view, I measured the thickness of the regions at four locations across that field of view.

Q. Does the table on the right of slide 26 summarize your thickness measurements on the BSE image of BL5 shown on the left, which is RX-174?

A. It does, yes.

Q. Do you believe these measurements you show on the table to be representative of the coating that is shown on RX-174?

A. Yes.

Q. What other analysis did you perform on the Volkswagen Passat coupons?

A. So if you look at the image on the left, the instrument I used, the x-ray detector, collects a spectrum of every pixel in the image. In this case, there are 1200-by-1600 pixels in that image.

Once you've done that, you can go and you can ask -- you can draw a box or area, as you see in the image labeled 1 through 4, and you can extract every spectrum from each pixel in that particular box.

Then you can sum the spectrum and then quantify the abundances of the elements in each of those areas.

So, for example, if we look at Box 4 on the left, the composition of the coating within that box is seen on the table on the right in the first three rows.

The composition of the area in Box 4 contains 52.41 percent aluminum, 2.63 percent silicon and 44.96 percent iron, expressed in mass percent.

Q. Does the table on the right of slide 27 reflect the element of compositions for each of the numbered regions shown on the left?

A. Yes. That's correct.

Q. What do you show on slide 28?

A. So the software that comes with the EDS detector, so-called ESPRIT software enables one to also collect line profiles from selected areas on the specimen.

In the slide on the left we see an area, a vertical labeled Number 5 from which I expected a line profile. That's seen on the left where yellow represents the silicon in the profile. Blue represents aluminum, and red represents iron.

Q. Slide 29, can you please describe the two images you show here?

A. All right.

So -- right. So these are two backscattered

electron images of Passat sample BL1 taken at two different magnifications. So on the left we have a high magnification image at 1200 times X, and on the right we have a much lower magnification image, 650 times.

The purpose of these two images is to highlight the post-etching microtexture of the steel substrate.

Q. Earlier, you mentioned that you worked with IMR Testing Labs; is that right?

A. Correct.

Q. What were the work that you commissioned IMR to do?

A. They were commissioned to measure the tensile strength of a Passat sample, and also the trace element composition of the base steel after the surface coating had been removed.

Q. Is what you show on slide 30 a testing report from the IMR Testing Labs?

A. Yes. This is the tensile strength report.

Q. Let's talk about the tensile strength results.

Can you describe that -- results you received from IMR?

A. Yes. So they reported the results in terms of kilopounds per square inch, or ksi. So I used this in a conversion procedure to convert them to SI units, that is pascals. When you look at that conversion, the results are

the BL7 has a tensile strength of 1,4034.11 megapascals and the yield strength is 1,0842 megapascals.

Q. What were the results of the second measurement that IMR performed on your behalf?

A. So these are shown on this slide here. This is the trace element measurement of the base steel after removal of the coating. The results are shown on the right for BL7. These are expressed in mass percent.

Q. For the record, that's slide 32.

Now, let's move on to your testing of the VinFast parts. Can you please describe the sample preparation process you employed for the VinFast parts you received?

A. Yes.

So I received another box later on containing a suite of samples of the VinFast samples.

Using the specimen preparation procedure I described earlier, I prepared pucks of those samples, and you can see images of them in this -- on this slide, and the identification numbers of each of the samples in each puck are listed below the images.

Q. When you received the box, did you inspect the boxes?

A. I did indeed.

Q. What did you do once you prepared those VinFast

SEMs pucks?

A. So I took backscattered and secondary electron images of the samples.

Q. Is that what you show here on slide 35?

A. Yeah. So this is a backscattered electron image of one of the samples of VF BL1.

Q. Did you take any additional images?

A. Yes, I did.

Q. Is this table on slide 36 a summary of the SEM images you have taken?

A. Yes. It provides, on the right, the identification numbers of the additional SEM images that I took.

Q. Now let's move on to your testing of the technical domestic industry products. Slide 38.

Can you please also describe the sample preparation steps that you have taken for the technical domestic industry products?

A. Yes. So these are Gestamp and Topre products that I received at some point. Again, using the sample preparation procedure I described earlier, I prepared pucks with these samples. The identification numbers of the samples on each puck are shown above the images.

Q. Next slide. How about these pucks?

A. Yes. These are pucks containing samples I

received of Magna and Cosma products. Again, the identification numbers of these samples in each puck are shown before the images.

Q. For the record, that's slide 39.

On slide 40, can you describe the pucks you show here?

A. Now, these are Simwon products. Again, using the same procedure to prepare the specimens. I embedded them in these pucks. I polished them. The identification numbers of each of the samples in the puck is shown above the images.

Q. Lastly on slide 41, can you please describe these pucks.

A. Yes. These are Cleveland-Cliffs products prepared and examined in the same manner.

Q. Please describe the two images you show on slide 42.

A. So on the left is a backscattered electron image of a Simwon product. On the right is the backscattered electron image of a Cleveland-Cliffs product.

Q. Any additional images of those pucks you prepared?

A. Yeah.

MR. LEE: Your Honor, at this time, we would like to briefly move on to the confidential record.

JUDGE BHATTACHARYYA: Is it the all-parties confidential record?

MR. LEE: It's all-parties confidential.

JUDGE BHATTACHARYYA: We're moving to the all-parties confidential record.

(Whereupon, the trial proceeded in confidential session.)

O P E N S E S S I O N

MR. HERSHKOWITZ: We're good on the public record. Thank you.

CROSS-EXAMINATION

BY MR. HERSHKOWITZ:

Q. Good afternoon, Dr. Bradley.

A. Hello.

Q. So I'm Ben Hershkowitz. I'm counsel for the Complainant, ArcelorMittal, and I just have a couple of questions for you.

A couple means more than two in this case.

A. Right.

Q. Before we begin, I just want to clarify a few points of terminology with you.

You used the word "coupon" to refer to the pieces of metal that were sent to you; correct?

A. Correct, yes.

Q. You used "sample" to refer to those smaller slivers that you had then taken out of those coupons; correct?

A. That's correct, yes.

Q. Thank you.

Turning now to your testing that you performed on the Passat. You tested what you understood to be coupons from the B-Pillar of the 2006 Passat; correct?

A. That's correct, yes.
Q. You did not test coupons from any other part of the 2006 Passat, not the A-Pillar, for example?
A. I don't believe so, no.
Q. Not the roof rail?
A. Correct.
Q. It was just that one B-Pillar?
A. I believe so, yes.
Q. You were not involved in the acquisition of the Passat; is that correct?
A. No.
Q. In fact, you had not personally seen the Passat before you performed your testing; is that correct?
A. Correct. Yes.
Q. You don't know whether the B-Pillar you tested was in the Passat when that vehicle was originally sold?
A. Correct.
Q. You did not contact Volkswagen about the Passat?
A. No.
Q. You did not speak with the first owner of the Passat?
A. No.
Q. You didn't speak with any subsequent owners of the Passat; correct?
A. No.

Q. You don't know whether, for example, the first owner of the Passat may have replaced a part in the vehicle?
A. No.
Q. You don't know whether any subsequent owner may have replaced a part in the vehicle?
A. No.
Q. The part you received, it didn't have a VIN number or anything on it?
A. No.
Q. As a matter of fact, it didn't have any identifying mark indicating that it would have been an original part that was in that vehicle?
A. Correct.
Q. Dr. Bradley, now, I understand you have a lot of expertise, I'm not trying to cast any aspersions, but you're not an expert in the manufacture of automobile parts; correct?
A. Correct.
Q. So you're unable to confirm, just looking at that B-Pillar, whether or not it was the original part that was in the vehicle?
A. Correct.
Q. You were not personally involved in the teardown of that Passat; correct?

A. Correct.
Q. You were not involved in deciding which part of the Passat should be cut up for testing; correct?
A. Correct.
Q. Instead, it was a company, I believe, Roush Industries, I may be mispronouncing that, that you understand performed the teardown?
A. Yes.
Q. That's the company that Mr. Bartosek, I believe you had indicated --
A. Bartosek, yes.
Q. Bartosek. I will make that mistake repeatedly, but I will try.
You were not involved in selecting where the coupons should be taken from from that pillar, were you?
A. Correct.
Q. You don't know who decided which coupons that were labeled on that part should be sent to you; correct?
A. Correct.
Q. You did not provide any instructions to Roush or Mr. Bartosek on how they should tear down the car; correct?
A. Yes. Correct.
Q. You did not watch the teardown of the car?
A. No.
Q. Rather, I believe you had indicated you relied

on a declaration from Mr. Bartosek to describe what he had done with respect to the teardown; correct?

A. A declaration, plus a telephone conversation I had with him.

Q. Thank you.

I'd like to, assuming I hit the right button, put on the screen just Paragraph 7 from RX-85, which is the Bartosek declaration.

Did I hit the right button, please?

This was the Bartosek declaration that you had attached to one of your reports?

A. I believe so, yes.

Q. If we could just go to Paragraph 7, please, just the text of that. Right at the top.

So I've got on the screen right now, Paragraphs -- just the text, please.

This declaration says that, below, further in Paragraph 7, are photos that were from the Passat?

A. You mean this particular photo is from the Passat?

Q. Yes.

A. Yes.

Q. You see on that, what's represented to be the B-Pillar, there are markings in, looks like, indelible marker.

Do you see that?

A. I do, yes.

Q. So if we can turn now to the page ending -- I think it's just the next page. If we could go there, please. Actually, go back a page.

Do you see -- if you can zoom in, please, just to the very middle.

Do you see there are two adjacent squares? I believe they say on them, BL3 and BLV3.

Do you see that?

A. Yes. I think you have better eyesight than I do.

Q. I know. Our eyes -- that's why we all need glasses.

A. I can't read the one on the right. The one on the left is BL-something.

Q. Will you accept my representation, it says BLV and 3 and BL3?

A. Sure. Yeah.

Q. Actually, if you could scroll up. That's actually not the right spot. It is right where the -- where that little cutout is. Looks like -- there we go. It's not going to do much better, but that is BL3 and BLV3.

You assume that the area labeled BL3 refers to coupon BL3 that you had received in that package?

A. I would assume so, yes.
Q. You see, too -- if we scroll back out again, please -- to the left -- well, actually, it's to the right because mine's upside-down.
To the right of that square labeled BL3 is an area labeled BL9, that sort of funny-shaped all the way on the right?
A. So would you mind indicating it with a pointer.
Q. If I had one, I would.
We can just go to the next page. I'm told there's a more zoomed-in picture. It's the picture on the upper right, please.
Can you see that there's a label there, BL9?
A. Yes, I can.
Q. Below that area square labeled BL3, you see there's one labeled BL8 that's directly below it?
A. Can you point to that, please.
Q. With this thing or that. There we go.
A. Yes.
Q. Okay. Wonderful.
If we can now turn to the top left image that's on that page, please. If you can zoom in on that.
Toward the bottom of that image, there are two adjacent squares next to each other labeled BL1 and BLV1.
Do you see those?

A. Yes, I do.
Q. Above those squares, there is a square labeled BL6.
Do you see that?
A. Yes, I do.
Q. Now, finally, let's turn to the bottom image, please.
You see there's a long rectangle in between those two holes labeled BL7.
Do you see that?
A. I do.
Q. To the right of the rectangle labeled BL7, there are two squares that are labeled BL5 and BLV5?
A. Yes. Correct.
Q. If we could take that down, please.
So in sum, this part has squares that are labeled BL1 through 9, that part, and also squares or shapes, I should say, labeled BLV1 through BLV5; correct?
A. Yes. Correct.
MR. HERSHKOWITZ: If we could put up -- and, Your Honor, I'm sorry, I forgot to actually hand it to you, but we do have a demonstrative.
May I approach?
JUDGE BHATTACHARYYA: Yes.
BY MR. HERSHKOWITZ:

Q. Please go to the second slide.

So on this slide, you see those were all of the labels for potential coupons that were on that part.

Do you see that?

A. Correct.

Q. In fact, you did not receive coupons that were labeled with the BLVs, the BLV1 to 5; is that correct?

A. Yes. With the caveat that I have no firsthand knowledge where the coupons were extracted. I did not see coupons with those labels.

Q. You anticipated my next question, so we can move on. We're making great progress.

Do you know whether the "V" in "BLV" stands for VinFast?

A. No.

Q. Do you know whether or not any of the BLV coupons were actually sent to counsel for VinFast?

A. No.

Q. So you don't know whether they tested them before sending you coupons to test?

A. No.

Q. So you wouldn't know whether or not, if they did testing, they may have receive different results than the results that you got?

A. Possible.

Q. Do you know whether VinFast had tried to identify portions of that B-Pillar that were not representative for you to test?

A. No.

Q. In addition to not receiving the BLV coupons, I don't believe you received BL6 or BL8; is that correct?

A. I believe so.

Q. You had received BL1 to 5, 7 and 9 from those coupons; is that correct?

A. Correct.

Q. So these are the coupons that you received, and then my understanding is you didn't test BL9 at all; is that correct?

A. I'm not sure I had BL9.

Let's see. I had 1 through 5. I'd have to look at my expert report.

Q. I can pull up your deposition testimony, but I will represent to you, at that deposition, we asked, did you -- do you believe you retained coupon BL9 for yourself?

Yes.

But you did not test BL9; right?

You answered, "Correct."

A. Yeah, it sounds like I had that coupon, and I did not test it, correct.

Q. Okay.

You sent BL7 off to a lab called IMR for testing; is that correct?

A. Correct.

Q. You relied on IMR to perform the base steel, I think I have this right, elemental composition testing?

A. I did.

Q. You relied on IMR to perform the mechanical strength testing?

A. I did.

Q. But you did not personally perform all of the testing that you discussed today with counsel for VinFast on your direct testimony?

A. Can you run that by me again, please.

Q. So you did not perform all of the testing. You relied on IMR for certain of the testing?

A. Correct.

Q. You did not personally oversee IMR's testing of that BL7 part?

A. Correct.

Q. But you trusted IMR to perform these tests properly; correct?

A. Correct. I had vetted them very carefully, and the message I got from people that do this kind of work, that they were the go-to lab on the West Coast for rapid turnaround analysis.

Q. You trusted them because of their reputation?
A. In part, yes.
Q. And because they're an accredited laboratory?
A. In part, yes.
Q. Just to confirm, you never prepared a sample from that BL7 coupon for the testing that you did?
A. Correct.
Q. So you have no images of the coating or measurements of coating thickness on the BL7 sample; is that correct?
A. Correct.
Q. So if we go to the next slide.
So to summarize, these are the coupons that were tested either by you or by IMR?
A. Some of them I tested myself. One they -- the BL7, they tested by IMR.
Q. Right, you tested 1 to 5?
A. Not all of them, as far as I know.
Q. Thank you.
Now, when you did your testing, you were not at an accredited laboratory?
A. Correct.
Q. You were not an employee of an accredited laboratory?
A. Correct.

Q. You didn't write a testing protocol in advance before you started your testing?

A. I used a protocol used by myself and your colleague on your side that's been around for about 70 years using standard metallographic preparation of equipment.

Q. Okay.

You didn't provide a written protocol over to IMR, did you?

A. No.

Q. You did not speak to Dr. Brown about your testing protocol before --

A. No.

Q. Okay.

And the samples that you tested, you performed, again, technical term, and I don't have the metallurgy degree -- scanning electron microscopy or SEM of all five?

A. Yes.

Q. Thank you.

Can I just call it an SEM?

A. Sure.

Q. It will help us all a lot.

This SEM resulted in you collecting images of the samples?

A. Right.

Q. And specifically, you collected the SEM images, and something called backscatter electron images?
A. Correct.
Q. Those images were collected, I think the word that I had heard was in pairs or twins?
A. Correct.
Q. You collected, I believe you said, at least five image pairs of each of the Passat samples that you imagined. So samples 1 to 5?
A. Correct.
Q. But you may have taken more than those five images for some of the samples?
A. Correct.
Q. During your deposition, you couldn't remember exactly how many of the images you had taken?
A. Correct.
Q. You also couldn't say whether each image you had collected as part of your testing had actually been produced over to ArcelorMittal?
A. Correct.
Q. Indeed, you agreed, I believe, that not all of the testing that you performed for this investigation is discussed in your report?
A. Correct.
Q. Today I think you really discussed, of the

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testing that you personally did, from the coupons, just from coupons BL1 and BL5.

Do I have that right?

A. BL1 through BL5.

Q. Okay.

But today -- I'm sorry, correct.

In addition to -- in your report, though, when you analyzed them, you only analyzed images from BL1 and BL5 in your report?

A. That's correct.

Q. In addition to the SEM, you also measured the thickness of the sample coatings; correct?

A. I did.

Q. All of the measurements of thickness that you've taken for this investigation are reflected in your reports?

A. I believe so, yes.

Q. So in your opening report, just to summarize, you had only reported thickness measurements from samples taken from coupons BL1 and BL5; correct?

A. Correct.

Q. So you did not report the thickness measurements on every image you took from the 2006 Passat?

A. Correct.

Q. You also collected, and, again, you will excuse my pronunciation, energy-dispersive x-ray spectroscopy,

EDS, did I get that close?

A. (Nods head up and down.)

Q. Wonderful.

Spectra and maps, certain samples from what you understood to be the Passat; correct?

A. Correct.

Q. And specifically, in your report data, from EDS maps only for a sample cut from BL1, you only gave that EDS data for BL1 in your report?

A. Probably -- I'm not sure, but I think so. That's probably correct.

Q. If we could go to the next slide, slide 5, please.

So to just summarize, so out of the coupons, this is basically the work that was done: You did SEMs on at least 1 to 5, and you had sent out sample 7 for testing by IMR.

A. Yes. Correct.

Q. Go to the next slide, please.

In your report, what you discussed is you discussed the SEM for BL1 and 5, the EDS for BL1, and then the rest of the data you rely on the testing by IMR on BL7?

A. Correct.

Q. Go to the next slide, please.

So if we take a look at as to where those

samples were, going back to that B-Pillar. So to have it correct, so the EDS and the SEM were on BL1, which is down at the bottom of the -- I think this may be upside-down, so maybe the top, but at the bottom of this image, on what is the B-Pillar; correct?

A. Yes. Correct.

Q. For BL5, it's all the way up on the top left; correct?

A. Yeah. That's right.

Q. For 7, BL7, that's also up at the top, above that line, that sort of appears on the part?

A. Yes. That's correct.

Q. Do you know how big a B-Pillar is?

A. No.

Q. Would it surprise you if it could be 5 feet long?

A. No.

Q. We have some examples of what a door ring is here.

A. That's just a monster.

Q. So the samples that were taken, BL1 could be 4, 5 feet away from the samples at the top of this figure?

A. That's possible.

Q. You did not speak with Mr. Bartosek at Roush before you submitted your reports; is that correct?

A. Correct.
Q. You had not spoken to anybody else at Roush prior to submitting your reports?
A. Correct.
Q. In fact, you testified you would not have wanted, in deposition, to speak to Mr. Bartosek before submitting your reports?
A. You know, I didn't think it was necessary, frankly.
Q. I believe during your deposition, you testified you did not know what a tailor-welded blank is?
A. Correct.
Q. You don't know whether the 2006 Passat B-Pillar is a tailor-welded blank?
A. Correct.
Q. So you don't know whether the 2006 Passat B-Pillar is a single hot-stamped part; correct?
A. Correct.
Q. Did you hear the testimony from Dr. Fekete earlier today and yesterday?
A. Doctor --
Q. Fekete?
A. Fekete.
Q. Fekete. Fekete. I may have that one wrong, too, even though it's not a technical term.

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A. I did, yes.
Q. All right.
Are you aware that he testified that B-Pillars can be made up of multiple steel parts or components?
A. I may have heard that, yes.
Q. You're aware that Dr. Fekete worked as an engineer at GM for 15 years?
A. Yes.
Q. You have no basis for disagreeing with him about the -- that a B-Pillar can be made up of multiple components or steel parts?
A. Well, I have no reason to doubt him.
Q. But you don't know whether that B-Pillar that you analyzed was made up of multiple components or multiple parts?
A. Correct.
Q. But you don't even know whether BL1 and BL7 which were at opposite ends were from the same steel part?
A. I believe they're from the same pillar, but beyond that, I have no information.
Q. Again, you don't have any testing data indicating whether BL1 or BL7 are made from the same steel because you only sent BL7 out for testing?
A. Correct.
Q. Nor do you have any testing data whether they

have the same coating, because you didn't test the coating on BL7?

A. Correct.

Q. Now, you also discussed today results from the EDS maps that you collected of the Passat B-Pillar; am I correct?

A. Correct.

Q. I'm going to go to the old-fashioned way and use the ELMO. I don't even know if it's still called an ELMO.

So, Dr. Bradley, this is, I believe, slide 28 of your opening slide deck.

Do you recall that?

A. Yes, I do.

Q. This graph represents a line profile or line scan of the elemental composition found within the EDS map that you had run for that sample 1?

A. Can you repeat that, please.

Q. So you had run this line graph test on the BL1 sample; am I correct?

A. Yes.

Q. Okay.

At the top of this graph, if we could just -- are you able to zoom in or do I have to do it? I think I have to do it.

So you had -- at the top of this, you had

labeled these horizontal arrows 1, 2, 3, 4?

A. Yes.

Q. Those arrows correspond to what you had indicated were interfaces that exist between the four regions of the coating?

A. The arrows -- the arrows -- yes. The arrows show changes in the composition to those points along the profile.

Q. You -- the red line that appears on this graph, that corresponds to iron?

A. Yes.

Q. And the -- well, I think it's supposed to be blue, but I'm not sure that that's the color that's showing up.

We'll call it the gray line --

A. Yeah.

Q. -- represents aluminum?

A. Correct.

Q. The orangey-yellow line, depending on one's monitor, is for silicon?

A. Correct.

Q. Did you draw those vertical lines?

A. Correct.

Q. Okay.

You selected for the vertical lines where the

iron and aluminum lines, composition lines, crossed?

A. In part.

Q. So you had drawn a horizontal line, for example, between where -- if we go between 1 and 2, where, for example, the iron dipped below the aluminum?

A. Yeah. Yes.

Q. Then you drew another vertical line where -- now between 2 and 3, where the iron went above the aluminum?

A. Yeah. It was an inflection point, yes.

Q. You see in that region, it also has more silicon?

A. Yes.

Q. Then you drew another horizontal line between the numbers 3 and 4, where, again, the iron has now dipped back below the aluminum?

A. Correct.

Q. The silicon has, again, dropped?

A. Yes.

Q. Then you drew a line at the very end, where the iron and aluminum cross again.

Do you see that?

A. Correct.

Q. But just to the right of that, the iron and aluminum cross also.

Do you see that?

A. Yeah.
Q. Just right over here.
A. Yes, yes.
Q. I think my finger is wider than the --
A. I can see it.
Q. -- what was it, the 60 microns of a human hair?
A. Some hair, yes.
Q. All right.
But you didn't draw a line there?
A. No. I could have, I guess.
Q. Okay. So let's move on.
You discussed earlier your measurement of coating thickness for the Passat; am I correct?
A. Correct.
Q. For the BL1, I believe you took seven different coating thickness measurements. I can put it up if it's easier.
A. That's all right.
That's correct, yes.
Q. Okay.
For coupon BL5, you took four?
A. Correct.
Q. So you took a different number for those two, BL1 and BL5?
A. Correct.

Q. You had testified, I believe, that you took fewer measurements of the coating thickness if, in your opinion, there was less variation in the total thickness of the coating?

A. Yes. The more thickness variation in the coating across the field of view, of course, the more --

Q. And you --

A. -- measurements I made, yes.

Q. Sorry. I didn't mean to interrupt.

A. All right.

Q. You used your personal judgment to determine whether or not there was that variation?

A. Correct.

Q. When you put those lines, you didn't space them evenly?

A. What are you talking about?

Q. What you talk about the measurements -- I'm sorry. Why don't I put it up to make it easier.

So, for example, these lines are not evenly spaced?

A. That's correct, yes.

Q. Okay.

You used your personal judgment to determine where to put those measurements?

A. Yes. Based on my experience doing this sort of

thing.

Q. Now, let's switch gears, and talk about your testing of the VinFast parts.

So you had indicated, I believe, in your direct, that you had tested coupons from four different VinFast parts?

A. I don't recall. That sounds about right.

Q. Besides the four parts that you had listed -- and I can pull it up from your report. If we can bring up CX-20 -- I'm sorry, CPX-86, Paragraph 12. Right there.

These are the, I believe, four parts that you had tested; is that correct?

A. Right.

Q. Besides those four parts that are listed in Paragraph 12, you did not conduct tests of any other VinFast coupons or parts?

A. Not that I recall.

Q. Are you aware that ArcelorMittal, that we had tested 16 distinct VinFast parts?

A. Who is that, please?

Q. The Complainant.

A. Oh.

Q. We had tested 16 different parts.

A. No.

Q. Dr. Fekete. Thank you.

If we could just put up the demonstrative slides, slide -- I believe it's 8.

Are you aware that these are all of the parts that were tested by Dr. Fekete?

A. No.

Q. If we could go to the next slide.

But you understand that you only tested those top four parts?

A. I believe so, yes.

Q. So as a result, you don't have any test data on any of the other eight parts that have a "no" next to them?

A. Oh, no. I don't believe I received them.

Q. You can take that down, please.

Let's turn back to the four parts that you did test, sir.

You did not include with your report on the VinFast parts any statement or declaration from Mr. Bartosek explaining how he had cut those coupons from the VinFast parts?

A. I believe that is true, yes.

Q. You did not speak to anybody at Roush before receiving the coupons from those VinFast parts?

A. Correct.

Q. You did not provide instructions to Roush on whether to remove these coupons from the VinFast parts?

A. Correct.
Q. Or how to remove them?
A. Correct.
Q. Or where they should be cut from?
A. Correct.
Q. At the time you had tested those coupons that you had received, you did not know where those specimens came from; correct -- coupons, excuse me.
A. Came from? Roush, or the vehicle?
Q. You don't know what part it came from at the time you received it?
A. That's correct, yes.
Q. In fact, you had not either evidenced -- even seen the VinFast parts before you submitted your reports, the full parts?
A. Well, if they're in the report, I had seen the parts.
Q. You do not know whether additional coupons of the VinFast parts were generated by VinFast in the course of this investigation?
A. No.
Q. You don't know whether VinFast conducted any additional testing on the VinFast parts before sending you those coupons?
A. No.

Q. So you don't know whether the parts they tested were, for example, seconds?
A. No.
Q. Or whether they passed quality control?
A. I'm not sure what that means.
Q. If we could please bring up CX-86 at Paragraph 55. There we go. Could you just -- no, one back. Next page, please. There we go. If we could just zoom in on the whole thing. Just get rid of the white space at the bottom. Thank you.
Now, this is your measurement thickness information that you provided for one of those four VinFast parts.
Do you recognize that?
A. Yes, I do.
Q. You see that for position 3 on there, which I believe is the third one from the left --
A. Yes.
Q. -- you see 26 micrometers?
A. Correct.
Q. I'm going to use a very technical term now.
If you had moved your selection a smidge to the right, it would have been thicker; is that correct?
A. Correct.
Q. If we look down at the table, that was the

overall coating thickness at the spots that you chose to measure; is that correct?

A. The average coating thickness, correct.

Q. Okay.

So -- but for portion 2, you would agree with me, or line 2, it was over 30 microns?

A. Yes.

Q. The same with -- for position number 6?

A. Yes.

Q. All right. We can take that down.

Now, let's turn to your testing of the domestic industry parts.

In your discussion today, you discussed how you understand that you had tested coupons from parts from a number of the hot-stampers, Gestamp, Topre and several others; is that correct?

A. Those are the companies, yes.

Q. For the purposes of this question, just to make life easy, can I just refer to those as domestic industry parts that you had tested?

A. Sure.

Q. Again, before submitting your expert report, you had not spoken to Mr. Bartosek about the coupons that you received on those domestic industry parts?

A. Correct.

Q. Didn't include in your report any declaration or statement from Mr. Bartosek about how he cut those coupons?
A. Correct.
Q. Did not provide directions to Mr. Bartosek from where those coupons should be taken?
A. Correct.
Q. Nor did you witness the coupons being extracted from the parts?
A. That's correct.
Q. Before submitting your report, you had not seen pictures of the domestic industry parts showing where the coupons came from?
A. You mean on the vehicle, you mean?
Q. Yes.
A. No, I had not.
Q. Okay.
So you don't really know where the domestic industry coupons that you had received actually came from?
A. On the vehicle, no, I don't.
Q. So let's talk about the Simwon, the Tesla door rings. I believe we have two of them in this -- in the courtroom.
You understand that the coupons you tested came from two Tesla door rings manufactured by Simwon?
A. I believe so, yes.

Q. I believe -- I may get them confused, but I believe the left-hand outer door ring --

MR. HERSHKOWITZ: Which, Your Honor, we did not make a demonstrative of the door rings, but they're here in the courtroom. I was just going to point them out.

BY MR. HERSHKOWITZ:

Q. So I'm going to show you right now that the left-hand door ring that ArcelorMittal brought to the hearing -- is this the first time you've seen these door rings?

A. Yeah. Actually, to be quite honest, I didn't really focus on whether it was a ring or not.

MR. LEE: Objection, Your Honor. Beyond the scope.

JUDGE BHATTACHARYYA: Yes.

MR. HERSHKOWITZ: Your Honor, I don't see how it's beyond the scope when he got done saying he received testing samples from the door rings. That's exactly what he testified he tested. I'm just asking a few questions about the door rings themselves. It will be brief.

JUDGE BHATTACHARYYA: The objection is overruled.

MR. HERSHKOWITZ: Thank you, Your Honor.

BY MR. HERSHKOWITZ:

Q. Have you seen that, for example, the outer door

ring, which is the one directly behind you.

Can you see that?

A. Yes.

Q. You provided SEM images, I believe, from two coupons from the left-hand outer door ring?

A. So I think -- I know I prepared specimens of two samples from a Tesla vehicle. Whether or not I knew at the time they were rings, I don't know, I don't think I did. If I were told, it didn't mean a heck of a lot to me.

Q. Understood.

Do you understand that these door rings are actually manufactured from multiple components?

A. No.

Q. In other words, there's multiple parts that make it up?

A. No.

Q. I believe Dr. Fekete had indicated that each of these is either made of four or five separate components?

A. I heard that, yes.

Q. All right.

So the two coupons you tested -- I think we can all agree, two is not representative of four. You only tried two. You didn't test the other two?

A. I don't know.

Q. As a matter of fact, it could have been two

coupons from the exact same component, not even of the other three components?

A. I don't know.

Q. The same thing. Here's another door ring. If that one was the inner, then this is the outer. I may have that backwards.

But again, the same thing, you, I believe, had received three coupons that you tested from that door ring?

A. If you say so. I don't recall specifically.

Q. Okay.

But you would agree that you don't know where they came from, so they all could have come from the same component on the ring?

A. I just don't know.

Q. Even if they came from different ones, three -- it means you didn't -- there were two that you did not receive coupons from?

A. I don't know.

Q. So just to shift topics again, the testing that you did, you agree it takes a fair amount of time to do all of the testing on those coupons and samples?

A. I do.

Q. You agree it takes a lot of time to collect and synthesize those test results?

A. Yes, depending on the volume of data collected.

Q. In fact, you recall that at -- during your deposition, you stated you had to remind Fish, I believe Fish & Richardson, that there were only 24 hours in a day --

A. Yes.

Q. Okay.

That's because the sheer volume of testing, it's -- it would be impossible to test, for example, hundreds and hundreds of parts?

A. I think the time taken for the procedures would have -- on my own, yes, correct. Hundreds and hundreds would be not feasible in the time allocated.

MR. HERSHKOWITZ: Bear with me one second, Your Honor.

I have no further questions. Thank you very much for your time.

THE WITNESS: Thank you.

MR. HERSHKOWITZ: I believe your counsel may have some follow-up.

MR. LEE: May I proceed?

JUDGE BHATTACHARYYA: Yes.

MR. LEE: Mr. Sayres, could you go to Dr. Bradley's demonstrative, slide 19, please.

REDIRECT EXAMINATION

BY MR. LEE:

Q. Dr. Bradley, you were asked some questions about the BL7 and the BL9 earlier; right?
A. Correct.
Q. Do you see on the slide the sample that's marked -- or rather, the coupon that's marked BL7?
A. Yes.
Q. Do you recognize the shape of the BL7 to be different from BL9?
A. Yes.
Q. The BL7 has a pointed edge at the top compared to the BL9?
A. It's tapered, yes.
Q. Now let's go to, Mr. Sayres, CDX-11, slide 7. It might be better for me to turn on the ELMO, so I'll do it on the ELMO. This is CDX-11.7.
You recall being asked about the BL7 sample as being located at that green location at the bottom of the B-Pillar?
A. Yes, yes.
Q. Also, we just talked about the shape of the BL7 sample, it being different from the BL9 sample?
A. Yes.
Q. I'll try to do this on this, but if not, I'll point you to a different exhibit.
But do you see that location right there?

A. Nope.
Q. This is going to be hard to tell, so I'm going to use a different exhibit.
(Off the record between counsel.)
MR. LEE: Your Honor, may I approach to hand you a native copy of the RX-85, which is the Bartosek declaration that Dr. Bradley relied on.
JUDGE BHATTACHARYYA: Are there any objections?
MR. HERSHKOWITZ: No objection.
JUDGE BHATTACHARYYA: Sure.
BY MR. LEE:
Q. Dr. Bradley, do you recall seeing this portion of the Bartosek declaration?
A. Yes.
Q. You received this Bartosek declaration in this color form in high resolution, not the grainy form that the counsel showed you?
A. As I recall, yes.
Q. Zooming in, do you see that shape right there?
A. I do.
Q. What does that coupon indicate?
A. That the shape of that area is consistent with the sample BL7 that I received.
Q. Can you also make out the writing that's written on that sample? If easier, I'll try to turn it over for

you. Now.

A. Ah, yes. It looks like BL7.

Q. That, you see at the bottom, is not BL7; correct?

A. You mean on the left-hand image?

Q. Yes.

A. There's something labeled BL8. Oh. Yeah. Yeah. Okay.

Q. Please.

A. That's all right. It's BL8, I believe.

JUDGE BHATTACHARYYA: Mr. Lee, could you please indicate which photo on what page of the declaration you're referring to.

MR. LEE: Yes. This is the native of the RX-85 at page 7.

BY MR. LEE:

Q. So going back to CDX-11 at 7, do you agree that the BL7 is at the bottom of that image, as indicated on this slide?

A. You mean in the green area?

Q. Correct.

A. I would assume so, yes.

Q. But you just identified the shape of the BL7 to be from a different portion?

A. Yes, I -- yes. I think it's clearer in the

image we just discussed.

Q. Right. So the BL7, would you agree, came from this portion of that image?

A. Oh, yes, yes.

Q. And not that portion, as indicated on CDX-11?

A. That's correct, yeah.

Q. ArcelorMittal's counsel asked you about the testing you did with IMR?

A. Yes.

Q. When you handed over the BL7 sample to IMR, did you ask IMR to look for layers?

A. No. No.

Q. Counsel also asked you whether you saw the Passat being torn down?

A. He did, yes.

Q. Would your testing have changed if you saw the car being torn down?

A. I don't think so.

MR. LEE: No further questions, Your Honor.

JUDGE BHATTACHARYYA: Thank you.

RECROSS-EXAMINATION

BY MR. HERSHKOWITZ:

Q. Hello, Dr. Bradley. Just a few followups.

A. Sure.

Q. Now, you didn't ask IMR to look for layers

because they were not doing SEMs, were they?

A. I just did not think about it, frankly.

Q. You never saw the B-Pillar from that VinFast -- sorry -- let me try again.

You never saw the B-Pillar that was in the photograph in person; is that correct?

A. That's correct, yes.

Q. And that image, the grainy image, that's what was actually in your report; correct?

A. I don't recall.

Q. Do you know where the samples came from other than trying to decipher that photo? Where from the part the coupons came from other than trying to decipher that photo?

A. I believe -- I assume they came from the regions that were labeled, that was shabby with the appropriate BL number on them.

MR. HERSHKOWITZ: Fair enough. Thank you.

No further questions, Your Honor.

MR. LEE: No further questions, Your Honor.

JUDGE BHATTACHARYYA: Thank you.

Thank you, Dr. Bradley. You may step down.

(Witness excused.)

JUDGE BHATTACHARYYA: Let's take a 15-minute break.

(A recess was taken at 3:35 p.m., after which the hearing resumed at 3:49 p.m.)

MS. PARK: Good afternoon, Your Honor. April Park on behalf of Respondents.

Respondents would like to call Dr. Brown at this time.

We have some demonstratives to assist with his testimony.

May I please approach with the demonstratives?

JUDGE BHATTACHARYYA: Yes.

Good afternoon, Dr. Brown.

THE WITNESS: Good afternoon.

JUDGE BHATTACHARYYA: Could you please raise your right hand.

Whereupon--

STUART BROWN, PhD,

having been first duly sworn, was examined and testified as follows:

THE WITNESS: I do.

JUDGE BHATTACHARYYA: Thank you.

MS. PARK: May I please proceed?

JUDGE BHATTACHARYYA: Yes.

DIRECT EXAMINATION

BY MS. PARK:

Q. Good afternoon, Dr. Brown.

A. Good afternoon.
Q. Could you please introduce yourself.
A. My name is Stuart Brown.
Q. Did you prepare some demonstratives to help with your testimony today?
A. I did.
Q. Is RDX-2 that demonstrative?
A. Yes.
Q. Dr. Brown, what is your current profession?
A. I am currently a consultant at Veryst Engineering, which is an engineering and scientific consulting firm in the Boston area.
Q. Could you tell us about your educational background.
A. Certainly.

I have two bachelor's from Washington University in St. Louis. I have a bachelor's in mechanical engineering, and one in English literature.

I have two master's from Stanford University, a master's in mechanical engineering, and an MBA.

Then I have a PhD in mechanical engineering from the Massachusetts Institute of Technology, MIT.

Q. What did your PhD research consist of?
A. My PhD was in the area of hot forming. It was trying to understand how metals behave when you heat them

up, and then try and shape them into a useful geometry.

Two materials that I used in my research were steel and aluminum.

Q. What roles have you held?

A. So after finishing my PhD in mechanical engineering, I walked down the hall and joined the Department of Material Science and Engineering as a member of the faculty. I was there from '87 to '95.

There, I did research -- continued to do research in hot forming of metals.

Then I also worked in an area call MEMS, microelectromechanical systems, which are small mechanical devices formed using semiconductor technologies.

After MIT -- I'm sorry, I should back up.

While I was at MIT, I also did consulting with Allegheny Ludlum Steel Corporation, and Alcoa, US Steel and Thixomat.

Allegheny Ludlum, Alcoa and Thixomat provided funding for some of my research.

Thixomat is an aluminum company, Allegheny Ludlum is steel, Alcoa is obviously aluminum, and US Steel is steel.

At the same time I was at MIT, I developed a technology for aluminum manufacturing. So a group of my grad students, upon finishing their degrees, started a

company called Semisolid Technologies. Then we did a joint venture with Gibbs Die Casting making aluminum silicon components for Ford Motor Company.

Okay. So after leaving MIT, then I went to run the Boston office of a national engineering consulting firm called Exponent, where I continued my consulting both in metal forming and MEMS. MEMS are funded by government research.

I ran the Boston office of Exponent for ten years, and then I resigned and started Veryst Engineering, and I have been a member of Veryst Engineering since December 2005.

Q. Turning to slide 4, do you understand that there were some definitions of person of ordinary skill in the art in this investigation?

A. I do.

Q. Is that what you're showing here?

A. Yes. Yes, it is.

Q. In terms of your analysis, did you apply the definitions that are here?

A. I did.

I consider there to be some small differences between the two, but I think they are effectively the same, and my opinions would be the same under either definition.

MS. PARK: Your Honor, at this time, Respondents

tender Dr. Brown as an expert in the field of hot forming of metals, including steel, and the subject matter of the '602 and '227 patents.

JUDGE BHATTACHARYYA: Any objection?

MR. LAMAGNA: Respectfully, Your Honor, we don't believe that she's quite laid the foundation yet for as broad of a proffer as what she's made, specifically with the subject matter, the '602 and '227 patents.

I can explain, if you would like, Your Honor.

JUDGE BHATTACHARYYA: Is this an issue that needs to be discussed?

MS. PARK: This issue has never been raised, Your Honor.

MR. LAMAGNA: Well, we believe that they certainly have laid a foundation for him with respect to being an expert in mechanical engineering, in chemical engineering, and even in hot forming basically what is the base steel. There's no doubt that he's an expert in those fields.

We also would agree that he is -- they have laid a foundation that he is a person of skill in the art at least under his own definition relating to the patents.

But the patents themselves don't involve the hot forming, strictly speaking, of only the base steel. What is at issue in the claims is the formation of the

microstructure in the aluminum coating.

So there's a difference, technologically speaking, in the chemistry of what's going on in deformation of the steel from the formation of the aluminum coating, of the layers of the microstructure.

We haven't heard that yet in the foundation.

JUDGE BHATTACHARYYA: Ms. Park, how would you prefer to proceed, do you want to amend the definition -- the area of expertise in which he's being admitted, should we partially admit him, and then --

THE WITNESS: I can elaborate.

JUDGE BHATTACHARYYA: -- defer this issue until later?

MS. PARK: Your Honor, I will ask a question to Dr. Brown so that he can elaborate on his experience.

JUDGE BHATTACHARYYA: Okay.

MS. PARK: Does that work for you?

BY MS. PARK:

Q. Dr. Brown, could you tell us about your experience related to the subject matter of the '602 and '227 patents.

A. Certainly.

I mean, there are material science phenomenon associated with the formation of these coatings, particularly at high temperatures, and I would mention two

areas of my activities which address that.

One is I taught material science and material kinetics while I was on the faculty at MIT, both on a graduate and undergraduate level, and that includes the topics of diffusion, interdiffusion and formation of microstructures.

I also performed research on the effect of microstructure on deformation behavior, because under certain circumstances, the structure of the material affects how it deforms. If you look at my publication list, you will see some articles which address that topic.

Then third, the work that we did at Thixomat, which was addressing the processing of aluminum silicon alloys, also included issues of solidification and segregation, the formation of what I would call secondary phases, meaning intermetallics, which are a reaction between aluminum silicon, and at the same time, we had to pay attention to that process with iron -- the processing equipment which was composed of steel.

So I would say those, in their totality, address the issues in terms of interdiffusion forming microstructure, and also thin films, because the work that I was doing in MEMS, these microelectromechanical systems, involved the characterization, measurement, and measurement of properties of very thin films.

JUDGE BHATTACHARYYA: Thank you.

Does the objection stand?

MR. LAMAGNA: We'll lift the objection. Just leave the rest for cross-examination. Thank you.

JUDGE BHATTACHARYYA: Ms. Park, could you please repeat the area in which Dr. Brown is being offered.

MS. PARK: Yes, Your Honor.

Expert in the field of hot forming of metals, including steel, and the subject matter of the '602 and '227 patents.

JUDGE BHATTACHARYYA: Thank you.

At this time, Dr. Brown is admitted as an expert in the field of hot forming of metals, including steel, and the subject matter of the '602 and '227 patents.

MS. PARK: Thank you.

BY MS. PARK:

Q. Turning to slide 5, could you please summarize your opinion in this investigation?

A. Certainly.

There are three broad opinions.

First is that the VinFast product does not infringe the '227 and '602 patents; the '227 and '602 patents are invalid; and third, there is no technical domestic industry.

Q. Turning to slide 6, what did you review in

forming your opinion?

A. Well, this slide just provides a summary statement of what I considered.

Obviously, the asserted patents and file histories. Hot-stamping technical specifications by OEMs and Tier 1 manufacturers. A range of testing that was done on different products.

Scientific literature, both from my library and literature that I reached out to and located related to the technology at issue.

Prior art references and publications, deposition transcripts, and then, of course, the reports of Doctors Fekete, Raabe and Bradley.

Q. Turning to slide 8, what are the products at issue in this investigation?

A. It's my understanding that the products at issue are the two vehicles that we see here, the VinFast VF 8 and the VF 9.

Q. What is the technology at issue in this investigation?

A. The technology that we're talking about is the entire process of hot-stamping pre-coated steel. There's a schematic that I prepared to illustrate that.

We start at the left, and go to the right. We start with a pre-coated steel, aluminum alloy without

coatings, without layers.

You stamp out blanks, which are basically flat geometries using a press, called blanking. You then put it in a furnace. The furnace does two things.

One, it raises the temperature of the steel to a high enough temperature that it becomes austenite. It's a process we call austenitization. It changes the crystal graphic structure of the metal.

Then you also induce diffusion between the steel and the aluminum coating, the aluminum silicon coating, and the atoms diffuse aluminum into the steel, steel into the aluminum, and thereby forming aluminum-iron-silicon compounds called intermetallics, in other words, alloying the coating on the surface of the steel.

Once that's done, the hot blank is then transferred very quickly into the press where it -- again, two things happen.

One because it's at high temperature, it can deform more easily in a lower load. That's why you hot form. So the press forms the geometry of the part, but at the same time, because the die is cooled, it rapidly cools the sheet steel, quenching it, and that introduces the transformation of the austenite into this very high-strength phase, which we call martensite.

So we have two processes occurring in the

heating and two processes occurring in the hot-stamping process, ending up with the product, in this case, we're illustrating the B-Pillar, which is shown where it sits within a vehicle.

Q. Does the chemical composition of the base steel change during this process?

A. No. No.

The crystallographic structure and the strength of the base steel changes as we go through the process, but the chemistry does not change.

Q. Turning to slide 11, how long has hot-stamping been around?

A. Well, hot-stamping has been around since the '70s. This is, I believe, a chart that we've seen before, but this is just an indication by a timeline provided by ArcelorMittal that in 2001 there was the first use of a pre-coated PHS, press-hardened steel, on bumper beams and A-Pillars using Usibor 1500.

Then in 2005, there was the first use of pre-coated Usibor 1500 on platform parts, meaning parts which went into the frames of vehicles, the platform parts.

Q. Turning to slide 12, what was Arcelor presenting about Usibor 1500 in the early 2000s?

A. There's going to be a series of references that will be appearing in the next slides.

This is an article by Cornette, Hourman, Hudin, Laurent, and Reynaert from Usinor Research, Usinor is a precursor to Arcelor. It's dated from 2001, it's the Society of Automotive Engineers technical paper associated with a conference that was that was I believe, the SAE annual technical conference in Detroit.

It just illustrates from that time, a set of processing conditions for Usibor for hot-stamping, meaning, as we see in this ellipse, this shaded ellipse, heating for a certain period of time, 5 to 10 minutes, within a certain temperature range, 880 to 950 Celsius. And then an alloying reaction associated with the coating.

So this is just a schematic for the process in someone 2001.

Q. Turning to slide 13, are there any other Arcelor publications you're aware that are about hot-stamping Usibor 1500 in the early 2000s?

A. Yes. This is another SAE paper. Again, at a SAE conference in 2002. A body engineering conference. It describes the development of a pre-coated boron steel.

This time it is coauthored by someone from Renault, Laurent, who we saw in the previous paper, who to my understanding is an inventor on one of the first patents in the portfolio of IP associated with Usibor, and Reinhardt, who is with Peugeot Citroδn.

If you look at the drawing, it's the same drawing that we saw before, which sets up processing conditions for the Usibor for hot-stamping.

Q. Turning to slide 14, were there other publications about hot-stamping of Usibor 1500 in the early 2000s?

A. Yes. This is a presentation given by Kefferstein, who is one of the inventors on the named patent. Again, providing the schematic for hot-stamping, providing processing conditions. When I say processing conditions, this is conditions in the oven before it is hot-stamped.

Residence time of 4 to 10 minutes and a temperature range from 900 to 950 C. This is a meeting which took place in France in 2004.

Q. Do you know who R. Kefferstein is?

A. Yes. Yes. He is a Arcelor employee, and, again, was one of the inventors on the patents we're discussing.

Q. Let's move on to patents at issue.

What are the patents at issue in this investigation?

A. The two patents are in shorthand, '602 and the '227 patents. With the same title, "Coated Steel Strips, Coated Stamped Products and Methods."

Q. Turning to slide 17. At a high level, what are the asserted patents about?

A. The major content of the patent addresses hot-stamping of, as we've seen, Usibor 1500, the aluminum silicon coated steel, with claims which describe the structure of the coating and properties of both the steel and the coating.

But this is just a brief description of the -- basically, the hot-stamping process.

Q. Turning to slide 18, what are you highlighting here?

A. This is part of the specification which indicates that "The inventors have discovered that the control of the homogeneity of the pre-coating thickness over the entire sheet within given tolerances is an important factor for obtaining the desired degree of intermetallic alloying, allowing one to improve resistance to the subsequent melting of the coating during travel on rollers."

This relates to another issue, which is the coating, because it an aluminum silicon alloy, in the furnace, it can melt. And it can gum up the rollers of the furnace as it passes through on its way to the hot-stamper.

Q. Turning to slide 19, we have Claim 1 of the '602 and '227 patents here. What did the asserted claims

require?

A. I couldn't hear you.

Q. What do the claims require?

A. Well, the claims require a strip of base steel having a first and second side, a coating on at least one side, with a coating resulting from interdiffusion between the base steel and the aluminum or aluminum alloy pre-coating, wherein the coating includes moving from the base steel outwards to the outer surface, an interdiffusion layer with a first -- in Claim 1 of the '602, with the first mean iron composition, 1(d), an intermediate layer with a second iron composition different from the first, 1(e), an intermetallic layer having a third mean iron composition different from the first and second. The third mean iron composition being higher than the second. 1(f) being a superficial layer, the outermost layer having a fourth mean iron composition different from the third mean iron composition.

Then a coating, total coating thickness greater than 30 microns.

Claim 1 of the '227 patent is less restrictive. It only calls for the four layers, and each having a different mean composition, one from the other.

Q. Do the claims talk about how one would get to the four-layer structure elemental composition or the

coating thickness?

A. I'm sorry. I can't hear you again.

Q. Do the claims talk about how one would get to the four-layer structure elemental composition or the coating thickness?

A. No. It's purely structural. It just indicates the characteristics of the final process. There's no processing conditions indicated in the claims.

Q. Turning to slide 20, are these the asserted claims?

A. Yes. That's my understanding, and the independent claims are high bold-faced.

Q. We just looked at Claim 1 of the two patents. Do any of the other claims talk about how one would get to the four-layer structure, the thickness, or the compositions?

A. No. No, they do not.

Q. What did the inventors say the -- what did the inventors say about what they invented?

A. Well, this is -- it's my understanding, an excerpt from Dr. Drillet's testimony earlier this week where the question is, "The four-layer structure could be created through hot-stamping before the filing of the '602 and '227 patents; correct?"

And his answer was, "I have already answered

your question. Yes, it could happen. It was not done on purpose.

Sir, the invention, your invention is how you generate the four layers; correct?

How we generate, yes, sir. I would say that."

Then the question following was, "Magna was able to create the claimed four-layer structure before December 2005; correct?"

And the answer is "yes."

Q. Turning to slide 22, what other resources did you rely on in forming your opinion?

A. Well, this is -- these are just some summary slides for different pieces of prior art. Starting from the upper left, we have Vaissiere, 2002, Suehiro in 2003, Lachmann in 2005, Engels in 2006, Takagi in 2004, Cornette in 2001, which we have already seen.

A physical product, the 2006 Volkswagen Passat, and Hein in 2006, Engels and Hein are presentations given at the same meeting in Germany in May of 2006.

Q. Turning to slide 23 what are you showing here?

JUDGE BHATTACHARYYA: There's an objection.

MR. LAMAGNA: I'm sorry. We're going to object to hearsay on that. I think he's referring to an excluded declaration.

JUDGE BHATTACHARYYA: Could you identify your

name for the record. We don't seem to have it.

MR. LAMAGNA: Raymond LaMagna on behalf of Complainants.

JUDGE BHATTACHARYYA: Thank you.

Ms. Park.

MS. PARK: Your Honor, Dr. Brown will explain why he believes these were presentations later on in his slides, so he will have more basis to explain why --

JUDGE BHATTACHARYYA: Okay.

So you're representing that he's not relying on the declaration that was excluded, or not referring to that declaration?

MS. PARK: Right, he's not relying on that declaration.

JUDGE BHATTACHARYYA: All right.

Based on the representation, you may proceed for now.

BY MS. PARK:

Q. Turning to slide 23, what are you showing here?

A. This is a process specification for Usibor 1500 provided by Magna for Chrysler products. I just point out that this is a set of processing conditions for the steel product with an origination date of August 26, 2004.

Q. Why are you showing this process specification for Magna?

A. Oh, it just demonstrates that Magna was making product for Chrysler using this product before the priority dates of the patent -- priority date of the patents.

Q. Turning to slide 24, has Dr. Fekete demonstrated that the accused products infringe the asserted claims?

A. No, I believe that his failure to provide any information or data for the VF 9 means that the VF 9 does not infringe the patents.

Q. Turning to slide 25, what about the VF 8 parts, has Dr. Fekete demonstrated that those parts infringe the asserted patents?

A. No. It's my opinion that he has not, for two reasons.

One is, to me, it's my opinion that you can't form an opinion associated with these products by examining one small microstructure from that component. The scale of these components are feet, multiple feet, and the scale of the images that we're looking at, as we look at these scanning electron micrographs, are very small.

The comment has been made earlier that a human hair has the width of 60 microns. I'll plead guilty. I think I provided that information. It's my hair which has a diameter of 60 microns. Other people may have more or less.

But across an entire component, one image is

just not sufficient.

The other issue is I don't believe that by comparing one of these images to Figure 1 of the patent is adequate, either.

Q. Is there any other evidence to support your opinion?

A. Well, I'll say that I believe that Dr. Drillet, in his deposition, agrees with that, and this is just a portion of his deposition, an excerpt.

"Question: How do I know whether a band of intermetallic compound is a layer or a phase?"

And his answer is, "I can't say based on an image. A multilayer structure of coating has to be the same across the entire part. It's not enough, one picture."

Q. Let's talk about your noninfringement opinion.

What is your opinion on whether the accused products infringe the asserted claims?

A. It's my opinion that the product does not infringe.

Q. Turning to slide 29, what are you showing here?

A. Well, this slide and the next just provides my use or interpretation of the different claims -- claim terms, I'm sorry -- that I use within the patent. In most cases, plain and ordinary meaning.

Q. Turning to slide 31, what are you highlighting here?

A. Well, this is just my highlighting of three limitations of Claim 1 of the '602 patent.

It is a representation of the three claims which I think are failed to be satisfied by Dr. Fekete's analysis for the reasons which I just provided.

Q. Turning to slide 32, how did you come to the conclusion that Dr. Fekete has not demonstrated infringement for the claimed layers?

A. Well, this circles back to what I had said earlier.

His statement in his report is, "I compared the SEM micrographs taken of the VinFast parts with the four-layer structure depicted in Figure 1 of the asserted patents, which Mr. Drillet confirmed at deposition showed a four-layer structure."

My contention is you can't do that, and I believe Dr. Drillet agrees, and I believe Dr. Raabe agrees that you can't do that with one image.

Q. How do you know he only relied on a single SEM per physical part?

A. Well, my understanding is that this is a summary of the different VinFast parts that were removed and tested as part of the investigation by Dr. Fekete.

It's my understanding that in his report, he provides one image per part to support his contentions.

Q. Sometime doesn't he provide two images for the same part number? Why do you say he only relies on a single SEM?

A. Oh. Right. There are multiple SEMs for the same part number, but they are -- though the same part number, they are different parts. So they are repeats of the same part number.

So, I mean, to be more accurate, it's one SEM per physical part examined.

Q. Turning to slide 35, did you rely on any other testing to form your opinion?

A. Yes. Yes, I did.

I relied upon testing performed by Dr. Bradley on extracted parts from a VinFast vehicle, and this provides SEM images from his examination. And I consider these not to be a four-layer structure. If we were to use Dr. Fekete's criterion, to me, these would resemble Figure 2 of the patent, not Figure 1.

Q. Turning to slide 36, did you rely on any other SEMs to form your opinion?

A. Yes.

This is just a collage of different SEM images taken by Dr. Bradley on different part numbers from the

VinFast vehicle -- excuse me -- again, showing the island structure, rather than resembling the four-layer structure claimed in the patent.

Q. Turning to slide 37, what are you showing here?

A. Well, this is just my indication of what I said earlier, that the inability to prove that one infringes based on one image means that limitation 1(d), (e), and (f) are not met by the VinFast product.

Q. What are you showing here on slide 38?

A. This is Claim 21 and Claim 24 of the '602 patent. It's my assertion that the three limitations indicated in both claims fail for the same reason.

Q. What are you showing here on slide 39?

A. Then, finally, for Claim 1 of the '227 patent, for the same reason, we fail to establish that the VinFast product infringes based on those layers as well.

Q. In summary, what is your opinion on noninfringement?

A. So in summary, I believe that the VinFast product does not infringe either patent.

Q. Let's move on to your invalidity opinion.

Turning to slide 41, what did you look into as part of your invalidity analysis?

A. Well, I looked at prior art, and we've seen this slide already, and we'll go through each of these in turn.

Q. Turning to slide 42, let's start with Cornette. What are you showing here?

A. This is the SAE paper from 2001, with Cornette as the first author, showing processing conditions for the Usibor 1500, published by Usinor, showing their labeled four-layer structure.

Q. Turning to next slide, 43, what are you showing here about Vaissiere?

A. This, again, is the SAE technical paper from 2002, once again, describing processing of Usibor 1500. Again, providing processing conditions to give the desired properties in terms of martensite strength for the steel sheet.

And then once again, this is published with Renault and Peugeot authors.

Q. Turning to slide 44, moving on to Suehiro. What are you showing here?

A. Well, this is a Nippon Steel technical report from 2003. Suehiro performed a number of studies associated with the Usibor 1500 describing properties, processing conditions, and microstructure.

JUDGE BHATTACHARYYA: I believe there's an objection. Sorry to interrupt.

MR. LAMAGNA: Yeah. Your Honor, we object to the lack of foundation with respect to the date that the --

the testimony from 2003.

JUDGE BHATTACHARYYA: From 2000, you said?

MR. LAMAGNA: Yes. He testified that this reference was "from 2003," and we object that it lacks foundation.

JUDGE BHATTACHARYYA: From 2003. Okay.

BY MS. PARK:

Q. Dr. Brown, why do you believe this document is from 2003?

A. Well, I have collaborated with Nippon Steel. I have worked with people from Nippon Steel, and I'm familiar with the process of them producing these technical reports.

They are not internal technical reports. They're available to download sometime after their publication.

When I say "sometime" --

JUDGE BHATTACHARYYA: Mr. LaMagna.

MR. LAMAGNA: Yeah. We move to strike this. This response is not in his report.

JUDGE BHATTACHARYYA: Ms. Park.

MR. LAMAGNA: He does not lay any of this foundation in his report.

MS. PARK: I'll ask a different question, Your Honor.

JUDGE BHATTACHARYYA: Excuse me?

MS. PARK: That's fine. I'll ask a different question.

JUDGE BHATTACHARYYA: Okay.

Then shall we strike the last question and answer?

MR. LAMAGNA: Yes. Thank you, Your Honor.

JUDGE BHATTACHARYYA: We're striking the last question and answer, and you can reask the question.

BY MS. PARK:

Q. What is the date of this publication on the face?

A. July 2003.

Q. Is that the basis of your opinion that it was available from 2003?

A. Yes.

Q. Can you please proceed and explain what you're showing here on slide 44.

A. Sure.

I may be repeating myself. So this is a study on Usibor 1500 indicating desired strength, conversion of the aluminum silicon coating to these intermetallic compounds, this iron-aluminum silicon phases through hot forming, and demonstrating that it has desirable properties, including paintability and weldability.

Q. Turning to slide 45, what are you highlighting

here?

A. Well, once again, this is an indication that they're working with Usibor 1500 through Nippon Steel, and he just states that this paper reports the work that the company has done on the characteristics required for the aluminized steel sheet products.

Q. Turning to slide 46, what are you showing here about Suehiro's disclosure?

A. There are two things I would like to highlight on this slide.

One is the left-hand chart, we don't have to worry about the curves on the plot, but I just wanted to highlight the heating rate.

So this is the rate with which the blank increases in temperature as it moves into the furnace, and the heating rate is listed at 10 degrees Celsius per second. So that's the temperature change per second, as it goes into the furnace.

Then the image on the right describes the resulting microstructure, and I would describe it as a four-layer microstructure after being heated at 950 Celsius for 30 seconds.

Q. Let's move on to Takagi.

What are you showing here on slide 47?

A. Takagi is a patent application published in

January of 2004. Takagi is with Nissan Motor Company and he describes an aluminum-coated structural member in production.

Q. Turning to slide 48, what does Takagi disclose?

A. Takagi describes an aluminum-coated steel sheet, once again providing a range of heating rate, once again as it goes into the furnace or the oven, in a range of 1 to 10 degrees Celsius per second. A temperature range of 900 to 950 Celsius for a duration of two to eight minutes.

Then, again, he describes a multi-layer structure resulting from that process.

Q. Turning to slide 49, what are you showing here about Engels?

A. The Engels paper is somewhat similar to the Suehiro in the sense that he considers a number of properties and processing conditions for a Usibor product. Presented, as I said, in May of 2006, he discusses relevant processing conditions.

JUDGE BHATTACHARYYA: Mr. LaMagna.

MR. LAMAGNA: Again. We don't think there's a foundation that's laid for whether -- when it was presented.

JUDGE BHATTACHARYYA: Ms. Park, would you like to lay a foundation?

BY MS. PARK:

Q. Dr. Brown, what are you showing here on the upper right of your slide?

A. I'm showing the date of the conference of May 9 and 10th of 2006.

Q. Where in the document is this information present on?

A. Oh. Sorry. I couldn't hear your question again.

Q. Sorry.

Where did you find this information from this document?

A. Oh. On the cover pages of the paper.

MR. LAMAGNA: Again, so if he's limiting his opinion to just that he recognizes that that's what is written on the document, that's fine, but he was not present at this event to testify directly that it was actually presented. So we would move to strike that he is testifying that it was presented.

JUDGE BHATTACHARYYA: The objection is overruled. You can explore that issue on cross-examination.

BY MS. PARK:

Q. Turning to slide 50, what are you showing here?

A. Well, the top chart is a table of composition for different layers that Engels has evaluated, and what he

describes as layers on the surface of the sheet.

He describes five layers. Layer number 2 is so thin it's unmeasurable, but he describes a layered structure. The image below is not a very good quality micrograph of that coating.

Q. Turning to slide 51, what are you showing here about Hein?

A. Hein is a paper from that same meeting entitled "Hot-Stamping of Usibor 1500P: Part and process analysis based on numerical simulation." I just point out that another author is Kefferstein from Arcelor.

In that publication, there is, again, a presentation of a four-layer structure.

Q. Turning to slide 52, what are you showing here about Lachmann?

A. This is a lecture by Carsten Lachmann from Volkswagen at an invited meeting from January 2005. It, again, describes a process flow associated with Usibor where, as you can see from the highlighted condition in the furnace, it provides a temperature range, 900 to 950 Celsius.

Q. Turning to slide 53, what are you showing here about the Passat?

A. Well, this is a summary slide describing the 2006 Volkswagen Passat. The upper left-hand box is an

excerpt from a Passat 2006 service training describing components that are manufactured from ultrahigh strength hot-formed steel panels.

The one -- the image next to it is one of Dr. Bradley's microstructures that he measured from a coupon from that vehicle. There's an image of the vehicle underneath it.

We have already seen images of this portion of the B-Pillar from the vehicle, and that was extracted from Mr. Bartosek's declaration.

The right-hand image is just a schematic showing where the B-Pillar actually sits in the vehicle.

Q. Based on the prior art references that we just went through, what can you tell about the state of the art?

A. Well, it's my opinion that the processing of Usibor 1500 prior to the priority date of the patents clearly demonstrates that it was possible to form a four-layer structure with known processing conditions.

Q. Let's move on to your element-by-element analysis.

Did you prepare some slides for the Passat?

A. I did.

Q. Turning to slide 55, what are you showing here about the 2006 Passat?

A. So there's a number of pieces of information

here. There's just an image of the same vehicle, and this is a collection of measurements that were taken by Dr. Bradley during his investigation.

The upper right-hand is an image of the microstructure taken with a scanning electron microscope.

The middle is a table of different elemental compositions, weight percentage within the base steel.

The lower left is what we have seen before, compositional profile, where we start from the left, which is the external surface of the coating, moving in, and until we end at the base steel.

Then the lower right is a series of measurements of thicknesses, by coating thickness and the entire coating, indicating individual measurements and averages.

MS. PARK: I apologize, Your Honor. The clicker is not working.

BY MS. PARK:

Q. Turning to slide 56, were there any prior art publications about hot-stamping of Usibor 1500 for the Passat or Volkswagen?

A. Yes.

Hein, which is the article that we talked about very briefly, has the -- included images in the language, the pre-coated solution, Usibor 1500P is more and more specified and used in the new European and US cars. For

example, Usibor 1500P is used in the pillars -- for the pillars and sills of the new Volkswagen VW Passat, and provides Figures 9 and 10 below.

Then as we have seen before, Lachmann also, I believe, 2004, provided this presentation from Volkswagen discussing the hot-stamping of Usibor.

Q. Turning to slide 57, how do you know the Passat was sold in the US?

A. Well, this is a Carfax history for the Volkswagen pictured on the left. In that document it indicates that this vehicle was offered for sale by Riverbank Volkswagen in Stamford, Connecticut, on August 16, 2005.

Q. Turning to slide 58, what does the preamble state?

A. Preamble states "a pre-coated steel product comprising" -- this is a pre-coated product.

Q. Is the Passat a pre-coated steel product?

A. Yes.

Q. Turning to slide 59, what are you showing here about element 1(a)?

A. 1(a) states, "a strip of base steel having a first and second side." So it's a strip of steel that, of course, has to have a first and second side.

Q. Does the Passat have a strip of base steel

having a first and second side?

A. Yes.

Q. Turning to slide 60, what are you showing here about element 1(b)?

A. Well, 1(b) requires a coating on at least one of the first side strip of base steel, and the second side of the base steel, where the coating results from interdiffusion between the base steel and an aluminum or aluminum alloy pre-coating.

Here we see the microstructure which results from the interdiffusion of the two -- or actually, three elements, aluminum and silicon moving in towards the steel, iron from the steel moving into the aluminum forming these layers.

Q. Turning to slide 61, what are you showing here?

A. This is just a compositional profile that Dr. Bradley, I believe, already presented demonstrating that this interdiffusion occurs. Because before it goes into the furnace, it's all aluminum on one side -- aluminum silicon, excuse me, and then all steel on the other, and here we see this combination of the elements which occur due to the high temperature interdiffusion of the different elements, aluminum and silicon moving in from the left, iron moving in from the right.

The interdiffusion layer that you see here under

1 is a canonical representation of that interdiffusion process.

Q. Turning to slide 62, what are you showing here about claim element 1(c)?

A. 1(c) requires an interdiffusion layer having a first mean iron composition. So that would be layer 1, with the mean iron composition of 83.3. So that is satisfied.

Q. Turning to slide 63, what are you showing here about claim element 1(d)?

A. 1(d) requires an intermediate layer having a second mean iron composition different from the first mean iron composition.

So layer 2 has a mean iron composition of 45.6, which is different from 83.3, so that is satisfied.

Q. Turning to slide 64, what are you showing here regarding element 1(e)?

A. 1(e) requires an intermetallic layer having a third mean iron composition different from the first and second mean iron compositions. The third mean iron composition being higher than the second.

So 61.5 is different from the compositions of the -- iron compositions of the previous two, and it is also higher than the 45.6 of layer 2.

So 1(e) is satisfied.

Q. Turning to slide 45, what are you showing here regarding claim element 1(f)?

A. 1(f) requires a superficial layer having a fourth mean iron composition different from the third mean iron composition.

So layer 4 has a different mean iron composition, and is different from the third, 45 being different from the 61.5, so that is satisfied.

Q. Turning to slide 66, what are you showing here regarding claim element 1(g)?

A. 1(g) requires the coating having a thickness greater than 30 microns, and this is just a representation of the thickness measurements that Dr. Bradley did indicating that the thickness, both at every location and on average, are greater than 30 microns.

Q. What is the average thickness?

A. The average thickness being 37.9. Again, greater than 30 microns.

Q. Turning to slide 67, in summary, what is your opinion?

A. In summary, the Volkswagen Passat satisfies each portion of Claim 1 of the '602 patent.

Q. Do you understand whether AM challenges these claim elements are met?

A. Yes.

Q. Do you believe AM challenges these claim elements are met?

A. Yes, I believe they do.

Are you saying, AM challenges whether these claim elements are met?

Q. Let me reask that.

Do you understand whether Complainants challenge whether these claim elements are met?

A. Oh, I'm sorry.

No. It's my understanding that Dr. Raabe has not challenged whether these claim elements are met.

Q. Does Complainant challenge any of the other asserted claims are met by the Passat?

A. No. It's my understanding that they do not.

Q. Turning to slide 68, what are you showing here regarding Claim 2?

A. Claim 2 is a requirement that the pre-coated steel product, as recited in Claim 1, wherein layers (c) and (d) are quasi-continuous by occupying at least 90 percent of a level corresponding to each of the layers, (c) and (d), wherein less than 10 percent of layer (c) is present at an extreme surface of the product.

From this SEM, it is apparent that the layers (c) and (d) are quasi-continuous because they occupy more than 90 percent of a level corresponding to each layer, and

there is certainly less than 10 percent of layer (c) on the external surface of the product.

So Claim 1 -- Claim 2, excuse me, is satisfied.

Q. How did you determine this limitation is met?

A. I followed the same process that Dr. Fekete did. By inspection, you can see that less than 10 percent of the external surface is occupied by layer 3.

Q. What about the level requirement?

A. Oh. I measured the intersection of a level line across layer (c) and layer 4 separately, and determined that they occupied more than 90 percent of that level, respectively.

Q. Turning to slide 69, what are you showing here regarding Claim 3?

A. Well, Claim 3 just sets up compositional ranges for the different elements in the base steel. So now we have left the coating, and now we're moving into the steel underneath.

The table to the right provides the measured compositions in the base steel provided in Dr. Bradley's report.

Q. Turning to slide 70, what are you showing here?

A. So now we're just going to step through each of the elements.

Slide 70 compares the carbon content to the

required range of .15 to .5. The carbon in the Passat is .215, so it's satisfied.

71, slide 71 provides a compositional range of .5 percent to 3 percent. The Passat has 1.271, so that is satisfied.

Slide 72, the range for silicon is .1 percent to .5 percent. The Passat possesses a value of .268. The silicon range is satisfied.

Slide 73, the chromium composition has to be a range of .01 percent to 1 percent. The chromium in the Passat is 0.191, so that is satisfied.

Slide 74, titanium has to be less than .2 percent. In the Passat, the percentage composition is .037. That is less than .2 percent, so that is satisfied.

Similarly, on slide 75, aluminum has to be less than .1 percent. The Passat has an aluminum composition of .034. That range is satisfied.

Slide 76, phosphorus has to be less than .01. The Passat has .012, so the phosphorus requirement is satisfied.

Slide 77, sulfur has to be less than .05 percent. The Passat has a sulfur concentration of .0016, so the sulfur concentration requirement is satisfied.

And finally, for boron, the boron compositional

range has to be between .0005 percent and .08. The boron composition of the Passat is .002, so that is satisfied.

Then on slide 79, the remainder is iron, and then there are traces of other elements which are inherent in iron because of its processing.

Q. Turning to slide 80, what are you showing here regarding Claim 4?

A. Well, to shortcut this process, I have color-coded the Passat chemistry values by color, comparing it to the corresponding element with the colored box next to it.

So one can go through those element -- either the element ranges, and compare them with the compositional values for the Passat, and see that those requirements each are satisfied.

Q. Just for the record, if Your Honor wants to do her own comparison, where could she look at?

Let me ask the question again.

Dr. Brown, if Your Honor wants to do her own comparison, where could she look at?

A. Oh, I'm sorry.

On Exhibit RX-87.

Q. Turning to slide 81, what are you showing here regarding Claims 7 and 8?

A. So the '602 Claims 7 and 8 set up a minimum

requirement for the ratio of titanium to nitrogen, and in this case, the requirement is that the ratio of titanium to nitrogen in weight percent has to be greater than 3.42, and if one looks at the ratio in the Passat, if we divide 0.037 by 00 -- .006, the value is around 6.

So both of these claims are satisfied.

Q. Turning to slide 82, what are you showing here regarding Claims 9, 10, 18 and 26?

A. Each of these claims set up specifications for the thickness of layer (a), the interdiffusion layer.

Claim 9 requires a thickness less than 15 microns.

Claim 10 has a requirement that layer (a) have a thickness less than 10 microns.

Claim 18 requires the interdiffusion layer, which is the same, has the thickness from 1 to 15 microns.

And Claim 26 requires that layer (a) has a thickness less than 15 microns.

We have seen this table that Dr. Bradley having done multiple measurements across the thickness of a micrograph demonstrates that the thickness is 9.4 microns, each of which satisfy these -- which satisfies each one of these claims.

Q. Turning to slide 83, what are you showing here regarding Claims 20 and 22, support the mean iron

composition compared to the third mean iron composition?

A. Sure.

Claim 20 requires the fourth mean iron composition to be lower than the third mean iron composition. So layer 4, 45, is less than layer 3, 61.5.

Claim 22 also imposes that requirement, so both claims are satisfied.

Q. Turning to slide 84, what are you showing here?

A. These are two independent claims for the '602 patent.

We've talked through Claim 1. Claim 22 is posed next to it, and I have just highlighted the one limitation which is different between the two.

1(f) says, the superficial layer having a fourth mean iron composition different from the third mean iron composition. 21(f) says, a superficial layer having a fourth mean iron composition different from the first, second, and third mean iron compositions.

Q. So turning to slide 85, why do you skip 21(pre), (a), (b), (c), (d) and (e), and go straight to 21(f)?

A. So as I've said, they're the same as Claim 1, and we have already demonstrated that those are satisfied.

And 21(f) states that we have a fourth mean iron composition different from the first, second, and third, and we can see that from the average compositions provided

by Dr. Bradley's study, 45 is different from 61.5, which is different from 45.6, which is different from 83.3.

So limitation 21(f) is satisfied.

Q. Turning to slide 86, what are you highlighting here?

A. In slide 86, we're comparing, again, Claim 1, but this time with Claim 24.

The preamble, 1(a), 1(b), and 1(g) are all the same. And we have seen that Claim 1 already has been satisfied, so those portions of Claim 24 are satisfied.

Then the four remaining limitations are the same except Claim 1 requiring mean iron compositions and relative mean iron compositions, this time, state mean aluminum compositions and relative mean aluminum compositions.

Q. So turning to slide 87, what are you showing here regarding claim element 24(c)?

A. 24(c) sets up a requirement for having a mean aluminum composition in the interdiffusion layer. 12.6 provides that mean composition. That is satisfied.

Q. Turning to slide 88, what are you showing here regarding element 24(d)?

A. Limitation 24(d) requires a second mean aluminum composition in the intermediate layer being different from the first mean aluminum composition.

So 53.0 is different from 12.6. That limitation is met.

Q. Turning to slide 89, what are you showing here regarding element 24(e)?

A. 24(e) requires an intermetallic layer having a third mean aluminum composition different from the first and second mean aluminum compositions.

So here you see layer 3 has an aluminum -- mean aluminum composition of 29.2, which is different from 53.0, and, again, different from 12.6. So 24(e) is satisfied.

Q. Turning to slide 90, what are you showing here regarding claim element 24(f)?

A. 24(f) specifies that a superficial layer, the outermost layer has a fourth mean aluminum composition different from the first, second, and third. Excuse me.

The second mean aluminum composition being greater than the third mean aluminum composition. So if you look at compositions, they are each different from another. 52.4 versus 29.2 versus 53 versus 12.6.

And the second mean aluminum composition, 53.0 is greater than the third, which is 29.2.

So limitation 24(f) is satisfied.

Q. In summary, what is your opinion?

A. Well, in summary, Claim 1 is met by the Passat. Claim 21 is met by the Passat, and Claim 24, the three

independent claims are all met by the Passat.

Q. What about the dependent claims?

A. Okay.

As we've gone through these, Claim 2, 3, 4, 7 and 8, are satisfied. Then Claims 9, 10, 18, 20, 22, and 26 are satisfied as well.

Q. Let's move on to the '227 patent. We now have Claim 1 of the '602 and '227 patent. What are you highlighting?

A. Well, I've highlighted -- color-coded a number of things.

One is Claim 1 has limitations associated with the interdiffusion, intermediate, intermetallic and superficial layers in terms of mean compositions, relative mean compositions.

Claim 1, limitations 1(e), 1(f), 1(g) and 1(h) only requires that those layers exist. Therefore since we have shown that the layers exist in Claim 1, those limitations in Claim 1 -- I'm sorry -- shown that those limitations have been satisfied in Claim 1 of the '602 patent, Claim 1 of the '227 patent are automatically satisfied.

Then we have a limitation 1(i) from Claim 1 of the '227 patent where layers, (a), (b), (c), and (d) each have a different mean composition from one another.

Q. What about the other limitations that you did not describe; how did they compare to each other?

A. The other limitations are the same, with a slight difference in language in the preamble.

Claim 1 dictates a pre-coated steel product. Claim 1, excuse me, of the '602 patent, describes a pre-coated steel product.

Claim 1 of the '227 describes a hot-stamped coated steel product, which I consider to be automatically met.

Q. Turning to slide 97, what does the preamble state?

A. Well, as I stated, Claim 1 of the '227 patent claims a hot-stamped coated steel product, which is satisfied by a hot-stamped Usibor 1500.

Then 1(i) requires that the composition of levels (a), (b), (c), and (d) each have different mean composition from one another, and if one looks at the mean iron composition, and the mean aluminum composition and the four layers from the 2006 Passat, you can see that they are different, and therefore -- one from the other, and therefore, each of the layers have a different mean composition from one another, and therefore, 1(i) is satisfied.

Q. Is the Passat a hot-stamped coated steel

product?

A. Yes. It includes the hot-stamped coated steel product.

Q. Turning to slide 98, what are you showing here regarding Claim 2?

A. Claim 2 of the '227 patent requires that the hot-stamped coated steel product, according to Claim 1, wherein said layer (a) has a thickness that is less than half the said thickness of the coating.

As we can see from the measurements done by Dr. Bradley, 9.4 is certainly less than half of 37.9. So Claim 2 is satisfied.

Q. Turning to slide 99, what are you showing here regarding Claims 4 and 5 of layer (a) thickness.

A. Claim 4 requires that said layer (a) has a thickness of 17 microns or less. Claim 5 requires that said layer (a) has a thickness of 15 microns or less, and 9.4 is less than both of those values, and therefore, Claim 4 and Claim 5 are satisfied.

Q. Turning to slide 100, what are you showing here regarding Claim 7?

A. Claim 7 of the '227 patent states that we have this hot-stamped coated steel product where the interdiffusion layer has a first mean iron composition. The intermediate layer has a second mean iron composition

less than the first, so 45.6 is less than 83.3.

When the intermetallic layer has a third mean iron composition, which is denoted as 61.5. The third mean iron composition less than the first mean iron composition, 61.5 being less than 83.3. And greater than the second mean iron composition, 61.5 being greater than 45.6, and lastly, the superficial layer has a fourth mean iron composition, the fourth mean iron composition being less than the third mean iron composition, and 45.0 is less than 61.5.

So Claim 7 is satisfied.

Q. Turning to slide 101, what are you showing here regarding Claims 8 and 11?

A. Claim 8 states that wherein layer (a) has a thickness that is greater than layer (b), and one can see that 9.5 is greater than 9.0, Claim 11 requires that layer (a) has a thickness that is greater than layer (b), that is greater than the thickness of layer (c), that is greater than the thickness of layer (d). 9.5 is greater than 9.0, and 6.7 and 9.2, so Claim 11 is satisfied as well.

Q. Turning to slide 102, what are you showing here regarding Claims 9, 10, and 13?

A. Claim 9 requires layer (a) have a thickness that is greater than the thickness of layer (c), so 9.4 is greater than 3.9.

Claim 10 requires layer (a) has a thickness that is greater than the thickness of layer (d), 9.4 greater than 9.3.

Claim 13 requires layer (a) have a thickness that is more than twice the thickness of layer (c).

So layer (c) is 3.9. We doubled that. That is 7.8.

So layer (a) has a thickness that is greater than twice the thickness of layer (c). So Claim 13 is satisfied.

Q. Turning to slide 103, what are you showing here regarding Claim 15.

A. Claim 15, so now we're leaving the coating, and we're going back to the base steel.

Claim 15 requires the hot-stamped coated steel product is fully martensitic. I'm providing an image of the microstructure of the underlying steel, which is characteristic of a martensitic microstructure.

So Claim 15 is satisfied.

Q. How do you know it is fully martensitic?

A. The microstructure is characteristic. Martensite has a special acicular. I think people have used that term before microstructure. We can see that in this microstructure.

Q. What are some of those characteristics?

A. I'm sorry. Can I hear that again?
Q. What are some of those characteristics of a fully martensitic structure?
A. Oh, it's this layered acicular, sort of needle-like features.
Q. Turning to slide 104, what are you showing regarding Claim 16 of the '227 patent?
A. Well, this is Claim 16, which provides compositional requirements for the base steel in terms of elemental ingredients. If you compare that with Claim 3 of the '602 patent, you can see that they're identical.
Since we've already demonstrated that the Passat satisfies Claim 3 of the '602, it also satisfies Claim 16 of the '227.
Q. Now, on slide 105, what are you showing here regarding Claim 17?
A. In a parallel way, to make this process more straightforward, I have color-coded the element in the compositional table from the Passat, and color-coded the compositional range in the -- in Claim 17, so one can just match the colors, and determine that the Passat satisfies the compositional ranges of Claim 17, which is included in Exhibit -- I'm sorry, RX-87.
Q. Turning to slide 106, what are you showing here about Claim 24?

A. Claim 24 just sets a minimum mechanical strength for the hot-stamped coated steel product, to be better -- I'm sorry, greater than 1000 megapascals.

Dr. Bradley had a sample from the material that he was sent tested, and the strength was measured to be 1,434.11 megapascals, which is substantially greater than a thousand, and therefore Claim 24 is satisfied.

Q. In summary, what is your opinion?

A. It's my opinion that Claim 1 the '227 patent is satisfied by the Passat.

Then the subsequent Claims 2, 4, 5, 7, 8, 9, and 10 are satisfied as well. Then, moving on if you look at Claims 11, 13, 15, 16, 17, and 24, those are also satisfied.

Q. Do Complainants challenge any of the claim limitations are met by the Passat?

A. It's my understanding they have not.

Q. Let's move on to your next reference.

MS. PARK: Your Honor, we are about to move on to a different ground. Would you like to break for the day?

JUDGE BHATTACHARYYA: I think that's a good idea. It's two minutes early. We'll go an extra two minutes tomorrow. How is that? Thank you.

Thanks, everybody. We're adjourned for the day.

(Whereupon, recess was taken at 5:14 p.m., to resume the following day at 9:30 a.m.)

C O N T E N T S

WITNESS	DIRECT	CROSS	REDIRECT	RECROSS
James Fekete PhD	588	607		
Nguyen Thi Lan Anh	731	737		
John Phillip Bradley PhD	740	764	797	801
Stuart Brown, PhD	803			

AFTERNOON SESSION: 730

CONFIDENTIAL SESSIONS: 588-606; 676-682; 707-714; 762-763;

E X H I B I T S

EXHIBIT NO:	RECEIVED
JOINT The Parties' Joint List Of Admitted Exhibits, Day 2	730

E X H I B I T S

EXHIBIT LISTS SUBMITTED FOR ADMISSION:

The Joint List of Admitted Exhibits (Day 2)

CX-0031C

CX-0034C

CX-0035C

CX-0090

CX-0092C

CX-0093C

CX-0094C

CX-0095C

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CX-0097C

CX-0098C

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CERTIFICATE OF REPORTER

TITLE: CERTAIN HIGH-STRENGTH ALUMINUM OR ALUMINUM-ALLOY COATED STEEL, AND AUTOMOTIVE PRODUCTS AND AUTOMOBILES CONTAINING SAME

INVESTIGATION NO: 337-TA-1402

HEARING DATE: Wednesday, March 5, 2025

LOCATION: Courtroom A

NATURE OF HEARING: Evidentiary Hearing

I hereby certify that the foregoing/attached transcript is a true, correct and complete record of the above-referenced proceedings of the U.S. International Trade Commission.

Date: March 5, 2025

SIGNED: _____

Signature of the Contractor of the Authorized Contractor's Representative
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Natalie Bourlier, Proofreader

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SIGNED: _____

Marjorie Peters, FAPR, RMR, CRR Court Reporter

UNITED STATES
INTERNATIONAL TRADE COMMISSION

In the Matter of:	)	Investigation No.
CERTAIN HIGH-STRENGTH ALUMINUM OR	)	337-TA-1402
ALUMINUM-ALLOY COATED STEEL, AND	)	
AUTOMOTIVE PRODUCTS AND	)	
AUTOMOBILES CONTAINING SAME	)	

OPEN SESSIONS

Pages: 871 through 1124 (with excerpts)

Place: Washington, D.C.

Date: March 6, 2025

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UNITED STATES INTERNATIONAL TRADE COMMISSION

Washington, D.C.

BEFORE THE HONORABLE MONICA BHATTACHARYYA

Administrative Law Judge

In the Matter of:	) Investigation No.
CERTAIN HIGH-STRENGTH ALUMINUM OR ALUMINUM-ALLOY COATED STEEL, AND AUTOMOTIVE PRODUCTS AND AUTOMOBILES CONTAINING SAME	) 337-TA-1402

International Trade Commission

500 E Street, S.W.

Washington, D.C.

Thursday, March 6, 2025

EVIDENTIARY HEARING - VOLUME 4

The Hearing commenced remotely, pursuant to the notice of the Judge, at 9:30 a.m. Eastern.

Reported by: Marjorie Peters, FAPR, RMR, CRR

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P R O C E E D I N G S

JUDGE BHATTACHARYYA: We're on the public record.

Are there any issues to discuss before we proceed?

MR. MCKEON: I don't think we have any issues, Your Honor.

JUDGE BHATTACHARYYA: Okay.

MR. HERSHKOWITZ: Your Honor, no issues on our end, but much like yesterday, we just need a little bit of extra time to resolve the exhibit list, which we will submit later today.

JUDGE BHATTACHARYYA: Very well.

MR. HERSHKOWITZ: Thank you.

MS. PARK: Good morning, Your Honor. April Park on behalf of the Respondents.

Whereupon--

STUART BROWN, PhD,

having been previously placed under oath, was examined and testified as follows:

CONTINUED DIRECT EXAMINATION

BY MS. PARK:

Q. Good morning, Dr. Brown.

A. Good morning.

Q. Let's move on to your Lachmann analysis.

Turning to slide 111, yesterday, we talked about Lachmann, but could you tell us a little bit more about it.

A. Yes.

This is a presentation, my understanding, the German presentation by Carsten Lachmann at Volkswagen given in January of 2005. My understanding is that it was an invited lecture.

MR. LAMAGNA: Objection.

JUDGE BHATTACHARYYA: Yes.

MR. LAMAGNA: Again, I don't think that there's a foundation that's been laid for the testimony as to when this was actually given. He's not a percipient witness. It's hearsay.

JUDGE BHATTACHARYYA: Ms. Park, could you lay a foundation as to his basis for this viewpoint.

MS. PARK: Yes.

BY MS. PARK:

Q. Dr. Brown, what is the basis for your statement that this lecture was given on January of 2005?

A. Yes.

This slide provides that. There was an affidavit provided by someone who attended the conference, and this is just the lecture -- I'm sorry, the quotation from that affidavit, which states that, "...the lecture took place on January 18, 2005, with the location. I was

in the audience. During the lecture, the lecturer, Dr. Carsten Lachmann, projected images on a screen that are a part of the presentation appended hereto."

JUDGE BHATTACHARYYA: Mr. LaMagna, are you still asserting your objection?

MR. LAMAGNA: No, that's fine. Thank you.

JUDGE BHATTACHARYYA: Great. Thank you.

BY MS. PARK:

Q. Turning to slide 13, what are you showing here about Lachmann?

A. Well, I have just highlighted some of the content that I've already given.

It's a presentation on Usibor, which is an ArcelorMittal alloy that we're talking about in this matter. It provides furnace conditions, 900 to 950 Celsius. And once again, it just highlights the fact that Lachmann is with Volkswagen.

Q. Okay.

Turning to slide 114, let's go through your element analysis.

What do we see here about the preamble?

A. The preamble states, "A pre-coated steel product."

This states, in the presentation, aluminum silicon-coated Usibor, so it is a pre-coated steel product.

Q. Turning to slide 115, what are you showing here regarding element 1(a)?

A. This states, "A strip of base steel having a first side and a second side."

It is a steel strip, so it necessarily has a first and second side.

Q. Is that what you're annotating on the right?

A. Yes. Exactly.

Q. Turning to slide 116, what are you showing here regarding element 1(b)?

A. 1(b) requires, "A coating on at least one of the first side of the strip of base steel and the second side... wherein the coating results from interdiffusion between the base steel, and an aluminum or aluminum alloy pre-coating... wherein the coating..." and then it refers to the subsequent limitations.

But these are just images taken from the German portion of the Lachmann presentation, because the quality is better, showing the alloyed structure and the interdiffusion of the iron into the aluminum, and aluminum into the iron.

Q. What are you showing here on slide 117?

A. Well, this is a magnification of those images.

In particular, in terms of interdiffusion, if you look at layer (a), you can see that the concentration

of iron, which is the top curve, starts from close to 100 percent, and then decreases down.

And the concentration of aluminum, which is the next curve down, starts on the left at a higher concentration, and then decreases down until the base metal, which is -- I think as I might have said yesterday, that it's a canonical example of diffusion.

Q. Turning to slide 118, what are you showing here regarding claim elements 1(c), (d), (e), and (f)?

A. 1(c) requires, "An interdiffusion layer having a first mean iron composition."

We can see from the blue line, which is the iron, has a -- although it varies, it has a mean composition.

1(d) requires, "An intermediate layer having a second mean iron composition different from the first..."

It's indicated there by the little window, 2nd, and has a mean composition which is lower than the first.

1(e) requires, "An intermetallic layer having a third mean iron composition different from the first and second mean iron compositions, the third mean iron composition being higher than the second mean iron composition..."

We can see, again, from the blue curve that the third mean intermetallic layer has a different mean iron

composition, and it is different from the second.

Then 1(f) requires, "A superficial layer having a fourth mean iron composition different from the third mean iron composition."

And we see from the diagram, again, the fourth mean iron composition is different from the third.

So limitations 1(c) through 1(f) are met.

Q. Here, is the mean iron composition of the third layer higher than the mean iron composition of the second layer?

A. Yes. Yes, it is.

Q. How can you tell that?

A. Well, I would say by inspection, because you can see that the third layer has iron compositions which increase away from the second.

So by inspection, you can see that the mean iron composition of the third is higher than the second.

Q. Turning to slide 119, what are you showing here regarding claim element 1(g)?

A. 1(g) requires that the coating have a thickness greater than 30 microns.

This is just an image provided in the presentation which indicates that the coating thickness is between 35 and 50 microns, and therefore, 1(g) is met.

Q. Turning to slide 121, in summary, what is your

opinion?

A. So my opinion is that Claim 1 of the '602 patent is satisfied by the content of the Lachmann presentation.

Q. Turning to slide 122, what are you showing here regarding Claim 2?

A. Claim 2 states that, "... layers (c) and (d)," which is indicated on the drawing, "are quasi-continuous by occupying at least 90 percent of a level corresponding to each of the layers (c) and (d) and wherein less than 10 percent of layer (c) is present at an extreme surface of the product."

So if one takes a level, intersects it with layer (c) or (d), you can see that the layer occupies more than 90 percent of that level. And we see less than 10 percent of the extreme surface, the uppermost level surface on this image, occupied by layer (c), and therefore, Claim 2 is satisfied.

Q. Turning to slide 123, do you know which pre-coated steel product was used in Lachmann?

A. Yes.

So Lachmann specifically calls out Usibor, but it doesn't call out Usibor 1500. The way you know that it's Usibor 1500, recall the "1500" refers to the strength of the steel -- of the strip, and that's 1500 megapascals.

So if you look at the figure on the lower

right-hand portion of this slide, it's a test, a tensile test, a test of the strength of the steel, and you can see that the strength is just a little bit above 1500 megapascals, and therefore, it would be Usibor 1500.

Q. Turning to slide 124, what are you showing here regarding Claim 3?

A. So on slide 124, this is Claim 3, which, you know, we talked through yesterday, but it sets up certain required ranges for composition of different elements within the pre-coated steel product.

What I put here is a Usibor 1500 specification for different elements within that product.

Q. What are you showing here regarding the carbon composition?

A. So the carbon composition in the specification is .2 to .25, and Claim 3 requires .15 to .5, so this satisfies the carbon requirement.

Q. This document has a January 2021 date.

How do you know the spec was the same in Lachmann?

A. So if you look at the compositions for Usibor provided in the prior art, you can see that they correspond very closely to what we see for the specification in 2021, and therefore, with minimal differences, one can make that comparison.

Q. Turning to slide 126, what are you showing here?

A. This sets up the range for the composition for manganese, .5 to 3 percent. The specification gives 1.1 to 1.4, so that requirement is met for manganese.

127 provides that similar comparison for silicon, .1 to .5. The composition indicated here is .15 to .4, so silicon is satisfied.

Slide 128 provides a range of -- required range of .01 to 1. The specification has the composition less than .5, and that is satisfied.

Titanium requires the concentration to be less than .2. The titanium specification provides a titanium concentration of .02 to .5, so titanium is met.

Slide 130 provides aluminum, less than .1. The specification provides a range of .01 to .06, so the concentration of aluminum is met.

Slide 131 for phosphorus, required to be less than .1 percent. The specification provides a concentration less than .03, so phosphorus is met.

Claim 3 requires sulfur to be less than .05. The specification is .01, so sulfur is met.

Boron requires a range between .0005 and .08. The specification claims .001 to .005, so that specification is met.

And slide 134 requires that the rest be iron and

impurities inherent in processing. And the rest of the material would be iron given the fact that it's a steel alloy, and there would be some inherent impurities, so that portion of the limitation is met.

Q. What's an example of an inherent impurity?

A. Oh, for example, the nitrogen, which is called out here in the specification.

Q. Turning to slide 135, what are you showing here regarding Claim 4?

A. Claim 4, you just -- once again accelerated the comparison in the same way that we did yesterday.

So specification is color-coded by element, and those same colors are provided and the colors associated with ranges in Claim 4. So one can make that comparison directly.

Q. Turning to slide 136, what are you showing here regarding Claims 7 and 8?

A. For Claims 7 and 8, set up as we presented yesterday, a ratio of titanium to nitrogen, which has to be in excess of 3.42, and Lachmann doesn't disclose that.

But if one looks at Laurent, Laurent specifically calls out that ratio of 3.42, and once again provides a rationale for why that's needed.

Q. Is there any other reason why this limitation is met?

A. Yes. If you look back at the specification for the Usibor 1500, you can see that that specification is met if you just look at the ratio of titanium to nitrogen in this table.

So there is a ratio at .05 to .01, which is 5 greater than 3.42.

MR. LAMAGNA: Objection.

JUDGE BHATTACHARYYA: Yes.

MR. LAMAGNA: Outside the scope of his report.

JUDGE BHATTACHARYYA: Ms. Park.

MS. PARK: Your Honor, he's going back to the same composition that he was just looking at and drawing a mathematical conclusion.

JUDGE BHATTACHARYYA: Understood.

Did he specifically make that calculation in his report, though?

MR. LAMAGNA: I think we're looking around Paragraph 703 of his report.

JUDGE BHATTACHARYYA: Mr. LaMagna, as I understand your objection is not as to the Laurent testimony, but as to the calculation within Lachmann, using the Lachmann numbers?

MR. LAMAGNA: Yeah. In that section of his report that's dealing with this claim. He's referring back to the Usibor spec in his testimony, which we'd move to

strike whereas that's not what's in his report.

MS. PARK: Your Honor, we think she's just showing the two different numbers, but --

JUDGE BHATTACHARYYA: That portion of testimony is stricken with respect to the calculation of 3.42. You may make the argument in post-hearing briefs.

MS. PARK: Understood, Your Honor.

BY MS. PARK:

Q. Turning to slide 137, what are you showing here about Laurent?

A. This is Laurent, which is patent '805. Laurent is an AM, or I think at this time, it wouldn't have been an AM employee, but precursor to AM, and this is the piece of prior art that described that ratio that I just discussed.

Q. What is the date of the patent for Laurent?

A. October 2, 2001.

Q. Turning to slide 138, would a POSITA have been motivated to combine the teachings of Laurent with Lachmann?

A. Yes, because Lachmann provides, as I said, this specific callout for the desired ratio, and if someone is interested in examining ways to improve the properties of a product, I think the most obvious thing would be to look at the literature provided by the manufacturer of that product.

Laurent talks about having a steel sheet with very high mechanical resistant after thermal treatment, and therefore, I think Laurent represents an obvious place to go, if one is seeking to improve the properties of the material.

Q. Turning to slide 139, what are you showing here regarding Claims 9, 10, 18, and 26?

A. So Claims 9, 10, 18, and 26 are recitations of required thicknesses for the interdiffusion layer, layer (a).

Claim 9 has 15 microns, Claim 10 has 10 microns, Claim 18 has 1 to 15 microns, and Claim 26 has 15 microns.

This is an image from Cornette indicating a interdiffusion layer thickness of 10.7 at that point.

Q. Are the elements met?

A. The elements are met in Claim 9, 18, and 26, not Claim 10. But it's my opinion that, as we know the thickness of the interdiffusion layer is a function of both temperature and residence time in the furnace, and so the longer it's in the furnace, the thicker the interdiffusion layer, the more quickly it goes -- the more slowly it goes through the furnace, the thicker the interdiffusion layer.

Cornette provides different processing conditions, and to me, it would have been obvious to someone of ordinary skills to know that here provides a --

not a recipe, but conditions by which one could perform experiments to modify the thickness of the interdiffusion layer to be able to obtain whatever thickness one desires.

And...

Cornette provides slightly different processing conditions than Lachmann, and therefore, I think that someone were to be processing this steel sheet, this would provide a motivation to do those experiments to see what would obtain if one varied those conditions within the furnace.

Q. On slide 140, what are you showing here?

A. 140, again, indicates that Cornette is in 2001, with authors, Cornette, Laurent, whom we have seen is already an inventor of the Usibor product, a definition of the Usibor, and then again, the alloying conditions -- not the alloying conditions -- sorry -- but the furnace conditions for heating and temperature defined by Cornette.

Q. What are you showing here on the right side of the screen?

A. This is the slide that I've shown before from Lachmann, again indicating that it's Usibor with different furnace temperature ranges, and the fact that again, Lachmann is from Volkswagen.

Q. Turning to slide 141, what are you showing here about Cornette?

A. Well, this is, again, information about the Cornette paper, Society of Automotive Engineers 2001 World Congress, dated 2001 -- I'm sorry, Congress in March of 2001.

Copyrighted 2001 by the Society of Automotive Engineers.

Q. How do you know if Cornette is a prior art?

A. Well, besides the date of the document, I've reviewed a declaration from Mel Desart who indicates that this publication would have been available soon after the date of this publication.

Q. Turning to slide 142, what are you showing here regarding Claims 20 and 22?

A. Claim 20 requires that the fourth mean iron composition is lower than the third mean iron composition. That is the same in Claim 22.

So if we look at the profile on the right, the fourth mean iron composition indicated is less than the third mean iron composition that one can see by inspection.

Once again, the iron concentration is the blue line on this chart.

Q. Turning to slide 143, what are you showing here regarding Claims 1 and 21 of the '602 patent?

A. I'm -- these are the two claims we just described, Claim 1 and Claim 21.

The other claims are identical except for limitation 1(f). So 1(f) requires a fourth mean iron composition different from the third mean iron composition. 21(f) requires a fourth mean iron composition different from the first, second, and third mean iron compositions.

Q. Turning to slide 144, why do you start your analysis for 21(f) here?

A. I start for the reason I provided before is that it's the only limitation which is different from Claim 1.

I just indicate the chart to the right which indicates that the fourth mean iron composition is different from the third, second, and first.

Q. What are you showing here about claim element 21(f)?

A. I am showing that 21(f) is satisfied by the Lachmann result, demonstrated in the figure on the right.

Q. Turning to slide 145, what are you showing here about Claims 1 and 24 of the '602 patent?

A. Claim 1 and 24 are identical to preamble limitation (a), (b), and (g), and the only difference between (c), (d), (e), and (f) is that the element, iron, is replaced with the element, aluminum; otherwise, they are the same.

Q. Turning to slide 146, why are you starting your analysis with 24(c) here?

A. Once again, the other portions of the claim are the same. So we start with 24(c). It requires an interdiffusion layer having a first mean aluminum composition, indicated by the first. So that has a mean composition.

The second has an intermediate layer having a second mean aluminum composition, different from the first.

And given the fact that the first is everywhere lower than the second, the mean composition has to be different.

24(e) indicates an intermetallic layer having the third mean aluminum composition different from the first and second mean aluminum compositions.

The third mean composition is different from the second, and again different from the first, and therefore, 24(e) is satisfied.

In 149, 24(f) requires a superficial layer having a fourth mean aluminum composition, different from the second -- I'm sorry, first, second, and third mean aluminum compositions. The second mean aluminum composition being greater than the third mean aluminum composition.

So all three layers have a different mean composition, and one can see that the second mean aluminum composition is greater than the third.

So limitation 24(f) is satisfied.

Q. In summary, what is your opinion?

A. Well, my opinion, and this is just working through each claim, Claim 1 is satisfied by the Lachmann prior art.

Claim 21 is satisfied.

Claim 24 is satisfied.

And then Claims, 2, 3, 4, 7, and 8 are satisfied. And then Claims 9, 10, 18, 20, 22 and 26 are satisfied.

Q. Turning to slide 155, let's move on to the '227 patent.

What are you highlighting here regarding Claim 16 the '602 and '227 patents?

A. So I have highlighted the four limitations associated with the different layers, and Claim 1 of the '227 patent is less restrictive than Claim 1 of the '602 patent.

So limitations 1(e), (f), (g), and (h) are satisfied by Claim 1 of the '227 patent. Then I have highlighted limitation 1(i), which states that layers (a), (b), (c), and (d) each have a different mean composition from one another.

Q. What about the claim elements that you did not discuss, how do they compare to each other?

A. The other claim elements are the same.

Q. Turning to slide 156, what are you showing here about the preamble and 1(i)?

A. The preamble states that the product is a hot-stamped, coated steel product. And Lachmann, claiming Usibor, by definition, specifies a hot-stamped coated steel product, particularly given the alloyed coating.

Then layer -- I'm sorry, limitation 1(i) specifies the layers, (a), (b), (c), and (d) each have a different mean composition from one another, and as we've seen with the iron and aluminum, they have a different mean average composition.

So by definition, each of the layers have a different mean composition from one another.

So 1(i) of Claim 1 is satisfied.

Q. Turning to slide 157, what are you showing here about Claim 2?

A. Claim 2 states that layer (a) has a thickness that is less than half of said thickness of the coating.

So if one looks at the dimensions of the thick nesses indicated by L1, L2, L3 and L4 in this drawing, L1 is less than half of the total thickness. This is indicated on the right-hand side just by the arrows corresponding to the width of those layers.

But L1 is less than the combination of L2, 3,

and 4, so Claim 2 is satisfied.

Q. Turning to slide 158, what are you showing here about Claims 4 and 5?

A. So Claim 4 and 5 require the coating of the interdiffusion layer to be less than 17 and 15 microns, respectively.

My comment is the same as what I said earlier, in view of Cornette, that Cornette says the conditions which allow and motivate someone to perform experiments to vary -- speed through the furnace or the furnace temperatures to be able to modify an interdiffusion layer to meet these requirements.

Q. Turning to slide 159, what are you showing here about Claim 7?

A. Claim 7 states that the interdiffusion layer has a first mean iron composition, which we have seen satisfied.

The intermediate layer has a second mean iron composition less than the first mean iron composition, so you can see that the composition in the second layer is everywhere less than the first, so that is satisfied.

Wherein the intermetallic -- I'm sorry, then continuing on.

Wherein the intermetallic layer has a third mean iron composition. The third mean iron composition less

than the first mean iron composition, and greater than the second mean iron composition.

We can see that the third mean iron composition is greater than the second, and it is less than the first.

Then finally, the superficial layer, which is the fourth layer, has a fourth mean iron composition. The fourth mean iron composition being less than the third mean iron composition. One can see that the fourth mean iron composition is less than the third being less than the compositions everywhere on the third layer.

So that is satisfied as well. So all of Claim 7 is satisfied as well.

Q. Turning to slide 160, what are you showing here about Claim 8?

A. Claim 8 states that the layer (a) has a thickness that is greater than the thickness of layer (b). L1 is greater than L2.

So Claim 8 is satisfied.

Q. What are you showing here on slide 161 regarding Claims 9, 10, 11 and 13?

A. If we step through each of these, layer (a) in Claim 9 has to have a thickness greater than the thickness of layer (c). We can see that L1 is greater than L3, so that is satisfied.

Claim 10 claims requires that layer (a) have a

thickness that is greater than the thickness of layer (d). L1 is greater than L4, so that is satisfied.

Claim 11 states that layer (a) has a thickness greater than the thickness of layer (b), that is greater than the thickness of layer (c), that is greater than the thickness of layer (d). And in each case, L1 is greater than L2, L3, and L4, so Claim 11 is satisfied.

Then Claim 13, finally, states that wherein layer (a) has a thickness that is more than twice the thickness of layer (c). And L1 is more than twice that of L3, and you can see that schematically in the drawing on the right as well, in the arrow lengths on the right as well, so Claim 13 is satisfied.

Q. Turning to slide 162, what are you showing here regarding Claim 15?

A. Claim 15 requires that the hot-stamped coated steel product is fully martensitic.

I have provided a slide from the Lachmann presentation, and I just point out three, independent features.

One, it declares the base material to be martensite.

Second is that it specifies a cooling rate, which is greater than 30 degrees per second, which according to this drawing for the formation of martensite

and cooling rate, would indicate that the resulting product would be martensite.

Then third, if we look at the strength information provided in the plot, which we talked about just a little while ago, this indicates the strength is greater than 1,500 megapascals, which corresponds to the strength of Usibor in its fully martensitic state.

So each of these independently indicate that we have a fully martensitic product, so Claim 15 is satisfied.

Q. Turning to slide 163, what are you showing here about Claim 16?

A. All right.

Claim 16 of the '227 patent sets up compositional requirements for the base steel.

What we have already seen that Claim 3 of the '602 patent has the same requirements. We've already gone through Claim 3 of the '602 patent, and therefore, Claim 16 -- I'm sorry, then Claim 3 is satisfied, so Claim 16 is also satisfied.

Q. Turning to slide 164, what are you showing here regarding Claim 17?

A. All right.

I've just set up the same abbreviated comparison between the Usibor specification and the compositional requirements of Claim 17.

So one can take each element and compare it by color, and if one does so, they can see that the compositional requirements in Claim 17 are met.

Q. Turning to slide 165, what are you showing here about Claim 24?

A. Claim 24 sets up a requirement that the steel product have a mechanical strength of excess of a 1,000 megapascals.

The chart on this slide on the lower right-hand side indicates that the strength is a little higher than 1,500 megapascals and also quotes a range of 1,300 to 1,500, so Claim 24 is satisfied.

Q. Turning to slide 166, could you please summarize your opinion?

A. My opinion is that Claim 1 is satisfied by the Lachmann prior art. Claim 2, 4, 5, 7, 8, 9, and 10 are satisfied. 11, 13, 15, 16, 17, and 24 are satisfied.

Q. Turning to slide 169, do you understand that it is Complainant's position that there is secondary considerations that supports non-obviousness?

A. Yes. That's my understanding.

Q. Do you agree with that?

A. I do not.

Q. Why do you not agree?

A. Well, my opinion is that in terms of a claim of

commercial success, we know that the hot-stamping of Usibor and Ductibor was in existence before the asserted patents, so I don't see a nexus between the proposed novelty of the product, and whether or not the product was successful given the fact that it was in use before that.

In terms of long-felt need, I would say that the -- all of the claim elements, which we have seen, are all disclosed in the prior art, and therefore, there's no indication of that long-felt need.

And no unexpected results, I would say the results are predictable because the novel parameters indicated in the specification are already found in the prior art stamping processes.

Therefore, for these reasons, I do not believe that secondary considerations support non-obviousness.

Q. Turning to slide 170, does anyone else agree with you?

A. Yes.

This is a portion of the transcript from Dr. Fekete, which states -- from page 32:

"In the middle of Paragraph 112, do you see the sentence, 'Based on my knowledge and experience in the industry, Usibor 1500P has not been a substantial commercial success over other hot-stamped boron products'; do you see that?

Answer: Mm-hmm.

Question: Do you stand by that opinion?

Answer: Yes."

Q. Did you hear that testimony from Dr. Fekete during trial?

A. Yes.

Q. Let's turn to technical domestic industry.

What is your opinion on technical domestic industry?

A. My opinion is that there is not a technical domestic industry.

Q. Would you give us an overview of the alleged tech DI products?

A. Yes.

And as we have discussed there, the DI precursor products, which do not practice the patent because they do not have the four-layer structure.

Then there are the DI direct products, which have undergone the hot-stamping process.

Q. You said the DI precursor products do not have the four-layer structure.

How do you know that?

A. Because they are pre-coated, but they have not been hot-stamped, and you need the hot-stamping to form those layers.

Q. Turning to slide 173, let's look at the DI direct products.

Who are the subpoenaed Tier 1 manufacturers here?

A. The subpoenaed Tier 1 manufacturers are listed here, Topre, Gestamp, Simwon, Magna, Cleveland-Cliffs, Multimatic, and GNS, sort of forming the lower branch of the schematic.

Q. Do you know how many Tier 1 manufacturers there are that have not been subpoenaed in this investigation?

A. I do not.

Q. Does Dr. Fekete have an opinion on the unsubpoenaed Tier 1 manufacturers' products?

A. Yes.

His opinion is that the DI direct products hot-stamped by Tier 1 manufacturers who were not subpoenaed as part of this investigation would also practice at least one of the claims of the asserted patents.

Q. Do you agree with his opinion?

A. I do not.

Q. Why do you disagree with his opinion?

A. Well, actually, I have two.

In particular, we have no information about the Tier 1 manufacturers who were not subpoenaed, what the processing conditions are, what the variation in processing

is, and therefore, I fail to see a way one can make a scientific connection between the Tier 1 non-subpoenaed manufacturers and the requirements of the patents, because we just don't have the information to know.

Q. Turning to slide 176, let's look at the subpoenaed parties.

Again, who are the subpoenaed Tier 1 manufacturers in this investigation?

A. Topre, Gestamp, Simwon, Magna, Cleveland-Cliffs, Multimatic and GNS.

MS. PARK: Your Honor, at this time, we'll go into third-party confidential, so it will be all-party confidential record.

JUDGE BHATTACHARYYA: Thank you.

We're moving to the all-party confidential record.

May we proceed?

MR. LAMAGNA: Yes.

(Whereupon, the trial proceeded in confidential session.)

O P E N S E S S I O N

BY MS. PARK:

Q. Why do you say that the tested products do not satisfy the claims?

A. Well, the first is, once again, Dr. Fekete provides one image per product to support his contentions. Once again, the scale of that image is too small to claim that it's representative of the entire product.

I just want to say something about this drawing, and it may be obvious, but this is a drawing just taken of a human hair. It's not to scale relative to the scanning electron micrograph.

If one were to take that hair and superimpose it, it would obscure the micrograph. Just to get a sense of scale.

Q. Thank you.

Turning to slide 191, what are you showing here?

A. These are the scanning electron micrographs provided by Dr. Fekete for each of the physical parts to support his contention of these products practicing the claims of the patent.

Q. Turning to slide 192, what are you summarizing here?

A. From Claim 1, I am just indicating, in the same summary form that I did yesterday, that the intermediate

and intermetallic and superficial layers aren't supported by the presentation of one image, and therefore, those limitations are not satisfied.

Q. Based on this, what is your opinion on all the independent claims of the '602 and '227 patents that require the intermediate, intermetallic, and superficial layer?

A. For each of the independent claims, the limitations which require the intermediate, intermetallic, and superficial layer are not satisfied.

Q. Well, starting on slide 193, let's look at the SEM images that Dr. Fekete provides.

A. Fine.

So this is a micrograph from the GM T1XX program, which, to my understanding, includes the GM Sierra and the Chevrolet Silverado truck.

I might just put a box around a collection of phases which are separate islands. To me, they do not satisfy the claims of four layers within the coating.

Q. What are you showing here on slide 194?

A. Well, this is the micrograph presented for the Toyota reinforcement.

Once again, it's my contention that these represent separate islands of phases; once again, not satisfying the requirements of the patent claims.

Q. What are you showing here on slide 195?

A. This is the SEM presented for the Chrysler door ring. We see a little bit more continuity in this image. We still have isolated islands.

On the right-hand side, we have a loss of material, which prevents one from forming any conclusion about what may exist in that area of the micrograph. So I consider this to be -- that image to be inadequate to demonstrating that that material meets the claims of the patent.

Q. What are you showing here on slide 196?

A. Well, on slide 196, this is the Volkswagen image, and my difficulty with this image is just its ambiguity.

If you look at the right-hand side, there's just a large amount of missing material, which I think prevents one forming a conclusion either way.

I mean, I have admitted that if you have a void --

MR. LAMAGNA: Objection. Objection.

JUDGE BHATTACHARYYA: Sorry. There's -- I believe there's an objection.

MR. LAMAGNA: Yeah. Outside the scope of his report.

There isn't any foundation in his report for the

concept that there's missing material.

JUDGE BHATTACHARYYA: Ms. Park.

MS. PARK: Your Honor, on slide of this -- I apologize.

Let me put up the... starting on Paragraph 6 of his report, he talks about why he believes Dr. Fekete's analysis of -- the images from Volkswagen do not meet the claimed layers. Here on page 6, he has this exact image.

MR. LAMAGNA: Yes, he does have that image, and he does make that conclusory statement.

He doesn't provide any opinion about missing materials. We don't see the words "missing materials" or any opinions about alleged missing materials in his report.

JUDGE BHATTACHARYYA: Could you please put the -- put that report back up. Then could you turn back a page, please.

MS. PARK: Your Honor, he also discussed in his depo how there's certain large voids. If there's a large void, you can't tell what's in that large void.

So he definitely talked about the missing materials, and how that plays into his analysis of the claimed four-layer structure.

JUDGE BHATTACHARYYA: Could you show me that deposition testimony, please.

MR. LAMAGNA: We would contend, Your Honor, that

that testimony was not only not in this context, but actually, it goes the other direction. He discusses how voids or cracks that can naturally occur in the product do not affect continuity.

JUDGE BHATTACHARYYA: Ms. Park, why don't we move on. At the current time, the last question and answer are stricken.

You can move back to that issue. We'll take a break, and then we can -- if you show me any deposition testimony you think supports your view, and reask the question depending on what the ruling is.

MS. PARK: Yes, Your Honor.

BY MS. PARK:

Q. Turning to slide 197, what are you showing here?

A. This is a micrograph for a Volkswagen part presented by Dr. Fekete. Once again, I just point out that the phase indicated by the number 3 has these isolated islands, and therefore, it's my contention that --

MR. LAMAGNA: Objection, Your Honor. Outside the scope again. He does not in his report talk about either layer 3 or any particular aspects of the image.

MS. PARK: We're in the same report.

JUDGE BHATTACHARYYA: All right.

MS. PARK: Where he starts talking about why he believes the layers are not present, and this same image is

on page 5 of his report.

MR. LAMAGNA: Yes. So we have again a statement, a conclusory statement at the beginning that says the cracks are not continuous and -- or I'm sorry, that the layers are not continuous and homogeneous without specifically identifying layers, and then a series of pictures.

We don't have any drill-down or any of the opinions that are coming from the witness now, which is why we would move to strike.

JUDGE BHATTACHARYYA: Understood.

Why don't we take a 15-minute break now, and we'll come back and I'll provide a ruling are on that issue.

MS. PARK: Thank you, Your Honor.

(A recess was taken at 10:39 a.m., after which the hearing resumed at 10:55 a.m.)

JUDGE BHATTACHARYYA: Please be seated.

We had an objection on the record with respect to Dr. Brown's testimony about isolated islands. That objection is overruled in view of the disclosures in Dr. Brown's report, including Paragraphs 38 to 45 of his initial expert report where he explains what not homogenous and continuous means.

With that objection overruled, we can proceed.

MR. LAMAGNA: Thank you.

MS. PARK: Thank you, Your Honor.

As to slide 196 about voids, we have his deposition transcript here where he explains when the void is large, and it disrupts different phases, he would consider that loss of continuity, which is more severe than a crack or a simple void.

JUDGE BHATTACHARYYA: Mr. LaMagna, could you respond to this?

MR. LAMAGNA: I'm sorry, if I'm not following. I believe you overruled my objection.

JUDGE BHATTACHARYYA: I overruled the objection regarding islands. I think this is going to the issue of whether the missing void can be discussed in relation to non-homogenous and not continuous.

MR. LAMAGNA: Understood, Your Honor.

Again, I think there's testimony here as well where he says that the voids can be of, shall we say, an uneventful nature.

The challenge here is that in his report, he doesn't call balls and strikes on this image to determine whether or not a void is either substantial, as he's describing here or one to be expected to be found. That's not in his report.

JUDGE BHATTACHARYYA: Thank you.

In view of the deposition testimony, that objection is also overruled. You can explore the issue you just discussed on cross-examination.

MR. LAMAGNA: Thank you, Your Honor.

MS. PARK: Your Honor.

BY MS. PARK:

Q. So on slide 196, what are you showing here, Dr. Brown?

A. This is a micrograph from a Volkswagen part, and the point that I made before the break was that the large absence of material on the right-hand side prevents one from making a conclusion one way or another.

Q. What is your opinion on whether the claimed layers here?

A. I would claim that it's not possible to -- sorry, let me rephrase that.

I would contend that it's not possible to say whether that image meets the claims.

Q. So it's your view that it does not meet the claim?

A. Correct.

Q. Turning to slide 197, what are you showing here?

A. This is another Volkswagen part, and my comment here is that we once again, we see these isolated islands, which to me, indicates that this particular microstructure

does not meet the claims of the patents.

Q. Turning to slide 198, what are you showing here?

A. This is another micrograph from a Volkswagen part presented by Dr. Fekete.

Once again, we see these isolated islands, which to me, indicates that the -- this illustrated coating does not meet the claims.

Q. Turning to slide 199, did you rely on any other testings to form your opinion?

A. Yes.

I also relied upon the testing of Dr. Bradley on some tech DI products.

Q. What are you showing here on the slide for Chrysler door ring?

A. These are two images taken by Dr. Bradley. Once again, you can see through these images, we see these isolated phases not meeting the claims of the two patents.

Q. What are you showing here on slide 200?

A. These are additional images that were obtained by Dr. Bradley using scanning electron microscopy, again, demonstrating microstructures, which are isolated phases, not meeting the claims of the two patents.

Q. Turning to slide 201, what are you showing here regarding the Honda Odyssey, GM, and Tesla door ring?

A. These are, again, additional micrographs for the

Honda Odyssey, the GM T1XX, and the Tesla door ring.

Again, one sees isolated phases, which do not meet the claims of either patent.

Q. On slide 202, what are you showing here about the Volkswagen parts?

A. These are images from two Volkswagen parts, and we see through these coating microstructures. Once again, isolated phases, not meeting the claims of either patent.

Q. What are you showing here on slide 203?

A. So we're coming back to my same shorthand, which just indicates that for Claim 1 of the '602 patent, the tech DI products don't meet the requirements of an intermediate, intermetallic, and superficial layer, and therefore, Claim 1 is not satisfied.

Q. Based on this, what is your opinion of all of the independent claims of the '602 and '227 patents that require the intermediate, intermetallic, and superficial layers?

A. Well, this would apply to all of the independent claims.

So in each case, the independent claims are not satisfied.

Q. Let's move on to the dependent claims.

What are you showing here regarding Claim 2?

A. Well, the '602 patent, Claim 2, states that

layers (c) and (d) are quasi-continuous by occupying at least 90 percent of a level corresponding to each of the layers (c) and (d). Wherein, less than 10 percent of layer (c) is present at an extreme surface of the product.

I've just illustrated boxes where we see on the extreme surface the lighter phase is occupying more than 10 percent of the free surface of the product.

I would also state that if you look at the lighter phase, that doesn't occupy 90 percent of a level, either.

So I would say that for this product, Claim 2 is not satisfied.

Q. What are you showing here on slide 205?

A. This is a similar image highlighted in the same way, that we see the lighter phase sitting on the surface of the coating, again, occupying more than 90 -- more than 10 percent, excuse me, of the free surface, again, not satisfying Claim 2.

Q. Turning to slide 206, what are you showing here regarding Claims 7 and 8?

A. Claims 7 and 8, we turn back to this required ratio of titanium to nitrogen. Just for this particular product, the composition of titanium and nitrogen aren't provided, so we can't know whether this material or this part, satisfies these claims or not.

Q. When you say "this particular product," what are you highlighting on this slide?

A. The Toyota reinforcement.

Q. Turning to slide 207, what are you showing here regarding Claim 10?

A. For Claim 10, which requires that layer (a) have a thickness less than 10 microns. For the Tesla door arm, Dr. Fekete reports a result, which provides a layer (a) have a thickness greater than 10 microns.

So for this dependent claim and for this product, the dependant claim is not satisfied.

Q. Turning to slide 208, what are you showing here regarding Claim 10 of the '227 patent?

A. Claim 10 claims that layer (a) has to have a thickness that is greater than the thickness of layer (d).

For these two products, the thickness of layer (a) is less than the thickness of layer (d).

So for this dependent claim in these two products, the dependent claim is not satisfied.

Q. What are the two products?

A. The Honda Odyssey A-Pillar and the Toyota reinforcement.

Q. Turning to slide 209, what are you showing here regarding Claim 13?

A. Claim 13 requires that layer (a) have a

thickness that is more than twice that of layer (c).

For the Toyota reinforcement for this dependent claim, it is not satisfied because 5.04 is not twice that of 3.3.

Q. Turning to slide 210, what are you showing here regarding Claims 16 and 17?

A. Well, these are two claims, which require certain ranges of composition, and I put up -- point out for the Toyota reinforcement in this table, certain elements are just not provided, so we can't tell whether or not they're satisfied or not.

Then for the Chrysler door ring, the concentration of boron does not fall within the ranges of boron specified in Claim 17.

So for the Chrysler door ring, for the boron concentration, the claim is not satisfied.

Q. For the Toyota reinforcement, which chemical elements are missing as composition?

A. Well, that would be titanium, boron, iron, and nitrogen.

Q. Turning to slide 211, could you please summarize your opinion?

A. Yes.

So we've gone through these claims for different components, so I just summarize them here in terms of some

do not meet certain dependent claims. All do not meet the independent claims, and therefore, it's my contention that the tech DI products do not infringe.

Q. Turning to slide 212, what is your opinion on invalidity based on Complainant's domestic industry analysis?

A. It's my opinion that the Complainant's domestic industry analysis does not show that they -- that the DI tech industry exists.

Q. Do you have an invalidity opinion based on Complainant's domestic industry analysis?

A. I do, and we can step through these.

Q. What is your opinion?

A. That they are invalid based on that analysis.

Q. Turning to slide 213, let's reset ourselves. What are you showing here on this slide?

A. So we're just -- for perspective, just coming back to the flowchart that we've discussed earlier.

Q. Turning to slide 214, what are you highlighting here on this slide?

A. This is Figure 7 from the specification of both patents. And this figure sets up recommended processing additions in the furnace for two variables. One is temperature, and the other is dwell time in the furnace.

There are two areas, one more steel thicknesses

between .7 and 1.5 millimeters, and then another one for 1.5 to 3 millimeters.

I have highlighted both of those.

Q. What are you showing on the left side of the screen?

A. And those, I have translated the language on the right-hand side, and just highlighted the same space, the processing space on Figure 7.

Q. Turning to slide 215, what are you showing here?

A. This is, again, an extraction of the prior art that we have seen before.

This is the work of Kefferstein from Arcelor Auto where he specifies processing conditions for a steel sheet of thickness 1.5 millimeters, and again, furnace conditions for a dwell time between 4 and 10 minutes at a temperature range from 900 to 950 Celsius.

Q. Turning to slide 216, what are you showing on this plot?

A. What I'm showing here is, in the same scale that exists in Figure 7, that processing window provided by Kefferstein.

So it is 4 to 10 minutes on the horizontal axis, 900 to 950 Celsius on the vertical axis, which defines a rectangle of temperature and time.

Q. What is the thickness disclosed?

A. The thickness is 1.5 millimeters.

Q. How does that compare to what was disclosed in Figure 7?

A. Figure 7 provides two processing windows where 1.5 sits in both.

Q. Turning to slide 217, what are you showing here?

A. 217, I've just superimposed that rectangle on the areas indicated in Figure 7 of the patent.

We can see, in this case, there's substantial overlap between the prior art, indicated by Kefferstein, and what's shown in the patent.

MS. PARK: Your Honor, we'll have to go on to the confidential record at this time. It's all-party confidential information.

JUDGE BHATTACHARYYA: We're moving on to the all-parties confidential record.

May we proceed from Complainant's side?

MR. LAMAGNA: Yes, Your Honor.

JUDGE BHATTACHARYYA: Okay. Thanks.

(Whereupon, the trial proceeded in confidential session.)

O P E N S E S S I O N

CROSS-EXAMINATION

BY MR. LAMAGNA:

Q. Hello, Dr. Brown, and thank you.

I'm counsel for ArcelorMittal, and we have a few questions for you.

You testified at some length regarding the state of the art walking through multiple references earlier.

Do you recall that?

A. Yes.

Q. So the state of the art at the time, and in particular, the references you walked us through, informed your invalidity analysis in this case; correct?

A. Correct.

Q. Now, to start, every printed publication that you cite as a basis for invalidity was in front of and considered by the patent examiner during prosecution of the asserted patents; correct?

A. Yes. That's my understanding.

Q. So, for example, Cornette -- just put this up here -- you agree, correct, you recognize that Cornette was on the face of the patent, provided to the examiner, considered by the examiner; correct?

A. Yes.

Q. Likewise, the reference that you rely on,

Lachmann, was also in front of the examiner at the time; correct?

A. Yes.

Q. That's down here, I believe.

That's the Lachmann reference?

A. I believe so.

Q. For the record, I'm showing you, just as an example, JX-001, which is the '227 patent, but you understand that the same would apply to the '602 patent, JX-0002; correct?

A. I believe so. I haven't done that comparison, but I suspect it's true.

Q. As a matter of fact, every piece of supposed printed prior art that you discuss in your testimony concerning the state of the art was also before the examiner during the prosecution of the asserted claims; correct?

A. Yes.

Q. So, for example, on the face of the patent, we see the Engels reference that you discussed; correct?

A. Yes.

Q. We see the Laurent and Takagi patents also?

A. Yes.

Q. I think you referred to Vaissiere?

A. Yes.

Q. Or Vaissiere. My French is regrettably poor given that I'm representing a company that has operations also in France.

I think you pointed out the GM1440 document -- I'm sorry, GMW14400 document as well; correct?

A. Yes.

Q. That's here; is that correct?

A. Yes.

Q. Lastly, we also had your discussion on Hein, which is also present here; correct?

A. Yes.

Q. Now, the primary examiner on both of the asserted patents is Daniel Schleis; is that correct?

A. Okay.

Q. I will just show you here where it says on the face of JX-002, the '227 patent, that the primary examiner was Daniel Schleis.

Do you see that?

A. Agreed.

Q. Do you disagree that Mr. Schleis was also the examiner on the '602 patent?

A. No.

Q. Just for the record, I can show that to you here on JX-0002 as well.

Do you see that?

A. Yes.
Q. Now, you do not have any reason to believe that Examiner Schleis is not well-versed in the field of the art of the '227 or '602 patents; correct?
A. I cannot offer an opinion either way. I do not know him.
Q. You have no basis to impugn Examiner Schleis's capabilities as it a patent examiner, his knowledge of the art or his knowledge of patent law; correct?
A. I agree.
Q. You do not view yourself as more experienced in evaluating patentability in this field than Examiner Schleis; correct?
A. Sorry. You said that very quickly. Can you say it again.
Q. You do not view yourself as more experienced in evaluating patentability in this field than Examiner Schleis; correct?
A. Well, I think I would come back to the point that I don't know Mr. Schleis, so I can't offer an opinion.
Q. But you have -- it would be fair to say that you have no basis to think that you have more experience in evaluating the patentability of claims related to aluminum alloy-coated steel than Examiner Schleis; correct?
A. I can't say either way. I agree.

Q. Now, your current job affiliation is with Veryst Engineering; right?
A. Correct.
Q. Veryst Engineering is an engineering consulting firm in Boston; correct?
A. Yes.
Q. You haven't had another job since 2005, other than working through Veryst Engineering; correct?
A. Correct.
Q. And Veryst doesn't operate, own, or oversee any hot-stamping equipment; correct?
A. No.
Q. As in no, they don't, or no, it's not correct?
A. We do not.
Q. When I say -- and since -- sorry. Restart.
Since 2005, neither you nor Veryst has been involved in offering or setting hot-stamping parameters or requirements for anyone; correct?
A. With only the clarification, we have done hot forming, but not hot-stamping. So in other forms, but not in sheet form.
Q. So by hot forming, you mean deforming base steel; correct?
A. Well, deforming it at high temperatures.
Q. Right.

But you have not -- Veryst has not been involved in offering or setting hot-stamping parameters or requirements for hot forming any aluminum-coated steel; correct?

A. That's right.

Q. Now, when I say hot-stamping parameters or requirements, you understand that would include things like the heating rate, the temperature, holding time, stamping or contacting time, cooling rate, cooling time, those kinds of parameters; right?

A. Correct.

Q. Now, before Veryst, you worked at Exponent from 1995 to 2005; correct?

A. That's right.

Q. When you were working at Exponent, you did not -- that work did not involve aluminum alloy-coated steel; correct?

A. No. It did not.

Q. When you worked at Exponent, you were not designing or determining or setting standards for hot-stamping steel; correct?

A. That's right.

Q. Before Exponent, you were at MIT; right?

A. Yes.

Q. Your research at MIT did not involve aluminum

alloy-coated steel; right?

A. No. As I said in my deposition, it was more fundamental than that. It was sort of the hot processing of steel and aluminum and other alloys, but not specifically for a hot-stamped aluminum-coated sheet.

Q. So again, it's fair to say that your research at MIT did not involve aluminum-coated alloy steel; correct?

A. Not directly, no.

Q. Before work being at MIT, you were working on your PhD; correct?

A. Well, I was at MIT at the time, but yes, I was not a member of the faculty.

Q. You got your PhD at MIT as well -- is that --

A. I did.

Q. With respect to your PhD, your master's, or your bachelor's degree, you didn't specifically conduct research or work with aluminum alloy-coated steel; correct?

A. Again, with the stipulation, the work we did was more fundamental. It was not specific to a given product. So if we limit it just to aluminum-coated hot-stamped steel, the answer is, no, we did not.

Q. During your educational work on your PhD, master's, or bachelor's, you were not setting the parameters or determining the settings or requirements for any hot-stamping processes; correct?

A. That's right.
Q. It would be fair to say that you wouldn't be setting the parameters or determinations or requirements during your educational work for any hot-stamping or for any aluminum coatings that would go onto hot-stamping -- onto hot-stamped steel products; correct?
A. Correct.
Q. During your time at MIT or Exponent, you also worked with some aluminum or steel manufacturers; correct?
A. Yes.
Q. I think you testified at the beginning that -- of your testimony that you had done some work for steel or aluminum companies; correct?
A. Yes.
Q. But your work with steel or aluminum producers in the past did not involve aluminum alloy-coated steel; correct?
A. No. I don't think we did anything on that product.
Q. Now, you have presented papers at, for example, the American Society of Mechanical Engineers International Mechanical Engineering Congress; correct?
A. I don't keep a list of my conference presentations. So technical conferences, certainly. So the best I can say is probably.

Q. Okay. I guess I should say that slower for both the reporter, and -- it's a lot of words.

But I was just asking if you recall presenting papers for the American Society of Mechanical Engineers International Mechanical Engineering Congress.

A. And again, probably.

Q. Do you recall presenting a paper in November 2015 at the Congress in Houston that year?

A. No.

Q. Okay.

Do you recall whether or not you attended that Congress?

A. No.

Q. Let's talk about your view of the importance of what a person of ordinary skill in the art of these patents would have understood at the time.

Your conclusion on anticipation is based on your opinion that persons of skill in the art would have understood that the art you cite teaches the elements of the various asserted claims; correct?

A. Sorry. Could you say that again.

Q. Your conclusion on anticipation is based on your opinion that persons of skill in the art would have understood that the art you cite teaches the elements of the various asserted claims; correct?

A. Yes.

Q. Your conclusion on obviousness is based on your opinion that persons of skill in the art would have been motivated to and found it obvious to combine various teachings in the prior art to achieve what the asserted patents claim; correct?

A. Yes.

Q. Now, in your view, a person of ordinary skill in the art of the accused patents would, to start, have an undergraduate degree in manufacturing or mechanical engineering, material science or some equivalent; correct?

A. Now, I don't recall the precise language, but if that's what I quote, I agree.

Q. In your view of a person of skill in the art would also then have two years of experience working in metallurgy; correct?

A. Yes.

Q. You don't narrow or specify any specific types of metallurgical experience that would qualify someone to be a person of skill in the art of the accused patents; correct?

A. Yes. Meaning, I agree.

Q. For example, if a steel worker at a plant had an undergraduate degree in mechanical engineering and two years of experience working the line where they're melting

and forming steel slabs, they would qualify as a person of skill in the art, in your view, with respect to the asserted patents; correct?

A. Yes.

Q. Now, the asserted patents relate to aluminum alloy-coated steel requiring very specific layered microstructures that result from hot-stamping; correct?

A. Yes.

Q. You were in the room when counsel for VinFast described these as half the thickness of a human hair. That's the very delicate provision that we're talking about in these layers; is that correct?

A. Yes.

Q. You would agree that specific expertise and experience would be needed to obtain the required microstructural layers claimed in the patents that are just collectively half the height of a human hair's thickness?

A. I'm not sure I agree with that, with the beginning of the sentence.

The question, can you say that again.

Q. Well, would you agree, or not, that specific expertise and experience would be needed to obtain the required microstructural layers claimed in the patents?

A. So my difficulty with that question is that if you look at the prior art, those microstructures develop --

I'm looking for the right adjective -- adverb, ubiquitously, meaning if you look at all of the prior art, they all disclose this four-layer structure.

So the question is, does someone need specialized expertise to produce those layers, given the product -- you know, if they're provided that product and the processing conditions. I'm not sure that's true.

The fact that it's thin, I acknowledge, but I don't think that plays any role in the determination of expertise.

Q. Just to clarify, I'm not talking about generically obtaining a four-layer structure. I'm talking about specifically obtaining the required microstructural layers that are defined in the patent.

Do you understand that?

A. No, I don't.

Q. Well, in other words, my question is -- well, let me rephrase it.

You disagree, it is your opinion that specific expertise and experience is not needed to obtain the four layers, specific microstructural requirements that are claimed in the patents; correct?

A. So this may not be a complete answer, but I think someone of ordinary skill to take the Usibor pre-coated product, and generate four-layer structure,

which satisfies the claims of the patent without specialized expertise.

Q. We're talking about before the patent's priority, so we're talking about back in early -- earlier 2005, 2004, 2003, your testimony is that it wouldn't require any specific expertise or experience to obtain the four-layer structure required in the patents?

A. Yes. That's my opinion.

Q. Okay.

So just to be clear, in your opinion, a person of skill in the art of the asserted patents does not need example with aluminum alloy-coated steel or experience with designing, you know, a hot-stamping parameters to obtain specific microstructural requirements in order to obtain the elements that are claimed in the patents; correct?

A. Correct.

Q. In fact, during your career in education, you have not yourself worked with hot-stamped aluminum alloy-coated steel; right?

A. That's right.

Q. During your career in education, you have not been involved in setting or determining hot-stamping parameters for aluminum alloy-coated steel; correct?

A. That's right.

Q. You have -- nor have you operated or overseen

the operation of hot-stamping steel that is coated with aluminum alloy; correct?

A. Correct.

Q. You have never been involved in setting or determining the characteristics or requirements for the steel itself that is coated with aluminum -- that is to be coated with aluminum alloy or coated with aluminum alloy; correct?

A. Long question.

Could you say it again.

Q. You have never been involved in setting or determining the characteristics or requirements for steel that is coated with aluminum alloy, or to be coated with aluminum alloy; correct?

A. That's right.

Q. Nor have you worked on, or set, or determined the characteristics or requirements for aluminum alloy coating for the purposes of coating steel; correct?

A. That's right.

Q. You have not been involved in setting the characteristics or requirements for aluminum alloy coatings on steel after they've been hot-stamped; correct?

A. Sorry. Can I have the question again?

Q. You have not been involved in setting the characteristics or requirements for aluminum alloy coatings

on steel after they have been hot-stamped?

A. That's right.

Q. During your career in education, you have not worked on or researched the formation of intermetallics in aluminum alloy coatings on steel that has been hot-stamped; correct?

A. That's right.

Q. During your career in education, you have not worked on or researched the formation of different layers during the hot-stamping process of aluminum alloy coatings that are on steel; correct?

A. Correct.

Q. Now, let's talk about another reference you rely on, which is Cornette. That is RX-0019.

Do you recall that?

A. Yes.

Q. Now, as we spoke about earlier, you know that Cornette was before the examiner during prosecution of both asserted patents; correct?

A. Yes.

Q. You know that POSCO is the company that provides the unlicensed steel to VinFast that is at issue in this case; correct?

A. Yes.

Q. Are you aware that POSCO cited Cornette to the

Patent Office in challenging the asserted patent's parent?

A. No.

Q. So you were not aware that POSCO's challenge cited Cornette -- well, strike that.

Are you aware that there was a challenge to the Patent Office in an IPR, citing Cornette that was then expressly cited and addressed with the patent examiner -- with patent Examiner Schleis, during prosecution of the claims that are asserted in this case?

A. No.

Q. You are aware, though, that whatever happened in prosecution, regardless of whether you know about it, the examiner then expressly allowed the asserted claims; right?

A. Sorry. You said that too quickly.

Q. Sorry.

Did you review the prosecution histories for the two asserted patents?

A. I did, but I'll confess, I do not recall them.

Q. So you don't recall the specific back-and-forth of the various office actions and responses that were part of the prosecution history in this family?

A. I do not.

Q. Did the prosecution history, your analysis of the office action -- or strike that.

Did your review of the prosecution history

inform your invalidity or noninfringement opinions in this case?

A. No.

Q. Now, another one of the grounds for alleging invalidity that you raise is the 2006 Passat; correct?

A. Correct.

Q. And the Passat is the only non-printed, alleged prior art that you rely on; correct?

A. You mean, as a physical product?

Q. Right.

Something that isn't a piece of paper or printed publication, patent, that sort of thing?

A. That's right.

Q. Specifically, you are alleging that the B-Pillar in the Passat anticipates or renders obvious the asserted patents; correct?

A. Yes.

Q. How big is a B-Pillar for a passenger car like a Passat?

A. I'm estimating sitting here, but I would say more than 3 feet, less than 5.

Q. Do you have a sense of how heavy it is?

A. No. I'd be guessing.

Q. Now, VinFast could have brought the Passat B-Pillar here to the hearing; correct?

You're not saying that the asserted B-Pillar couldn't have been shipped here; correct?

A. No.

Q. Your opinion that the Passat B-Pillar invalidates the asserted patents relies on Dr. Bradley's testing; correct?

A. Yes.

Q. You were not involved with coming up with the testing protocol that Dr. Bradley used for any testing in this case; is that correct?

A. That's right.

Q. You were not involved in the process by which the samples tested in this case were selected; correct?

A. That's right.

Q. You were not involved in the process by which the samples in this case were collected, prepared, and then subsequently tested; correct?

A. That's right.

Q. You were not involved in selecting or providing any guidance for where on a given part the sample or blank should be extracted from for testing; correct?

A. That's right.

Q. So you were not involved in determining where on the Passat B-Pillar the testing coupons were taken from; right?

A. Correct.
Q. You didn't inspect the 2006 Passat before it was torn down; is that correct?
A. Correct.
Q. You never talked to the person who tore down the Passat, and supposedly extracted the B-Pillar; is that right?
A. No.
Q. That's not right, you did speak to the person?
A. I did.
Q. Okay.
You didn't yourself inspect the parts or the samples that were taken from the Passat; is that correct?
A. No.
Q. Okay.
What did you -- did you inspect the B-Pillar itself?
A. Yes.
Q. When did you inspect the B-Pillar?
A. I traveled out to Detroit on the 24th or 25th of last month, and looked at the Passat, and the B-Pillar from which samples had been extracted.
Q. That was after your deposition in this case; is that correct?
A. It was.

Q. Now, talking about B-Pillars, in addition to welding different components together for a part, it is potentially the case that certain hot-stamped parts can be subject to additional heat treatment after hot-stamping for some region of the part, and that could cause differences in that region; correct?

A. Well, that's a very generic statement, but given a generic question, I think I'd have to answer, yes, that's possible.

Q. Do you remember being deposed in this case?

A. Yes.

Q. Do you remember providing, as an example of when that happens, that -- that is -- that differential heat treatment is often done in B-Pillars?

A. Well, I don't think I said it was "often done," but I said it could happen.

Q. You agree that for a B-Pillar, there is an effort in the B-Pillar to vary the products throughout the part; correct?

A. No. I think that's too broad.

I think that there are certainly circumstances where one varies the properties in the B-Pillar spatially, but I can't say that's generic or across all vehicles.

Q. Do you remember testifying at your deposition, and I'll quote, "For a B-Pillar, there is an effort in the

B-Pillar to vary the properties throughout the part."

A. That may be an extraction from my deposition which requires more content on either side.

Can you show me the page where I say that.

Q. Sure.

Mr. Smith, could you pull up CX-20 at 66, lines 15 to the bottom of the page.

Here, I ask you, "Which processing condition would you need to know to confirm that what one is looking at in an SEM image, constitutes one or more of the layers required by the asserted patent claims?"

And you respond, "Well, this sort of gets into the details of the processing, but for example, when I look at the literature, for example, for a B-Pillar, there is an effort in the B-Pillar to vary the properties throughout the," and I think we go to the next line, and you can see, "the part."

That's your testimony; correct?

A. Yes --

Q. Yes or no?

A. -- but later in my deposition, you see that --

MR. LAMAGNA: Move to strike as nonresponsive, Your Honor.

BY MR. LAMAGNA:

Q. I'm asking you yes or no, if that's your

testimony.

A. I'd like to provide more context, but I said yes.

Q. Thank you.

You are not aware, though, of any other parts in this case that may be subject to differential heat treatment for a region of the part other than the B-Pillar?

A. No, I don't know either way.

Q. Now, you rely on an image taken from the Passat to show the alleged four-layer structure of the B-Pillar's aluminum alloy coating for the patent claims; correct?

A. Yes.

Q. Let's pull up your slide 60, RDX-002.60.

This is the image that we just mentioned, the SEM?

A. Yes. I see it.

Q. Now, you cite Exhibit RX-0086 as the source of this SEM image; correct?

A. Is that the Bradley report?

Q. Yes. And I'm looking at the lower corner. I see a citation to an exhibit on your slide 60; is that correct?

A. Yes.

Q. Now, do you know which Passat testing coupon this SEM is taken from?

A. In here, no, I don't know.
Q. But this is the SEM that you contend shows the alleged four-layer structure in the Passat B-Pillar's aluminum coating that meets the asserted patent claims, in your view; correct?
A. Yes.
Q. Let's just go through two more slides here.
If we look at your slide 59 -- if we go back one slide, please -- you see you rely on that same image for Claim 1(a); is that correct?
A. Yes.
Q. You rely on the image from -- let's go ahead a couple of slides to slide 62.
You rely on RDX-0086 as well to prove Claim 1(c); correct?
A. Yes.
Q. If we go to the next slide, slide 63.
You rely on RX-0086 to prove Claim 1(d) as well; correct?
A. Yes.
Q. Let's go to the next slide, slide 64.
You rely on RX-0086 for Claim 1(e) as well; correct?
A. Yes.
Q. And let's go to slide 65.

You also rely on RX-0086 for Claim 1(f); correct?

A. Yes.

Q. Lastly, if we go to slide 66, you rely on RX-0086 for Claim 1(g) as well; right?

A. Yes.

Q. And you also rely on this same RX-0086 for the corresponding elements that are in the '227 patent, correct, they're essentially similar elements?

A. Yes.

Q. Now, let's go back to slide 61.

You see here that there is a line scan that you are relying on on slide 61?

A. Yes.

Q. And you're relying on this for elements of, at least here, Claim 1(b); correct?

A. Yes.

Q. Did this line scan on your slide 61 come from the same section of coating that is imaged on slide 60 from RX-0086?

A. I don't recall.

Q. Okay.

So you can't testify one way or another on whether the line scan on slide 61 came from the same section of coating that is imaged in Exhibit RX-0086;

correct?

A. Yeah. I mean, this line scan was just used to demonstrate interdiffusion, so I think that would be sufficient, but I can't say whether that was from a line scan on that particular cross-section.

Q. Now, you testified that the heating rate is key in this case.

Do you recall that?

A. No. No, I said that Dr. Drillet claims the heating rate is key.

Q. All right. You point out that Dr. Drillet agreed that the heating rate is key, is a key parameter.

Do you recall that?

A. Yes. I believe that's his opinion.

Q. Now, the data and test results that you were given from Dr. Bradley did not disclose the hot-stamping parameters and specifications for the Passat; correct?

A. That's right.

Q. Dr. Bradley did not identify, and we do not know the heating temperature, heating rate, heating time, holding time, cooling rate, forming temperature, none of that is known for the product samples that came with respect to the Passat; correct?

A. That's right.

Q. Let's take a look at another reference you rely

on in your invalidity analysis, which is Lachmann. I believe that's Exhibit RX-0062.

Do you recall this reference?

A. Yes.

Q. Actually, let's look over to your slides again, at slide 56. That's RDX-002 slide 56.

You say at the top of this slide, "Multiple publications that confirm hot-stamping Usibor for Passat/Volkswagen."

Do you see that?

A. Yes.

Q. Over on the right-hand side, you have an image taken from Lachmann; correct?

A. Yes.

Q. Are you suggesting here that Volkswagen used process parameters shown in Lachmann to make parts for the Passat?

A. No.

Q. Okay.

You'd agree that nothing on the face of Lachmann's presentation says that any process parameter stated there were used to manufacture parts for the 2006 Passat; correct?

A. That's right.

Q. You would agree that there are no documents or

testimony in this case that state that the process parameters from Lachmann were used to manufacture parts for the 2006 Passat; correct?

A. The only pause I have here is the Lachmann presentation is very long. Most of it is in German, so I don't want to say correct if he actually does disclose Passat. I don't know.

Q. In other words, you're not aware of it or relying on that as evidence in this case; correct?

A. That's right.

Q. You are not opining that the processes or parameters in Lachmann were used in manufacturing the prior art that you've asserted with respect to the Passat; correct?

A. That's right.

Q. Now, regardless, to your knowledge, Lachmann does not disclose any heating rate or heating curve; correct?

A. That's right. He doesn't provide any heating rate.

Q. To your knowledge, Lachmann does not even disclose the pre-coating thickness for the product that's shown; correct?

A. For the pre-coated state, the pre-coated condition?

Q. Yes.
A. No, he does not.
Q. And --
A. Well, I'm sorry. Once again, I wasn't looking specifically for that, so I don't -- to say that he doesn't, I think a better answer is I don't know.
Q. Would it be fair to say that you didn't review all of Lachmann, only a few specific translated pages, correct, much of it is in German; correct?
A. No, no. I'm saying that I didn't review Lachmann specifically to look for the thickness of the pre-coating.
Q. Okay.
A. I did look through Lachmann, translate some pages, but specifically on that topic, I did not.
Q. You also don't know whether or not Lachmann discloses any dwell times or contact times; correct?
A. Wait. Say that again.
Q. Well, Lachmann does not disclose, for the product shown, any dwell times during hot-stamping or contact times in the hot-stamping process; correct?
It doesn't disclose those parameters?
A. Well, he provides dwell time on this chart, but I'm not saying that he provides this for the Passat.
Oh, no. I'm sorry. No, you're absolutely

right. Excuse me.

He provides temperatures. He does not provide dwell time. Yes.

Q. So, in other words, but you did not review Lachmann to determine which processing parameters or characteristics Lachmann does or does not disclose; correct?

A. No, I did go through Lachmann to see because I was curious about the fact that he did not provide dwell times, and I could not find dwell times.

Q. Okay. Let's look at the Takagi reference, which is RX-104.

Now, in your view, Takagi exemplifies the understanding of the state of the art before the invention of the asserted patents; correct?

A. Yes.

Q. Let's take a look at Paragraph 19 of Takagi, for example.

Unfortunately, in blowing it up, it's a little challenging to read, but do you see that as Paragraph 19 of Takagi?

A. I do.

Q. In the first sentence of Takagi, Paragraph 19, the author writes, "The mechanism of formation of the layered structure is not fully evident"; correct?

A. Yes.

Q. So you understand that the state of the art prior to the invention of the asserted patents was that persons of skill in the art did not understand the mechanism of formation of the layered structure in hot-stamped aluminum alloy coatings; correct?

A. Well, once again, I think that's too broad a statement.

But for Takagi, specifically, I think it does disclose that the actual material science mechanism of how one forms that layered structure is -- and I don't know how you interpret not fully evident, but -- and I'm not going to interpret what he means, but I think he states that that mechanism is not fully evident.

Q. So yes or no, when you testified earlier about the state of the art at the time, you did not mention that according to the references you rely on, the mechanism of formation of the layered structure in hot-stamped aluminum coating was not fully evident at the time; correct? You didn't tell us that; correct?

A. No, I did not specifically say that.

Q. Now, in your view, the heating rate, heating time, holding time and quenching rate during hot-stamping are all process conditions that affect the result of the hot-stamped aluminum alloy coating; correct?

A. So -- you gave a list. Can you give me the list again.

Q. I'll just reread the question.

In your view, the heating rate, the heating time, holding time, and quenching rate during hot-stamping are all process conditions that affect the result of the hot-stamped, aluminum alloy-coated steel; correct?

A. Well, the difficulty I have with the question is that we know that Dr. Drillet has said that those parameters are important. I think in my deposition, I stated that I think it's not clear that how each one of those parameters affect the formation of the coating, because there hasn't been a good description in any document I've seen, other than to say that it has an influence, how that influence imposes itself, how those process conditions impose themselves in terms of forming a microstructure in the coating.

Because we've seen that it's possible to form coatings which don't have that microstructure.

And I think that there is according to the literature that I've seen, not a clear consensus in terms of precisely what set of conditions are required to produce that specific microstructure because we see that sometimes it occurs and sometimes it doesn't.

I mean, that's part of my difficulty with

representative analysis because -- it's a double issue because we don't know exactly how those mechanisms influence the coating, and two, to begin with, we don't know what those process parameters are to begin with.

Q. In your view, you cannot determine whether or not the claimed layers required in the patents are present unless you know the processing conditions for a hot-stamped part; correct?

A. No.

Q. Do you recall in your deposition when I asked you that same question, but you answered it the opposite way?

A. No, I don't.

Q. Mr. Smith, could we pull up CX-0020, page 66, line 10 through 14.

In your deposition, I asked, "So, in your view, you cannot determine whether one or more of the claimed layers in the patents is present unless you know the processing conditions for the part; correct?"

And you answered, "Correct."

That was your testimony, right, sir, yes or no?

A. It is.

Q. Let's talk more about the references that you contend reflect the state of the art at the time of the invention in 2005.

For example, one of the references you rely on in discussing the alleged state of the art at the time is Engels, that's RX-0063; correct?

A. Correct.

Q. This is the Engels reference, correct, that we see on the screen now?

A. Sorry. The question is...

Q. This is the Engels reference that we -- or this is the cover sheet for where the document in which the Engels publication is found; correct?

A. Right. This is not the Engels publication, this is the cover page for the conference.

Q. Let's go to your slides at slide 50, RDX-02.

Now, you show here an SEM image from Engels; correct?

A. That's right.

Q. This material that's excerpted here is what you're relying on to reflect the state of the art from Engels; is that correct?

A. Part of Engels, yes. I presented this as part of my discussion of state of the art. Prior art. Sorry.

Q. Let's go back a slide to slide 49.

This is the remaining part of what you presented to the Court yesterday with respect to Engels as reflecting the state of the art; is that correct?

A. Yes.
Q. But nowhere in Engels does it disclose what heating rate or heating curve or heating time was used to obtain the result that was illustrated in the SEM and in the data that is shown here; correct?
A. I'm pausing because I just don't recall whether he provides any of this information. I suspect he didn't, so with that disclaimer, I agree.
Q. So if we go one more slide ahead to slide 50, we don't know in Engels what heating rate or heating curve or heating time was used to obtain the steel that is imaged in this SEM; correct?
A. I agree.
Q. Now, when it comes to VinFast car parts, you do not know why some VinFast hot-stamped parts were tested, and others were not by Dr. Bradley; is that correct?
A. That's right.
Q. You were not involved in determining which automobile parts would be tested, or selected; correct?
A. That's right.
Q. You don't know if Dr. Bradley conducted any tests on parts or samples or coupons other than what he disclosed to you; correct?
A. That's right.
Q. So you based your opinions on the data that

Dr. Bradley gave you; correct?

A. Yes.

Q. Let's look at slide 36 from your presentation.

This is coming from, I believe, the noninfringement portion of your presentation; is that correct?

A. Yes, I believe so.

Q. This is summarizing the SEM testing data that Dr. Bradley did on VinFast parts; correct?

A. Yes.

Q. Your noninfringement opinion in this case relies on only two VinFast parts that Dr. Bradley tested, the BIW30009358 and BIW30009357; correct?

A. Yes.

Q. So all of your opinion on noninfringement with respect to testing data coming from Dr. Bradley relies on testing of these two parts; correct?

A. That's my understanding.

Q. Now you are aware, as Dr. Fekete testified, that ArcelorMittal tested at least 16 distinct VinFast parts; correct?

A. Yes.

Q. Let me pull up a chart here on the screen as a demonstrative, if that helps.

This lists the two parts up at the top that you

address in your testimony that Dr. Bradley tested; is that correct?

A. Yes.

Q. And this lists the 14 other parts that Dr. Fekete tested; is that correct?

A. I believe that's -- my recollection is -- but, yeah, I agree.

Q. You're not aware of there being any errors on this chart; is that correct? Take a moment if you need to review it.

A. I don't believe so.

JUDGE BHATTACHARYYA: Mr. LaMagna, could you please indicate what we've been looking at for the last question.

MR. LAMAGNA: I'm sorry.

This is demonstrative CDX-0012.1, and this is a list of the part codes for VinFast accused products that were tested by Dr. Fekete.

You will see that the top two were illustrating the ones that Dr. Bradley also tested, and then the 14 others that were only tested by Dr. Fekete.

If Your Honor likes, I'd be happy to hand up a copy of the demonstrative on paper.

JUDGE BHATTACHARYYA: That's not necessary.

BY MR. LAMAGNA:

Q. Now, for the BIW30009358 and 9357 parts, the two parts for which you rely on tests from Dr. Bradley, Dr. Bradley tested different physical parts than Dr. Fekete had analyzed; correct?

A. Yes.

Q. Dr. Bradley and Dr. Fekete tested different physical parts that happened to share the same part number; correct?

A. Yes.

Q. Prior to your deposition, prior to submitting your report, you didn't ask Dr. Bradley to inspect or test the same actual physical products that Dr. Fekete tested; correct?

A. No.

Q. Prior to your deposition and prior to you issuing your reports, neither you nor Dr. Bradley had ever inspected or tested the actual physical parts that Dr. Fekete tested; correct?

A. I certainly did not, and I believe Dr. Bradley did not, either.

Q. In fact, neither you nor Dr. Bradley have ever examined or inspected the sample coupons or the actual physical products that Dr. Fekete had tested; correct?

A. That's right.

Q. You recognize that you could have, if you

wanted, have asked to inspect, yourself, the testing coupons or the actual physical products that Dr. Fekete tested; correct?

A. Yes. I think so.

Q. But you never sought or asked to inspect the sample products or sample coupons or, you know, the epoxy mounts or anything that Dr. Fekete actually tested; correct?

A. Well, my only hesitation here is I don't know what type of agreements were done between counsel and product availability, but I will acknowledge that I did not ask for those samples.

Q. Now, in Dr. Fekete's testimony, he used VinFast's BIW3003722 as an exemplary product to walk through his infringement analysis for all of the asserted claims; correct?

A. Sorry. Are you referring to a part code on this slide, or are you referring to something else?

Q. I'm referring to Dr. Fekete's testimony that you were here for.

During that testimony, when he went through his presentation, he used the VinFast BIW3003722 as an exemplary product when he was walking through his infringement analysis for all of the asserted claims; is that correct? Do you recall that?

A. I don't recall, no.
Q. Okay.
But the BIW3003722 is not one of the parts for which Dr. Bradley sent you test results; correct?
A. Correct.
Q. You understand that the BIW3003722 is a part that is included in every VF 8 imported into the United States; correct?
A. Oh, I have no idea.
Q. Now, I understand that for some parts, you simply took issue with some of the evidence that Dr. Fekete submitted; is that correct?
A. Well, once again, that's a broad statement, but I think -- I could give a broad answer saying yes, so...
Q. Okay.
So for some parts, you did not rely on any test data from Dr. Bradley, but you only took issue with the testing evidence that Dr. Fekete submitted by looking at the SEMs that he had cited in his report, and by criticizing those; is that correct?
A. Yes. I think that's fair.
Q. To be clear, your opinions here should not be considered to extend to parts that Dr. Fekete may have opined on that you did not rebut or address in your testimony; correct?

A. Yes.

Q. Now, let's look at slide 18 from your slides, RDX-002.

You testified earlier about the need for a homogeneous pre-coating of a homogeneous thickness; correct?

A. Yes.

I quoted this section of the patent.

Q. This section is referring to the homogeneity of the pre-coating thickness; correct?

A. Correct.

Q. So you agree that this discussion in the patent applies to the pre-coating; correct?

A. Correct.

Q. Not to the hot-stamped part after it's been hot-stamped; correct?

A. I agree.

Q. You recognize that the claims in this case are to products after they have been hot-stamped, the characteristics of the aluminum coating after hot-stamping; correct?

A. I agree.

Q. Okay.

You agree that the asserted patent claims contain no limitations that recite specific requirements

for the pre-coating; is that right?

A. I agree.

Q. In fact, the asserted patent claims do not contain the word "homogeneous"; correct?

A. Agreed.

Q. Now, let's call up the '602 patent, which is JX-0002. Let's look at column 5, lines 46 to 50.

The inventors say here in the asserted patent that the surface should have a roughness to be sufficiently paintable; correct?

A. That's not what the language states precisely, but the issue is adhesion of the painting to the surface. So it's not that it's not paintable, but you don't get adequate adhesion of the paint once it's applied.

Q. So there has to be at the surface some topological variation. It can't just be completely smooth; correct?

From an industrial standpoint.

A. According to the language of the patent, that's what it says.

Q. We would expect to see in an SEM that the surface layer is not smooth. It has some topological variation that allows for paintability; correct?

A. Sure.

Q. We can take this down.

Now, you understand that VinFast and ArcelorMittal also tested parts from ArcelorMittal's licensees; correct?

A. Yes.

Q. Those were parts hot-stamped at Gestamp, Topre, Magna Cosma, Simwon, and Cleveland-Cliffs; right?

A. I don't recall the list, but it sounds right.

Q. For the purposes of this discussion, you understand that if I refer to those parts as the domestic industry parts, the DI parts; correct?

A. Yes.

Q. Now, in your infringement analysis, you're not applying two different analytical frameworks, one for tests on the VinFast parts, and something different for tests done on domestic industry parts; correct?

A. That's right.

Q. Now, you were aware that Dr. Bradley did not test all of the domestic industry parts that Dr. Fekete had tested; correct?

A. I don't recall.

Q. Well -- strike that.

You are aware that -- you don't know one way or another whether Dr. Bradley tested all of the parts that he received in this case; correct?

A. I think that's right.

Q. You only received the domestic industry parts tests that Dr. Bradley chose to send you; correct?
A. Yes.
Q. You don't know if Dr. Bradley conducted tests for which he did not provide you the data; correct?
A. I pause because I'm not sure I asked him that question, but at this point, I don't think we -- I asked, so I don't know.
Q. You don't know if more sample coupons were taken and tested beyond the test data that Dr. Bradley provided you; correct?
A. That's right.
Q. This applies to tests of VinFast products as well. You do not know if Dr. Bradley conducted tests on VinFast parts for which he did not provide you the data; correct?
A. That's right.
Q. Again, for the domestic industry parts, you were also not involved in determining where on the parts the coupons or samples were taken for the testing that Dr. Bradley did; correct?
A. That's right.
Q. You did not provide any direction or guidance to Dr. Bradley or anyone else on where on the domestic industry parts the coupons should be taken from; correct?

A. I did not.
Q. You were not involved in the testing itself; correct?
A. That's right.
Q. Let's turn to one of the Tesla door rings as an example.
Dr. Bradley provided you SEM images for Tesla door ring parts manufactured by Simwon; correct?
A. Sorry. Say that again.
Q. Dr. Bradley provided you SEM imagery for Tesla door ring parts that were manufactured by Simwon; is that correct?
A. Yes.
Q. But all he -- Dr. Bradley gave you were SEM images; right?
A. Yes, I believe so.
Q. Dr. Bradley did not provide you any line scans; correct?
A. I just want to be careful. I don't recall. I don't recall receiving them, but I just don't remember.
Q. But regardless, you don't cite any line scans as a basis for your opinion from Dr. Bradley; correct?
A. That's right.
Q. You don't recall Dr. Bradley providing you any other tests concerning elemental composition in the layers

or base steel; correct?

A. That's right.

Q. And you don't recall Dr. Bradley providing you any hardness data either; correct?

A. Correct.

Q. Now, when we're talking about a door ring, each door ring comprises a set made up of an inner ring part, and an outer ring part; correct?

A. I think terminology varies, so if you could be more clear in terms of what you mean.

Q. Well, you know what I mean by a door ring; correct?

A. I do.

Q. Just for example, just to clarify, you see in this room there are two sections of a door ring present; is that correct?

A. Yes.

Q. The door ring is essentially the part of the body-in-white framing that goes around where the passenger or driver door is; correct?

A. I agree.

Q. At least talking about the front doors of a car, you would have a -- you would have two of those, a left-hand door for the driver, and a right-hand door for the passenger, at least as we look at it in the United

States.

A. Agreed.

Q. I guess, in England, they would have to flip that around. You don't have to answer that question.

So I understand what we see here are two halves, one behind you and one in front of you of a Tesla door ring; do you recognize that?

A. I recognize it as a door ring. Tesla, I'll just have to believe it.

Q. Fair enough.

I believe what you're looking at over here ahead of you would be the inside door ring for the driver's side, and then there would be some reinforcements inside of that, and then the part that is behind you would be sort of sandwiched in to create the complete door ring; is that correct?

A. I believe so.

Q. Okay.

So that's what I meant when I said "each door ring set," there's an inner and an outer part.

Do you understand?

A. I do.

Q. So when we're talking about a vehicle with respect to the front door rings, the -- there would be four door ring parts; correct?

There would be a left and a right hand, each of which would have here, as we see, an inner component, and behind you, an outer component; correct?

A. I understand.

Q. Now, in forming your opinion -- well, let's look at your slides again. Let's look at slide 18. Maybe I have the wrong slide. Sorry. Typo in my notes. Could we look at slide 201.

So here is the SEM that you rely on to show that the Tesla door rings do not, in your view, have the claimed layers that are required; correct?

A. Yes.

Q. And you rely here on this single SEM image; is that correct?

A. Yes.

Q. This is -- specifically you're relying on Exhibit RX-0164C; correct?

A. Yes.

Q. Now, do you know if this is part of the inner or the outer, the left or the right, do you know which of the four components on the Tesla door ring this comes from?

A. I do not.

Q. Okay.

Why don't we look at -- just to clarify this, let's call up Exhibit CX-0084, which is your report. And

go to Paragraph 112, which I think is on page 105 of the -- 107 of the PDF and 102 of the -- there we go. That's it. Okay.

Is that the same image that we were just looking at?

A. Well, can you flip back and forth?

Q. Sure. Sure. Let's go back to the slides.

A. Yes.

Q. Okay.

Now, we look at your report again, Paragraph 112, and we see that you've identified this as the outer LH door ring.

Do you see that?

A. I do.

Q. Okay.

We can take that down and go back to the slide.

So what we're looking at here in your report, then, is the SEM image for one sample that is taken from the Tesla left-hand outer door ring component, correct, or part, I should say?

A. Yes.

Q. Now, you have not presented any SEMs or any other test results for the left-hand inner door ring; correct?

A. No, I have not.

Q. You have not presented any SEMs or any test results for the right-hand inner or right-hand outer Tesla door rings; correct?

A. Correct.

Q. So your only test result is the single SEM image with respect to the left-hand outer Tesla door ring; correct? With respect to the Tesla products.

A. Yes.

Q. Now, you are aware that Simwon produced four door ring parts; correct? The left and right-hand sides, inner and outer each?

A. I mean, if Simwon did all of the production, then I agree.

Q. My apologies.

I should say that --

MR. LAMAGNA: Well, perhaps let's go on the all-parties -- or the Complainant's -- the all-parties confidential record. Sorry. All-parties confidential record.

JUDGE BHATTACHARYYA: We're moving to the all-parties confidential record.

BY MR. LAMAGNA:

Q. Pursuant to subpoena --

JUDGE BHATTACHARYYA: Let's wait until everyone leaves the room.

MR. LAMAGNA: Apologies, Your Honor.

MS. PARK: All right, Your Honor.

JUDGE BHATTACHARYYA: All right.

(Whereupon, the trial proceeded in confidential session.)

O P E N S E S S I O N

BY MR. LAMAGNA:

Q. Let's look at JX-002, which is the '602 patent, specifically at Claim 2.

Claim 2 of the '602 patent has the limitation that "layers (c) and (d) are quasi-continuous by occupying at least 90 percent of a level corresponding to each" layer; correct?

A. I agree.

Q. I think we have the highlighter on the wrong section, but -- actually, give me one second, Dr. Brown. Apologies.

MR. LAMAGNA: Your Honor, and up to whatever you think is best, but since we're moving in a new direction, do you want to do the lunch break now, or do you want me to continue with another little module?

JUDGE BHATTACHARYYA: Why don't we take our lunch break now. Thank you.

MR. LAMAGNA: Okay.

JUDGE BHATTACHARYYA: We'll be on break for one hour.

MR. LAMAGNA: Thank you, Your Honor.

(Whereupon, at 12:45 p.m., a lunch recess was taken.)

A F T E R N O O N S E S S I O N

(1:45 p.m.)

MR. LAMAGNA: May we proceed, Your Honor?

JUDGE BHATTACHARYYA: Yes.

On the public record.

MR. LAMAGNA: Yes. Public record. Thank you.

BY MR. LAMAGNA:

Q. Thank you, Dr. Brown. I hope you were able to enjoy a little lunch, and we'll try to wrap this up shortly.

Where we left off, we were talking about Claim 2 of the '602 patent.

Do you recall that?

A. I do.

Q. We have the limitations of Claim 2 of the '602 patent up on the screen right now; do you see that?

A. I do.

Q. Claim 2 has a limitation that "... layers (c) and (d) are quasi-continuous by occupying at least 90 percent of a level corresponding to each layer."

Do you see that?

A. I do.

Q. In Claim 2, layer (c) is the intermetallic layer, and layer (d) is the superficial layer; correct?

A. Yes.

Q. Now, you testified today that in certain images in the prior art such as Lachmann, it allegedly shows that this requirement is met.

Do you recall that?

A. Yes.

Q. Specifically, I think, you stated that in the prior art, such as Lachmann, the intermetallic and superficial layers meet this 90 percent requirement; correct?

A. Yes.

Q. You don't actually -- you did not actually conduct any measurements here where you have determined what portion of continuity or discontinuity there is for Claim Number 2; correct?

A. I have not.

Q. It is true that you could have calculated an empirical value for the percentage of continuity versus discontinuity and reported that, but you did not; correct?

A. Yes.

Q. Now, when you read the patent claims and you see the word "layer," you are interpreting layer as being a phase of material that is continuous across the sample; correct?

A. Yes.

Q. You believe that your understanding of the term

"layer" is the same as how a person of skill in the art would understand the word "layer"; correct?

A. Yes.

Q. Now, after hot-stamping, after manufacturing, vertical cracks can form in the coating; correct?

A. Yes.

Q. In fact, you would be amazed if you didn't find some cracks; right?

A. That's right.

Q. Voids or bubbles, that is encased cavities, can also form in the aluminum alloy coating when the microstructure is forming; correct?

A. Yes.

Q. So in an SEM image because we are looking at a two-dimensional cross-section, a bubble will appear as essentially a black void on the SEM; correct?

A. Correct.

Q. Now surface material can also flake off or be abrased after hot-stamping; correct?

A. Now, I can't eliminate that as a possibility, so, yes, I think it can happen. We see cracks that I think can happen on the external surface.

Q. These cracks or voids or bubbles or dislodged sections at the surface are not other phases that interrupt continuity in your view; correct?

A. Correct.

Q. Now, if you establish that the section of a product captured in an SEM image meets the requirements of the asserted claim, in your view, that is still not enough to establish infringement or establish that that element has been met; correct?

A. Could you say that again.

Q. If you show that the section of a product captured in an SEM image meets the requirements of the asserted claims, in your view, that is still not enough to establish infringement; correct?

A. Correct.

Q. So, for example, if you have a VinFast part, where half of the part has a coating on it that meets the claim limitations and the other half of the part, the coating does not meet the claim limitations, it is your understanding that that part would not infringe the asserted claims; correct?

A. Correct.

Q. When you opined that the layers in some of Dr. Fekete's SEMs did not qualify as a layer, you did so because in your view --

Let me start over. Apologies.

When you opined that the layers in some of Dr. Fekete's SEMs did not qualify as a layer because in

your view it was not continuous, you made that determination based on there being any discontinuity; correct?

A. Yes, with one qualification.

Q. What would that be?

A. Well, I just want to state that during Dr. Drillet's testimony earlier this week, he revealed a -- an SEM which was the backup for --

Q. Let me just --

A. -- for one --

Q. Let me clarify, Dr. Brown, I'm asking you about the opinions that you used to form your report, the opinions you presented in this case during this case.

Do you understand that?

A. Yes.

Q. I'm asking about the analysis -- when you reached a determination that Dr. Fekete's SEMs did not show a layer, when you reached that, and you opined on that in your report, and later in this case, you made that determination by considering -- by looking for any discontinuity; is that correct?

A. Correct.

Q. That could have been a 1 percent discontinuity, a 5 percent discontinuity, a 10 percent discontinuity. It was just a binary determination by you; correct?

A. Correct.
Q. Now, let's go back to the '227 and '602 patents. You agree that the claim wording there does not say that the layer has to be continuous, or even 100 percent continuous; correct?
A. Correct.
Q. So the asserted patent claims themselves do not say that the required layers have to be continuous; correct?
A. Yes. I would say that the definition of "layer" is indefinite within the patent, but I agree that the claims do not provide any specification.
Q. In other words, the word -- other than what we see here in Claim 2 of the '602 patent, but the Claim 1, for example, of the patent where it's talking about layers does not have the word "continuous" in it; is that correct?
A. That's right.
Q. There is no place in the patent specifications that say that the required layers have to be continuous; correct?
A. Agreed.
Q. There is no place in the prosecution history where the inventors said that the layers have to be continuous; correct?
A. I don't recall. As I said, I don't recall the

prosecution history.

Q. So, yes or no: Your basis for asserting that each layer must be continuous is based on your understanding of the inventor's testimony from Dr. Drillet; correct?

A. Well, I think Dr. Drillet's testimony provided confirmation. So certainly his testimony meant something.

Q. Again, your basis for asserting that each layer must be continuous is based on your understanding of Dr. Drillet's testimony; correct; yes or no?

A. Well, I don't think it can be answered yes or no, but certainly, Dr. Drillet's testimony provided clarification in terms of the definition of a layer.

Q. Without getting hung up on it, you'd agree, then, that at least in part, your basis for asserting that each layer must be continuous is based on your understanding of Dr. Drillet's testimony? That's part of the basis?

A. Yes.

Q. Now, let's talk about the patents' requirements for the superficial layer for a moment.

As the name suggests, the superficial layer is at the top of the stack of layers forming the exterior surface of the coating; correct?

A. Correct.

Q. Under your construction for Claim 1 of the patents, the superficial layer must be continuous across the entire sample; correct?

A. Correct.

Q. Let's look again at the '602 patent, Claim 2, JX-002, if we could.

In Claim 2 of the '602 patent, again, it refers to layers (c) and (d) with (c) being the intermetallic layer, and (d) being the superficial layer; correct?

A. I agree.

Q. According to Claim 2, less than 10 percent of the intermetallic layer can be present at the extreme surface of the coating; correct?

A. I agree.

Q. For layer (c), the intermetallic layer to be present at the extreme surface of the coating has to interrupt layer (d), the superficial layer; correct?

A. Correct.

Q. But nonetheless, notwithstanding the language --

A. No, I'm sorry. Let me back up.

So it could either interrupt or it can sit as a separate phase, separate layer on top of the surface of layer (d) because we see some micrographs which have that appearance as well.

So it can be either.

Q. Okay.

But nevertheless, notwithstanding the language we have in Claim 2 of the '602 patent, layers (c) and (d) must still, in your view, be fully continuous, to satisfy the asserted patent claims; correct?

A. Correct.

Q. So when taken together, looking at Claim 1 and Claim 2 of the '602 patent, the intermetallic and the superficial layers must both still be, in your view, fully continuous despite the language that we see in Claim 2; correct?

A. Yes, with the amendment that I referred to a minute ago, but I agree. From my report, it is continuous across the image.

Q. Now, let's go to your slide deck a second again and look at -- this is RDX-002. Let's look at Claim -- I'm sorry, slide 32.

Or actually, let me -- let's go to slide 170. Let's start there. I'll do them a little bit out of order.

You testified earlier today about this quote that's shown on slide 170 of your presentation from Dr. Fekete.

Do you see that?

A. I do.

Q. Now, do you see in the question there, there is

some quoted language; do you see that?

A. Yes.

Q. Do you know what year that quoted language came from?

A. If I recall properly, it would have been 2010.

Q. So you would agree that this quote of Dr. Fekete's view of commercial sales of Usibor 1500P is 15 years old; correct?

A. Agreed.

Q. Let's go to -- a few slides forward to slide 179.

Now, I notice here that you have --

MS. PARK: Your Honor?

JUDGE BHATTACHARYYA: Yes.

MS. PARK: Your Honor, this includes confidential business information for all parties.

JUDGE BHATTACHARYYA: Let's take the slide down.

MR. LAMAGNA: That's fine, we can go on the confidential record.

JUDGE BHATTACHARYYA: Let's move on to the all-parties confidential record.

(Whereupon, the trial proceeded in confidential session.)

O P E N S E S S I O N

REDIRECT EXAMINATION

BY MS. PARK:

Q. Dr. Brown, I have a few follow-up questions for you.

Do you recall opposing counsel asking you about the variability of the B-Pillar properties?

A. I do.

Q. Do you recall you wanted to provide some more context?

A. Yes.

Q. Could you provide that context.

A. Oh, my comment in that circumstance was that sometimes B-Pillars, after they're hot-stamped, will undergo some thermal treatment at the bottom of the B-Pillar to make them a little bit more deformable, so there's better shock absorption. Well, that occurs after the material leaves the oven.

In other words, it doesn't affect the structure of the coating. It only influences the properties of the steel, and -- the base steel or whatever, the steel on the interior of the sheet.

I just wanted to provide that clarification, given that discussion. We're not talking about variability in the B-Pillar as it leaves the furnace. That is uniform.

Q. Do you recall opposing counsel asking you about whether you need to know the process parameters to know whether a product meets the claim?

A. Yes.

Q. If you have an SEM, which you believe to have the claimed layers, do you still need to know the process parameters?

A. Well, for the definition of the four-layer structure, no.

Q. Do you recall opposing counsel asking you many questions about Tesla door arm 2, 3, and 4, and he even wanted you to get out and take a look at the actual physical product?

A. I do.

Q. Were you here when Dr. Fekete testified yesterday?

A. Yes.

Q. Let me show you his testimony.

"Question: Opening, and in supplemental expert report, with respect to this four layers, the issue of four layers for this what came to be known as Tesla door ring 2, 3, and 4, you didn't cite to a single SEM; correct?

Answer: Correct." (As read.)

Do you see that?

A. I do.

Q. Any wonder why you wouldn't have responded to Tesla door arm 2, 3, and 4 if he never cited a single SEM for 2, 3, and 4 in his report?

A. Well, I would have nothing to respond to, if that were the case.

Q. Could I please have slide 62 of Dr. Brown's demonstratives.

Do you recall opposing counsel asking you about relying on the same SEM figure for this slide and the surrounding slides?

A. Yes.

Q. Aside from the SEM --

(Clarification requested by the Realtime Stenographer.)

Q. So for this slide and the surrounding slides, aside from the SEM, what else do you rely on to show the claimed layers?

A. Well, there's also the compositional information in the table below, which provides that varying composition associated with the limitations which follow, you know, 1(c) through 1(f).

Q. Did you look at the chemical compositions for all the claim limitations that require the layers?

A. I did.

Q. Could I please have slide 55.

Do you understand that that chemical composition

comes from Dr. Bradley's analysis of RX-173 on this slide that you presented earlier.

A. Yes.

MR. LAMAGNA: Objection. Leading.

JUDGE BHATTACHARYYA: Ms. Park, could you rephrase the question.

MS. PARK: Sure.

BY MS. PARK:

Q. Where can you find the chemical composition information that is provided in your slides?

A. Well, that would be provided for the Passat on the slide which I presented earlier, which would be slide 55.

Q. What exhibit can you find that information from?

A. That would be RX-86 and RPX-1.

Q. Any other exhibit?

A. Oh, I'm sorry. There's more.

RX-173, RX-87.002, and RX-86.

Q. Thank you.

Do you recall opposing counsel asking you about continuity and discontinuity of the layers?

A. Yes.

Q. How would you describe the level of discontinuity in this SEM on slide 197 of your demonstrative?

A. I would say that it would be interrupted because the phase --

MR. LAMAGNA: Objection. This is outside the scope of cross.

THE WITNESS: -- one sees in this image -- sorry.

MR. LAMAGNA: We didn't address this image or this evidence.

JUDGE BHATTACHARYYA: Yeah.

Ms. Park, what testimony are you referring to?

MS. PARK: Yes, Your Honor.

Counsel asked him about the level of continuity and discontinuity, and I'm asking Dr. Brown to explain the level of continuity here.

JUDGE BHATTACHARYYA: Right. Those were questions about the patent, right, and --

MR. LAMAGNA: Right, we were trying to elicit an understanding of his claim construction, and what he was -- how he understood the claim terms. We were not applying that to any images or any particular tests or this image.

JUDGE BHATTACHARYYA: Right now, I'm not seeing how this is closely enough related to the cross-examination testimony.

MS. PARK: Yes, Your Honor. Apologies.

I'm asking him how he's applying his

understanding of continuity and discontinuity as it relates to the claims.

JUDGE BHATTACHARYYA: Perhaps if you could start, sort of, showing what his understanding is in relation to his prior testimony, that might lay a foundation for this discussion.

MS. PARK: Okay.

BY MS. PARK:

Q. Dr. Brown, do you recall counsel asking you about continuity and discontinuity of the layer?

A. Yes.

Q. What is your understanding of the layer?

A. So if we see these isolated islands, I would consider that to be discontinuous.

Q. And --

MR. LAMAGNA: Again, Your Honor, this is outside the scope because we are applying that within an image. We asked him for his understanding, not to go back through his -- we never went back through his evidence and had him call balls and strikes on continuity, especially not on this image, in particular.

JUDGE BHATTACHARYYA: I agree. As I recall, the testimony was about whether continuous meant fully continuous, or whether there could be some discontinuity.

MS. PARK: Thank you, Your Honor. We can move

on to this line of questions.

BY MS. PARK:

Q. Do you recall opposing counsel asking you regarding discontinuity?

A. Yes.

Q. In your response, you recall, you said you had one qualification?

A. Yes.

Q. Do you recall that when you were trying to provide an explanation as to that qualification, you started referring to Dr. Drillet's testimony; do you recall that?

A. I do.

Q. Would you like to complete your explanation?

A. Please.

So in Dr. Drillet's deposition testimony, he described that particularly the superficial layer has to be continuous and homogenous. I included that comment, given the indefiniteness of the definition of "layer" within the patent, and my interpretation of what "continuous" meant.

However, in his testimony in the trial --

MR. LAMAGNA: Objection. Foundation. And beyond the scope.

JUDGE BHATTACHARYYA: The objection is overruled.

MR. LAMAGNA: Well, if I could just explain a moment.

He's getting into issues of indefiniteness that are outside of his report. I don't recall that also in his slide deck that there was any presentation under Section 112.

JUDGE BHATTACHARYYA: He did mention indefiniteness in the cross-examination. I'm inclined to allow him some leeway on this explanation of Dr. Drillet's testimony.

MR. LAMAGNA: Okay. Thank you, Your Honor.

THE WITNESS: So during Dr. Drillet's testimony, as part of that testimony, an image came up -- a better image came up of Figure 1 in the patent because the figures in the patent are, I'd say, poor quality, at best.

There was an SEM image which represented the -- well, sort of a better quality image upon what Figure 1 was derived, which shows that there is a finger of layer (c) intersecting the surface of layer (d), the superficial layer.

And you can't have both. You can't have it to be fully continuous, and then have part of layer (c) intersecting the surface. They're inconsistent.

So after seeing that in Dr. Drillet's portion of his testimony, I have to admit that you can have some small

interruptions in a layer and still have it be considered a layer just because I hadn't been able to see that image before Dr. Drillet's testimony this week.

So that's the only comment I wanted to make.

BY MS. PARK:

Q. Thank you, Dr. Brown.

You recall counsel asking you about the level of discontinuity.

Do you recall that?

A. Yes.

Q. Could you explain the level of discontinuity analysis that you provided.

A. Well, I think in many images, we see these isolated islands of phases, which, to me, don't represent a layer. They are isolated phases, which then represent a different microstructure.

Q. Counsel referred to binders of documents related to testing that Dr. Fekete purported to rely on.

Do you recall that?

A. I do.

Q. In your response, you said, "In Dr. Fekete's report, he only had one SEM per part."

Do you recall?

A. I do.

Q. Could you explain why you said that.

A. Because that's my recollection of what he provided in his report, that there was, per part, a single image for his analysis.

MS. PARK: Thank you, Your Honor. No further questions.

JUDGE BHATTACHARYYA: Thank you.

MR. LAMAGNA: I do have a few follow-up questions, Your Honor.

JUDGE BHATTACHARYYA: Very well.

MR. LAMAGNA: Sorry, Your Honor. So many papers.

RECROSS-EXAMINATION

BY MR. LAMAGNA:

Q. You mentioned in your testimony a minute ago about the B-Pillar; correct?

A. Yeah. Yes, I did.

Q. You understand and agree that in addition to potential post-heating treatment, a B-Pillar can also have a weld down the middle of it; correct?

A. Yes.

Q. B-Pillar can be formed from two completely different hot-stamped parts that are welded together; correct?

A. I agree.

Q. Regarding the Tesla door rings, I think you said

Dr. Fekete did not mention that in his report; correct?

A. No, I don't remember saying that.

Q. You had mentioned that Dr. Fekete didn't cite to any SEM imagery or reference the other three Tesla door rings that we have in this case, correct, you weren't aware of them?

A. Correct.

Q. I'm showing you what is page 119 from Dr. Fekete's report.

Do you see footnote 9 here?

A. I do.

Q. Do you see that footnote 9 refers to additional Simwon parts?

A. I do.

Q. You understand now that those are the Tesla parts?

A. Yes.

Q. You see here that even though we don't have Bates Number yet because the -- the material was coming in, that there is a reference here to data coming in. Do you see that at the end of that footnote?

A. I do.

Q. Did you review that data?

A. I did not.

Q. Let's call up CX-0683C. This is the TAV

document, I believe. It's CX-0683. Let's go -- I think it's page 5. Let's look at -- I don't know if you can focus in, Mr. Smith, on the lower left image, and sort of zoom in on that image.

This lower left image is the one that you were referring to in your redirect testimony, as corresponding to Dr. Drillet's testimony earlier; correct?

A. Yes, it was.

Q. If we look over at far right of that image, you will see that the intermetallic layer kind of pokes through the superficial layer; correct?

A. Correct.

Q. So, in your view, that would be a discontinuity in the superficial layer there; correct?

A. Correct.

Q. Ah. Okay.

You understand that this -- we can zoom back to the image -- go back to normal perspective, thank you.

You understand that this image is -- also corresponds to Figure 1 of the -- in the patents; correct?

A. Yes. That's what I said.

Q. You understand that Figure 1 of the patents -- well, strike that.

So, in your view, because of this disruption in the superficial layer, because, in your view, it is not

continuous, this would not practice the claims of the patent; correct?

A. Well, that's -- that's the inconsistency, because Figure 1 is offered as practicing the claims of the patent, and Figure 1 is a very poor image.

So when I saw this image, and recall Dr. Drillet said that the superficial layer has to be continuous, then there's this inconsistency between being continuous and now what we see is a better representation of Figure 1.

So if we -- so it's a question of position. If we say that Figure 1 practices the claims of the patent, then it's my opinion that we can admit the type of feature that we see on the right-hand side without compromising the definition of the top layer as -- superficial layer as a layer.

Q. To summarize what I understand you are saying is, that if you have a continuous requirement in the word "layer" in the claims, then Figure 1 does not practice those claims; correct?

A. I would say it differently.

If there is a -- so if there's a requirement that there be no interruption between any of the layers, and the patent requires the same, then this figure would not practice those claims. I agree with that.

That was the point of my difficulty, because

Figure 1 didn't provide the resolution to be able to make that determination. Dr. Drillet said they had to be continuous across the entire part, but when you look at this image, you can see that there are these small penetrations.

Q. So your construction -- let me establish -- you haven't changed your view that in your view, the word "layer" requires that it be continuity, in other words, a layer must be continuous, even though the word "continuous" does not appear in the claims; is that correct?

A. With the caveat that we have to allow these small features; otherwise, to me, the patent makes no sense.

Q. Let's put up CX-20 of your deposition, page 118, Section -- lines 10 to 15.

Do you remember me asking you:

"So if you establish that the section captured in an SEM image meets the requirements of the asserted claims, in your view, that is not enough to establish infringement; correct?"

And you answered, "Correct."

MR. LAMAGNA: No further questions.

(Clarification requested by the Realtime Stenographer.)

JUDGE BHATTACHARYYA: Was there a question?

MS. PARK: No further questions from

Respondents, Your Honor.

MR. LAMAGNA: Did you not respond to my last question?

THE WITNESS: I didn't think it was a question. I didn't think it was posed as a question.

MR. LAMAGNA: Oh, I'm sorry. I asked, that was your testimony; correct?

THE WITNESS: Correct.

MR. LAMAGNA: Okay. Thank you. Sorry about that.

Now I will pass the witness back. My apologies.

JUDGE BHATTACHARYYA: Okay. No further questions; correct?

Thank you very much, Dr. Brown. You may step down.

(Witness excused.)

MR. MCKEON: Good afternoon, Your Honor.

JUDGE BHATTACHARYYA: Good afternoon.

MR. MCKEON: Subject to the exhibits being moved into the record, Dr. Brown was our last witness. We are going to rest, and pass the case back to the Complainant.

JUDGE BHATTACHARYYA: All right.

MR. KATHIR: Good afternoon, Your Honor.

Allen Kathir on behalf of the Complainants. Complainants call Dr. Dierk Raabe to the stand.

Your Honor, may I approach with a copy of Dr. Raabe's demonstratives?

JUDGE BHATTACHARYYA: Yes.

Good afternoon, Dr. Raabe.

THE WITNESS: Good afternoon.

JUDGE BHATTACHARYYA: Could you please raise your right hand.

Whereupon--

DIERK RAABE, PhD,

having been first duly sworn, was examined and testified as follows:

THE WITNESS: I do.

JUDGE BHATTACHARYYA: Thank you.

DIRECT EXAMINATION

BY MR. KATHIR:

Q. Good afternoon.

Can you state your name and let us know what you do for a living.

A. Yes.

Pleasure to be here. My name is Dierk Raabe, Your Honor, and I come from the western part of Germany, and I work so to say on two assignments, one is being a professor at the University in Aachen, and the second assignment is to be CEO and director of the Max Planck Institute in Dusseldorf.

Q. Dr. Raabe, can please tell us a little bit about your educational background?

A. Sure.

I started off with an education with a diploma degree that is something related to a master degree. So first I have to make a degree in physical metallurgy and metal physics related to the basic science of steels and other metals.

Then I went on to pass in '92 the doctoral degree in the same field. I went on through what we call "habilitation." That's something like an exam going through something like an associate professor-level exam. And I passed the doctoral and diplomas degrees, and both have grades to it, with summa cum laude. That's the highest distinction you can have in Germany.

Q. What did you do after you graduated?

A. So I worked for a time when I did my habilitation, I worked as a research assistant and group leader at the university. Then I was so lucky to gain a so-called Heisenberg Stipendium from the Science Foundation, and I used it to go abroad to go to Carnegie Mellon to work in the field of metallurgy in Pittsburgh.

After that, I applied back, and became professor and CEO of the Max Planck Institute.

Q. Dr. Raabe, it sounds like you've spent a lot of

time in the fields of metallurgy.

What got you interested in this field?

A. Yeah.

Actually, I come from a steel family. So two of my uncles were in the steel business and my father was all his life in the steel industry.

So I was not too creative of picking, then, this subject also for my education.

Q. So I want to turn to your work as a professor at the University in Aachen.

What do you do there?

A. So as a professor, I teach all these items that we are discussing here. So the entire field of metallurgy, with a special focus of steel, and I do this even before I became professor because you have to teach before you become a professor, also, to show that you are up to it.

So I teach for more than 30 years these things at university, but as a professor, of course, you also develop research programs, collaborations and work also together with industry on these topics.

Q. Let's turn to your research. What kind of research do you do?

A. So naturally, most of my research circles around steels, of course, since more than 35 years because also, during my diploma thesis, I worked on crystallographic

features of steels and so on and on hot forming.

Over the years, my expertise and research work built up in the area of microstructures of steels, or that relates to the processing and manufacturing sector of how these are mutually influencing each other, and also how they interact with coatings and how that ties in with the manufacturing.

Q. As a professor, have you supervised any PhD students or post-docs?

A. Yes.

I'm very lucky and also very humbled to over the many decades have had many really brilliant and very nice students, coworkers, and post-docs, and that is a big privilege to go together -- some part of that research path together.

Q. Where have some of the PhD students and post-docs that you've supervised, where have they gone on to work?

A. So we kind of -- for the young people who are working with us, target kind of -- some of them target an industry career and have made very splendid careers in different companies.

A very high fraction also went on to an academic path. Many of my former students and post-docs are nowadays associate or full professors at schools like MIT

in the US, or at Ohio State University, or at Imperial College, and at many, many European top engineering schools, or in Asia at Tsinghua University, or the very famous IITs in India, and so on.

So many made pretty good careers.

Q. Dr. Raabe, you also mentioned that you serve as the director of the Max Planck Institute.

Can you tell us what the Max Planck Institute is.

A. Yeah.

The Max Planck Society is the biggest basic research organization in Germany, and we consist altogether of 84 individual institutes. These are kind of research courses extending over all areas of research.

My own institute, which encompasses about 370 employees, most of them, of course, researchers, has a history of more than 100 years, actually, 107 years in the field of iron steel research.

The original name was Max Planck Institute for Iron Research, which only last year has been transformed to the name of Sustainable Materials. But we do this type of stuff since more than 100 years.

Exactly, which was very recently last year renamed to acquire a new name, which now goes by Sustainable Materials.

(Clarification requested by the Realtime Stenographer.)

Q. Dr. Raabe, have you ever testified in court before?

A. No, I haven't testified at court before.

Q. Okay.

So I just want to remind you that we have a reporter here, and just to slow down a little bit.

A. Yeah. Thank you very much. Sorry.

Q. In addition to your work at the Max Planck Institute, have you worked with any companies?

A. Yes.

We collaborated over more than 30 years with many companies on three different continents, I should say.

Some of the companies we worked with, and we in part still work with, are shown here on the slide.

Q. Okay.

I see Mercedes-Benz listed there.

What did you do with them?

A. Yeah, with Mercedes, we had a very nice collaboration over many years where we, together with the steel industry, namely Salzgitter and Tata Steel, developed new types of high-strength steels to serve in automotive body-in-white structures.

So very close to the topic we discuss here today.

Q. Dr. Raabe, have you received any awards or recognition for your work?

A. Yes, I did.

I was very humbly honored and of course, super happy to just a few weeks ago to get the word that I was accepted as a foreign member to the US National Academy of Engineering, which I understand is very rare to get.

It makes me, of course, super happy and proud, and I can only extend that humbly also to my team.

Then, I also had two European Research Council advanced grants. This is the biggest single research grant you can get over all Europe, equipped with multimillion euros of funding for a single person. So I got that twice.

Then I got the Leibniz Award, which is the highest German research award that you can get over all sciences. I got that in 2004.

I also on other terms, I served the German government. I was twice recruited by the Court by the German president to act as a counselor and adviser to the German government. I did this when Angela Merkel was chancellor, and was quite regularly meeting with her directly or with the presidents.

So that was swapping between the years.

Q. Dr. Raabe, I want to turn to your work on this case.

Are you being paid for your time working on this case?

A. Yes, I am.

Q. Does the amount of money you receive depend at all on what you choose to say or the outcome of this case?

A. No.

Q. Have you reviewed the '602 and '227 patents that are at issue in this case?

A. Yes, I did.

Q. Do those patents relate to technologies that you have studied and worked on during your career?

A. Yes, I did.

MR. KATHIR: Your Honor, at this time, we offer Dr. Raabe as a technical expert in the field of metallurgy, material science, and the development of steels, including the fields of the '602 and '227 patents.

JUDGE BHATTACHARYYA: Any objections?

MR. MCKEON: No objection, Your Honor.

JUDGE BHATTACHARYYA: At this time, Dr. Raabe is admitted as a technical expert in the field of metallurgy, material science, and the development of steels, including the fields of the '602 and '227 patents.

BY MR. KATHIR:

Q. Dr. Raabe, what are you here to testify about today?

A. I'm here to testify about the validity of the '602 and '227 patents.

Q. Before we get into the details of your opinions, can you give us a brief summary of what your conclusions are.

A. So my conclusions are that these two patents are valid.

Q. Is there any background information that you think will be helpful to understand how you reached your opinions?

A. Yes.

I have prepared a couple of intro slides, so we can walk through them.

Q. Dr. Raabe, what are you illustrating here on slide 7?

A. Yeah.

This is a very schematic, of course, sketch of a side impact scenario, which is obviously very critical, accidental scenario that you don't want to go through, but it happens.

The main task of steel, and material, and automotive developers is, of course, to protect the passengers in such a car. That gives you the background and the urgency to do a good job along these lines.

Q. How are passengers protected in a car?

A. So you have an inner structure that you can think of like a skeleton, like a high-strength, and also compliant skeleton that is protecting the passengers.

The part of that skeleton that we also call body-in-white structure is shown here on this slide, highlighting, again, among the many parts that are assembled for that purpose, you can see some of the real high-strength steel components highlighted.

Q. Dr. Raabe, how are the parts of this structure, the skeleton, made?

A. So they are made by a relatively complex assembly process, often consisting of many individual parts. And one of those is highlighted here, which is called the B-Pillar reinforcement part.

Q. So using a B-Pillar, for example, can you walk us through the steps of how that B-Pillar gets made.

A. Sure.

So, Your Honor, this is really a very complicated process that we need today to assemble such parts, and make such materials that fulfill these constraints I have sketched before.

That starts typically by a steel coil, and the steel coil is typically having a certain composition, thickness, features like that.

They are also pre-coated along, again, certain

compositions, thicknesses, certain homogeneity features, and so on.

Then you go to the next step that you refer to as a blanking step.

The purposes here that like when we make our cookies for Christmas, you cut out a certain portion of that coil to get closer to the shape you finally want.

The next step, then, would consist in a heat treatment, and also in the context of what is under debate here this week, that is a very complex step.

So you go through an oven of relatively complex, inner lining shape, temperature, and so on, temperature distribution, where you have to consider, again, a couple of parameters, some of which are mentioned here on this slide.

In order to arrive at certain structure and properties of your coating and material.

Q. So after it goes through the heating step, what's the next step in the process?

A. Well, the next step for these specific products is that you transport it further. You transfer the material to a stamping operation.

Q. After you transfer the material to the stamping operation, is that when the part is finished?

A. No, the part is not yet finished, then.

First of all, you do a couple of things at the same time. When you subject that part after the transfer in the oven to the hot-stamping operation, you first of all, quench the part. So you very rapidly cool down its temperature, depending, again, on the constraints of that instrument.

You also, of course, adjust the shape of that part that you are preparing.

That is finally, then, entering with the other processing steps that we have already during the assembly discussed this week, into the pre-finished part.

Q. Thank you, Dr. Raabe.

So the process that you just explained to us, that's shown on slides 10 to 16 of the slides that you prepared.

I want to now turn to slide 17, and turn to the two patents that are at issue in today's case.

Can you give us a brief overview of the two patents.

A. Yes.

The main context of these two patents consist in equipping a high-strength steel product -- equipping a high-strength steel product, if I read your face correctly, I should repeat -- so adding to it. High strength-steel product with a corresponding coating.

And that coating is supposed to have a specific type of microstructure, lending it certain properties that are described in these patents.

Q. Dr. Raabe, what are you showing on slide 18?

A. So that slide is showing, in principle, the independent and dependent claims that are under discussion here in the dispute.

Q. Let's turn to the question that you were looking at, the validity of these two patents.

What did you do to figure out whether these two patents are valid?

A. So I determined the meaning and scope of the patent claims at first, and secondly, I compared the claim language with the prior art in this field.

Q. All right. So let's start with the first step of that process, the meaning and scope of the patent claims. Let's go to slide 22 of your presentation.

How did you determine the meaning and scope of the claims?

A. So I looked at the claim construction, and we see on the left-hand side the disputed terms for the construction and the agreed construction terms. And on all other terms, I used the plain and ordinary meaning of the terms as a person of skill in the field would adopt.

Q. Who is a person of skill in the art? What are

you showing on slide 23?

A. This is what I learned from the two parties.

On the left-hand side, we see from VinFast the definition where I maybe read out not all of it, but the main feature is here that that person would have an undergraduate degree in material science, manufacturing engineering, mechanical engineering, or equivalent knowledge, training, or experience, with at least two years of experience working in the field of metallurgy.

While the Arcelor definition deviates from it a bit in terms of emphasizing that this two years of experience should be in the field of steels, specifically.

Q. Okay.

So after you looked at the agreed and disputed constructions, and the level of skill, what's the next thing you did?

A. Next, I compared the claim language with the prior art.

Q. So let's go to slide 25.

What did you do -- what did you consider in order to compare the claim language to the asserted prior art?

A. I considered the expert reports, the patents and the file history, the asserted prior art documents, the deposition documents, and their recovery response.

Q. Dr. Raabe, let's start with the prior art references.

Turning to slide 26, can you briefly describe the asserted prior art references that you're showing here.

A. Yes.

We see here a number of documents that we later go through in a bit more detail, and that is the Cornette, Engels, Lachmann, Hein, Suehiro II, Takagi, Vaissiere, and the Passat documents.

Q. All right. So let's start with Cornette, and now, we're on slide 27.

Can you give us an overview of the Cornette reference.

A. Yeah.

Cornette is a very high-level report by Usinor scientists. Usinor was one of these predecessor companies from what is today ArcelorMittal. They went through a couple of mergers.

This is a technical report paper to potential customers or experts from the automotive sector. That is a very, I would say, high-level paper that is trying to convey opportunities associated with the use of high-strength steel products in the automotive sector.

Q. Turning to slide 28, was Cornette before the Patent Office during the prosecution of the '602 and '227

patents?

A. Yes, it was.

Q. Okay. Let's go to slide 29.

What are you illustrating on this slide about Cornette?

A. With this slide, I wanted to highlight that this paper of Cornette gives very brief view, also, into these hot-stamping type of steels that we discuss here this week, and show specifically in Figure 21 a very high-level, very general schematic that shows heating, time range, and temperature range as representative of some very general description of such a process.

On the right-hand side shows an SEM image.

Q. Does Cornette tell us any compositional information about that SEM image?

A. No.

Q. All right. Let's turn to slide 30.

Can you briefly describe the Vaissiere reference.

A. Yes.

The Vaissiere reference is a kind of quite similar document to the one we have mentioned before. It is about the development of pre-coated boron steel for the application in the automotive sector highlighting potential customers more specifically.

Again, it uses this very nearly identical schematical picture where two aspects, like time and temperature, are highlighted, but it's very schematical, more of a textbook character, I would say.

Q. Turning to slide 31, was Vaissiere considered by the Patent Office during the prosecution of the two patents?

A. Yes, it was.

Q. On slide 32, you're showing the cover of Suehiro.

Can you give us an overview of that reference.

A. Yeah.

The Suehiro II document is an internal Nippon Steel document. Nippon Steel was, at that time, one of the biggest steel companies in the world, and so this paper reports about properties of aluminum-coated steels for hot forming.

Q. Was Suehiro II before the Patent Office during the prosecution of the patents?

A. Yes, it was.

Q. So turning to slide 34, it looks like you're showing an excerpt of Dr. Brown's slides on the left, and an excerpt of Suehiro on the right.

What are you illustrating on this slide?

A. Yeah.

I picked this slide to show that there's an SEM picture of a certain surface region of that material from Suehiro.

Again, that does not tell you, maybe, in the first view much about the chemical composition.

And then below, there's an additional figure, which shows a line scan from this region, which however, is outside of the claims. It's not matching the 30 micrometers condition from the claims.

Q. Let's turn to the next alleged state of the art reference, the Takagi.

Can you briefly describe this reference.

A. Yes.

Takagi is a United States patent about coated steels. This patent describes surface structures that are here called outer layer, inter layer, and intermediate layers of some kind.

Again, it does not disclose features about the role or the thickness effect above 30 micrometers.

Q. Turning to slide 36, was Takagi before the Patent Office during the prosecution of the two patents?

A. Yes, it was.

Q. Let's go to slide 37.

Can you give us a summary of Engels.

A. Engels was a proceedings paper of a group from

Mathias Liewald and others that work on hot forming simulation, essentially, and it also contains a schematic sketch about the hot forming process.

Q. Turning to slide 38, was Engels before the Patent Office during the prosecution of the two patents?

A. Yes, it was.

Q. All right. Let's turn to slide 39.

What are you showing on this slide?

A. Yeah.

This slide from the paper that I also studied both in the German and English variant in the documents we had shows, interestingly, that these authors, although not focusing on these coatings, highlighted, and we saw that discussed during this week, the potential role of certain parameters that are here listed, like the heating rate, total processing time, et cetera, which the authors emphasized to be worth being studied.

They did not study it, but they obviously appreciated or recognized they should be considered, if you want to develop that into a robust product.

Q. So I want to make sure I understand what you're saying.

Engels listed all these parameters, but did the Engels reference give any values for these parameters?

A. No, the Engels paper -- also I must make clear,

these were metal forming simulation experts. They were not experts on these coatings. I found it just interesting they did not give any ranges, no numbers, no nothing. They just appreciated, you should look into this if you want to turn this into a successful product.

Q. Okay. So I want to go to slide 40.

Engels did have an SEM in this table.

What did you make of this?

A. Yeah.

This is, again, a grayscale image of some sort and some kind with, however, unknown background, how they arrived at this specific structure that is shown here.

Then on top of it, they show a table with a few chemical numbers in it, but they called that phases, and not layers, and to a person with skill in the field, a layer and a phase is something profoundly different.

They also have here five phase numbers listed, so I didn't see a big vicinity to these patents.

Q. Okay. Let's go to slide 41.

Can you briefly give us an overview of the Hein reference.

A. Yeah.

Hein was in the same proceedings volume, published also by more application or re-entered authors, as we see here. They also showed a microstructure of some

sort with some surface features.

I just found it interesting to recognize that as we had before discussed a lot about the role of the grayscales, also here suddenly, we see a picture that is more brownish or reddish.

So again, I found that, as an expert, not so teaching about how you might be able to arrive at such structures.

Q. So turning to slide 42, was Hein considered by the Patent Office during the prosecution of the patents?

A. Yes, it was.

Q. Now we're on slide 43.

Can you give us an overview of the Lachmann reference.

A. The Lachmann from Carsten Lachmann was a document that was a set of PowerPoint slides. So a deck of PowerPoints that he used coming from the so-called zentrallabor, that means central lab of Volkswagen, to present it to welding experts, to some small group of welding experts to show some features of press hardening.

This specific slide that I picked here is a schematic, very high-level representation of an oven and a temperature.

Q. Was Lachmann before the Patent Office during the prosecution of the two patents?

A. Yes, it was.

Q. Moving to slide 45, can you give us an overview of the Passat reference.

A. Yeah. The Passat was an earlier car, which was on the street, and we discussed a lot -- heard a lot about this vehicle during this week.

So we see here a specific portion of that side impact region called pillar B-Pillar with a couple of areas indicated by a pen, obviously.

Q. Was information about the Passat before the Patent Office during the prosecution of the two patents?

A. Yes, it was.

Q. All right. So let's actually turn to the Passat.

So now we're on slide 47. Can you give us an overview of what VinFast is asserting about the Passat.

A. Yeah.

Here, the topic is that there are a few claims allegedly anticipated by the Passat, and maybe I don't need to read out all of them. They are shown here on the slide. So the claims under dispute in the context of this vehicle.

Q. So what did you do to investigate whether the Passat anticipated the asserted claims in this investigation?

A. I looked at the protocols, how the Passat was

tested, how this material was tested. Then I also looked at how it was analyzed.

Then I pursued the question whether VinFast was able to show that the Passat is disclosing the claimed layers or not, and hence, whether the Passat is enabling.

Q. Okay. So let's start with the first question you looked at. How is the Passat tested. Let's go to slide 50.

What are you showing here?

A. This is, again, a slide that is related to what has been under discussion during this week already. As a person of skill in the field, it appeared to be a rather unexplained methodology, and again, I would not read all of the numbers, and coupons that have been discussed here on this slide.

The take-home message for a person of skill was that it was not so clear to follow what reasoning or methodology was behind finally showing only a few of these results at the end.

Q. So, Dr. Raabe, just to break down sort of the text that you are showing on this slide and what you just said, do you have a picture illustrating what's being depicted on this slide?

A. Yeah. On the next slide, that is a little bit more worked out.

We can see here that on the left-hand side, there is a column with many coupons that have been labeled, and then they were shipped and obviously received, and that was already a sub-group of these originally labeled ones.

Then, again, a subgroup of that was being tested, and imaged, and finally, on the right-hand side, we see a column with a few specimens that finally were reported, and that's what I meant by this unexplained methodology, what rationale might have been behind that.

Q. When you looked at this methodology, what did you conclude?

A. So my conclusion was that this was not an adequate testing protocol.

Q. Okay. So let's go to the next question that you looked at. How was the Passat analyzed. Let's go to slide 54.

What did your analysis of how VinFast analyzed the Passat show?

A. Yes.

So obviously, they looked at SEM images of the types that we see here, and that analysis, however, to match -- anticipate those claims was, to a person of skill in the field, not very reliable.

Q. Dr. Raabe, I just want to level-set about what's on this slide, on slide 54.

So on the top, I'm seeing an SEM image, and then on the bottom left, I'm seeing another image. On the bottom right, I'm seeing a line scan.

That line scan, which image does that relate to?

A. So the line scan, we see on the right bottom part pertains to the left-hand side SEM pictures. That picture on the bottom.

Q. Okay.

So when you said the analysis wasn't reliable, you can give us an example of that, using the line scan?

A. Yes.

We followed the discussion yesterday also with Dr. Bradley on the same material, and as a person of skill in the field, I was a bit surprised by the more or less arbitrary setting of associating certain regions of that line scan with layers.

Dr. Bradley had mentioned he would pick the infraction points to make these -- these lines, these dotted lines to tell one layer, in his view, from the other.

Then we see on the outermost side, these rule with exploiting the inflection points of the chemical analysis in the EDS line scans was broken, and the line was just set somewhere in the middle.

So that told me as an expert in the field, I did

not really understand what the rationale behind this association of EDS and layer definition was made.

It was unclear to me.

Q. Were you here yesterday during Dr. Bradley's testimony?

A. Yes, I was.

Q. Did you hear any explanation from him as to why he skipped one inflection point and drew the line at a subsequent inflection point?

A. No, I did not.

Q. Okay.

So after you looked at how VinFast conducted its analysis of the Passat, what was your conclusion about VinFast's analysis?

A. I came to the conclusion that this is a flawed analysis. Of the material.

Q. So now let's look at the next question that you looked at. This is on slide 56. Has VinFast shown that the Passat discloses the claimed layers.

So turning to slide 57, what are you showing here?

A. Well, this slide just reminds us all of -- that the independent claims require layers with different compositions, and that is highlighted on this slide.

Q. Turning to slide 58, are these the same three

images that we just saw a few slides ago?

A. Yes.

Q. Just to make sure we're all on the same page, that line scan, which -- can you remind us, does that relate to the top SEM or the picture on the left?

A. Just to refresh our memory, that line scan we see here relates to the bottom SEM picture on that slide.

Q. Okay.

So when you looked at what VinFast did to try to show that the Passat discloses the claimed layers, what did you find?

A. I saw, then, I -- I have taken a look at these SEM pictures that is shown here in the top row with the steel and some layers indicate by this yellow ink font, and I found that not convincing.

Q. Dr. Raabe, I want to -- I guess, explore that. Let's take layer 3 as an example. That's the intermetallic layer, do I have that right?

A. Yes, I see it. Yeah.

Q. So why did you find it not convincing that VinFast showed that layer 3 in this image meets the intermetallic layer limitations of the claims?

MR. MCKEON: Your Honor --

(Clarification requested by the Realtime Stenographer.)

MR. MCKEON: We have a problem with the expert

report on this question. Not in the expert report. So he can't testify about this.

MR. KATHIR: Your Honor, Your Honor I didn't mean to interrupt.

Your Honor, Dr. Raabe testified to this about this at length in deposition. I'm happy to give you the excerpts, but really starting on page 268, going on to 269, 270, 271, 272, counsel for VinFast asked him several questions about layer 3 specifically, the intermetallic layer, and why or why not it was disclosed by the Passat.

I'm happy to pass up transcripts, if you would like to take a look.

JUDGE BHATTACHARYYA: I want to hear from Mr. McKeon as to his view of the deposition transcript.

MR. MCKEON: Yeah, Your Honor, I -- if I can get the ELMO here and show you.

We never got an opinion from Dr. Raabe in this case that the -- the Passat part doesn't practice the claims. We did not. And in depo, we explored that with him, and this is what his testimony was.

"That was my point number one, but I give you that that I did not totally say it could not be an intermetallic layer. It could. I cannot say it from this data, but I'm also saying it's definitely not. But my doubt comes a little bit from another side also."

In other words, he's like -- we got no opinion that it's not there. And that doesn't cut it.

JUDGE BHATTACHARYYA: Okay. Mr. Kathir, is this the portion of the deposition transcript you're relying on or is there --

MR. KATHIR: That's part of it, but there's more surrounding that, but just to be clear, our -- what Dr. Raabe is testifying to is that VinFast hasn't met its burden to show that these claims are met by the Passat. Even this excerpt is fully consistent with what he just testified to and what he is about to testify to. But certainly he testified to more than these five lines that Mr. McKeon has underlined.

JUDGE BHATTACHARYYA: We are about -- it's about time for the afternoon break, so if you could provide a copy of the transcript to me, and let me know what portions of the deposition I should be looking at, that would be helpful.

MR. KATHIR: Yes, may I approach?

JUDGE BHATTACHARYYA: Yes.

Can you give me page cites as well.

MR. KATHIR: Yes, Your Honor.

So I have page 268. Let me just give you the broader colloquy, and then I have specific excerpts within these pages. It's really 268 to 276, but I can give you a

specific lines within that set of pages as well.

JUDGE BHATTACHARYYA: Okay.

MR. MCKEON: Your Honor, just for the record, I read from 284, 11 to 17.

JUDGE BHATTACHARYYA: 284.

MR. MCKEON: 284, 11 to 17, where we got the waffling from Dr. Raabe.

JUDGE BHATTACHARYYA: Okay.

MR. KATHIR: Do you want the specific excerpts?

JUDGE BHATTACHARYYA: Yes, please.

MR. KATHIR: Okay I have 268/16 to 22, 269/2 to 11, 269/12 to 25, 270/1 to 10, 270/17 to 271/18, 271/19 to 273/12, 274/17 to 275/11.

I think that's it as it relates to this issue.

JUDGE BHATTACHARYYA: Can you tell me, just give me a summary of what you believe this testimony shows.

MR. KATHIR: Absolutely.

So what Dr. Raabe will testify to is that VinFast at the end of the day hasn't met its burden to show that the claimed layers in that SEM meet the limitation.

For example, looking at layer 3, which they're purporting to say is the intermetallic layers of the claims, he can't tell from that SEM that that layer meets the claims, because there are defects in that SEM, which impacts whether or not, specifically, the compositional

elements of the claims are met.

And VinFast just hasn't put forward enough evidence to -- because of those defects to show that the compositional elements of the claims are met.

JUDGE BHATTACHARYYA: All right. Thank you.

Did you want to provide a brief response, Mr. McKeon, or should we take our break, and you can provide it later?

MR. MCKEON: One moment, Your Honor, please.

Sorry about that, Your Honor.

We just think if you go to the deposition to the pages that have been cited, and you end up to the citation that we -- there was a colloquy over many pages, and the page 284, that we noted, you get to the penultimate opinion, which is -- I don't know.

JUDGE BHATTACHARYYA: Okay.

MR. MCKEON: Therefore, we don't think that's enough. And obviously the fact it's not in the expert report. We are talking about the deposition already sort of highlights the problem.

JUDGE BHATTACHARYYA: All right. Thank you.

We're on break for 15 minutes.

MR. MCKEON: Thank you, Your Honor.

(A recess was taken at 3:17 p.m., after which the hearing resumed at 3:32 p.m.)

JUDGE BHATTACHARYYA: All right.

So regarding the deposition testimony, from what I can see, Dr. Raabe testified at his deposition that he wasn't ruling out it's an intermetallic layer. He wasn't completely sure.

He had -- he thought he might need more information, and he thought he might have some doubts.

So as long as he's testifying as to that opinion, and that any specifics he offers in support of that view were specifically described in his deposition, then that is fine, but he shouldn't go beyond that testimony.

MR. KATHIR: Yes, Your Honor.

My understanding, my anticipation is we will be within the scope of what you just described.

JUDGE BHATTACHARYYA: Mr. McKeon, if you feel like he is going beyond the doubts, and further information that he talked about during his deposition, you may file a motion to strike later, but I don't want to take up more time at this time.

MR. MCKEON: You don't want me to object at this point if --

JUDGE BHATTACHARYYA: You should object, but we will move on. I won't resolve the objection.

MR. MCKEON: Got it. Thank you, Your Honor.

Appreciate the clarification.

JUDGE BHATTACHARYYA: Thank you.

BY MR. KATHIR:

Q. Can we put up slide 58, please.

Dr. Raabe, before the break I was asking you about whether VinFast had shown that the Passat discloses the claimed layers.

I want to use layer 3 as an example, or what's marked as layer 3 and the SEM on top.

Can you explain what you saw during your review of layer 3.

A. Layer 3, I did not see enough evidence or hints that it would meet the terms of the claims in terms of being an intermetallic layer.

Q. Dr. Raabe, why is it that you don't have enough information, or you didn't see enough information to determine whether layer 3 does or does not meet the claimed intermetallic layer?

A. So the SEM, as we see it here, has additional horizontal features in it, and other microstructure features that shed some doubt on whether this matches the claims.

Q. Dr. Raabe, I just want to understand that -- what you're saying.

When you're referring to horizontal features,

are you referring to the -- for example, the horizontal crack that we see in layer 2?

A. Yes.

Q. So I want to understand, why is it that something that appears in layer 2 would impact your ability to determine whether layer 3 meets the intermetallic layer limitations of the claim.

A. Okay.

So the claims and the patent is very specific on -- that these microstructures are created by a process called interdiffusion. And interdiffusion refers to the transport of atoms.

When you have these features, as we see them here in the micrograph, then that interdiffusion might be altered from the intention as sketched in the claim.

That brought me to my doubts whether this is really reproducing the claims.

Q. Okay, Dr. Raabe, I want to turn now to slide 59.

So what did you determine as to whether VinFast showed that the Passat discloses the claimed layers?

A. So the conclusion is that VinFast could not show that the Passat is disclosing the claimed layers.

Q. All right.

Well, let's turn to the next question you looked at. This is on slide 60, "Is the Passat enabling?"

A. The conclusion from that is that the Passat is not enabling, and it is also built on the understanding that when you take such a complex piece, as we have discussed it with these structured features that we discussed, does not -- in view of the enormous complexity of this manufacturing, that we have discussed several times this week, allows you not to reproduce, you know, the claims, and the patent.

That is much more complex. It's not just like adding a couple of legal stones together. It's much more nonlinear in nature.

Q. I just want to understand what you're saying, Dr. Raabe.

So someone of skill in the art looking at this B-Pillar you're showing on the left of the slide on slide 61, looking at that, having the information contained in that, would they be able to achieve the claimed invention?

A. No.

With looking at such a B-Pillar material like here from the Passat, you are not able to reconstruct this material or recreate this material in a way as described in the claims as a person of skill in the field.

Q. Would someone of skill in the art be able to get to the claimed invention without undue experimentation?

A. No.

You would require massive experimentation -- massive additional experimentation to arrive at the claims.

Q. Okay.

So I want to now turn to slide 62.

What's your conclusion about whether the Passat is enabling?

A. The conclusion from that is that the Passat is not enabling.

Q. All right.

So after you looked at these four questions, and reached your opinions about each of the questions, what was your ultimate conclusion about the Passat that you're showing on slide 64?

A. The conclusion is that the Passat does not anticipate.

Q. Okay, Dr. Raabe, let's turn to the next asserted prior art reference. This is Lachmann.

What are you showing on slide 65?

A. This document from Carsten Lachmann from Volkswagen research was brought forward to allegedly anticipate the claims that are listed here.

It also was brought forward to dispute the obviousness by combining Lachmann to another piece from Laurent. And likewise, it was a dispute about the obviousness of arriving at these claims, allegedly, by

combining Lachmann to Cornette.

Q. Let's go to slide 66.

What did you do to figure out if Lachmann discloses these claims?

A. So I looked at several items in order to investigate these questions, and form an opinion, and that pertains to the question whether there's, at all, any enabling behind Lachmann itself.

And also to the points we get to, namely, whether there are any motivations to do so.

Q. All right. So let's go to slide 67.

Is Lachmann enabling?

A. In my view, Lachmann is not enabling, and also, to a person of skill in the field, I think it would be highly non-plausible that Lachmann would be enabling.

Q. Dr. Raabe, I want to understand how you got to that determination a little bit more.

What I'm seeing on the screen, on the top, looks like the process, and I'm seeing something in the middle that says, "Heating furnace 900 to 950 -- sorry, 950 degrees C." (As read.)

How come that's not enough?

A. Yeah.

That is a slide from this slide deck from Carsten Lachmann, and as you described it, that is -- I

would say, it is a textbook level, you know, very general description of a possible process for such products can be -- may be made, but without specifying anything of that complex cooking recipe that you would need to arrive anywhere near to the claims.

So it does not enable you to reproduce anything of what is in the claims.

On the left-hand side, the bottom side, we also see something like temperature curves, and at first look, they might, you know, look like, oh, there's a kinetics or temperature, time, in that slide, but that relates to the base steel as it is quenched, not to the coatings as required by the claims.

So all of this material would not enable you to arrive at the claims.

Q. Okay, Dr. Raabe, so to understand what you just said, are you saying, so all of the information in the bottom left slide, none of that relates to the heating step of that process you've described?

A. Exactly. That is what I am stating.

So that is a slide that has complex diagrams on it, but these diagrams have nothing to do with what is required by the claims, because one is just, you know, a description of the ferritic-perlitic microstructure, ferritic-perlitic, like in pearl.

And the second slide shows the quenching, the cooling of the base material that gives you information whether you are able to arrive at a martensitic microstructure.

The third diagram is what we call a stress-strain diagram, that is simply the testing of the strengths of this material.

So it has nothing to do with the coating of the claims, has nothing.

Q. So out of all of the information that's shown here, on the top slide, and the bottom two slides or excerpts, what of that information actually relates to the heating step, what goes on in the oven?

A. So in the first slide, on top, you see that -- as we have discussed before, that very schematical sketch, but that is, you know, lacking any of the intricate processing details that you would require and as described in the patents.

On the right-hand bottom side, you see, again, certain microstructure features in the SEM image, and you also see that scan close to it.

But as we have discussed in part before, that does not enable you or bring you in a position to arrive at these claims because for that, you need to have that cooking recipe, the details of the process.

Q. For that heating step, what goes on in the oven, does Lachmann disclose anything besides the temperature of the furnace?

A. No.

It is like you just observed, it is giving the temperature of the furnace, and that's all.

But we learned there are so many further parameters that we discussed over this week, and I showed on one of my slides before, such as the required information about the heating rate, or you would need additional information to adjust all of these processes to the thickness of the material. And many other aspects like the dew point, the chemical composition.

All of these things act together to create this really complicated layered microstructure and if you do not have access to these parameters, then you cannot reproduce such a microstructure robustly.

Q. Is that what you are illustrating on slide 68?

A. Yes, indeed.

That's similar to the sketch that I used before. When you had only this Lachmann slide or this Lachmann slide deck, this information, you would not be able to reproduce this claim as a person of skill in the field.

Q. Okay.

So what's your ultimate conclusion about whether

Lachmann is enabling?

A. Lachmann is not enabling.

Q. Let's go to the next question you looked at, whether there's a motivation to combine.

What are you showing on slide 71?

A. Yeah, it was suggested or encouraged by VinFast to look at combinations of the document by Lachmann and by Cornette pertaining to these claims that are listed here on the left-hand side. And I would not read out all of them to you, but the punch line is that they relate to the thickness in terms of micrometers to the pre-coated material.

So it appears that VinFast suggests that you just take the Lachmann slide deck, and combine it, in my view, a little bit arbitrarily to that document of Cornette to bring these two aspects together.

But I had some doubts on the motivation behind that, because as I described before, that is such a complex process, and these elements of the process are not LEGO toys you put together. I would not find that very convincing or motivated to do.

Q. I want to go into a little more details about what you just said, but first, let's go to slide 72, and let's talk about the Cornette reference.

Is the Cornette reference itself enabling?

A. The Cornette reference, to a person of skill in the field, is for sure not enabling because we have, on the left-hand side, as we mentioned briefly before in Figure 21, the very high-level, very general sketch of that process, that lacks all the fine details such as the heating rate or the dependence on thickness and other information to reproduce these microstructures without undue further experimentation.

On the right-hand side, you see, again, an SEM image without any quantification of the chemical species, chemical composition, and so on.

So that is, for sure, not enabling.

Q. So, Dr. Raabe, I want to turn to slide 73, this is an excerpt from Respondents' opening.

I just want to understand, you know, as someone not familiar with metallurgy, you know, this slide says -- the title of this slide says, Cornette has the process parameters.

Why aren't the parameters listed there enough?

A. Yeah. It's a little bit similar to what we discussed before. You have here a very schematical sketch that even lacks any information about what is specified and required in the claim to go through these intricate process to come anywhere near to the reproduction of these layered microstructures.

What I also found, as a person of skill in the field, or like maybe many colleagues would see it also, when you draw your attention to the paragraph in the middle of the right-hand side, then this paragraph, and I read it out as a quote to you, says, "Mechanical properties after hot forming process are not guarantied by Usinor."

That sentence means, don't trust my properties. That's like if you go to a restaurant with a super fancy chef, and he comes up with a super recipe, and says, please don't eat it.

That doesn't line up that, obviously, they don't trust their own product, which means or tells me there obviously is still a lot that has to be studied further to arrive at what we nowadays have in the claims of '602.

Q. Dr. Raabe, let's go to slide 74, and talk about whether there's a motivation to combine Lachmann and Cornette.

What are you showing here?

A. Yeah.

There was a suggestion to combine Lachmann and Cornette, and I don't see, again, a motivation to do so because, again, you cannot just isolate and pick a specific attribute without a very well-guided hint to do so, here by selecting the interdiffusion layer, without impacting the entire structure.

So when, as we heard during this week, you alter one of these features, like whatever you pick, the thickness of the coating or these features in the furnace and so on, then you are, at the same time, also potentially changing many other aspects during that downstream process of that process development.

So I think there's no motivation whatsoever to just pick out this one single piece, and say, that's a natural combination.

So I saw no motivation here.

Q. Let's go to slide 74.

Does Cornette describe any benefit to focusing on the interdiffusion layer?

A. So that is, again, a similar case. I found it not convincing, and I saw no motivation to modify the interdiffusion layer, which is referred to as layer (a), because Cornette does not at all discuss it.

What Cornette is discussing is an average layer thickness and what it might be linked to prior to any of the downstream processing.

So there is no hint why anybody would come to the idea to combine the two. There's no motivation.

Q. All right. So let's go to slide 76, and talk about the other proposed combination combining Lachmann and Cornette.

What is Lachmann lacking that -- why is VinFast proposing combining Lachmann and Laurent?

A. That argumentation was, for me, very hard to follow or to understand, because when we look at the Lachmann documents, then I did not find any statement from Carsten Lachmann about the deficiency of the steel.

So when you would say, oh, look, I made this and this type of experiment, and found these and those types of features, but my steel should be a different one, the base steel should be a different one. There might be a hint, but this hint, we don't find with Lachmann.

So this seems, to me, that somebody made the suggestion and say, oh, in the claim, there's a titanium-to-nitrogen ratio, let's just pick it from the work of Laurent, and bring these two together, but again, that was not plausible, to me, to do so.

Q. Okay. So let's jump to slide 78.

So what's your opinion about whether there is a motivation to combine Lachmann and Cornette, or Lachmann and Laurent?

A. There is none.

Q. What's the next thing you looked at?

A. The next item I looked at, are there any objective indicia for non-obviousness?

Q. All right. So let's turn to slide 80.

What are you showing here?

A. This is from Dr. Pascal Drillet's trial testimony.

I maybe should read out the first question to you, which is inked here in yellow.

"... after your discovery of the significance of those four layers, and the process parameters by which one could reliably get those, what happened to the sales of Usibor?" (As read.)

And when we only take the punch line from the answer from Dr. Drillet, so he said, "So we had a huge increase involvement of the PHS," which stands for press-hardened steel, "on body-in-white."

When we draw our attention to the right-hand side figure, we can realize that, indeed, all these sales numbers were not convincing when it comes to the bare material, or to the galvanized material, that's another surface-coated quality that they obviously sold, but the numbers for the aluminum silicon-coated material pertaining to these claims, obviously, was ramping up substantially.

Q. Okay. Let's go to slide 81.

So you just talked about commercial success.

Did you look at long-felt need and praise, or unexpected results?

A. Yes.

Also through, I think, my very long experience working with automotive people in conjunction with wanting better materials, and better steel, specifically, with all these other features, like weldability and so on, there is a big permanent need to get such a product in your hand and in your car, because it has so many benefits that we have discussed during this week.

So I found that a very convincing point.

Q. How about unexpected results?

A. The unexpected results is, I think, what we could wisdom during this week, during the discussion, during Dr. Drillet's testimony, nobody was able to do something like that. I think there was so many benefits coming out of that.

So also, yes. Highly unexpected results. Very valuable product.

Q. Dr. Raabe, let's go to slide 82.

So what was your opinion about objective indicia of non-obviousness?

A. That there are objective indicia for non-obviousness.

Q. So after you looked at these three questions, and answered them, on slide 84, what did you ultimately conclude about Lachmann?

A. My conclusion is that Lachmann does not

anticipate, and Lachmann in combine with Laurent or Cornette does also not rendered obvious.

Q. So now let's turn to slide 85, and Respondents' assertion that the patents are invalid based on domestic industry.

Can you give us just a high-level overview of what you're showing here.

A. Yes.

That was the alleged invalidity argument based on domestic industry prior knowledge, and we see here a couple of these companies listed, which already were discussed during this week.

And I could see, however, nowhere during the discussion around the material even a specification as to which of these claims were allegedly anticipated, so I --

Q. Okay. So I want to go to slide 86, and I want to break this group of four companies up into really two categories. I want to first start with Multimatic, Simwon, and Cleveland-Cliffs.

What did you determine about what Respondents said about these three companies, and whether anything they've done invalidates the asserted patents?

A. When we, again, bring to our recollection this enormous complexity, and how these parameters that you need to identify, like the patent claims are doing, to produce

these microstructures, and hence, this steel with these specific properties, then I found no hint anywhere in the documents that this domestic industry had knowledge about this complexity, or documented this anywhere, before the patents had arrived.

So I think there was no prior knowledge along this direction in the domestic industry before the patents.

Q. Dr. Raabe, were you here today to hear Dr. Brown's testimony about these three companies?

A. Yes, I did.

Q. Did Dr. Brown provide any evidence about what these three companies, specifically these three companies, were doing before the patents were invented?

A. No, he did not.

Q. Okay. Let's turn now to this Magna documents, and I think this text is small enough that we don't have to go on the confidential record.

What are you showing here, Dr. Raabe?

A. This is a so-called control plan by Magna, but Magna here in the US.

Q. I noticed you've enlarged two dates.

What are these dates?

A. Well, the control plan, there's original date from 2004, and then there's a revision date from 2006, highlighted.

Q. Is Dr. Brown or the Respondents relying on this document to assert that Magna -- what Magna was doing invalidated the asserted patents?

A. When I followed the documents and the discussion this week, I had the impression that the assumption was that the knowledge pertaining to the patents was in the world before the patents were released.

But I had also the impression that this ignored -- that this control plan was revised after the patents had been released. That was 2006.

Q. Well, I want to, I guess, understand that last statement that it ignores that this document was revised after the patents were released. It looks like a revision date of August 22nd, 2006.

So let's go to slide 88.

A. Yeah, for trying to better understand this process, and the temper of the evolution behind it, I went to the document, to the control plan as it was discussed in the testimony of Mr. Webb, who was a manager in that plant.

We see here from his report that he explained, first of all, what at all such a control plan is, what you use it for, and essentially, the punch line is that this is typical of such a production site where you document also for the workers, for the production chain, exactly what you should do and what you should not do.

Then it was also made clear in that document by Mr. Webb that in 2006, this plan was changed after the patents had arrived. And hence, something must have been changed quite profoundly, otherwise for very moderate things, you would not have this entering into your control plan, and the associated documents.

Q. Now, I want to, I guess, read what you have highlighted here from Mr. Webb.

And I'm quoting, "But as with the control plan, whenever we have engineering changes or customer engineering changes, process changes of any kind, we have to re-release because it's a controlled document."

Then I'm skipping ahead to the second highlight.

"... each date has a new revision date -- each revision has a new revision date."

Did that testimony inform your analysis of this document?

A. That testimony told me when there is obviously now a visible revision date in 2006, that something along that content that is underlined here in yellow ink must have happened, so they had a good reason, obviously, to change their plan.

Q. Dr. Raabe, were you able to -- actually let me back up.

Did Dr. Brown or VinFast explain what with

changed between the original and revision date?

A. No.

Q. Were you able to figure out what changed between the original and the revision date?

A. So I looked at the available material, and it was when you turn your attention to the bottom part of this document, you see in the question, does this document -- can you tell what was changed in it from the original date to the new, to the so-called revision date? The management says that not by looking at the document.

So I found it very difficult to find out what exactly was changed. I could only infer that the change must have been so eminent, so important as we discussed in the upper portion of this document, that it had to be released in the form of a new revision date.

Q. Dr. Raabe, based on your review of that control plan and the deposition testimony of Mr. Webb, were you able to determine what Magna was doing on the original date of August 26, 2004?

A. No, I found that practically impossible to make such a statement, and obviously, the manager himself could not even say that.

Q. Okay. Let's turn to slide 89.

So what did you conclude about this Magna document?

A. The clear conclusion was that the Magna -- this revision came after the patents were out.

Q. All right. Let's turn to slide 90.

So what was your ultimate conclusion about the Respondents' theory that the domestic industry products invalidate the asserted patents?

A. So my conclusion is that the DI direct products do not anticipate.

Q. All right, Dr. Raabe, can you summarize your opinions in this case.

A. The summary from what I laid out here is that the two patents, '602 and '227 are valid.

MR. KATHIR: All right. Thank you. I pass the witness.

JUDGE BHATTACHARYYA: Thank you.

MR. MCKEON: Your Honor, may I proceed?

JUDGE BHATTACHARYYA: Yes, you may.

CROSS-EXAMINATION

BY MR. MCKEON:

Q. Good morning, Dr. Raabe. Or good afternoon, actually, Dr. Raabe.

A. My next morning, actually.

Q. Yes. It has been an eventful week. My name is Mike McKeon, it's nice to see you.

A. Nice to see you, too.

Q. Now, as part of your work in this case, of course, you testified that you reviewed the patents and the claims; isn't that right?

A. Yes, I looked into the patents and the claims, yes, I did.

Q. Okay.

It is your opinion that the main spirit of the '602 and the '227 patents is that you achieve a reliable, layered structure in a reproducible way; correct?

A. That is what I said in my deposition and my report, yes.

Q. It is your opinion that the ability to produce the steel in a reproducible way is required for the mass-producing market; correct?

A. So that is what I said in my documents before. It is important that you adhere to these claims to arrive at such a reproducible way, yes.

Q. On the flip side of that, if you are able to produce the layered structure of the claims, but you can't do it in a reproducible way, then you think that it is not covered by the patent claims; correct?

A. That's not what I said, no.

Q. So you agree, then, even though somebody can't do it in a reproducible way, but they can do it one time, and they got the four layers; you believed that's covered

by the claims; correct?

A. No, I disagree.

Q. Another thing that's important to you is that you read the claims in the context of a set of processing parameters; correct?

A. So it's not about me. It's that the claims and the patents are very specific to adhere to certain processing features.

Q. Okay.

So but you believe the claims, when you read the claims, you're saying that the claims require a set of processing parameters; correct?

A. When a person of skill in the field is reading those claims, and the patents in their complete context, then it is clear that arriving at these layers requires to adhere to certain processing parameters.

Q. Okay.

Well, let me just put a fine point on that. My question is very specific. In order to infringe the claims -- strike that.

In order for a reference to be covered by the claims, it is your view that you have to know what the process parameters are of the prior art in order for the end result to be covered by the claims; correct?

A. That was a very long question. Can you maybe --

Q. Let me break it down.

A. Because I must also apologize a little bit. I'm not a mother tongue speaker, so I try to follow as good as I can. It can be good --

Q. That's fair.

A. -- if the question is a bit more specific.

Q. I will reword it. I want to make sure you have a clear question. That was a bad question. So let me reword it.

You believe, for example, a process parameter is the heating rate; isn't that right?

A. Heating rate is a processing parameter.

Q. The set of processing parameters is how the patents arrive at the layered structure; correct?

A. The patent makes a very clear conception about the link between these layered microstructures, and the processing parameters that lead to it.

Q. You believe that a person of skill in the art would find it important to specify the processing parameters to make these layers reproducible, and mass-market capable; correct?

A. Sure.

You need to adhere to these processing parameters as described in the patent to arrive at the targeted layer structure.

Q. To know whether the claimed layered structure is satisfied, you believe that you need to know the process parameters for creating the layered structure; correct?

A. If I understand the question correctly, I would repeat my answer before that, yes, there is in the patents a clear link between the desired surface microstructures and the processing parameters.

Q. Let me get your deposition, sir, at 104/17 to 105/8. Let me get Laptop 3, here.

Let me read your deposition testimony.

So:

"Question: If I -- if we have the layered structure, but we know the layered structure is satisfied, do I need to know the process parameters for creating the layered structure is to determine whether the claims are satisfied?

Answer: So the way how I read this patent, and the claim to which you refer to is that the inventors are very clear that there is a connection between this result and the adherence to certain processes.

That is the idea of this patent. And that means I need to follow certain protocols of making the product to make sure I have these layers as a result of my product."

Is that your deposition testimony; did I read that correctly?

MR. KATHIR: Objection, Your Honor. Improper impeachment.

JUDGE BHATTACHARYYA: The objection is overruled.

BY MR. MCKEON:

Q. Did I read that correctly, sir?

A. So just one step back, if you please allow us. So you highlight here a portion of the depo, but I think you were reading much more text; right? So... I just want to understand the process.

JUDGE BHATTACHARYYA: So the question right now is whether the deposition testimony was read correctly.

THE WITNESS: Yes. Yes, I assume so, yes. Of course.

JUDGE BHATTACHARYYA: If more context is needed, your counsel can ask on -- will have a chance to give more context.

MR. MCKEON: Thank you, Your Honor.

BY MR. MCKEON:

Q. That is because you believe the claims require certain protocols are followed; correct?

A. Yes, indeed, yes.

Q. You believe that the claims require you to follow certain well-defined processing details and parameters and windows; correct?

A. Arriving at these layers, you would want to adhere to the processing parameters and windows as described in the patent.

Q. Let me get your deposition at 105-18 to 106-5.

The question is: "In order for the claims to be satisfied.

Answer: So the claims, among which the layered structure is a very specific one, the first one require that you have to follow certain well-defined processing details, and parameters, and windows."

Did I read that correctly?

A. That is correct.

Q. You can take that down.

Because without the certain well-defined processing details, and parameters, and windows, you believe it is unlikely you would arrive at the claimed structures in a reproducible way; correct?

A. My suggestion is that I would want to adhere to these processing parameters, and details as outlined in the patent to arrive at the layered microstructure, yes.

Q. You also agree, of course, that Figure 1 in the patent is the preferred embodiment; correct?

A. Figure 1 is one of the central requirements to meet the claims.

Q. And you understand that Figure 1 comes from

the -- what we see in this case, the TAV analysis; do you recall that?

A. Can you repeat the question, please, the TAV analysis.

Q. Do you recall this CX-683, the TAV request, do you recall that testimony in this trial?

A. I remember it, yes.

Q. You remember this is the result of the analysis that Arcelor did on the Magna part that was given to Arcelor; do you recall that?

A. I remember this document. I would not adopt your description of the process, but I remember this document.

Q. Well, you don't have any personal knowledge of any of those details; isn't that right?

A. That's not what I said.

Q. My question is: You don't have any personal knowledge of any of the facts relating to this TAV request, and Magna giving Arcelor a part and having a question about it? You don't have any personal knowledge about that; isn't that right?

A. The knowledge is what I gathered here during this trial.

Q. So we can rely on the witnesses that have previously testified about the facts relating to this TAV

request; correct?

A. I don't know whether you can rely on witnesses. That is, I think, not my point. That is a point for the lawyers. But I understand that this is a part that was stamped by Magna from the product that was developed by Arcelor.

Q. You are talking about the Usibor 1500.

A. Your question, please?

Q. Magna hot-stamped a Usibor 1500 part, and then Magna took that part and gave it to Arcelor, and Arcelor, as a result of that, produced this TAV analysis.

Do you understand that's the facts that have been developed in this case?

A. Not quite what I would -- how I would phrase it, because --

MR. KATHIR: Sorry.

Objection, Your Honor. Beyond the scope of the direct.

MR. MCKEON: Your Honor, he talked about this TAV in his presentation.

JUDGE BHATTACHARYYA: Is that correct?

MR. KATHIR: I don't believe we cited this document at all in the deck.

MR. MCKEON: I'll move on, Your Honor. I'll move on.

JUDGE BHATTACHARYYA: All right.

BY MR. MCKEON:

Q. We'll get back to that, okay, Dr. Raabe.

Now, you understand, of course, that Figure 2 of the patent, that's not covered by the claims; correct?

A. Figure 2 was in the patent taken as an example, what the inventors wanted to avoid.

Q. And hot-stamping, of course, there's no dispute in this case, is a process used in sheet metal forming; correct?

A. Hot-stamping is a general process used in sheet metal forming, yes.

Q. Of course, hot-stamping involves heating steel blanks in a furnace; right?

A. Hot-stamping involves heating material before stamping it, yes.

Q. After the blanks are heated, they are transferred to a press, then cooled, and then stamped, and then quenched; correct?

A. No, that is not correct.

Typically, you quench in this process during the forming, not afterwards.

Q. Okay.

Well, let's get to your expert report at Paragraph 54.

We see here -- well, let's look at Paragraph 52 first.

Do you see here, you say, "First, the steel blanks are heated in a furnace."

Did I read that correctly?

A. Yes.

Q. Let's go to 54.

Then you say, "Second, the blanks are transferred to a press, cooled, stamped, and quenched."

Did I read that correctly?

A. That is correct. That happens during that stamping.

Q. All right.

So you stand by your expert report; correct?

A. Of course.

Q. Thank you.

You can pull that down.

Hot-stamping is a process that can be performed on uncoated and coated steel; isn't that right?

A. Yes, it can be done on coated and uncoated material, yes.

Q. For hot-stamping of coated steel, interdiffusion occurs between the coating and the steel; correct?

A. So during the hot-stamping of coated material, you can have interdiffusion between the coating and the --

the pre-coating and the base material.

Q. And that creates microstructure; correct?

A. That in some cases can create a microstructure.

Q. Let me get your expert report again to make sure we're very clear on this, okay.

At Paragraph 56 of Dr. Raabe's expert report, you say this: "During hot-stamping, interdiffusion occurs between the coating and steel, creating a complex microstructure."

Did I read that correctly?

A. That is totally correctly, but it pertains to that deposition, and this specific patent.

Your question before had been a general question. So that text here is totally correct.

Q. All right.

Interdiffusion occurs regardless of whether the layers recited in the '602 and '227 patents are formed; correct?

A. Please, can you repeat the question.

Q. Sure.

You're going to get interdiffusion regardless of whether these four layers that are required by the patent are formed; correct?

A. When we talk about this specific patent, then you can also generally get some type of diffusion, even if

it might not lead to that desired target of the layered microstructure such as coated in the claim.

Q. In fact, Figure 2 of the patent shows that, shows the interdiffusion layer; isn't that right?

A. I'm not exactly sure what happened to that sketch, or to the microstructure in Figure 2, but the authors of the patent used it as a negative example of what they wanted to avoid.

Q. Okay.

Well, let's pull up the figure, and make sure we're clear on this.

Figure 2 shows an interdiffusion layer; correct?

A. Correct.

Q. So we know based on this, that you can get an interdiffusion layer, even though you don't have the four layers required by the patent; correct?

A. No. I disagree.

Q. Well, you have an interdiffusion layer here in this figure.

You see it; right?

A. Yeah.

But you said not "an" interdiffusion layer, you said "the" interdiffusion layer in the context of the claim and that is something different because this is "an" interdiffusion layer. But the other thing is "the"

interdiffusion layer such as claimed in the patents.

Again, I have to apologize, it is not my mother tongue language, but I wanted to be sure that this is not the same thing.

Q. You are doing very good, you're more precise than I am, Dr. Raabe, so we understand what you are saying and move on.

Now, of course, hot-stamping of boron steel, that has been known since 1973; isn't that right?

A. Hot-stamping of boron steel is long around.

Q. Of course, even the name Usibor, right, the B-O-R in Usibor is a play on to the boron steel; isn't that right?

A. Yeah. Correct.

Q. Of course, you agree that hot-stamping of Usibor was known by at least 2001; right?

A. I agree.

Q. In fact, in hot-stamping -- in 2001, hot-stamping of Usibor 1500 was used for bolt-on parts for automobiles; correct?

A. That's correct.

Q. In 2005, hot-stamping of Usibor 1500 was used for platform parts; correct?

A. That is correct.

Q. Of course, platform parts, the fact that they're

being used for platform parts means they're a part of a mass production; isn't that right?

A. That is not generally the same, no, I disagree.

Q. So even though there's Usibor, it's being processed, and it's being hot-pressed -- hot-stamped, and it's being put into automobiles for platform parts, in 2005, you don't think that's mass production?

A. That's what I'm saying. This is not the same term, no. It means something different.

Q. Let's pull up if we can, CX-563 at page 4.

Of course, you've seen this timeline from an internal Arcelor document in this case; right?

MR. KATHIR: Objection, Your Honor. Beyond the scope of the direct.

MR. MCKEON: Your Honor, I'm trying to establish the state of the art. This is what this witness's testimony is about here.

JUDGE BHATTACHARYYA: The objection is overruled.

BY MR. MCKEON:

Q. We can agree, sir, according to Arcelor's own timeline, you see in 2001, you see the Usibor 1500 aluminum silicon steel was hot-stamped for an A-Pillar.

Do you see that?

A. Yes, I see it.

Q. Then you also see in 2005, you see the PHS, right, the hardened steel, Usibor 1500 aluminum silicon was used on platform parts.

Do you see that?

A. I see that.

Q. You also see, no doubt, the Volkswagen Passat in the picture below there?

A. Yes, I see it.

Q. So in the internal documentation at the company, they recognized the state of the art that everybody is dealing with, they recognize in 2005, this stuff is being used in platform parts, and as an example of that, they specifically refer to the Volkswagen Passat; correct?

A. That is correct.

Q. In fact, Arcelor was so excited, so excited about the Volkswagen Passat, they viewed it as a major breakthrough in the industry; isn't that right?

A. I have seen a document which states on a slide that this is some kind of, you know, major achievement, indeed.

As a person of skill in the art, I interpreted this, however, being related to the steel beneath, because like I have sketched in the beginning, Your Honor, when I try to sketch the motivation why you develop such products, it is the ultrahigh strength you need to protect the

passengers, the cabin, to make it very strong.

My interpretation of that slide had been that this was a major breakthrough that they re capable of using such an ultra-strong steel for the entire passenger, like you sketched here, platform arrangement.

Q. Yeah.

A. That's how I read it.

Q. All right. Well, let's take a look at the document so we can talk about it. Okay?

A. Okay.

Q. It's CX-565 at page 9. Here we go.

You see here the bullet point in this page has a retrospective of hot-stamping and the use of press-hardening steel.

Do you see that?

A. I see it.

Q. This, of course, as you understand it, is an internal document that Arcelor produced to reflect sort of the timeline, and the development of the technology.

You agree with that; right?

A. What I read in this text that you highlight here is that they said something like, the race was on, and they were obviously referring to that Passat vehicle, as you said.

And then they say in the line below, "A

significant number of press-hardened components used in body-in-white."

That's like what I said before, was bringing me to my expert assumption, they talk about the fact that this material is press-hardened in the body-in-white, that was my picture that I showed before, because the most essential feature for a customer is to have a safe --

MR. KATHIR: Objection, Your Honor.

JUDGE BHATTACHARYYA: Mr. Kathir.

MR. KATHIR: We renew our objection that this is beyond the scope. This is no longer the state of the art. This exhibit wasn't even used with their witnesses to describe the state of the art.

JUDGE BHATTACHARYYA: Mr. McKeon is not limited on cross-examination to the documents that you used on direct.

Can you explain the connection.

MR. MCKEON: Yeah, Your Honor.

This witness testified on direct testimony that the Passat is not enabling, and this company is calling it a major breakthrough. It's very relevant to the witness's direct testimony.

And the timeline and the state of the art, Your Honor, goes to whether these references are enabling or not enabling. That's what I'm establishing here.

JUDGE BHATTACHARYYA: The objection is overruled.

You may proceed.

BY MR. MCKEON:

Q. So, sir, let me direct you to the specific question.

There's no question in your mind that the company, Arcelor, that's the -- part of the Plaintiff in this case, ArcelorMittal, created this document, and in the document, it represented, an internal document, that the Passat was a major breakthrough, and it specifically mentioned the press-hardened components for the passenger safety cage; correct?

Sir, I appreciate if you just stick with a yes and no because we're trying to get out of here by 5. Okay?

A. I understand that, but I had mentioned before it would be appreciable to have a focused question because, again, I'm not a mother tongue speaker, I must really have well-defined questions.

So what I take from this document and how I understand your question is, yes, I fully agree, the company calls it a breakthrough. Fully on your side.

Secondly, they refer, yes, as an example, to the Volkswagen Passat. That's what the document says. Totally agreed.

Next, they say, they refer to the fact that this is based on using press-hardened components. A press-hardened component has nothing to do with a coating.

Press-hardening is a quench from austenite into martensite that makes steel very, very hard. That makes the passengers in that body-in-white structure extremely safe in an impact situation.

The fact that you are press-hardened a steel that was austenitic has nothing to do with the coating of the claims.

MR. MCKEON: Your Honor, I move to strike that answer. It's really nonresponsive. I asked a very specific question, and I get the language issue, but I can't suffer under that.

I ask a question, I expect an answer to the question.

JUDGE BHATTACHARYYA: Mr. Kathir.

MR. KATHIR: Yes, Your Honor. Mr. McKeon asked Dr. Raabe about the statement in this document, and that's what Dr. Raabe was responding to. He was responding to Mr. McKeon's direct question about the statement.

JUDGE BHATTACHARYYA: Motion to strike is denied.

If you want a yes or no answer, or a very limited answer, please specify that in the question.

MR. MCKEON: Okay.

BY MR. MCKEON:

Q. Dr. Raabe, I'm going to ask a very clear question, I want a yes or no.

In the internal document that we are looking here right now, Arcelor identified the Passat, of all the vehicles in the entire world, identified the Passat as a major breakthrough; correct?

A. They defined this as --

Q. Sir, sir, sir. Yes or no.

JUDGE BHATTACHARYYA: Dr. Raabe, Mr. McKeon is asking for a yes or no answer. You should answer yes, no, or I can't answer yes or no.

THE WITNESS: So I can't answer this really with yes or no because it is --

JUDGE BHATTACHARYYA: And you should just --

THE WITNESS: Ah.

JUDGE BHATTACHARYYA: That's enough. Your counsel can redirect you on the redirect.

BY MR. MCKEON:

Q. I'll give you one more opportunity. Sir, I'll give you one more opportunity.

A. No, I cannot.

Q. The question is very clear.

In this internal document from Arcelor, they

identified, as a major breakthrough, the VW Passat, out of all the vehicles in the world, they identified that very specific car; correct?

A. That is correct.

Q. And that same car is the car at issue in this case that Respondents say invalidates the patent; correct? The Volkswagen Passat; correct?

A. Can you rephrase the question.

Q. Do you understand that there's an allegation in this case that the Volkswagen Passat invalidates the patent; correct?

A. The Volkswagen Passat, as I said before, is not invalidating the patent.

Q. I understand that's your view, sir. We've heard that, and I'm going to get to that, but that is the allegation that's being made by Respondents, that it invalidates the patent; correct?

A. The allegation is on the table, yes, I agree.

Q. So we have a Volkswagen Passat in this courtroom at issue, and we have a Volkswagen Passat as a major breakthrough in a document referenced by Arcelor; correct?

A. Yes.

Q. Of course, you agree 2004 is way before the priority date at issue in this case?

A. Yes. 2004 is before 2006, that is correct, that

statement.

Q. Now, you agree that hot-stamping is a complex -- is complex, and the process needs to be carefully controlled; correct?

A. Correct.

Q. There are many parameters that impact the hot-stamping process; correct?

A. Correct.

Q. It is impossible to predict whether a hot-stamped part would have a -- would have desirable attributes without knowing several key parameters, such as heating rate, blank thickness, and furnace type; correct?

A. Yes, it is correct.

Q. Another significant parameter that impacts the hot-stamping process is the homogeneity of the coating?

A. Yes, that is correct.

Q. Significant problem in the industry is that each hot-stamper has its own setup; correct?

A. Correct.

Q. As a result, it is very difficult to predict whether a hot-stamped part will have desirable attributes; correct?

A. Correct.

Q. You were here for Dr. Fekete's testimony; isn't that right?

A. I followed part of Dr. Fekete's testimony.

Q. You understand that he is making the presumption that parts that are contained in cars, such as Mercedes-Benz and BMW and others, that he has no information on process parameters, he's concluding that they're covered by the patents.

Were you here for that testimony?

MR. KATHIR: Objection, Your Honor. Beyond the scope of the direct.

MR. MCKEON: Getting to the scope of the claims, Your Honor, and how we're applying it consistently in this case, and I am just asking him about how he's applying it, the process parameters, and how it conflicts with the way -- what we have heard earlier this week.

JUDGE BHATTACHARYYA: The objection is overruled.

Do you want to hear the question again?

THE WITNESS: I would be happy to hear a clear-cut question. I understood Mercedes-Benz or BMW, but I didn't understand the full question, honestly.

BY MR. MCKEON:

Q. Let me do better than that. This is RDX-10.1. This is testimony we heard earlier this week. I'm going to just reference you to the first question and answer.

"Now, getting back to the patent at issue and

the infringement DI analysis, you agree that the specific process parameters for the hot-stamping process are not things that need to be considered when doing an analysis of whether a product is covered by the claims; correct?"

His answer was "Correct."

Now, focusing just on that, do you agree or disagree with Dr. Fekete and how you applied the claims in this case?

A. That is for me hard to say yes or no.

Q. You don't know sitting here whether the testimony that Dr. Fekete provided to the Court earlier this week, you can't agree or disagree with it?

A. Maybe it would be easier for me when I can again go through the entire context of his testimony. Because this is a very small portion, which seems to be maybe a bit out of context.

Q. Sir, I -- just focusing on the one question and answer. Just one question and answer. Take your time and read it.

A. Yeah. I would tend to agree to Dr. Fekete here, but I would like to emphasize that it would be better to know the complete context.

Q. So now -- let me ask you a question, again.

Do you agree, sir, with respect to the claims analysis, whether a product is covered or not covered, you

agree that the specific process parameters for the hot-stamping process are not things that need to be considered when doing an analysis of whether a product is covered by the claims; correct?

A. So you're asking me again about this statement from Jim Fekete.

Q. Take the -- we don't need to look at this again.

Now I'm asking you a question based on your prior answer. So now I want to ask you the question.

A. Okay.

Q. So you agree that the specific process parameters for the hot-stamping process are not things that need to be considered when doing an analysis of whether a product is covered by the claims; correct?

A. I would go a little bit beyond this standpoint. So when available, I would rather go for getting additional information -- additional information about processing parameters, in conjunction with an analysis of these claimed microstructure features.

Q. When available, but you agree you don't need it, just like Dr. Fekete said, you don't need it when doing the analysis of whether something is covered by the claims.

Yes or no, sir.

A. No, I would tend to agree to the testimony here of Dr. Fekete.

Q. Thank you, sir. Pull that down.

Now, if we can pull up slide -- demonstrative slide 2. And what we have done here is just to make our conversation more simple, I have got portions of the patent on the slide, and we have color-coded it to make it simple.

You recognize this from the patent; correct?

A. Yes, I do.

Q. Of course, we see here two process windows in Figure 7; isn't that right?

A. In Figure 7, we see two areas which pertain to different thickness regimes of the material.

Q. Okay. Right.

Then one is related to .7 to 1.5, and another is related to above 1.5 to 3; isn't that right?

A. Correct.

Q. So then for each one of these thickness you have two different process -- strike that.

For each one of these thickness, you have a corresponding process window; correct?

A. Correct.

Q. Of course, for the one in red, the thickness .7 to 1.5, it says, well, the window is 930 degrees Celsius, from 3 minutes to 6 minutes, and 880 Celsius, 4 minutes, 30 seconds up to 13 minutes.

Do you see that?

A. I see that.
Q. That window is sort of highlighted in the figure we have here in 7; correct?
A. Correct.
Q. Similarly, the blue highlight corresponds to what we have highlighted on the right from the specification, 1.5 to 3, you have 940 C from 4 minutes up to 8 and 900 degrees from 6 minutes 30 seconds up to 13.
Do you see that?
A. I see that, yes.
Q. Do you agree that if you are within the process window of Figure 7, you will create the four layers required by the claims; correct?
A. No, I do not agree.
Q. Let's pull up, if we can, RDX-9.3.
You recognize this -- you were here for Dr. Fekete's testimony; isn't that right?
A. As I have mentioned before, I heard some of Dr. Fekete's testimony.
Q. Let me direct your attention to the question and answer at the bottom that are highlighted.
"Question: You believe that if the process parameters are within the process window, that means the claimed-for structure will be created; correct?
Just barely, but yes."

Do you see that his testimony is?

A. I see that, yes.

Q. He was specifically referring to the two stars there you see on the slide, his slide, that he presented to the Court.

Do you see that?

A. Yeah. I see these two stars, yes.

Q. You understand that he is saying and he told the Court that because these two stars are within the process window, as defined by the figure, then you will end up with the four layers.

Do you understand that's what he's saying to the Court?

A. I am just a bit careful because I'm afraid that this is maybe compared to my statement, pulled a little bit out of the context.

When I had given you the answer before, then I implied by that, that you need to adhere to a set of processing parameters to arrive at these four layers. For this, I would maybe have to revisit the entire context when Dr. Fekete gave that answer.

Q. Well, do you see the problem I have here, Dr. Raabe? I have one expert that says one thing, and I have another that is saying another thing, and I need to get it straight. And I'm just trying to explore that.

So my question for you is: You agree, correct, you agree with the statement that if the process parameters of a process are within the process window, that means the claimed structure will be created; correct?

A. I would add further processing parameters to it.

Q. In other words, you disagree -- you disagree with Dr. Fekete the way he did the analysis in this case, you disagree with the fact that if you're within the process parameters in Figure 7 that you create the four layers.

You disagree with that, is that what you're saying?

A. I do not disagree with Jim Fekete.

Q. Let's get this straight because I need to know this very clearly as we get to the prior art.

You agree if you are within the process windows defined by Figure 7, you agree you will create the four-layered structure required by the claims. Yes, sir, yes or no.

A. You refer to this statement now?

Q. I'm referring to you, Dr. Raabe.

You agree that if the process parameters are within the windows, the process windows defined by Figure 7, that you will get the claimed structure with the four layers; correct?

A. You will get the layered structure when you adhere to several process parameters as described in the patent.

Q. And --

A. And this is one of them.

Q. Well, let's be very specific here.

Claim 7 requires a thickness, a temperature, in a range, and a time. Isn't that right? That's Figure 7 of the patent; isn't that right?

A. That is pertaining to Figure 7.

Q. According to the other expert that we heard from Arcelor this week, according to the other expert we heard from, if you get those three things right, according to Figure 7, you get the four layers. You disagree with that or you agree with that?

A. As an expert in the field, I would follow this Figure 7, yes, but adhere also to the other process parameters as described properly in the patent.

Q. You're adding things to my question, sir, and I've got to get a very specific answer from you because this is really important in this case.

So I need a very specific answer because you said a lot about the prior art. You went through all of the prior art, and I want a very specific answer.

Yes or no. You agree that if the process

parameters are within the windows of Figure 7, then you will get the claimed structure with the four layers; correct?

A. I find that hard to answer with yes or no for the reasons that I have stated before.

Q. So what you're saying is no, you have to do more than that. You need other things you have to have, because if you get these three things right, thickness, time in the oven, and temperature, you may not get the four layers.

That's what you believe; isn't that right?

A. What I believe is when you want to arrive at these four layers, then you must follow the processing protocols as described in the patent, where you Figure 7 sets only a subset of these processing parameters.

That's what I'm trying to convey here as an expert in the field.

Q. So let me see if I can just put a fine point on it.

Figure 7 gives you some of the process parameters, but according to you in order to get the four layers you've got to do more than that. There's other things in the patent that you have to follow. Is that what you're telling the Court?

A. That's correct. You have to follow also other processing parameters.

Q. Thank you, sir.

Pull that down.

Now, let's go to Cornette. That's RX-19, and you provided testimony about this in your direct, do you recall that?

A. Yes, I do.

Q. All right.

Let me get the Respondent 3 here. It's RX-19. You're familiar with the Cornette reference here, aren't you?

A. I am.

Q. This is of course, a 2001 paper from Usinor; isn't that right?

A. Correct.

Q. Of course, you understand that Usinor is actually a predecessor company to what we got here in the courtroom, ArcelorMittal?

A. Correct.

Q. In fact, J.P. Laurent is also -- well, strike that.

J.P. Laurent is the author of this paper, one of the authors of this papers; isn't that right?

A. Laurent is one of the authors of this paper.

Q. We have heard of him previously in this trial, J.P. Laurent is actually the inventor on that original

Usibor patent; do you know that?

A. I know.

Q. The Cornette paper was presented at SAE 2001 World Congress in Detroit between March 5th and 8th of 2001; isn't that right?

A. That is correct.

Q. And SEA -- SAE, rather, stands for; isn't that right?

A. That is correct.

Q. You agree that SAE is a big deal; right?

A. For whom?

Q. Well, it was founded in 1905; right?

A. A big deal for whom?

Q. Well, it's an association and has 128,000 engineers and technical experts; do you know that?

A. I did not know the exact numbers, no.

Q. Does that surprise you to know that 128,000 engineers and technical experts are part of SAE?

A. No, it does not surprise me, but as I said, I did not know the specific number.

Q. But you understand that it's a very important -- in the automotive industry, it's a very important organization.

You agree with that; right?

A. Of course.

Q. In fact, SAE sets standards for the business; isn't that right?

A. That is correct.

Q. And of course, the 2001 World Congress had people from all over the world attending it; right?

A. I don't know. I have not attended this conference.

Q. Well, they call it the World Conference for a reason; right? It's the world is there; isn't that right?

A. Yeah, but these two statements have nothing to do with each other.

I don't know who attended the conference. How would I know that?

Q. I don't expect you to know who's there, but you wouldn't be surprised if folks from all around the world, including from our friends over here, Usinor, and folks that were doing the research in this area were attending in Detroit.

You wouldn't be surprised by that, would you?

A. I would find it very likely that many automotive engineers would attend such a conference, yes.

Q. In fact, since this is in Detroit, you understand that's where Ford is headquartered and General Motors. They call it Motor City for a reason; do you understand that?

A. I do.
Q. Of course, we all know that 2001 is when the Usibor first went on sale; isn't that right?
A. Yes, that's correct.
Q. This paper is kind of the coming out, if you will, of Usibor.
Is that how you view it?
A. No, I would not view it like this is the coming out.
Again, that connection, I wasn't sure how to underpin it, but I see the coincidence of these two years, yes.
Q. Okay.
The Cornette paper certainly was a presentation -- there was a presentation given with this paper, and it involved, of course, hot-stamping process window for pre-coated Usibor 1500; isn't that right?
A. Yeah.
This paper was, as we discussed before, about presentation of opportunities in conjunction with high-strength steels for potential automotive customers, and reporting about potential developments in that field, yes.
Q. Okay.
Let's just go to page 9, if we can of the

presentation, RX-19.9. This is a figure we have seen here. Why don't we blow it up so we can get a better view of it.

You discussed this figure on your direct; isn't that right, sir?

A. That is correct.

Q. Of course, no doubt in this -- at all in this paper that we're talking about the Usibor 1500; right?

A. Correct.

Q. Usibor 1500, of course, is at issue in this courtroom because you know all week we have heard about it; isn't that right?

A. Yes.

But more specific there are only a few columns of that paper talking about Usibor.

If you read that paper, most of the text is about three or four other steel grades.

But there is Usibor contained in that paper also with a very small fraction.

That is correct.

Q. Okay.

But at least we know in this figure what they're talking about is taking this Usibor 1500, which is that aluminum silicon coating we've all been talking about throughout the trial, and heating it. And according to this disclosure, you heat it for 5 to 10 minutes at 880 to

950 degrees C; isn't that right?

A. So you said that figure is showing aluminum silicon-coated, but that's not what the figure said. The figure says it's a pre-coated.

Q. Well, it's pre-coated, but the Usibor 1500, we know it had -- we know what coating it is. There's no mystery about that in this case; is there?

A. No, what you say is incorrect.

We have on this figure before that you can also equip it with other coatings.

Q. Okay. Well, we'll get to that.

But focus on the heating treatment here, you have the 5 to 10 minutes, 880, to 90.

Do you see that?

A. I see it.

Q. Of course, this is the processing times, and for temperature and time, that in this presentation, they're telling the whole world there in Detroit, use this for the pre-coated Usibor 1500, use this particular process parameter, is what they're saying to the world; isn't that right?

A. Yeah.

They give these two parameters and say it on a conference. I totally agree.

Q. They do more than that.

Let's go to, if I can, to 19.10.

They actually give much more detail here, but they talk about the thickness of the material at 1.5 millimeters.

Do you see that?

A. Yes. I see that, after they say that the mechanical properties are not guaranteed.

Q. Well, you know what, I survive my stuff -- it happens all the time. I read the fine print, it says, not guaranteed, because lawyers -- I have lawyers all around that sue people. A lot of people don't guarantee things, sir, but I'm talking about the technology in this case.

The technology in this case is 1.5 millimeters, people are reading this and saying that's the thickness of the steel that I'm going to process here; isn't that right?

A. Yes. They refer to a thickness of 1.5 millimeters, that's correct.

Q. So in this disclosure to the world in Detroit, I got the thickness, I got the temperature window, and I got the time window; isn't that right, sir?

A. Yes, they have a temperature, they have a time, and they have a thickness. I agree.

Q. Let's go to RDX-10.4, if we can.

And this is a -- to make it easier for us, we have prepared this demonstrative, and that's sort of a

spot-on right in that window; isn't that right?

This is right in the range that they're talking about in the patent, the 1.5 millimeters.

You got the window here of 880 to 950, right, and that falls within the processing windows of Figure 7; isn't that right?

A. It does not fall within, it overlaps. Falling within is mathematically something different. That means it would be totally surrounded by the other space. It has an overlap.

Q. It's an overlap. That means if you follow these parameters you're going to get the four layers; isn't that right?

A. No, but that's not what the paper said.

Q. Well, I know the paper didn't say, if you follow the parameters, you can get the four layers. We all know that.

What I'm trying to get at is the paper gives you very specific guidance about the temperature, the time in the oven, and the steel thickness. These are the big three for Figure 7; isn't that right?

A. No, that's not correct.

Q. What's not correct?

A. The figure does not give you a time in the oven. It gives you a time of the heating.

Q. Well, sir, heating -- are they heating this thing with BIC lighters? They're putting it in a massive furnace. Everybody in the business knows this. We learned that in the last three days; haven't we?

A. I don't know about using lighters in the industry. Maybe you know more than I do. But the point is in the industry, with which I've worked more than three decades, you can have different processing steps of whatever they did not reveal in that paper. How you have preheated the material before an oven, of course, you can do that.

Q. You think the people in this room would look at that and it says, heating for that long, that time frame, at that high temperature, you think that people wouldn't say, oh, that's -- that's got to be done in an oven. You don't think that's the conclusion that one of ordinary skill in the art would make?

A. That's not what I said.

Q. It would be in an oven; isn't that right, sir? The Cornette, this paper is very clear, when you do those heatings, you can do it in an oven; correct?

A. I just say there's a difference for somebody in this field between the term "heating" and the term "oven."

You can do a heating of a sequence of different processes, and even the forming is heating up the material.

So I'm just trying to be clean on the terminology here.

Q. All right.

Well, let's look at another one.

You had provided some opinion testimony on Vaissiere, I think is what we have decided to call it. So if I can get RX-81.

Do you recognize the Vaissiere paper?

A. I do.

Q. Okay.

Again, this is another paper where J.P. Laurent is also an author; isn't that right?

A. That is correct.

Q. Of course, this is a -- another SAE paper about hot-stamping Usibor in the Peugeot Citroen; correct?

A. Yes, that's correct.

Q. Of course, it was at another international conference, this presentation; isn't that right?

A. Yeah, that's correct.

Q. This was a three-day conference in Paris, France, in July of 2002; isn't that right?

A. I don't see Paris written on here, but I see the year and -- okay. Yeah, there it is. I agree, of course.

Q. Okay.

Then we see -- thank you, Mr. Sayres. I think

we got that.

So why don't we go to page 8, and we see here that this is the figure -- a similar figure to what we saw in the other presentation in Detroit; isn't that right?

A. That's correct.

Q. It has the same -- it's disclosing the same Usibor 1500 pre-coated, and the same time windows, temperature windows; isn't that right?

A. That's correct.

Q. If we go to Vaissiere, but this time, this paper here, as we know from the cover, this is a 2002 paper; isn't that right?

A. Yeah. 2002, yes.

Q. So that's the year it makes very specific recommendation for temperature and time for a particular thickness; isn't that right?

A. Yeah. They give a heating time, 5 to 10 minutes, and a temperature range. I would not call that very specific, but they give a few parameters, yes.

Q. Okay. Well, let's take a look at that.

Go to page 5, please. If I can get highlighted the 4.4-3-1. And please -- give the whole clip, if I can, Mr. Sayres. You missed something there. Down below. There you go.

Do you see it here, this is in the paper at this

presentation; isn't that right?

A. Yes, that's correct.

Q. They're very specific, "Recommendations"; in other words, hey, people in this business, they're listening to us. This is very, very exciting. We have very specific recommendations for you.

That's what they're saying here; isn't that right?

A. I find your statement was longer than the heading of this paper, so I don't know what your question is behind it.

It says, "Recommendations," but your sentence was much, much longer.

Q. Well, it's a recommendation, right, in other words, they're recommending this, they do this?

A. Yeah. That's what this heading is saying.

Q. Okay.

A. They call it recommendation, yes.

Q. You agree, though, that the recommendation that they disclose here is 1.2-millimeter thickness in the blanks; correct?

A. Correct.

Q. And they have the times, and the temperatures; isn't that right?

So for temperature 880, they say 5 minutes; and

900, they go 4 minutes.

Do you see that?

A. I see that.

Q. Okay.

Of course, you agree that these process windows that are disclosed in the paper, in Paris, France, where the who's who in the industry are there, these would fall within the Figure 7 process windows; isn't that right?

A. Yes, I agree.

Q. Okay. Well, let's just take a look at for effect.

9.6, please, RDX.

We pre-prepared this, sir, but if you do the analysis on the two disclosures in the reference, you agree, Vaissiere, you would get -- you would land right where we show here in the window here; isn't that right?

A. Correct.

Q. Again, then because of that, if you follow this and do what's disclosed in this reference, you get the four layers of the patent; correct?

A. No. I don't agree.

Q. Again, disagree with Dr. Fekete on that; is that right?

A. I disagree with what you said.

Q. All right. Let's look at the Kefferstein

reference.

If I can go to RX-49.

You, of course, are familiar with the Kefferstein reference, sir?

A. I am.

Q. This is 2004 now; isn't that right?

A. Correct.

Q. People in this business, they know what Usibor 1500 is about, and they are -- they know how to process it; isn't that right?

A. They know Usibor 1500P, and they have information how to hot-stamp it, yes.

Q. Mr. Kefferstein, of course, is one of the inventors on the patents at issue in this very case; right?

A. Correct.

Q. He's an author on this paper; isn't that right?

A. Correct.

Q. If you go to 49.1, we see another very specific reference to temperatures and thickness in this paper; isn't that right? 900 to 950 C, 4 to 10 minutes, and then we have a thickness that's very clear at 1.5 millimeters; isn't that right?

A. Point me at the thickness in this specific paragraph. I see the temperature and the time. Where do you see the thickness in this?

Q. Give me a moment here, sir. We'll find that. Small print. Having trouble finding it.

Let's go on to something else, sir, and we'll come back to that. Okay?

Now, you've previously given testimony in this proceeding that one SEM image, in your opinion, is not enough to draw a conclusion as to whether the layered structure of the asserted claims is satisfied; is that right?

A. Yes. When I had the choice, I would always go for more data.

Q. All right.

All right. Well, I guess let's quickly revisit. We're now back to Kefferstein, and you see here the thickness of 1.5 millimeters is disclosed in Kefferstein?

A. I see the thickness written up, but that's -- this shows only an insufficient portion of this text paragraph, because I remember when I was reading this paper several times before, that this paragraph, if you read it correctly, refers to the impact energy relevance. That is something totally different.

Q. Okay.

Let's not -- I don't want to spend much more time on it, but you agree with me, you agree with me, if you have a temperature -- if you have a thickness of 1.5,

if you had that thickness of 1.5, and you also have a temperature range of 900 to 950, 4 to 10 minute, you agree with me, that's in the Figure 7 window; you agree with that?

A. I agree that you would end up at this Figure 7 window, yes. That's correct.

Q. All right. I'm going to pull that down.

Now, you have quite an aggressive view --

MR. MCKEON: So, Your Honor, I notice I'm at -- we're at the time here.

JUDGE BHATTACHARYYA: Yes.

MR. MCKEON: So I was really hoping to finish up, but I'm not going to be able to do that, I don't think, unless -- maybe another 25, 30 minutes.

JUDGE BHATTACHARYYA: Well, I -- then we need to leave time for redirect.

MR. MCKEON: Yeah.

JUDGE BHATTACHARYYA: And to deal with the exhibits.

So I think, unfortunately, we should stop now.

MR. MCKEON: That's great, Your Honor. Thank you.

JUDGE BHATTACHARYYA: Okay.

Thank you, we'll resume tomorrow.

One other thing I'd like to discuss tomorrow is

the page limits or word limits for post-hearing briefs. So hopefully, the parties can meet and confer before tomorrow morning on that.

MR. MCKEON: Thank you, Your Honor.

JUDGE BHATTACHARYYA: Thank you, everybody. Have a good night.

(Whereupon, recess was taken at 5:03 p.m., to resume the following day at 9:30 a.m.)

C O N T E N T S

WITNESS	DIRECT	CROSS	REDIRECT	RECROSS
Stuart Brown PhD	876	931	1007	1016
Dierk Raabe PhD	1022	1074		

AFTERNOON SESSION: 988

CONFIDENTIAL SESSIONS: 904-910; 927-930; 981-986; 998-1006

E X H I B I T S

EXHIBIT NO:	RECEIVED

(There were no exhibits admitted.)

Ex. 2009
IPR2024-01377

CERTIFICATE OF REPORTER

TITLE: CERTAIN HIGH-STRENGTH ALUMINUM OR ALUMINUM-ALLOY COATED STEEL, AND AUTOMOTIVE PRODUCTS AND AUTOMOBILES CONTAINING SAME

INVESTIGATION NO: 337-TA-1402

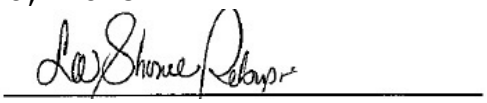
HEARING DATE: Thursday, March 6, 2025

LOCATION: Courtroom A

NATURE OF HEARING: Evidentiary Hearing

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Marjorie Peters, FAPR, RMR, CRR Court Reporter

UNITED STATES
INTERNATIONAL TRADE COMMISSION

In the Matter of:	)	Investigation No.
CERTAIN HIGH-STRENGTH ALUMINUM OR ALUMINUM-ALLOY COATED STEEL, AND AUTOMOTIVE PRODUCTS AND AUTOMOBILES CONTAINING SAME	)	337-TA-1402

Pages: 1125 through 1221

Place: Washington, D.C.

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UNITED STATES INTERNATIONAL TRADE COMMISSION

Washington, D.C.

BEFORE THE HONORABLE MONICA BHATTACHARYYA

Administrative Law Judge

In the Matter of:	)	Investigation No.
CERTAIN HIGH-STRENGTH ALUMINUM OR ALUMINUM-ALLOY COATED STEEL, AND AUTOMOTIVE PRODUCTS AND AUTOMOBILES CONTAINING SAME	)	337-TA-1402

International Trade Commission

500 E Street, S.W.

Washington, D.C.

Friday, March 7, 2025

EVIDENTIARY HEARING - VOLUME 5

The Hearing commenced remotely, pursuant to the notice of the judge, at 9:30 a.m. Eastern.

Reported by: Marjorie Peters, FAPR, RMR, CRR

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P R O C E E D I N G S

JUDGE BHATTACHARYYA: Good morning. Please be seated.

We're on the public record.

MR. MCKEON: May I proceed? Yes. Please go ahead.

Whereupon--

DIERK RAABE, PhD,

having been previously sworn, was examined and testified as follows:

CONTINUED CROSS-EXAMINATION

BY MR. MCKEON:

Q. Good morning, Dr. Raabe. I hope you had a nice evening. It's good to see you this morning.

A. Same for you, thank you.

Q. I want to start with the VW Passat, and you told the judge yesterday that you thought the Passat was not enabling to a person of ordinary skill in the art.

Do you recall that?

A. Yes, I do.

Q. Then what that really means is you say that the car does not provide the information necessary for a person of ordinary skill in the art to produce the claimed invention without undue experimentation.

That's the test you use; right?

A. Right.
Q. But really, that's just -- I mean, do you really mean that?
A. Yeah, that's why I said "correct."
Q. Okay.
I mean, you understand that the Passat was actually -- like, it was a car, it was manufactured, and it was sort of driving around, people were driving around with it; isn't that right?
A. Yes, that is correct. The car was driving around. That's correct, yeah.
Q. And the car, of course, as we discussed yesterday, was described by Arcelor in its internal documentation as a major breakthrough in 2004; isn't that right?
A. Yes. That is correct from the document, yes.
Q. Of course, you have seen the SEM images that have been created with respect to the parts of the Passat in this case; isn't that right?
A. I have seen some SEM images.
Q. In fact, you have a very aggressive, if you don't mind me saying it that way, a very aggressive view of the enablement issue with respect to prior art; is that fair?
A. I don't understand what you mean by "aggressive

view." Maybe you can be more specific.

Q. Well, I have here a list of the prior art references at issue in this case; there's seven of them. And you have given an opinion in this case that all seven of these prior art references are not enabled; isn't that right?

A. My overarching statement indeed is that the Passat is not enabling. Yes, that is correct.

Q. Okay.

My question is a little broader than that, though, Dr. Raabe.

More generally, with respect to this enablement opinion that you have, you have given the opinion in this case that the Passat, not enabling, but you also said, these six other references, they're not enabling, either.

You've given that testimony in this case; isn't that right?

A. The statement that I would make is that based on the material that was accessible to me, and that I reviewed, and I testified, my statement is that the Passat is not enabling.

Q. Let's take them one at a time, then.

You believe that the Takagi reference fails to provide an enabling disclosure; correct?

A. Correct. Takagi is not enabling.

Q. You believe the Cornette reference fails to provide an enabling disclosure; correct?

A. Cornette publication in the SAE is not enabling.

Q. Cornette, we discussed that yesterday; isn't that right?

A. We discussed some of that yesterday.

Q. You also believe that the Suehiro reference fails to provide an enabling disclosure; correct?

A. Suehiro II, I assume you refer to, is not enabling, as we discussed yesterday, yes.

Q. That reference, again, that's from 2003; isn't that right?

A. That is -- from the top of my head, that was 2003, but I would be happy to look up the year. I don't have the document at the moment in front of me.

Q. It's in the record. We can move on from that.

But you did tell the judge yesterday that the Suehiro reference -- well, let me strike that.

You told the judge that Suehiro, the person, was at Nippon Steel at the time of this article in 2003. You also told the judge that Nippon Steel is one of the biggest steel companies in the world.

Did you say that?

A. No, that is not correct.

What I said yesterday is that, at that time,

Nippon Steel was one of the biggest steel companies in the world.

Q. Okay. Well, thanks for that clarification.

Of course, Suehiro was at Nippon at that time; correct?

A. Yes. Suehiro was at Nippon Steel at that time.

Q. You believe that the smart folks at Nippon, which was, at the time in 2003, one of the biggest steel companies in the world, would not know in 2003 how to make the claimed four-layer hot-stamped part; correct?

A. What I said is that, based on that document, Suehiro II from Nippon Steel, there is no sign of enablement pertaining to the claims of '602 or '227.

Q. Just so I understand your analysis, you understand that the document is to be read from the viewpoint of one of ordinary skill in the art.

Do you understand that?

A. I understand that.

Q. You understand that the folks at Nippon, that includes the engineers and the folks at Nippon working in this business, that includes them.

Do you agree with that?

A. I understand that, and I have worked 30 years with them. Yes, I do.

Q. So those folks at Nippon, looking at the Suehiro

reference, what you're telling the judge is that these people of ordinary skill in the art in 2003, what you are telling the judge is with that reference, they wouldn't know how to make -- all the smart folks wouldn't know how to make the four-layered structure claimed by the patents in this case; correct?

A. I would be happy to explain that a little bit more in detail, if I may.

Q. Well, it's just is that what you told the judge? That's what you're telling the judge; is that right?

A. You don't want me to explain that?

MR. KATHIR: Objection, Your Honor.

May I explain?

JUDGE BHATTACHARYYA: Well --

MR. KATHIR: Sorry.

JUDGE BHATTACHARYYA: -- what is the objection?

MR. KATHIR: Beyond the scope, Your Honor.

We didn't discuss enablement with respect to Suehiro, and even Dr. Brown isn't asserting -- or testify that Suehiro anticipates the asserted claims in any way. So this is beyond the scope of his direct testimony.

JUDGE BHATTACHARYYA: So Dr. Raabe didn't testify that Suehiro was not enabled?

MR. KATHIR: No, we didn't. We -- on direct, we gave a brief overview of Suehiro as it pertains to the

state of the art, which paralleled Dr. Brown's testimony, but Dr. Brown did didn't offer any testimony in this hearing that Suehiro II anticipates or renders obvious the claims, and likewise, Dr. Raabe didn't go into the enablement of Suehiro II in his direct.

JUDGE BHATTACHARYYA: Okay.

Mr. McKeon, how is this related to the direct examination?

MR. MCKEON: Yes, Your Honor. It goes to the state of the art, and then as counsel just confirmed, that Dr. Raabe testified about Suehiro, and it goes to the state of the art at the time, what was known in the art, and what the skilled artisan would know and understand at the time, and that's -- it's important to the whole enablement issue across the references that are at issue.

MR. KATHIR: May I respond, Your Honor? Sorry.

JUDGE BHATTACHARYYA: Yes, please go ahead.

MR. KATHIR: Your Honor, while Mr. McKeon can go into the state of the art, whether Suehiro II is enabling is a separate question. That wasn't a question that is relevant because Dr. Brown isn't asserting that Suehiro II anticipates or renders obvious the claims. So whether Suehiro II enables someone to make the asserted claims isn't relevant to the issues in this investigation, so Dr. Raabe didn't offer testimony as to that in his direct.

Certainly, state of the art, no issues with that, but enablement is a separate issue.

MR. MCKEON: I'll respond to that, Your Honor.

Of course, how he has applied his viewpoint of what enablement is and what is required is really important, and he's taken the view that all these references are not enabled, and I think it's fair cross-examination to explore the scope of his analysis on that.

JUDGE BHATTACHARYYA: You may ask Dr. Raabe if he has opinions about enablement, because that is related to the state of the art, but if Dr. Raabe didn't opine on that, he's free to say he has no opinion.

MR. MCKEON: Okay. Yes. Thank you, Your Honor. That's all I plan to do. I don't plan to go into detail.

JUDGE BHATTACHARYYA: All right.

BY MR. MCKEON:

Q. Dr. Raabe, I think you have already answered the question, but you testified in this case that the Suehiro II reference is not enabled; isn't that right?

THE WITNESS: Your Honor, I understand I can render an opinion?

JUDGE BHATTACHARYYA: If you can --

THE WITNESS: Pertaining to that question?

JUDGE BHATTACHARYYA: Yeah. If you have an

opinion --

THE WITNESS: Yes, I do.

JUDGE BHATTACHARYYA: -- you can provide it.

THE WITNESS: Thank you very much, Your Honor.

There are two aspects to consider in that context.

The first one is that the layer that was -- the layered structure that was revealed in Suehiro II does not satisfy the claim because it is below 30 micrometers, as I have explained yesterday.

But the overarching view is that when you have such an extreme quality, like the R&D labs of Nippon Steel, and from 30 years experience, I can tell you they are among the best in the world in their field, they did not come up with the corresponding patent, and that tells me that, indeed, that was obviously not enough information or experimentation in their hands; otherwise, they would be the owner of such a patent, and not ArcelorMittal.

So from that, I conclude, as pertaining to that question, it is not enabling; otherwise, they would have maybe pursued IP of their own.

As a person of skill in the field, that was my view on this document.

BY MR. MCKEON:

Q. Thank you, Dr. Raabe.

You've also given the view that the Engels reference that you testified about yesterday, you have also given the opinion that that reference is not enabling; correct?

A. Correct.

Q. You believe the Lachmann reference, as you testified to yesterday, that's not enabling as well; isn't that right?

A. That is correct.

Q. One thing I know we're going to agree on is the state of the art for hot-stamping of pre-coated steel was well established in 2004; correct?

A. The hot-stamping of pre-coated steel was established before.

Q. 2004; correct?

A. That is correct.

Q. To put a finer point on that, you've reviewed the Kefferstein reference in this case; isn't that right, sir?

A. Which specific one do you mean?

Q. Put on the ELMO, and we can talk about it.

Do you recall reviewing the Kefferstein reference, sir?

A. Yes, I do.

Q. Of course, you know Dr. Kefferstein is one of

the inventors on the patents at issue in this case?

A. Yes, I understand.

Q. You reviewed this, and you understand that this is -- this paper is part of the International Arts Steelmaking Conference that was conducted December 9th and 10th in 2004.

Do you recall that?

A. This paper is part of the -- what the bottom line says, La Revue de. Metallurgie.

Q. Metallurgy review; isn't that right?

A. That would translate to metallurgical review, yes.

Q. Dr. Kefferstein provided testimony in his deposition, we're not going to review that today, but did you understand that this was part of a conference that was conducted in December of 2004?

A. Yes, I understand.

Q. Okay.

What we do know is that right out of the gate here, Dr. Kefferstein, in his paper, is telling the world here, "Development of safety and structural automotive parts by hot-stamping Usibor 1500P."

Do you see that title of the article?

A. I do.

Q. The article is quite specific about the

parameters and details.

Do you agree with that?

A. You say, the authors are quite specific about the details. Which details do you mean? There are many details in that process, as we discussed during this week.

So can you be more specific.

Q. All right. Well, let's take a shot at it together here.

You see here that there's a section hot-stamping with die-quenching.

Do you see that?

A. I see that.

Q. It actually tells you, hot-stamping consists of heating blanks until the complete austenitization, and it gives you the temperature, 900 to 950 C, during 4 to 10 minutes.

Do you see that?

A. I can see that, yes.

Q. In fact, it tells you in the article itself, the total cycle time is between 15 and 25 seconds.

Do you see that?

A. Yes. Maybe you can magnify it a little bit more that I see the full details. That would be really appreciated.

Q. Do you see that there? The total cycle time is

today between 15 and 25 seconds.

Do you see that?

A. I see that sentence, yes.

Q. Then we go over, of course, you see the figure provided by Dr. Kefferstein in his paper that he even identifies the hot-stamping equipment used, here.

Do you see that?

A. Maybe it would be nice if you could magnify it a little bit so that I can -- because there are many details in that figure.

Q. Yes.

Do you see that?

A. Yes. Yes, I do.

Q. Okay.

Then, of course, Dr. Kefferstein goes on to say, the solution, in fact, he's pretty specific in the article, he calls it a solution.

Do you see that?

A. I see the sentence, the Arcelor solution, yes, I see it.

Q. Okay.

Then he goes on to give you some details about the Usibor 1500, you see that in this paragraph here, and I'll highlight this for the record, with metallic coating, of course, the aluminum silicon we heard about. It even

gives you the coating parameters of the steel.

Do you see that?

A. Yes, I see that line in conjunction with the pre-coating thickness, yes.

Q. Again, and he has before -- some imaging before and after SEM -- strike that.

Some SEMs before and after stamping.

Do you see that?

A. Yes, I see the images, yes.

Q. Then he goes on just -- again, the article is two pages, but it's chock-full of information. We see here he goes on to talk about the main properties.

Do you see that part of the article?

A. Yeah. He talks about main properties, yes.

Q. We've heard a lot in this case about weldability, and you see where Dr. Kefferstein talks about, hey, by doing this treatment of the hot-stamping with the temperature ranges, you are going to get good weldability.

Do you see that? And I can direct you to it here; do you see that?

A. I see the sentence where the authors highlight that Usibor 1500P has good weldability. That's what I see there.

Q. He also brags about -- by the way, you understand that he's out there in the industry, and he's

trying to promote Usibor 1500. He wants a lot of people to use it.

Isn't that what he's doing here?

A. So are you asking me whether I understand what he's doing there?

Q. You understand -- we have seen a couple of articles the last two days you and I have discussed, and it's folks from Arcelor who are out in the industry trying to promote the use of their steel.

A. Yes, I understand that.

Q. He even goes on to, you know, talk about significant weight reduction can be obtained, and he talks about several vehicles today are equipped with the front bumper beams in Usibor 1500P.

Do you see that?

A. I see that sentence.

Q. We talked about the internal Arcelor document that actually mentions this 2001 bumper beam.

Do you recall that?

A. I recall that.

Q. Then he has got -- actually, let's just get to the thickness. He gives you a thickness here of the metal there, 1.5 millimeters.

Do you see that -- oh, you can't see that. I'll pull this down.

Do you see that there, sir?

A. Yes. We have discussed this part of the article yesterday where he outlines, in conjunction with the weight reduction that you highlighted just before the in column, that this material has also what we call a certain energy-absorbing capability, and that's why he's calculating an energy measure, because that's what I highlighted in the beginning of my presentation, that's the point of having high-strength steel against side impact. You need this energy calculation, and he shows here what the measure is.

Yes, I see that.

Q. Just to get to the article here, they've got a conclusion section, and you've reviewed this, haven't you?

A. Yes, yes, I do.

Q. Of course, he's talking about the automotive parts, and he's referring to some of the things we have been hearing about in this case, including the A-Pillars, B-Pillars, roof rails, A-frames.

Do you see all that?

A. Yes, I do.

Q. Of course, he's given this image here of an automobile with all that structure.

Do you see that?

A. I can see that.

Q. He's also very specific. He's saying to the community that the estimation of the total consumption of the flat boron steels for hot-stamping and die-quenching is about 60 to 80 kilotons.

Do you see that?

A. Yes, I see the sentence, yes.

Q. 60 to 80 kilotons, that's 60 to 80,000 tons of steel; isn't that right?

A. That's correct.

Q. That's a lot of steel; right?

A. I disagree.

Q. You don't think 60 to 80,000 tons is a lot?

A. We produce on the globe per year at the moment 1.85 billion tons of steel every year. Billion tons.

So when you compare that number to billion, which is a 10 with nine 0s, you understand that, that is a very tiny number. That's not a big number.

Q. Well, I mean, everything in the world is relative, sir, we all know that.

But just objectively speaking, the 60 to 80,000 tons, to produce that much steel, you've got to have processes that are up and running, and things are happening in the industry.

You agree with that; right?

A. I disagree.

As I said just before, in steel, that is a very small quantity. I just repeat, we produce nearly 1.9 billion tons of steel per year, so that is a tiny number.

Q. Well, you do agree that he specifically predicts that the consumption will increase in Europe, and he has 170 to 190 kilotons.

Do you see that?

A. Yeah, I see that sentence, and assume that he's referring to the breakthrough achieved by the patent because it starts with the year 2006. So that's at least what I conclude here.

Q. Okay.

He also, of course, mentions specific hot-stampers that are in the business.

Do you see that?

A. Yes, I see that.

Q. As well as the OEMs, which are the automobile manufacturers, that are interested in this technology; correct?

A. Yes.

Q. Of course, you understand that everything we just went over, sir, in this article is prior art; in other words, this was before the patent?

A. So this article is prior art, yes.

Q. Yeah. So it's before the patent, and it

disclosed -- everything that we just disclosed is something that the community out there would know.

A person of ordinary skill in the art would be aware of this article, and the articles we discussed yesterday at the time in 2004-2005, and all of the details we just went over is something that a person of ordinary skill in the art would understand.

Do you agree with that?

A. So what is written in this article, a person of skill in the field would understand. I agree.

Q. Okay.

One thing we -- that I want to understand your view on is the idea that Magna is a hot-stamper, and that Magna was in business at this time in 2004; isn't that right?

A. That is correct. Magna was in business at that time.

Q. Of course, Magna would also be, being of ordinary skill, would also be aware of the Kefferstein publications and these disclosures we talked about yesterday because they're in this business; isn't that right?

A. I cannot answer that question. I don't know whether somebody from Magna was reading that paper, but it might be plausible to assume so.

But I cannot give testimony about that.

Q. You agree there's people of ordinary skill in the art at Magna that are doing hot-stamping at this time, you agree with that?

A. I agree.

Q. Okay.

Of course, we all know by now in this trial that Magna, in 2005, was actually hot-stamping Usibor 1500; isn't that right?

A. That is correct.

Q. Of course, we know that in this trial, we've learned that Magna actually hot-stamped the part that was imaged by Arcelor and became Figure 1 of the patent.

Do you understand that?

A. That is correct.

Q. In order for Magna to do that with all of this knowledge out there, this prior art, Magna, of course, is the company that put the steel, the Usibor steel in the furnace, isn't that right, at this time, in 2005?

A. I disagree to this statement.

Q. Well, you agree with me that Magna is the one that manufactured the part that ended up becoming Figure 1 in the patent; right?

A. I agree.

Q. You understand that Magna made that part at its

facility; do you understand that?

A. Magna made that part at its stamping facility, yes.

Q. To do that, it actually had to put the part in the furnace; correct?

A. That is correct.

Q. It had to have temperature and temperature ranges; correct?

A. So Arcelor gave them the recipe to do that, yes.

Q. Well, yeah. Actually, it did give the recipe, didn't it, sir? There's a disclosure in 2004 that gives quite a lot of detail about how to do this; isn't that right, sir?

A. No, that is not correct.

Q. Not correct. Okay.

So you think that this article here would not be something that Magna would have considered, and used as part of its process, as a company with ordinary skill artisans; correct?

A. If I would have assumed that, I would have called this document an enablement. But as I explained before, this document is not enabling because all of the critical processing parameters are not in document. So, no, it is not enabling.

Q. You are saying that the Kefferstein document we

just went over you think is not enablement; correct?

A. Correct.

Q. Okay.

But do you agree with me that Magna would be the company that would have done the furnace, done the time in the furnace, have done the thickness of the steel, would have gone through hot-stamping and all of the post hot-stamping processes, and then delivered this product to Arcelor.

You would agree with all that; right?

A. No, I disagree.

Q. Well, Magna would have done the hot-stamping, you agree with that?

A. No, I disagree. You said Magna did the thickness of the steel. That is incorrect. Magna did not do the thickness of the steel because that was rolled by Arcelor, and it was coated by Arcelor, and then delivered, so Magna did not do the thickness. The statement was incorrect.

Q. Well, let's be precise about it, Magna took steel -- Usibor 1500 steel that was available in the marketplace; correct?

A. Magna took the Usibor steel that Arcelor gave them.

Q. Sure. Arcelor was promoting its steel, and it

wanted everybody -- everyone out there to use its steel; isn't that right?

A. Say again, you asked me whether everybody out there is using steel?

Q. To be precise, Arcelor wanted everybody in the industry to use its steel. It's in the business of selling steel, so it wanted everyone to use it; right?

A. No, that is incorrect.

In the industry when you know, like I do, since more than 30 years how this industry functions, you first want to have a good demonstrator. That means you pick one of your companies you work with in order to give them, maybe, an example of your material and develop with them together, let them stamp the product that you developed, and then probably bring it into the market.

So I would be much more specific compared to what you said.

Q. All right. Well, let me just make sure we can agree on some basic things, then, okay?

You agree that the steel was supplied by Usibor, and Magna -- and this is the 2005 steel that became Figure 1 in the patent. Magna took that steel and did the hot-stamping process, you agree with that; correct?

A. That is correct.

Q. Magna gave the product to Arcelor, and Arcelor

took that product and did the imaging of the product; correct?

A. That is correct.

Q. The imaging became Figure 1 of the patent; correct?

A. That is correct.

Q. So -- and you of course, you understand -- I think you have a slide on this, that -- let me pull up your slide, which is CDX-489. Oh, okay. Let me go back to --

Do you see the last puzzle piece, you see that, December of 2005?

A. Yes, I do.

Q. So before the last puzzle piece that Dr. Drillet testified about, the steel part was already manufactured; isn't that right?

A. So what I learned from the documents and from the testimony of Dr. Drillet is that this last stamping step that allowed them to verify and validate their development was, to him, the last puzzle piece.

Q. All right.

So he looked at the part -- he looked at the imaging of a part that Magna made; correct?

A. No. That is not correct.

Q. Well, sir, we've established that Figure 1 that's in the patent is in the TAV report.

Haven't we established that already, sir?

A. Yeah, that's correct, but what you said before wasn't correct.

Q. Well, you reviewed the TAV report; right? We don't have to pull that up, do we?

A. No, I did that, but you said Magna made the product. Magna made not the full product. Magna stamped something. The product is something totally different.

Q. Well, Magna stamped something, and at the end of it, had a product; correct? You agree with that?

A. I agree with that, but you said product, and a product is not the same thing as a part. It's a semi-product.

Q. Okay.

So you're quibbling with my words, if I say part, does that help you?

A. Yeah. That is correct.

Q. All right. Let's be precise here. I don't want to be imprecise.

So Magna took the steel from Usibor. The Usibor 1500 that was already out in the industry, and went through, and then Magna processed to create a part in the 2005 time frame; correct?

A. No, that is incorrect.

Q. Well, Magna hot-stamped the Usibor 1500;

correct?

A. No, that is not correct.

The point that we discussed here is that Magna got this material to the specs of the claims of the '602 patent, and that was the material that was stamped.

Before you said they just used a coated steel or used the Usibor. No, they used the material that is described in the patent.

Q. Well, they used Usibor 1500, sir.

A. Yes, that is not a contradiction.

The claim is using the -- the patent is using the Usibor steel as a base.

Q. Magna -- sir, you understand, of course, that Magna did all of this before the priority date of this patent, which is December 2006.

You understand, that, sir?

A. I understand that.

Q. Do you understand that Magna did all of this before what was being argued in this courtroom is the eureka moment, which is December 2005. Magna did all of this before December of 2005.

You understand that?

A. This statement is incorrect. Magna did not "all of that" before. You say "all of that." What do you mean by "all of that"? That is an incorrect statement.

Q. Magna -- sir, Magna hot-stamped the part.
A. Magna hot-stamped parts, that is correct.
Q. And Magna gave the part to Arcelor; correct?
A. Magna gave the part to Arcelor. That is correct.
Q. From that part, Figure 1 of the patent was created; correct?
A. From a very specific material pertaining to the '602 patent that Arcelor had given to them, they handed that part back to produce Figure 1, that is correct.
Q. Do you understand the Usibor 1500 is prior art?
Do you get that?
A. Usibor 1500 is prior art.
Q. Do you understand that -- there's testimony in this case that there's a patent on it in 2001; do you understand that?
A. I do.
Q. So you're talking about someone -- them giving it to Magna -- 1500 was prior art. Magna can go down to the local hardware store and probably get it, isn't that right, sir?
A. Magna could get into a store and buy 1500 Usibor steel; that is correct.
Q. What it did in this case, it got the 1500, it hot-stamped it and gave the part to Arcelor; correct?

A. That may be, but this is not how Figure 1 was produced.

Q. Well, Figure 1 was produced because Arcelor took Figure 1, and did an SEM from the part, and created Figure 1.

That's testimony in this case, sir; right?

A. Based on the material that Arcelor, pertaining to the claim specs, gave to Magna.

Q. Based on what one of ordinary skill in the art, well, well understood in 2005, based on Kefferstein paper, Cornette, Lachmann, all of these folks from Arcelor out there, trying to promote the product; isn't that right, sir?

A. I disagree with this statement.

Q. Now, you had --

MR. MCKEON: Let me, Your Honor, if I may, for the record, mark -- I have done some highlighting here, and just for the record, I'm going to mark it as an RDX-11.

BY MR. MCKEON:

Q. Now, you recall that you -- let me pull up your slide. You have slide CDX-88.

That slide I need is slide 88.

You recall providing the Court with some excerpts of the testimony of Mr. Webb from Magna?

A. Yes. I see that.

Q. Okay.

And I think the point you were making was that the process had changed; was that what you were trying to say to the judge?

A. I think that's what Jacob Webb was trying to say, and I was just citing him.

Q. Well, you didn't show the judge the entire -- well, let me pull up the transcript, if I can at RDX-10.8.

For the record, it's the Webb transcript, which is RX-1277 at 185/5 to 14.

I'll read it for the record.

"I guess, as you sit here, you don't know one way or the other; right?

Answer: What I can say is that the process hasn't really changed between -- if I take this control plan right now and -- from 2005, and I was to make the same part to date, I would get the same result. The inputs are the same as I would use to date. So any -- recreate this; right? So using the information on this sheet, I could recreate the result that we got in 2005."

Do you understand that's the testimony that Mr. Webb gave in his deposition that you didn't show the judge; isn't that right?

A. So I read the same text as we all were just reading. That's what this man said, yes.

Q. You can pull that down.

MR. MCKEON: One moment, Your Honor.

BY MR. MCKEON:

Q. You provided testimony yesterday about Lachmann.

Do you recall that?

A. I recall Lachmann, yes.

Q. Dr. Lachmann was from Volkswagen; isn't that right?

A. That's right. Carsten Lachmann was with Volkswagen at that time.

Q. And the lecture at issue was January of 2005.

Do you recall that?

A. Yes, I recall.

Q. Now, I'm asking a very specific question, sir.

In your direct testimony, you did not tell the judge that the micrograph disclosed in Lachmann did not contain the four layers claimed in the patents; correct?

A. Micrograph in the Lachmann documents say -- you say does not contain what? Does not what?

Q. Trying to understand the testimony you provided to the Court. Do you understand there's a micrograph, SEM micrograph image in Lachmann; correct?

A. Yeah, that's correct. There's a micrograph in Lachmann, yes.

Q. You did not in your direct testimony tell the

Court that the Lachmann micrograph does not disclose the four layers; correct?

A. Not tell that it does not reveal --

Q. Sorry for the double-negative, but I need it here.

A. Can I answer now.

Q. Let me ask a different --

JUDGE BHATTACHARYYA: If you can understand the question, you can.

THE WITNESS: I did understand the question, but I obviously had no chance to answer it. I'm just asking when should I answer the question.

MR. MCKEON: Let me withdraw and ask a more precise question.

JUDGE BHATTACHARYYA: He's withdrawing the question.

MR. MCKEON: Thank you for that, sir.

BY MR. MCKEON:

Q. In your direct testimony, you didn't provide an opinion to the Court that the Lachmann micrograph fails to disclose four layers as claimed in the patents; correct?

A. Micrograph in the Lachmann has a certain number of layers, and I did not deny that.

Q. Okay. Thank you, sir.

Now, you provided testimony -- and we can pull

up your slide 58. This is Dr. Raabe's slide 58.

This is a SEM from the Passat. You provided some testimony yesterday.

Do you recall that?

A. Yes, I do.

Q. As I understand your testimony, you told the Court that there is a crack, if you will, in layer 2, and in your opinion, because of that, there is at least doubt -- I'm going to use that word very carefully -- you said there was doubt about whether the other layers would form in light of the crack.

Did I get that right?

A. Yes, you did.

Q. Okay.

So it's your opinion that if a micrograph contains a crack in a lower layer, then in your opinion, there's doubt about whether the four layers would be there, the four layers required by the patent; correct?

A. No, that is not correct.

Q. Well, you at least gave testimony in this case, in this image, that this particular crack, in your mind, presents a doubt about whether the four layers are formed as required by the patent; correct?

A. No. That's not what I said. That is an incorrect statement.

What I said is I would doubt whether the four layers have been formed according to the spec of the patents. That's what I said.

I did not doubt that I see a few layers. My point was when you have such a feature like we see here, that might interfere with the formation of these layers, according to what is claimed in the specs. That was my point.

Q. When you say "specs," sir, just so we're clear on this, you are testifying about the claim of the patent; is that right?

A. That is correct, yeah.

Q. Because of the crack, you have doubt that the claimed four layers would be there; correct?

A. From this single image that I see here, yes, I had doubts whether this is really reproducing the layers in the form and composition, and with all of these other features as required by the claims of the patents, yes.

Q. I'm going to ask you some questions -- along that thinking, and that analysis that you just gave us, I'm going to ask you some questions about some SEM images, and I want to know if you have the same doubts.

Okay. Just for the record, this is CX-111, and I'm going to focus you, sir, on the lower image of CX-111.

Do you see that image, sir?

A. I can see that image.

MR. KATHIR: Objection, Your Honor.

Beyond the scope. These images pertain to technical domestic industry, and images that Dr. Fekete analyzed about the VinFast vehicle and showing infringement.

It has nothing to do with validity or what Dr. Raabe looked at or analyzed. He said in his deposition that he didn't look at any of the SEMs taken for technical domestic industry related to the VinFast parts.

MR. MCKEON: Your Honor, that's -- this is related to the VinFast parts, and I'm just trying to test the bounds of his opinion regarding the existence of a crack, and the doubt it raises with respect to the formation of the layers.

JUDGE BHATTACHARYYA: The objection is overruled.

THE WITNESS: So just for me to understand, this is now an infringement question that I should answer; is that correct?

MR. MCKEON: Sir, this is --

JUDGE BHATTACHARYYA: It's not -- just listen to the question, and try to answer.

BY MR. MCKEON:

Q. Sir, I'm just trying to explore your opinion

regarding the existence of a crack and the doubt it raises in your mind, okay? That's all I'm doing here.

This is a micrograph at issue in this case, and you see here the crack that runs across the image and is -- kind of has a -- sort of a valley here in one of the lower layers.

Do you see that?

A. I see that image, and I see this -- this defect, but I would need more information. You understand that I'm a scientist. I'm not a wizard or something like that.

If you want me to make a statement about this picture, and what that means, I would need to know a little bit more background information.

My first question would be where does this defect come from. Is that a hardness indent, or what is it?

Q. Okay.

So for the SEM that you provided opinion about earlier with respect to the Passat, you gave your opinion based on the SEM, isn't that right, and you noticed a defect, and you rendered opinion that it raised doubt in your mind.

Do you recall that?

A. What I said is that the image we discussed before has a horizontal feature, and then I explained that

this might, you know, shed doubts, a few doubts on whether the layers are reproduced according to the claims.

What you now show here to me is something potentially, entirely different, without giving me any information where this picture comes from, who polished it, because, you know, I started polishing samples myself at the age of 18. That means you can cause all of these cracks by just -- by sample preparation.

Then I see that somebody tested this material, obviously, by an indentation or something like that.

But again, then somebody should stand up and explain to me what was done with this material. That would typically be done by putting a little indentation tool into the material to measure something we call a hardness.

And everybody who was skilled in the field would know that around this hardness indent, you create cracks.

So that is an artificial, maybe, defect that somebody created who prepared your samples.

But if you want to give me scientific testimony about that, I would request giving details about how this picture was made, by whom, and how this indent was made.

Q. Okay.

So you just want -- you can't -- you don't have an opinion one way or the other about this crack in this particular SEM image; is that correct?

A. I just gave you my opinion, very clearly.

Q. Well, let's look at another one, and see if we can go from there.

This is on Bates 102. You see here, this is another image -- issue in this case. Bates CX-100.2, the lower image here, do you see the defect here, sir?

According -- it's your view, because of that defect, you have doubts about whether the layers required by the patents at issue in this case would be formed; correct?

A. So just, again, to double-check with you, you expect me to do a scientific analysis now of this picture that I have never seen before, I don't understand who prepared it, how it was made or where this defect comes from.

I can do that, if you want to elaborate -- if you want me to elaborate on that, I'm happy to do it, but then you must let me speak for a while.

Q. Okay.

Well, I -- if you can't -- I don't want to spend a lot of time on this, sir.

Just looking at this SEM, you can't tell us one way or the other whether you have doubts; is that right?

A. No, that is not correct. I just gave you the answer.

I would be more than happy to discuss this picture if you give me a little bit more background, where it comes from, who made it, who prepared it, who caused this defect, and what effect that might have.

Q. All right. We can move on, sir. I appreciate your testimony.

Now, to finish up here, this morning, in your direct testimony, you had a bunch of slides with respect to the prior art references at issue. You had slides that said, oh, the Patent Office already considered this reference.

Do you see that? Do you remember that in your direct?

A. So what exactly is the question?

Q. Okay.

A. I considered a couple of prior art references?

Q. I have --

A. Yes, that's correct.

Q. I have a habit of not asking clear questions.

Let's go to 28, 4C.28, as an example, and let's get to the laptop 3 switch.

Do you see here, sir, this is an example of a slide that you presented to the Court; do you see that?

A. Yeah, I see that.

Q. You had a bunch of these slides, if you recall,

and you had this header that says, "Patent Office Considered Cornette."

Do you see that?

A. Yes, I see that.

Q. The point, as I understand, you were making is that you're saying, hey, Judge, the Patent Office considered this. There's nothing to see here.

Is that kind of what you were telling the judge?

A. No, that's not what I said. I did not say, hey, Judge.

Q. Yes, I definitely know you never said that, sir.

You get the point, though, that you're trying to send a message that based on your opinion, because the Patent Office considered it, then the judge really doesn't have to consider the validity issue in this case.

Is that the message you were trying to relay by having these slides with this header on it?

A. What I'm trying to say by these slides is that I learned from the history that I was asked to review, that I learned that some of these documents had been made before available to the Court, yes.

Q. Okay.

Well, one thing, I mean, I think we can agree on is that you would agree with me that it would be inconsistent to tell the Court that, well, the references

were all considered by the Patent Office, and then on the other hand, tell the Court that, oh, they're not even -- these references are not prior art, and they're not even enabled. That would be kind of inconsistent.

Do you agree with that?

A. No, I disagree.

Q. You disagree with that. Okay.

You reviewed the prosecution history that produced -- where these references were produced.

Do you recall that?

A. Yes, I do.

Q. I'm assuming that the attorneys explained to you the process of the Patent Office, how it all works, as part of that -- as part of this case; is that right?

A. That is correct.

Q. I will say to you, sir, you wouldn't know this, but of course, I started my career as a patent examiner in the Patent Office, many, many years ago, probably before most of the people in this courtroom were born, but there's a process for getting a patent.

One of the things that's done is there's something called an information disclosure statement that the parties produce -- the applicant produces prior art.

Are you familiar with that?

A. Is that now a legal question to me on the

process of patenting?

Q. Well, let me make it easier for you. Let's get your report at Paragraph 79.

Do you recall this paragraph in your report, sir?

A. I do.

Q. Okay.

What you're doing here is you're indicating in you report that, on June 4, 2019, the applicants, in this case, Arcelor, filed three different information disclosure statements.

Do you see that?

A. Yes, I see that.

Q. In fact, they had to file three because it all couldn't fit on one; isn't that right?

A. Again, I must underpin that I am not a patent lawyer, and I just follow you, and have no reason to reasonably disagree with you, but again, I am not entirely familiar with the exact workflow at a Patent Office.

Q. Okay.

I'm not trying to go down that road, sir, but you understand that in the end, what was submitted, and that we've reproduced it here on the table, there's 1700 pages of documentation of prior art that Arcelor was submitting to the Patent Office in these three IDSs.

Do you understand that?

A. I understand that. That's a lot of paper.

Q. I think the examiner here was, it was represented to the Court yesterday, Mr. Schleis, I think was the name that was represented.

Do you recall that in yesterday's trial day?

A. I recall what exactly?

Q. Mr. Schleis was the examiner.

A. I recall that name being mentioned as an examiner, yes, I do.

Q. I think the assumption is that what you're saying to the Court is that Mr. Schleis went through in detail, reviewed all of this, and made the conclusion that the claims were still allowable.

Is that the message you're trying to send to the Court?

A. I assume I'm now expected to reproduce what this gentleman did in his office during the workflow of this patent process, but I'm a little bit afraid. I'm not so entirely familiar how this workflow, with what time, budget and what detailed work.

So I would be happy to explore that further, but that is a little bit beyond my expertise. You guys understand, I'm a metallurgist; right?

Q. I understand that, sir. I'm just going to what

you said in your expert report.

But one thing we know that you understand that, ultimately, it's up to the Court to decide whether the patents in this case are valid or not valid?

A. Of course.

Q. You're not trying to suggest that the Court shouldn't deal with that issue; right?

A. No, of course not.

MR. MCKEON: Thank you, Dr. Raabe.

Your Honor, I pass the witness.

JUDGE BHATTACHARYYA: Thank you.

THE WITNESS: Thank you.

JUDGE BHATTACHARYYA: There will be some further questions from your counsel.

MR. KATHIR: All right, may I proceed?

JUDGE BHATTACHARYYA: Yes, you may.

REDIRECT EXAMINATION

BY MR. KATHIR:

Q. Good morning, Dr. Raabe.

A. Good morning.

Q. Dr. Raabe, I want to ask you some questions about some of the topics that Mr. McKeon asked you about on cross-examination.

The first thing I want to ask you about or the first topic I want to ask you about are the parameters

involved in hot-stamping.

I know Mr. McKeon showed you Figure 7 from the patent, so I want to talk about that subject.

First, let me put up CDX-0004C.15. This is a slide -- one of the slides from your presentation on direct.

Let's start first, can you explain what the parameters are that are involved with the overall hot-stamping process, and the heating step within the hot-stamping process.

A. Yes.

So we start with uncoiling the base steel that has been beforehand pre-coated according -- in our case, according to the specs of the patents, in terms of the composition and the other specs that are given in the claims, including things like the chemical composition, the thickness, also requirements pertaining to the homogeneity and continuity, et cetera.

Then the decisive step of putting this product into the oven after it had been blanked, according to some -- you know, was the target of some precutting, so to say.

In the oven, a couple of really essential things are happening, as we learned during this week and discussed during this week, and that includes multiple aspects, such

as the thickness and the size of the material.

We discussed that yesterday, in part, and it occurred today again back with the Kefferstein paper, for instance.

One must also see that it is not the point to discuss only the thickness, but what the patent is doing is showing to what you have to change when you change the thickness.

That means, in the patent, you see these two different shapes of the thickness. I'm just coming back to this because we discussed it yesterday at length, and put some points, in part, on this Figure 7, right.

But the point is you have two different shapes, and the patent informs you how you have to modify your procedures upon changing the thickness. These are all the fine details that you have to consider here.

Then you have the heating rate, which is really, really essential because, as we also learned, in part, from the testimony of the inventor, Dr. Drillet, otherwise, you get, for instance, things like a diffusion mismatch. You can get porosity, and so on. Then the material looks like a Swiss cheese if you don't do that properly, et cetera.

So all these parameters, and I don't want to read them out all to you because it might become a long day, otherwise, must be considered.

Then finally, with that coating, you quench the material, by which you change the shape, you produce the martensitic microstructure, the hardness, and so on.

Q. Dr. Raabe, I want to go -- take you back to 2001, 2002, '03, '04, '05, before the invention of the patents in this case.

Was the nature of the relationship between these parameters known back in that time frame?

A. The -- like we discussed at length during this week, is that hot-stamping was around, and how to quench an austenitic steel into martensite, all that was known, but it was known by no means how precise you must go about pertaining to these different parameters, the coating, the chemistry, and this heating rate, and other aspects that we discussed here, in order to arrive at a product of the quality, with these many feature facets, as they are claimed in the patents.

So that was not known before.

Q. Okay. Let me now turn to Figure 7, and put that up. Let's go to JX-2.0009.

So I'm showing you Figure 7 from the asserted patents. You were asked a lot of questions about Figure 7 yesterday. I guess let's start with some background first.

What parameter or parameters are being shown in Figure 7?

A. Figure 7 from the patent shows the temperature and the heating times and minutes.

Q. Is another word for that -- I see "dwell time" at the bottom; is that just another word for what you just said?

A. Yeah. "Dwell time," yes, it's another word.

Q. Is dwell time the only parameter that's involved in the heating step or the hot-stamping process?

A. No, that is only -- so to say -- do you want me to elaborate a little bit on that?

Q. Yes. Please explain.

A. So you must see these processing parameters that we just saw on the slide before, including also rate and the chemistry and other aspects, you must see that when you show such a two-dimensional picture that, we as engineers, need to make decisions, you must see that like a section through a bigger parameter space with multiple axes, where you would have axis like heating rate and chemical composition, and so on.

And indeed, that only shows you this specific dependence on the material thickness, but in all these processing steps, when you do adhere to these recipes here, you must also consider including the other aspects as revealed by the patent.

So that is only one portion of the know-how.

Q. So I want to make sure I understand what you're saying.

If the only parameter you look at is dwell time, that's the only thing you do, and you meet the dwell time windows in this figure, will you always get the claimed four layers, the claimed compositions, and claimed thickness in the asserted patents?

A. No, you don't.

Q. Do the asserted patents describe other parameters beyond dwell time?

A. Yes, they do.

Q. What are -- can you give us some examples of the other parameters discussed in the asserted patents.

A. For instance, one additional important parameter would be the heating rate.

Q. Okay.

Do you need to account for these other parameters in order to get the claimed four layers, the claimed compositional elements, and the claimed thickness?

A. So you need to -- in order to arrive at these layers, as described, with all the associated properties in the patent claims and in the patents, you need to adhere to all of these parameters. That is, so to say, the cooking recipe.

You also cannot go into a kitchen and put a

couple of things on the table, and then by black magic, a fine dish comes out. That's not how it works, but you must adhere to the interplay of these processing parameters, plus the coating chemistry, and so on, as described in these patents.

Q. Okay. So let me put up RX-49.

You were asked some questions yesterday and today about this article by Ronald Kefferstein.

The first thing I want to go is under hot-stamping with die-quenching. You were asked in the second paragraph about that 900 to 950 degrees C during 4 to 10 minutes.

A. Yes. I see that.

Q. If you just followed those parameters without looking at anything else, would you always get the claimed four layers, the claimed compositional elements, and the claimed thickness?

A. No, you would not.

Q. Now, I want to -- can we zoom back out to the full document?

I want to go to the bottom right, the images on the bottom right and the paragraph above it.

Now, does this article describe four layers, or the nature of the four layers, or anything like that?

A. No. It does not.

Q. What does it say?
A. Please repeat.
Q. What does the article say about the micro -- the coating?
A. What we read here, what the Kefferstein article says about pre-coating is that you do that on the boron steel, with a metallic coating of aluminum silicon with 90 percent aluminum content.

From the aluminum silicon, I would conclude that the other 10 percent might be silicon, in that case, although only the aluminum content is qualified here.

Then it says said that this would be done to approximately 25 micron on each side. This is quantified by 80 grams per square meter, per side.

Q. Okay. Let me now go to CDX-4C.58. 58.

Dr. Raabe, you were asked some questions about your opinions related to the Passat image, and the nature of the horizontal crack.

Can you explain why you don't have enough evidence here to determine whether layer 3 meets the intermetallic -- the claimed intermetallic layer of the claims in the asserted patents.

A. Yes. I can do that. Can I explain that a little bit more in detail, or...

Q. Yes, you can explain.

A. Okay.

So what fueled my doubts on whether this layer structure that we see here is, you know, reproducing what is said in the claims of the patents was that we first of all do not have enough information about this compositional or microstructured state.

I doubt that when you have such a horizontal feature like we see here, then first of all, you must understand that these features, like an earthquake, crack, are often interconnected, like pancakes. They are bigger features, and we only make a two-dimensional section through it. So the structure might be even more complex in the third dimension.

When you have such an interruption, that would then, most likely, also interfere with diffusion, with the required interdiffusion, which the patent is very specific about.

Q. So how does that impact -- let me start that question over again.

What kind of additional information would you need to determine whether this image meets the claim requirements?

A. You would need to really know whether this type of defect has had an effect on the formation, for instance, of layer 3 of the intermetallic claimed structure and

nature and composition of that layer.

Q. Can we zoom back out to the full slide.

Now, that elemental scan, line scan on the bottom right, just to make sure, I guess, to remind us of what you testified to yesterday, that image -- sorry, can we go back to the full slide.

Is that image of the top SEM, or the image on the bottom left?

A. As we learned from the report from Dr. Bradley this week, this line scan that is shown on the right bottom side relates to the picture on the left-hand bottom side.

Q. Does that line scan give you any information about the SEM at the top of the page?

A. No. These two pictures have nothing to do with each other.

Q. Okay. Let's now -- I want to go to a couple other documents that were shown on cross-examination.

Let's pull up CX-563 at page 4. And CX-565 at page 9. If it's possible, yep, if we can get them on the screen at the same time.

Do you remember seeing these two documents?

A. Yes, I do.

Q. Okay.

I'm going to ask you some questions about these documents, but before I specifically refer to these two

documents, was Usibor sold before the invention of these two patents?

A. Yes, it was.

Q. Was Usibor hot-stamped before the invention of these two patents?

A. Yes, it was.

Q. Okay.

So -- but when you hot-stamp Usibor, will you always get the claimed four layers, the claimed compositional elements, and the claimed thickness?

A. No, you don't.

Q. Okay.

I want to turn to these two documents. You were asked some questions about these documents yesterday, and it seemed like you wanted to explain but you weren't given the opportunity to explain your thoughts and opinions about these two documents.

So I want to give you that opportunity now. Is there anything -- what did you want to say about these documents?

A. Yeah. Thank you.

So, Your Honor, there were several aspects related to the discussion of this picture. One was this kind of platform argumentation that was associated with this Passat vehicle.

Yesterday I maybe did not yet have a full chance, but I tried to make the differentiation between this claimed breakthrough from the Arcelor document where they themselves said they see that as a breakthrough, and this platform part.

My understanding as a person of skill was that this really relates to hot-stamping these platform parts to the very high-strength level that is required to make safer passenger cabins in these body-in-whites.

But that was not associated to the nature of this coating, and the resulting benefits, according to the claims, which also bring about this improvement in corrosion properties, weldability, and paintability and all of the other features that also the inventor, Dr. Drillet, had testified about.

So that was, for me, important to make that distinction.

Q. Dr. Raabe, turning to the slide on the left, you were asked about the image of the car that's reflecting a Volkswagen. It's sort of under the year 2005.

Do you see that?

A. I see it, yes.

Q. Can you tell what model year that Volkswagen is?

A. The model year. So you speak about 2005?

Q. Can you tell, does this slide tell you where

this Volkswagen was sold?

A. First use of pre-coated PHS on platform parts. No, it does not say where this specific car was sold.

Q. Okay.

I want to ask you about the second slide, which is the fourth bullet where it says major breakthrough.

How did you interpret that?

A. Yeah. The major breakthrough is -- that is not uncommon in our field of enabling ultrahigh-strength materials like, by the way, also aluminum alloys or steels and so on.

The major breakthrough is first of all relating to a big progress in weight reduction that can be reconciled with safety. Because the biggest target, which we also discussed in part during this week is the driving forces of weight reduction, because it linearly relates to the fuel or the battery electrical energy that you consume. But you cannot make compromises on safety.

Hence, enhancing the strength while maintaining lower weight, or reaching lower weight is absolutely essential.

When you enable such stamped steel with such an enormous strength, as was sketched during this week, then this already in itself is a very, very big breakthrough.

That's how I, as a person of skill in this

field, first of all interpreted this statement, as a breakthrough, because when you now compare to the bumper parts, and you know, not so critical hang-on parts that we discussed before, can integrate it, as they say, as a platform part into the passenger cabin, that in itself is a big breakthrough.

It's very important, but it has very little to do with the patent claims.

Q. Dr. Raabe, I want to now go back to the left timeline in this -- kind of all of these pictures of these cars.

Have you seen any evidence that the cars depicted in these pictures, depicted on this timeline had the claimed four-layer microstructure, the claimed compositional elements, the claimed thickness?

A. No.

Q. Did VinFast or Dr. Brown provide any evidence showing that these cars on this timeline had the claimed four layers?

A. No.

MR. KATHIR: Thank you. I have no further questions.

JUDGE BHATTACHARYYA: Thank you. Anything further?

MR. MCKEON: Nothing further, Your Honor. Thank

you.

MR. KATHIR: Complainants have nothing further.

JUDGE BHATTACHARYYA: Okay. Thank you.

(Witness excused.)

JUDGE BHATTACHARYYA: So we've reached the end of our witnesses; is that correct?

MR. MCKEON: That's correct, Your Honor.

JUDGE BHATTACHARYYA: I usually like to admit all of the exhibits, so to the extent possible admit all of the exhibits before we close. Is that possible to do now?

MR. MCKEON: Yeah. We are prepared, Your Honor, for that, and I think we're ready to do that.

JUDGE BHATTACHARYYA: All right. Let's go.

MR. MCKEON: Dr. Lee will be doing that.

MR. DANIEL LEE: Good morning, Your Honor. Daniel Lee for the Respondents.

We have here the Parties' Joint List of Admitted Exhibits for Day 3 and Day 4. The Respondents also move into evidence Witness Testimony by Deposition Designations and Associated Exhibits, which is unopposed.

JUDGE BHATTACHARYYA: Okay.

MR. DANIEL LEE: May I approach?

JUDGE BHATTACHARYYA: Yes, you may.

All right. I have before me the parties' Joint List of Admitted Exhibits, Day 3, March 5, 2025. I

understand there's no objection to admission of these exhibits.

MR. KATHIR: That's right.

MR. REITER: No objection.

JUDGE BHATTACHARYYA: Thank you.

Then the exhibits on that list are hereby admitted.

(Joint List of Admitted Exhibits Day 3 was admitted into evidence.)

JUDGE BHATTACHARYYA: I also have a list of exhibits entitled the parties' Joint List of Admitted Exhibits of Day 4. I understand there's no objection to admission of those exhibits.

MR. KATHIR: That's right, Your Honor.

JUDGE BHATTACHARYYA: Thank you. The exhibits on that list are admitted.

(Joint List of Admitted Exhibits Day 4 was admitted into evidence.)

JUDGE BHATTACHARYYA: I have before me Respondents' Submission of Witness Testimony By Deposition Designation and Exhibits.

I understand there's no objection to admission of those exhibits either.

MR. KATHIR: That's right, Your Honor.

JUDGE BHATTACHARYYA: Thank you. Then the

exhibits on that list are admitted into evidence and the deposition designations.

(Respondents' Submission of Witness Testimony By Deposition Designation and Exhibits was admitted into evidence.)

MR. DANIEL LEE: Thank you, Your Honor.

JUDGE BHATTACHARYYA: Did I get all of the lists?

MR. DANIEL LEE: Yes, Your Honor.

JUDGE BHATTACHARYYA: Okay. Thank you.

Yes.

MR. REITER: I have one question, Your Honor. We have these --

JUDGE BHATTACHARYYA: Yes.

MR. REITER: -- physical exhibits, the pucks that Dr. Fekete talked about.

What do you want us to do with them? I mean, I understand that they should go to the Court, but we're happy to maintain them, if you guys don't have an objection.

JUDGE BHATTACHARYYA: All right.

Why don't you submit those to the Court.

MR. REITER: Okay.

JUDGE BHATTACHARYYA: I'd be interested in looking at them.

MR. REITER: We have them all here. They're

yellow-tabbed with each exhibit number, so I guess we'll submit them.

JUDGE BHATTACHARYYA: Are those the only physical exhibits? Is that the only --

MR. REITER: I believe so.

JUDGE BHATTACHARYYA: Just on the exhibit list, indicate that it's left with the Court.

MR. REITER: Okay. All right. Thank you, Your Honor.

JUDGE BHATTACHARYYA: Thank you.

So I understand the parties have met and conferred regarding post-hearing briefs, and propose 200 pages for opening briefs and 100 pages for reply briefs; is that correct?

MR. MCKEON: That's correct, Your Honor.

MR. REITER: Yes, Your Honor.

JUDGE BHATTACHARYYA: That's acceptable, so those are the page limits for the briefs.

Regarding motions to strike. I issued Order 32 this morning. I'm not sure if it's up on EDIS yet or if it's been served, but that Order relates to the issues on CX-826C through CX-878C.

There are some other issues where I believe I permitted a motion to strike. I'm not sure if the parties are going to pursue any of those issues.

MR. MCKEON: Your Honor, at this time, Respondents don't intend to do that.

JUDGE BHATTACHARYYA: Okay.

MR. REITER: I don't believe there were any motions to strike that were sought by Complainants, so there won't be anything forthcoming, Your Honor.

JUDGE BHATTACHARYYA: All right. Very well.

Then I believe that addresses all the outstanding motion to strike issues.

Mr. McKeon, yes.

MR. MCKEON: Your Honor, I apologize interrupting here.

JUDGE BHATTACHARYYA: Yes.

MR. MCKEON: I want to take one thing back.

There is a -- one of the issues that you gave us leave to file a motion was the significance issue for Dr. Malackowski.

JUDGE BHATTACHARYYA: Yes.

MR. MCKEON: That is the one issue that, actually, we are interested in actually formalizing a motion on that, with leave of the Court.

JUDGE BHATTACHARYYA: Yes. Okay.

If it's all right, that can be addressed in post-hearing briefing. Unless you feel there's a --

MR. MCKEON: That's acceptable to us.

JUDGE BHATTACHARYYA: Urgent need to --

MR. MCKEON: No, that's acceptable to us, certainly, Your Honor.

JUDGE BHATTACHARYYA: Is that all right with Complainant?

MR. REITER: Yes. That's no problem, Your Honor.

JUDGE BHATTACHARYYA: Okay.

Are there any other housekeeping matters that we should discuss?

MR. MCKEON: Nothing from the Respondents, Your Honor.

MR. REITER: Nothing from Complainants, Your Honor.

JUDGE BHATTACHARYYA: All right.

Well, thank you, everybody. I really want to thank the witnesses and counsel, paralegals, the technical support for putting together a very streamlined and effective presentation. I know how much work goes into putting a trial together, and I really appreciate the efforts that everyone made.

I'm looking forward to using terms like B-Pillar and body-in-white at the next cocktail party I attend.

MR. REITER: You have the pucks as well.

JUDGE BHATTACHARYYA: And I'll have the pucks.

I also want to give special thanks to our NEXT Advocates who all did a wonderful job. Thank you for participating in that program.

Also special thanks to our court reporter, Ms. Peters, and my attorney adviser, Ms. Mihalik, for their extraordinary support during this trial.

MR. MCKEON: Thank you, Your Honor.

I think on behalf of everybody in the courtroom, we thank the Court, Your Honor, we know the work that goes into preparing for the trial and sitting through the evidence. We really do appreciate all the hard work and attentiveness of the Court.

Of course, Ms. Mihalik as well. Obviously, we very much appreciate the hard work behind that.

Of course, last but not least, Ms. Peters, as you mentioned, who handled very well the technical issues at the beginning of the trial.

So we appreciate everybody's hard work, and thank you for that.

MR. REITER: Yes. Echo what Mr. McKeon said, especially our court reporter here with all of the different accents that we dealt with.

Very much appreciate all of the time and attention that the Court has provided, and we look forward to continuing through the next phase.

Thank you, Your Honor.

JUDGE BHATTACHARYYA: Thank you, everybody.

I hope our out-of-town guests have safe travels home, and I hope everyone has a good weekend.

MR. MCKEON: Thank you, Your Honor.

MR. REITER: You, too.

JUDGE BHATTACHARYYA: Okay. We're adjourned.

(The Evidentiary Hearing was concluded at 10:46 a.m.)

C O N T E N T S

WITNESS	DIRECT	CROSS	REDIRECT	RECROSS
Dierk Raabe PhD		1130	1172	

CONFIDENTIAL SESSIONS: (None.)

E X H I B I T S

EXHIBIT NO:	RECEIVED
JOINT:	
Joint List of Admitted Exhibits Day 3	1187
Joint List of Admitted Exhibits Day 4	1187
RESPONDENT	
Respondents' Submission of Witness Testimony By Deposition Designation and Exhibits was admitted into evidence.)	1188

E X H I B I T S

EXHIBIT LISTS SUBMITTED FOR ADMISSION:

THE PARTIES' JOINT LIST OF ADMITTED EXHIBITS

(DAY 3 MARCH 5, 2025)

CX-0066

CX-0100C

CX-0102C

CX-0107C

CX-0110C

CX-0407C

CX-0410C

CX-0563C

CX-0638C

CX-0691C

CX-0719C

RPX-001 (AS MODIFIED PER THE PARTIES' AGREEMENT)

RX-0008

RX-0013

RX-0019

RX-0022

RX-0059

RX-0062

RX-0063

RX-0081

RX-0085

RX-0086
RX-0087
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RX-1313
THE PARTIES' JOINT LIST OF ADMITTED EXHIBITS (DAY 4)
CX-0669C

CX-0726C
RX-0005
RX-0044
RX-0048
RX-0049
RX-0103
RX-0152C
RX-0153C
RX-0154C
RESPONDENTS' SUBMISSION OF WITNESS TESTIMONY BY DEPOSITION
DESIGNATION AND EXHIBITS
MARK ATKINSON, PH.D. (RX-1285C)
PASCAL DRILLET (RX-1282C)
CX-0617C
CX-0563C
RX-0010
RX-0019
CX-0683C
RONALD KEFFERSTEIN (RX-1284C)
CX-0683C
RX-0049
RX-1142
BALA KRISHNAN (RX-1274C)
CX-0617C
CX-0634C

CX-0565C

CX-0563C

CX-0614C

JEAN-LUC THIRION (RX-1281C)

CX-0547C

CX-0617C

RX-1140

CERTIFICATE OF REPORTER

TITLE: CERTAIN HIGH-STRENGTH ALUMINUM OR ALUMINUM-ALLOY COATED STEEL, AND AUTOMOTIVE PRODUCTS AND AUTOMOBILES CONTAINING SAME

INVESTIGATION NO: 337-TA-1402

HEARING DATE: FRIDAY, MARCH 7, 2025

LOCATION: COURTROOM A

NATURE OF HEARING: EVIDENTIARY HEARING

I HEREBY CERTIFY THAT THE FOREGOING/ATTACHED TRANSCRIPT IS A TRUE, CORRECT AND COMPLETE RECORD OF THE ABOVE-REFERENCED PROCEEDINGS OF THE U.S. INTERNATIONAL TRADE COMMISSION.

DATE: March 7, 2025

SIGNED: LaShonne Robayo

SIGNATURE OF THE CONTRACTOR OF THE AUTHORIZED CONTRACTOR'S REPRESENTATIVE
1150 CONNECTICUT AVE., N.W., SUITE 305
WASHINGTON, D.C. 20005

I HEREBY CERTIFY THAT I AM NOT THE COURT REPORTER AND THAT I HAVE PROOFREAD THE ABOVE-REFERENCED TRANSCRIPT OF THE PROCEEDINGS OF THE U.S. INTERNATIONAL TRADE COMMISSION, AGAINST THE AFOREMENTIONED COURT REPORTER'S NOTES AND RECORDINGS, FOR ACCURACY IN TRANSCRIPTION IN THE SPELLING, HYPHENATION, PUNCTUATION AND SPEAKER IDENTIFICATION AND DID NOT MAKE ANY CHANGES OF A SUBSTANTIVE NATURE. THE FOREGOING/ATTACHED TRANSCRIPT IS A TRUE, CORRECT AND COMPLETE TRANSCRIPTION OF THE PROCEEDINGS.

SIGNED: Natalie Bourlier
NATALIE BOURLIER, PROOFREADER

I HEREBY CERTIFY THAT I REPORTED THE ABOVE-REFERENCED PROCEEDINGS OF THE U.S. INTERNATIONAL TRADE COMMISSION AND CAUSED TO BE PREPARED FROM MY TAPES AND NOTES OF THE PROCEEDINGS A TRUE, CORRECT AND COMPLETE VERBATIM RECORDING OF THE PROCEEDINGS.

SIGNED: Marjorie Peters
MARJORIE PETERS, FAPR, RMR, CRR COURT REPORTER