UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

PGR2023-00008
U.S. Patent 11,260,624

VIDEOTAPED DEPOSITION OF:
RICHARD J. SPONTAK, Ph.D.
August 31, 2023
Via RemoteDepoTM

HUHTAMAKI FLEXIBLE PACKAGING GERMANY GMBH & CO. KG,

Petitioner,

v.

DANAPAK FLEXIBLES A/S,

Patent Owner.

PURSUANT TO NOTICE, the videotaped deposition of RICHARD J. SPONTAK, Ph.D., was taken on behalf of the Patent Owner in Davidson County, Tennessee, by remote means on August 31, 2023, at 9:01 a.m. Mountain Daylight Time, before Tracy C. Masuga, Registered Professional Reporter and Certified Realtime Reporter, appearing remotely from Denver County, Colorado.

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I N D E X

EXAMINATION OF RICHARD J. SPONTAK, Ph.D.: PAGE
August 31, 2023

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DEPOSITION EXHIBITS:		INITIAL REFERENCE
Exhibit 1	Expert Disclosure of Richard J. Spontak, Ph.D., in Support of Huhtamaki Flexible Packaging Germany GmbH & Co. KG's Petition for Post-Grant Review of U.S. Patent No. 11,260,624, 11/30/22 PGR Exhibit 1003	12
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DEPOSITION EXHIBITS:		INITIAL REFERENCE
Exhibit 8	United States Patent No. 9,452,593 B2, Tatarka et al., Date of Patent: 9/27/16 PGR Exhibit 1008	84
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WHEREUPON, the following proceedings were taken pursuant to the Rules of Civil Procedure.

(Deposition Exhibits 1 through 10 were remotely introduced by Mr. Roeser and electronically provided to the court reporter for marking.)

* * * * *

THE VIDEOGRAPHER: We are now on the record. This is the remote video-recorded deposition of Richard J. Spontak, Ph.D. Today is Thursday, August 31, 2023. The time is now 3:01 p.m. UTC, 9:01 a.m. Mountain. We're here in the matter of Huhtamaki Flexible Packaging Germany GmbH & Company, KG v. Danapak Flexibles A/S.

My name is Michael Banks, remote video technician on behalf of U.S. Legal Support. I'm not related to any party in this action nor am I financially interested in the outcome.

At this time will the reporter, Tracy Masuga on behalf of U.S. Legal Support, please enter the statement for remote proceedings into the record.

THE REPORTER: The attorneys participating in this deposition acknowledge that I am not physically present in the room and that I will be reporting this proceeding remotely.

They further acknowledge that in lieu of

an oath administered in person, the witness will verbally declare his testimony in this matter is under penalty of perjury.

Counsel, please indicate your agreement by stating your name and your agreement on the record.

MR. ROESER: Randy Roeser --

MR. LEVY: Ryan Levy -- oh, go ahead.

MR. ROESER: Randy Roeser. Yes.

MR. LEVY: Ryan Levy and Mark Kilgore on behalf of Huhtamaki. Yes.

MR. AVENA: Steve Avena. Yes.

THE REPORTER: Doctor, would you please --

MR. ROESER: Oh, and --

THE REPORTER: I'm sorry.

MR. ROESER: Go ahead.

RICHARD J. SPONTAK, Ph.D., having been first duly sworn to state the whole truth, testified as follows:

(Response to oath: "I do.")

MR. ROESER: Good morning. This is Randy Roeser on behalf of Danapak Flexibles.

With me today we have Steve Avena. We're both from Holland & Hart representing the patent owner.

We also have on the record with us today Dr. Stephen McCarthy, who's been retained by Danapak in this proceeding.

EXAMINATION

BY MR. ROESER:

Q. Dr. Spontak, would you please state your full name for the record.

A. Richard John Spontak.

Q. And thank you.

Have you had your deposition taken before?

A. I have.

Q. About how many times?

A. Approximately six times, and I can verify that more specifically if you would like me to.

Q. That's fine.

About when was the last time you were deposed?

A. One moment, please, and I will let you know. The last time was in 2019.

Q. Okay. So it's been a few years, so I'll just briefly go over a few ground rules today to make everyone's life easier.

You understand that you've taken an oath to tell the truth here today?

A. I do.

Q. And is there any reason why you can't give full and accurate testimony?

A. There is not.

Q. Okay. And I'll be asking you some questions here today, so at any point in time you don't understand my question, could you please ask me to clarify it?

A. Certainly.

Q. And you're doing a good job so far. We are taking all of this down. Ms. Tracy here is writing down everything we say, so it's important for you to -- for the record to give full and complete verbal answers, and also for us not to talk over each other so that -- so that she can write everything down.

Now, since this deposition is being recorded by Zoom, do you have any other applications or documents or web pages open on your computer, other than this Zoom application?

A. I have hard copies of the exhibits so I could refer to those. I'm not too keen on always reading off of a computer screen.

You can see, for example, my CV.

I have my computer up here. I use a

Macintosh, so I'm not as familiar with PCs. And I have only the files that were provided this morning under deposition exhibits available to me, nothing else.

Q. Okay. So just Exhibits 1 through 10 that we emailed over earlier this morning?

A. That is correct. And I have turned off my Wi-Fi.

Q. Okay. Great.

And other than -- I saw you have some printed papers in front of you. Are those printed papers just the exhibits that we emailed over earlier today?

A. Mostly. I think I have a couple of other ones that I had from my examination of material, and I've put those off to the side. The ones that are of primary interest, of course, are the 1 through 10 that you sent over.

Q. Okay. And what are those other documents that you have, other than the exhibits?

A. Let's see. So material -- material sheets we've got in the database. Material sheets.

Q. I'll tell you what. If at any time during this deposition, if you refer to any of those documents or look at them, if you could just let me

know what that document is and when you're looking at it?

A. Certainly. In fact, whenever I refer to any hard copy, I will show it to you first.

Q. Perfect. Thank you.

Other than those documents that we just discussed, do you have any notes or anything else with you in the room today?

A. No.

Q. And is there -- I can't see in the other room, but is there anyone else in there with you, in that room today?

A. There is not. And I can --

Q. You don't have to --

A. -- give you the surround.

Q. Perfect. I appreciate it. Thank you so much.

Okay. And, lastly, breaks: If at any point in time today you need a break, just let me know. The only thing I ask is that if there's a question pending, that you go ahead and answer that before we take that break.

A. I appreciate it. And I would also just like you to know that since I am diabetic, I might have to take breaks regularly and certainly get a

little bit of sugar into -- into me, so please forgive me for that.

Q. No, that's perfectly fine, so -- I like taking breaks too, so that's perfect.

Okay. So let's jump in. And I would like to pull up and mark what's been labeled as Exhibit 1 to your deposition, which is Exhibit 1003 in this PGR proceeding, and I will also share my screen with that exhibit pulled up.

A. This is Exhibit 3 -- oh, it's -- it's that one. Okay. The declaration. Yes. Okay. I've got it.

Q. Okay. And you'll see my screen.

A. There it is. No, I don't -- yes, now I see it.

Q. Okay. Let me drag things over.

MR. LEVY: Counsel, I'm not sure if you know which screen is up. I know you have your outline in the background.

THE DEPONENT: Oh, yes. This one --

MR. LEVY: Okay.

THE DEPONENT: The one you just showed is marked.

MR. ROESER: There we go. Is that the --

MR. LEVY: Yes.

THE DEPONENT: That's the expert declaration there.

MR. ROESER: Perfect. Thank you so much. All right. Pull you all back up.

(Deposition Exhibit 1 was remotely introduced.)

Q. (BY MR. ROESER) Okay. Now, is this a copy of the declaration you submitted in this proceeding?

A. It should have 127 pages, which it looks like it does. I'm looking at the count at the top. And at the end it has my signature, so, yes, it looks like it's my declaration.

Q. Okay. And does this declaration --

And it's dated November 30 of 2022, correct?

A. That is correct.

Q. Okay. And does this declaration contain all of your opinions that you have in this PGR proceeding?

A. As of the time that it was filed, it has all of my opinions regarding this file, yes.

Q. And did you personally prepare this declaration?

A. I prepared the declaration with -- in a collaborative effort with the attorneys here at Patterson.

Q. Okay. And other than the attorneys at Patterson that you collaborated with in preparing your declaration, did you collaborate with anyone at Huhtamaki in preparing this declaration?

A. No.

Q. Okay. Have you ever spoken with anyone at Huhtamaki?

A. I have not.

Q. Now, if we can turn to paragraph 13 of your declaration.

A. Yes.

Q. You list out documents you reviewed and relied upon in forming your opinions, correct?

A. That is correct.

Q. And those are listed in this table on page 6 and 7 of your declaration?

A. That is correct.

Q. Other than the documents listed on page 6 and 7, and the documents you cite throughout your declaration, are there any other documents you relied upon in forming your opinions that are set forth in your declaration?

A. No.

Q. And after you submitted your declaration in November of 2022, you understand that Danapak filed a preliminary response to the petition to institute a post-grant review in this case?

A. I believe that's this document. I'll just pull it out. Is this the one to which you are referring?

Q. If that is the petitioner's preliminary response, then yes.

A. It does say "Patent Owner's Preliminary Response."

Q. Correct. "Patent Owner's Preliminary Response," correct.

So I take it -- you have it in your hand. I take it you've reviewed that document and the documents submitted with it?

A. Not extensively, not nearly as extensively as documents I examined during the writing of my declaration.

Q. Understood. You've reviewed it, but not in depth?

A. That is correct.

Q. Okay. And have you reviewed the Patent Trial and Appeal Board's decision instituting

post-grant review in this proceeding?

A. Can you say that again, please?

Q. Yes. Have you reviewed the Patent and Trial -- Patent Trial and Appeal Board's decision instituting post-grant review?

A. I don't believe I have.

Q. Okay. What did you do to prepare for your deposition today?

A. I read over my declaration many, many times; I examined the materials that I relied upon for writing my declaration; I came to the law office of Patterson on Tuesday to walk through the details of the declaration that I wrote, as well as the previous patents; and spoke with the attorneys here at Patterson Tuesday and Wednesday.

Q. Okay. And I don't want to know the substance of y'all's conversations between you and counsel at Patterson. But about how long did y'all meet on Tuesday and Wednesday?

A. Tuesday, I would say about eight hours; yesterday, about five hours.

Q. So about 13 hour -- hours total of meeting in preparation for this deposition?

A. Approximately.

Q. Okay.

A. That excludes time that I spent on my own reading.

Q. About how much time would you say you prepared on your own reading some of the documents in preparation of your deposition?

A. I would say not -- just this week, I would say probably -- probably between four and five hours.

Q. Okay. I want to switch gears and talk a little bit about your background. And I would like to pull up and mark Exhibit 2 to your deposition, which is Exhibit 1010 to this PGR proceeding.

(Deposition Exhibit 2 was remotely introduced.)

Q. And you -- and just for the record, you're pulling up your -- a hard copy of your CV; is that correct?

A. That is correct.

Q. Okay. And could you just generally walk me through your educational background and the degrees you hold?

A. Certainly. I attended the Pennsylvania State University after finishing high school. There, I received my Bachelor of Science degree in chemical engineering with honors and -- well, high distinction.

After finishing there, I went on to the University of California at Berkeley, where I conducted my Ph.D. research and received my Ph.D. in 1988.

After that time, I received a postdoc offer from the Department of Materials Science & Metallurgy at the University of Cambridge in England. I spent approximately a year and a half in that position.

And then I received a postdoc fellowship from the Institute for Energy Technique, which is located in Norway, approximately 25 klicks northeast of Oslo.

And that is the extent of my formal education.

Q. Okay. Thank you.

And who is your current employer?

A. My current employer is North Carolina State University in Raleigh.

Q. And what position do you hold there currently?

A. I am currently a distinguished professor of chemical and biomolecular engineering and a professor of material science and engineering with an adjunct position in textile engineering, chemistry,

and science.

Q. Okay. And I also understand, correct me if I'm wrong, but you supervise the macromolecular materials and morphology group at North Carolina State?

A. That is correct.

Q. That's a mouthful. Okay. What type of --

A. I -- I have to -- I have to be very careful not to call it "3M."

Q. 3M. Okay. Well, that -- we can refer to that if it's easier.

A. It's actually -- "M3G" is what I refer to it as.

Q. Got it. Got it.

Okay. So what kind of research do you supervise for M3G?

A. We examine a variety of problems that are related to polymers, macromolecular materials, and we engage in research to develop what are called chemistry proc- -- chemistry structure property processing relationships in those types of materials.

My background, after I finished my postdocs, I was hired by corporate research at the Procter & Gamble Company, and I was in charge of the

electromicroscopy facility, which is my forte in terms of techniques, and so I keep the name "morphology" in my group because it's a -- it provides a critical consideration.

In everything that we do, we're always interested in spatial relationships and how properties depend on those spatial relationships and how chemistry can affect those spatial relationships.

Q. Do you supervise and do research in laminate or multilayer film manufacturing in that role?

A. I would take out the word "manufacturing," but, yes, we have dealt quite a lot with layered materials, sometimes referred to as "sandwich" materials or, if you prefer, "laminates," all the way down to nanolaminates.

Q. Okay. So your -- the research in that role focuses on the material properties of those laminates, nanolaminates, multilayered materials, but not the manufacturing of them; is that correct?

A. Correct. We do not get into the manufacturing role because our vision and our mission deals with acquisition of fundamental concepts, basic science. And what we find can then be put into practice for manufacturing purposes, if there's an

interest in -- in considering what we've observed or discovered.

Q. So is it fair to describe your research as sort of the fundamental side, rather than the manufacturing side of laminates and multilayer films?

A. I would probably reword that a little bit. We try to maintain a fairly good balance between fundamental science and applied engineering. And applied engineering, we always try to ensure that our work has meaning for those in various sectors of -- of industry.

So it's -- we don't get into the manufacturing side per se, but our work has direct relevance in terms of how it can be put into application for different technologies.

Q. And as I understand it, and please correct me if I'm wrong, there's several techniques in the industry to manufacture laminates and films; is that correct?

A. There are many different approaches, yes.

Q. And some of those include flexographic printing, coextrusion -- is it rotogravure printing? Am I pronouncing that right?

A. Yes. The --

Q. What other --

A. Go ahead.

Q. I'm sorry. I didn't mean to talk over you. Go ahead.

A. No, I was going to say that in addition to those, it really -- a lot of it depends very specifically on what type of product you're trying to produce. And when I say "product," I don't necessarily mean something that is going to find its way onto a shelf for sale. I'm talking about a product of a process that was developed or used to create a certain shape or function, so -- but there are many different ways of producing polymeric materials in different shapes.

Q. Okay. And I kind of want to walk through your experience with sort of a few of those techniques, specifically with respect to multilayer films and laminates.

A. Okay.

Q. So let's start with flexographic printing. Can you tell me a little bit about just generally what flexographic printing is?

A. As with all printing, you're basically putting down a polymer coating onto a surface. And so whether it is flexographic or using a rotary printer,

the -- the general idea is that you have a polymer that comes in contact with a surface to deposit another polymer layer, and that polymer layer, well, surprise, it could very well be an ink, it could be a paint; but that's not the type of research that I do per se.

Q. Okay. So you don't research that. Have you ever performed flexographic printing before?

MR. LEVY: Objection to form.

A. Not in my -- not in my laboratory, no.

Q. (BY MR. ROESER) Okay. Do you have any hands-on experience with flexographic printing?

A. No, I do not.

Q. And what about coextrusion?

A. Coextrusion is more in line with the type of work that I do. I haven't performed it personally, but we have used coextrusion in regard to another technique, which is called bicomponent fiber spinning.

And the idea behind coextrusion, as well as bicomponent fiber spinning, is to control the spatial distribution of different layers of polymers. And that's an important consideration; otherwise, they will start to mix, and that introduces other considerations.

Q. And with the bi- and tricomponent fiber spinning, that is related to fibers, not laminates or films, correct?

A. That is correct, although it does use two extruders that actually do produce these layers that come in contact with each other during the process, much in exactly the same way as coextrusion. Coextrusion yields films, and in the case of the bicomponent fiber spinning, you're quite right, it produces fibers.

Q. And have you ever performed hands-on -- let me start over.

Do you have any hands-on experience with manufacturing a laminate or film using a coextrusion process?

A. I do not. I do have experience with extrusion, and I certainly teach extrusion and coextrusion in my course that deals with multicomponent polymer systems.

Q. Have you ever performed --

So you've performed extrusion techniques, but not coextrusion techniques?

A. That is correct. For coextrusion, it requires specialty equipment for that to make sure that the films do not start to mix; whereas our

interest in extrusion dealt primarily with how to control the melt viscosity of polymers as they were traveling down the bore of a single-screw extruder.

Q. Okay. So just generally, if -- I take it since there are multiple techniques to produce laminates and films -- we've just discussed a few -- that you can be experienced in one and not the other, correct?

A. That is --

MR. LEVY: Object to form. Go ahead.

A. That is a correct statement. I -- I have personal experience with some. I have topical experience to the ability where I can instruct on others.

Q. (BY MR. ROESER) Okay. So turning back to the processes at issue in this post-grant-review proceeding, you understand that it deals with coextrusion techniques, correct?

A. I understand that to be the case, yes.

Q. Okay. And, specifically, it deals with multilayer films and laminates for use with aggressive pharmaceutical chemicals?

A. I understand that to be the case as well.

Q. What kind of experience do you have with

multilayer films and laminates and their use with aggressive pharmaceutical chemicals?

A. Well, first of all, let me shorten that question, if you don't mind, to what experience do I have with pharmaceuticals in package -- in packaging. Because the experience I have, I did not have the opportunity, nor was there any particular interest at the time, in determining whether or not it was a layered packaging.

But I have had experience examining lidocaine diffusion through polymers; I have had the -- I've had experience dealing with fentanyl diffusion through polymers, both from drug-delivery devices.

Q. Okay. So what experience do you have with multilayer laminates and films and their use with aggressive pharmaceutical chemicals?

A. Well, that's -- again, I don't know if the packaging that I was examining at the time, I don't know if it was multilayer or not, so I really can't answer that question with regard to my previous experience dealing with pharmaceuticals.

Q. Understood.

Okay. Let's turn back to Exhibit 1, if you could, and that is your declaration. And if we

scroll to paragraphs 16 to 35, you set forth the legal standards you apply in your analysis in forming your opinions; is that correct?

A. I'm just finding it. That was -- that is on page 8.

Q. Yes. Page 8.

A. Yes, yes. Okay. Yes, I'm good. Okay.

Q. Okay. So paragraph 16 to 35 of your declaration, that's where you set out the legal standards you applied in your analysis in this case, correct?

A. That is correct.

Q. Okay. Other than the standards that you included in this section, in those paragraphs, did you apply any other legal standards?

A. No. Just as a preface, I have no legal background whatsoever, and so I relied on considerable help in drafting this part with the attorneys, so -- but no other types of considerations were used in determining my -- my opinions.

Q. Okay. And if we look at paragraph 21 of your declaration --

A. Yes.

Q. -- it says, "I understand that claims that are impossible are indefinite." Do you see that?

A. This is 21. Okay. It split over.
Q. Yes.
A. Yes, I understand. Yes. Okay.
Q. Okay. And I'm just making sure, you don't have any opinions that any of the claims of the '624 patent are impossible; is that correct?
A. I would say that, to the best of my knowledge, none of the claims are impossible.
Q. Okay. Thank you.
All right. Let's pull up and mark Exhibit 3 to your deposition.
(Deposition Exhibit 3 was remotely introduced.)
A. Which one is -- okay.
Q. And that is the Petition for Post-Grant Review. Do you see that?
A. I do. And --
Q. And for the record, you have a hard copy of it, correct?
A. I do.
Q. Okay. Did you have any involvement in drafting this petition?
A. I did not.
Q. Okay. All right. So now let's pull up and mark Exhibit 4 to your deposition, which is

Exhibit 1001 in this proceeding.

(Deposition Exhibit 4 was remotely introduced.)

Q. And that is a copy of the patent at issue in this PGR proceeding, which is U.S. Patent No. 11,260,624. Do you see that?

A. I do.

Q. And can we -- just for sake of brevity, can we refer to that as the "'624 patent" today?

A. Please, yes.

Q. Thank you.

Okay. So this patent, if we go to the "Background" section, which starts at column 1 on PDF page 6, and let me know -- are you --

A. I'm there.

Q. Okay. Perfect.

So the patent relates to "a method for providing an extreme chemical-resistant film whereby a tie layer and a contact layer are coextruded with a base layer, such as a metal foil, as well as films and laminates obtained by the method and uses of the films and laminates to wrap aggressive chemical substances -- substances such as nicotine, fentanyl, lidocaine, and rivastigmine." Did I read that --

A. I see that.

Q. Okay. So just in general, the '624 patent relates to a film or a laminate packaging that contains that film for use with those aggressive chemicals that were listed?

A. That is correct, yes.

Q. Okay. And in the claims and in the specification of the patent, the '624 discloses certain melting points and loading ranges of some of the layers; is that correct?

A. That is correct.

Q. Okay. And your opinions relate to all 13 claims of the '624 patent, correct?

A. They do.

Q. Claims 1 through 13, with Claims 1 and 13 being independent claims?

A. That is also correct.

Q. Okay. Okay. I just wanted to generally introduce the patent since we're going to be talking about it quite a bit.

But let's turn back to your declaration, which is Exhibit 1. And if we go to paragraph 38, which is on PDF page 15.

A. Yes.

Q. Okay. And in paragraphs --

So this -- this section of your

declaration is titled "Technology Background - COCs and Systems Utilizing COCs"; is that correct?

A. That is correct.

Q. And this section is paragraphs 38 through 42; is that correct?

A. I'm just seeing where it has -- well, actually, I have to look here. It goes up to page 28, I believe.

Q. Oh, I'm sorry, I'm -- just the technology background concerning COCs.

A. Ah, okay. Okay. Yes. That -- it goes up to page 18.

Q. Okay. Paragraphs 38 through 42, correct?

A. Yes, that's correct.

Q. Okay. And is it fair to characterize this section of your declaration as setting forth what you believe a person of ordinary skill in the art would know at the time of the invention?

A. That is correct.

MR. LEVY: Object to form.

A. That's correct.

Q. (BY MR. ROESER) Okay. And is this the knowledge, with respect to COCs, that you applied in forming your opinions in this proceeding?

A. This is the background information. Since I have extensive personal expertise with regard to polyolefins, I felt it necessary to provide an in-depth description of the cyclic olefins.

Q. And those are contained within this section of your report?

A. They are.

Q. Okay. And let's look at paragraph 39.

A. Yes.

Q. You state that "Skilled artisans began incorporating COC polymers in multilayer films at least as early as 2006." Do you see that?

A. I do.

Q. Okay. And then you reference U.S. Patent No. 8,003,179 to Merical?

A. Merical, yes.

Q. Merical. Okay. And can we just refer to that as "Merical"?

A. Yes.

Q. Okay. Perfect.

And let's actually pull up and mark Exhibit 5 to your deposition, which is Exhibit 1013 in this PGR proceeding.

(Deposition Exhibit 5 was remotely introduced.)

A. And that is the Merical? Yes.
Q. Yes, sir. Okay. And for the record, you have a hard copy in front of you of Exhibit 5?
A. I do.
Q. Okay.
A. It's Patent No. 8,003,179 Bravo 2.
Q. Do you have a military background, just out of curiosity?
A. I do.
Q. Okay. I figured with your klicks reference and Oslo. Okay.
A. Sometimes it slips out.
Q. Got it.
Now, with respect to the Merical patent, you don't opine that Merical anticipates or renders obvious any of the claims of the '624 patent, correct?
A. I wouldn't say that. I would say that what Merical does is it introduces that in 2011 -- well, that's when it was issued. The filing date was 2006. This is where the cycloolefins were introduced for this particular purpose of a multilayered assembly for this particular purpose. So this greatly precedes the '624 patent.
Q. So is it your opinion that Merical renders the claims of the '624 patent obvious?

A. At least the part that deals with the use of COCs.

Q. So in your opinion, Merical forms a basis of obviousness in this PGR proceeding?

A. It is one of the -- the sources that I relied on for introducing my argument that, yes, COCs were known for use in this particular application area long before the '624 patent. So, yes, it would render -- since someone who had ordinary skill in the art would have access to this and would know that one could use a COC for this purpose.

Q. So is it your opinion that Merical, in combination with Riis, renders the '624 patent obvious?

MR. LEVY: Objection, form.

A. I would not rely on -- I don't rely on just those two. There are others that I've used, and they are listed as exhibits in my declaration.

So taken together, they produce a picture that very, I think, definitively indicates that the COCs were available for use, they were known for use for an application of this sort, before the '624 patent was filed.

Q. (BY MR. ROESER) Okay. I want to make sure I understand you correctly. So it's your opinion

that Merical is a prior-art reference that renders the '624 patent obvious; is that correct?

A. It renders the aspect of COCs obvious, the use of COCs obvious, yes.

Q. And you rely on Merical as a prior-art reference to prove that the '624 patent is obvious; is that correct?

MR. LEVY: Objection, form.

A. I rely on it as one of several.

Q. (BY MR. ROESER) One of several prior-art references?

A. Yes, yes.

Q. Now, in your declaration, you don't compare the disclosure of the Merical patent to any specific claim of the '624 patent, do you?

A. I need to check. If you will give me just a moment, I'm going to use my computer now to do just a quick search of my declaration.

Q. And are you researching for the word "Merical"?

A. I am.

Q. Okay.

A. For the record, I got approximately eight hits. I'm going to go to the first one, which is on page 16, and that is where we -- we just

introduced Merical at that point. And this is the one that describes the product layer, and the product layer can include COC.

Excuse me. At the top of page 17, it provides some blends of COC. It also provides some descriptions of what this multilayered barrier would look like, and it also describes the importance of a tie or adhesive layer. It also points out the barrier layer being a metal foil with aluminum being the example.

On page 79, it points to using, again, aluminum foil for the barrier.

This is all from Merical.

And if we go to page 80, once again, the patent by Merical teaches the use of an adhesive layer that's -- can be a coextrusion of polyethylene and ethylene acrylic acid, which I will simply refer to as "EAA" in the future, just to keep things simple, and they do talk -- they do talk about coextrusion.

And if we go to page 81, it specifically points out to Merical's teaching of the use of COC for the contact layer.

And then on page 82, it also points to the fact that, with Merical's teaching of CO2 [sic], and then another prior-art patent, that this could

be -- this would be suitable for packaging food and/or drugs.

And then there are a couple of others. But it -- I think it gets the point across, that I use this as an early example of prior art that very nicely points to the fact that COCs can be used for the present application, namely for chemically resistant barrier materials for drug applications.

Q. So in your declaration and the opinions set forth in your declaration, you rely on Merical as a prior-art reference, rather than just a reference to show what a POSITA would know at the time?

A. I use it as --

MR. LEVY: Objection. Go ahead.

THE DEPONENT: Go ahead, Ryan.

MR. LEVY: I was objecting to form there.

A. I use it as a prior-art reference.

Q. (BY MR. ROESER) Okay. Now let's go back to paragraph 42 of your declaration.

A. I'm there.

Q. And I'm going to have a similar line of questions with respect to the Jester patent that you reference in paragraph 42, which is -- where is it?

A. It's about line, what, 6?

Q. Got it. Well, let's just go ahead and pull up Exhibit 6 to your deposition, pull up and mark that as Exhibit 6. And that is Exhibit 1014 to this PGR proceeding.

(Deposition Exhibit 6 was remotely introduced.)

Q. And for the record, you have a copy -- a hard copy of the Jester patent application publication, correct?

A. Yes. I've got 2006/0198973 Alpha 1.

Q. Okay. Can we refer to that just as "Jester"?

A. Absolutely.

Q. Perfect.

Okay. So similar question: You reference the Jester patent throughout your declaration, correct?

A. And I --

Q. And we don't have to go through -- we don't have to go through the specifics, but you refer to this Jester patent application?

A. Jester is mentioned on five different pages of my declaration, so, yes.

Q. Okay.

A. I just did a search for "Jester."

Q. Understood.

And you rely on Jester as a prior-art reference in forming your opinions, rather than just providing the background information that a person of ordinary skill in the art would have had at the time of the invention of the '624 patent, correct?

MR. LEVY: Objection, form, calls for a legal conclusion.

A. Can you please restate that? Because I -- I don't see the two being different.

Q. (BY MR. ROESER) Right. So my question is, do you -- what do you rely on Jester for in forming your opinions?

A. As prior background art that someone who was involved in this kind of work, prior to the filing of the '624 patent, they would have had access to this work and they would have also -- very much in the same vein as Merical, they would have known that COCs could be used in the construction of these types of multilaminates or multilayered structures for -- for barrier materials.

Q. So is it your opinion that Jester renders the claims of the '624 patent obvious?

MR. LEVY: Objection, form.

A. Again, the aspect of the COCs being

unique, yes, because they certainly weren't unique. And Jester's patent was filed in 2005, almost ten -- well, actually, more than ten years prior to the '624.

Q. (BY MR. ROESER) Okay. Let's turn to the technology background for aggressive chemical-resistant films, which starts at paragraph 43 of your declaration.

A. Yes.

Q. And since we're shifting gears, we've been going about an hour. If you need to take a break, let me know. If not, we can keep plugging away.

A. I'm good for right now. Thank you.

Q. Okay.

A. I appreciate that.

Q. So this section of your report is paragraphs 43 through 57, correct, just the technology background on aggressive chemical-resistant films?

A. That is correct, yes.

Q. Okay. And is it fair to characterize this section of your declaration as setting forth what you believe a person of ordinary skill in the art would have known about aggressive chemical-resistant films at the time?

A. Yes.

Q. And that's the knowledge that you applied with respect to aggressive chemical-resistant films in forming your opinions?

A. That and my own experience, yes.

Q. Okay. Well, let's look at paragraph 45 real quick. And I wanted to make sure I understand what you're saying.

So -- so at the time of the invention of the '624 patent, so roughly December 2015 --

A. Correct.

Q. -- it's your opinion that it was well known to take a multilayer film to heat-seal it to form a package or a pouch for a pharmaceutical patch product, right?

A. That is my unders- -- that is my understanding, yes.

Q. Okay. And in paragraph 51, you introduce something called "scalping."

A. Well, I'm not the person to introduce that terminology, but I've used it, yes.

Q. You introduced it in your -- in your -- in your declaration.

A. Yes.

Q. Understood. What is scalping?

A. Scalping basically deals with how much

of a material -- how much of, in this case, the drug, or whatever item that's being packaged, actually gets through the barrier material. And so you want to make sure that that gets -- that that is as low as possible.

So you're basically trying to mitigate the diffusion of those types of chemicals, and in this case, there are four pharmaceutical drugs of particular interest in the '624 patent, but in general, it's -- it's a fairly well-known phenomenon that some of whatever is being packaged will make its way through the packaging material.

And so the -- that term "scalping" is -- I wouldn't say it's necessarily known to everyone in this area of manufacturing, but I have run across it in several of the prior-art patents, so it was known in this particular aspect of production development.

Q. And scalping is referred to with respect to the packaging of -- let me ask that a better way.

So is scalping a characteristic or a measurement for a package that includes a multilaminate film as opposed to just the film?

A. Scalping does not necessarily require a multilayered package. It can occur in a single layer or a single film that consists of a single layer. One

doesn't have to have a multilayer for that.

Q. Okay. So scalping --

My question is more centered on the packaging. I've only ever seen scalping referred to when we're talking about a package that contains a film.

A. Well, it's -- it's primarily because in many cases you try to avoid -- you try to avoid any diffusion or as much diffusion as possible of whatever species or packaging by using the barrier material.

So in the case of the '624 patent, that's the base layer, that's the aluminum foil, as well as whatever comes with it. But that is what effectively acts as the barrier.

And so -- but some of the -- the material, the prior material, the coextruded layers, those will pick up some of the pharmaceutical, and you want to try to keep that as low as possible so that you're not wasting -- if you have a very expensive product, you don't want to waste it by having it absorbed into those polymeric layers.

Q. Okay. And then in the next paragraph, paragraph 52, you discuss a "common material used in the packaging of the interior layer for transdermal patches was a material sold under the trademark

Barex." Do you see that?

A. I do.

Q. And that Barex had favorable antiscalping properties?

A. It basically was behaving as a barrier material itself.

Q. And so the Barex film was common at the time around December 2015, correct?

A. It was around that time -- or, actually, before that time, before there were company problems associated with the production of Barex.

Q. And I was going to ask you, do you know what happened to Barex, why they -- it sounded like they had a good thing going.

A. I -- I do not know the specifics of that.

Q. Okay.

A. All I know was what was reported in some of the trade journals, but that's -- and it was -- it was quite vague, in my opinion.

Although I did -- I do believe that part of the issue was the fact that the Barex product basically used polyacrylonitrile, PAN, and PAN is more commonly used in the production of very high-strength fibers once it's pyrolyzed, and that's where it

becomes economically viable; whereas I think in this application, it might not have been. But that's strictly speculation on my part.

Q. Got it. All right. Let's look at paragraph 69 of your declaration. That's on PDF page 33 [sic].

MR. LEVY: Counselor, I know we've been almost going two hours now. If it's a close time, starting a new section, could we do a break around now? Or you want to --

MR. ROESER: Yeah. I think it's been one hour -- one hour, but yeah.

MR. LEVY: Is it only one?

MR. ROESER: Yeah.

MR. LEVY: Okay.

MR. ROESER: Yeah. We'll -- we'll -- we'll --

THE DEPONENT: I'm -- I'm good with that.

THE VIDEOGRAPHER: Okay. Going off the record. The time is 4:00 p.m. UTC, 10:00 a.m. Mountain.

(Recess taken 10:00 a.m. to 10:12 a.m. Mountain Daylight Time.)

THE VIDEOGRAPHER: We are back on the

record. The time is 4:12 p.m. UTC, 10:12 a.m. Mountain.

Q. (BY MR. ROESER) All right. Dr. Spontak, you understand we are back on the record and you are still under oath?

A. I understand that, yes.

Q. Okay. And we just took about a ten-minute break. Did you discuss the substance of your testimony with anyone during your break?

A. Not the substance, just asked how I was doing, got very general descriptions, and discussed NC State football.

Q. Did y'all play Saturday?

A. Apparently, and not -- I didn't know it.

Q. It's opening weekend, so congrats to everybody -- good luck to everybody's team.

Okay. Before the break, we were talking -- we were looking at paragraph 69 of your declaration. And that is, again, Exhibit 1 to this deposition.

A. Let me just get that up. 68, 69, yes, there we go.

Q. And for the record, you have a hard copy of your declaration in front of you for reference, correct?

A. And there -- there it is.
Q. Thank you.
Okay. So this paragraph appears in the section of your report titled "Level of Ordinary Skill in the Art," correct? That starts at paragraph 66.
A. Let me just clarify that. Yes.
Q. Okay. Let me show on the screen. I thought I was sharing it. All right. Let me make sure I'm sharing the right one.
Is that -- am I sharing your declaration? Can you see that?
A. You are. Yes, you are.
Q. Okay.
A. And it's -- and it's not marked.
Q. It's not. Good.
Okay. So the last sentence of paragraph 69, you state, "Thus, the design in the '624 patent is obvious." Do you see that at the bottom of page 34?
A. Oh, yes, yes.
Q. And earlier, in the first sentence of this paragraph, you discuss some prior-art solutions in the 2005, 2006 time frame, discussing COCs and films for packaging food and pharmaceuticals. Do you see that?

A. I do.

Q. Okay. What are these prior-art solutions that you are referencing in the first sentence of paragraph 69 of your declaration?

A. If we turn back to the previous patents that we just discussed, Jester was filed in 2005, and Merical was filed in 2006.

Q. Okay. So in paragraph 69, you're referring -- whenever you reference prior-art solutions in 2005 and 2006, you're referring to the Merical patent and the Jester patent application publication?

A. I'm just checking to see -- okay. That came later.

So, yes, those two would be examples, not necessarily exclusive examples, but they're the examples that I used.

Q. Any other prior-art solutions from 2005 and 2006 that you're referencing in paragraph 69, other than Jester and Merical?

A. Let me just check a couple of quick dates. They are -- the only ones that I have are from -- that are from 2005, 2006.

Q. Okay. So no other prior-art solutions that you're referencing in paragraph 69 of your

declaration?

A. No, I didn't say that. I said those were the only ones from 2005, 2006. There are others that came a bit later, but this is to point out that even a decade before the '624 patent, the idea of using COCs for the purposes of multilayer packaging were already known to a person of skilled -- well, a skilled artisan.

Q. And I understand that you reference other -- other articles or patents in your declaration. But specifically with respect to this paragraph, paragraph 69, we're discussing two thousand -- prior to 2006, other than the two patents you just mentioned, the Merical patent and the Jester patent application, are you referencing any other patents or articles in this paragraph?

A. The other -- I think the answer -- the short answer to that is no, but I just want to make absolutely sure.

No, the other ones I used came a little bit later. So those would be the only two that are relevant to paragraph 69 dealing with that time period, 2005 to 2006.

Q. And do you rely on the Merical patent and the Jester patent application as forming the basis

of your obviousness opinions?

MR. LEVY: Objection, form.

A. I would say they contribute. They do not strictly provide the absolute basis. All -- I have taken several sources and used them in concert to develop my opinions.

So the answer is no, I did not rely on these exclusively, but they did provide a starting point for me, especially when we're talking a decade before the filing of the '624 patent.

Q. (BY MR. ROESER) So -- and -- and I'm not asking "exclusively." In addition to the references like Riis, Wypych, and Tatarka, do you also rely on the Merical patent and the Jester patent application for the basis of your obviousness opinions in this case?

MR. LEVY: Objection, form.

A. Yes.

Q. (BY MR. ROESER) Okay.

A. Yes, they contribute to my opinion.

Q. Okay. I want to look at the second-to-last sentence of paragraph 69; still on paragraph 69. You state, "The ultimate design of coextruded laminates is that each layer of the laminate serves a particular purpose that is relevant

to the target application." Do you see that?

A. I do.

Q. Okay. So, in other words, each layer is important and each layer serves a purpose in a multilayer laminate that's coextruded?

A. That's prepared by any means. That's the whole reason for producing a laminated or sandwiched structure, that each component -- that each layer component contributes in a specific way to the overall purpose of -- of the assembly.

Q. And I note that sentence we just read relates to laminates. Would that also apply to multilayer films?

A. Yes.

Q. Okay. Okay. Let's shift gears again. Let's pull up and mark Exhibit 7 to your deposition.

(Deposition Exhibit 7 was remotely introduced.)

A. Which one is that?

Q. That would be the -- so that is Exhibit 1004 to this PGR proceeding, which is the Riis reference.

A. There it is.

Q. Okay. And for the record, you have a hard copy of Exhibit 7, which is Riis, in front of you

for reference?

A. That is correct.

Q. Okay. All right. Riis is entitled "Anti-Scalping Pharmaceutical Packaging Film," correct? That's on page 2.

A. Yes, that is correct.

Q. And -- and Riis generally relates to a package or a pouch for an article containing a psychologically [sic] active substance?

A. Physiologically active.

Q. Physiologically, I'm sorry. But generally it relates to a package or a pouch for physiologically active substances?

A. Yes, that is correct. That is written in paragraph 2.

Q. Okay. And let's look at paragraph 11. Paragraph 11 lists some pharmaceutical -- lists the pharmaceutical active agents in Riis. Do you see that?

A. I do.

Q. And in that list of pharmaceutical agents you find fentanyl, nicotine, and lidocaine, correct?

A. Along with others, yes.

Q. Along with others. But Riis does not

disclose the pharmaceutical active agent rivastigmine, does it?

A. It is not listed here.

Q. Does it list it anywhere?

A. If you give me a moment, let me do a quick search, and I'll be able to answer that question.

Q. And for the record, you are -- you're performing a search function in the electronic version of Riis for the word "rivastigmine"?

A. That is absolutely correct.

And the search does not show it anywhere.

Q. So Riis does not disclose rivastigmine?

A. No. It is not explicitly considered.

Q. Okay. And, therefore, Riis doesn't disclose a film or a laminate for use with rivastigmine, correct?

MR. LEVY: Objection, form.

A. Well, for that particular pharmaceutical, Riis is -- does not include it, but it also includes a number of other pharmaceuticals that -- and I'm not an expert in pharmaceuticals, so I couldn't tell you if any of these would behave in a similar fashion as to rivastigmine. I can't say it.

Q. (BY MR. ROESER) Rivastigmine, right. It took me a few times to --

A. Ah, there you go.

Q. But just to be clear, Riis does not disclose a film for use with rivastigmine?

MR. LEVY: Objection, form.

A. Rivastigmine is not included, so it's not included in the Riis patent.

Q. (BY MR. ROESER) Okay. Now let's turn back to paragraph 4 of Riis, which is page -- PDF page 3.

A. Yes.

Q. Now, Riis also discusses Barex film as a common material that's employed for transdermal packaging, correct, in paragraph 4?

A. Yes, I see that.

Q. Okay. And what makes Barex -- I know we talked about Barex before, but what makes Barex a good antiscalping -- what -- let me ask that a different way.

What makes Barex have such a good antiscalping property?

A. I cannot answer that directly because I didn't consider polyacrylonitrile in any of my opinions, so I would have to look at the specific

properties of polyacrylonitrile to be able to answer that question more effectively, more truthfully.

Q. Fair enough.

All right. Let's move on. Let's go to paragraph 12 of Riis, which is PDF page 5.

A. Yes, I'm there.

Q. Okay. So in paragraph 12, Riis discloses a multilayer packaging film with six layers, correct?

A. There are six different layers that are listed here.

Q. Okay. And the first in paragraph 12 is "an article contact layer having at least 90 percent weight of a norbornene ethylene copolymer and a glass transition temperature from 65 to 100 [sic] degrees Celsius"; is that correct?

A. That's what is written, yes.

Q. Okay. And norbornene ethylene copolymer is a COC, correct?

A. It is.

Q. Okay. And, again, could you just -- I know we talked about COCs before. What exactly is a COC?

A. It is a copolymer that starts off with a ringed olefin structure, and when it is copolymerized

with another species like ethylene, that's when you get the best example of that ring poly- -- or the ring precursor, the monomer, is norbornene, and you can copolymerize that with ethylene so that you get a copolymer of the two. That's the most common COC.

Alternatively, you could have a COP, which is where you start off with just the norbornene monomer and then you open up the ring.

But the copolymer is actually quite effective because, depending on the composition of the copolymer, you can adjust its properties.

Q. All right. And going back to paragraph 12, after the -- after the article contact layer, Riis discloses a polyolefin bulk layer. Do you see that?

A. I do.

Q. And what is a polyolefin?

A. A poly- -- there are many different types of polyolefins. They essentially derive from a vinyl monomer like ethylene, and you wind up producing, for example, polyethylene. Or if you start with propylene, you get polypropylene. These all constitute members of the ole- -- the polyolefin family.

Q. Is low-density polyethylene, or LDPE, is

that within the polyolefin family?

A. LDPE, low-density polyethylene, is part of the polyolefin family, yes.

Q. Okay. After the polyolefin bulk layer, Riis discloses a first intermediate adhesive layer. Do you see that?

A. I do.

Q. (Inaudible) unless there was an oxygen -- oxygen-barrier layer.

THE REPORTER: Randy, you froze.

MR. LEVY: I think you froze for a second there. There was an issue with your question.

MR. ROESER: Oh. Am I back?

A. Could you repeat that, please?

Q. (BY MR. ROESER) Yeah. Am I unfrozen?

A. Yes. You're fine now.

Q. Perfect. Okay.

After the first intermediate adhesive layer, Riis discloses an oxygen-barrier layer, correct?

A. That is correct.

Q. And I note there's --

Can aluminum foil serve as an oxygen-barrier layer?

A. It can, as well as other -- typically

metallic materials could be used for barrier material.

Q. And then after the oxygen-barrier layer, Riis discloses a second intermediate adhesive layer, correct?

A. Yes, I see that.

Q. And then the sixth layer disclosed in Riis, it is an exterior protective layer comprising a polymer selected from the group, and then it provides a list of materials. Do you see that?

A. I see them, yes.

Q. Okay. So when -- when a patent claim includes the term "comprising," what is your understanding of that to mean?

MR. LEVY: Objection, form.

A. As far as I'm aware, the word "comprising" indicates that whatever follows could include whatever is mentioned plus other constituents.

Q. (BY MR. ROESER) So sort of an open-ended term?

A. It can be, from what I understand, yes.

Q. And then conversely, if a patent claim includes the term "consisting of," what do you understand the term "consisting of" to mean?

A. I understand consist- --

MR. LEVY: Object to form.

A. I understand consisting to mean only the item that follows is to be considered.

Q. (BY MR. ROESER) Okay. So more of a close-ended term?

A. That is correct.

Q. Okay. So taking paragraph 12 and the six-layer film disclosed therein, Riis doesn't disclose two adhesive layers immediately adjacent to each other in this paragraph, does it?

A. One could easily combine (b) and (c) together to form an adhesive layer.

Q. But that's not what Riis does in paragraph 12, does it? It separately lists a polyolefin bulk layer and then an immediate -- a first intermediate adhesive layer; then the second adhesive layer that Riis discloses is separated by an oxygen-barrier layer, correct?

A. I -- I do see that, but in (a), it points to the contact layer, and (b), it says this polyolefin bulk layer, but LDPE is known to be an adhesive, and according to other patents that I have examined, polyolefin is often combined with EAA, the ethylene acrylic acid, to form a bilayered adhesive.

And so the reason why you see the term "bulk" there does not indicate size, necessarily. It

simply tells us that we can consider the bulk properties of the polyethylene.

And, indeed, that is what is typically done in designing laminates. One uses bulk values, even though we're talking about very, very thin layers, typically on the order of microns, tens of microns, maybe even hundreds of microns, but those layers are not at the scale where we have to start eliminating bulk properties.

So when I read this, I immediately said (b) and (c) would be a bilayered, two layers, adhesive layer, or tie layer, as you might want to call it.

MR. ROESER: Object to nonresponsive; move to strike the entire answer.

Q. (BY MR. ROESER) My question was, in Riis paragraph 12 -- I'm not -- I'm not asking about any other prior-art references or anything like that. I'm asking explicitly -- or expressly what paragraph 12 discusses.

MR. LEVY: Objection, Counsel.

Q. (BY MR. ROESER) And in the paragraph (inaudible) the polyolefin bulk layer --

My question was whether or not paragraph 12 of Riis discloses two adhesive layers adjacent to each other.

A. And to that, I would say --

MR. LEVY: Counselor, if --

Let me get an objection on the record there, Dr. Spontak.

Now, Counselor, I understand you may not like his answer, but that was the answer he gave to your question. So object to it's asked and answered.

Dr. Spontak, you can go ahead.

THE DEPONENT: Thank you.

A. So I think you actually just very nicely said it for me, because, basically, the (b) and (c) are two layers that comprise the adhesive layer.

Q. (BY MR. ROESER) In paragraph 12, Riis does not describe the polyolefin layer as an adhesive layer, does it?

A. And I agree that it doesn't use the word "adhesive" layer, but it certainly stands to reason that if that polyolefin is present, that is its purpose.

Q. So is a polyolefin layer always an adhesive layer?

A. As an LDPE, it is commonly used with EAA to form a bilayered adhesive layer or tie layer.

Q. Is a polyolefin layer always an adhesive layer?

MR. LEVY: Objection, asked and answered.

A. Polyolefins are frequently used as adhesives, not always. It depends on the polyolefin. It depends on factors as to crystallinity, and it depends on -- in this case, it would need to be a little bit more specific in terms of which polyolefin, and the most common of which for this purpose would be the low-density polyethylene.

Q. (BY MR. ROESER) Riis, in paragraph 12, does not state what polyolefin is used as the polyolefin bulk layer, correct?

A. Let me just see if they do mention LDPE explicitly, so I'm going to be -- for the record, I am going to be searching the Riis patent for -- for anything regarding low density.

Q. And just to be clear, the question is about paragraph 12 of Riis.

A. So in Riis, and this is after paragraph 12, there is an entire section that deals with polyolefins and how they are often used and why they're used in different ways. And they do mention the difference -- they do get into low-density polyethylene versus different types of polyethylenes.

Q. And we were talking about polyolefin

families before. You said there are quite a few polyolefins, correct?

A. There are typically two major types: one based on polyethylene, the other one polypropylene. Those are the most common.

But we do have -- and these are relatively new to the -- the olefin family, would be the cyclic olefins.

Q. Okay. So in paragraph 12 of Riis, the second layer, the polyolefin bulk layer, it doesn't state it's an LDPE layer, does it?

MR. LEVY: Objection, form.

A. It does not state it there, but there is -- as I mentioned, there is considerable discussion about the different polyethylenes that have been considered with regard to the Riis patent.

Q. (BY MR. ROESER) Including others than LDPE, correct?

A. They do mention others, but I believe -- let me see if I can find it. I'll just do "LDPE."

Q. And I'm just asking about what -- what paragraph 12 of Riis discloses as to paragraph -- as to the second layer, the polyolefin bulk layer.

A. Up to that point, it is not specific.

Q. Okay.

A. The descriptions of different polyethylenes come later in the Riis patent.

Q. You would agree with me that layer (c) and layer (e) in Riis paragraph 12 are labeled as intermediate adhesive layers, correct?

MR. LEVY: Objection, misstates previous testimony.

A. No. (c) is only listed as an adhesive layer. (d) is listed as the barrier layer.

Q. (BY MR. ROESER) I'm sorry. I said (c) and (e), as in echo.

A. Oh, I'm sorry. Yes, it does --

MR. LEVY: Same objection.

A. -- list a second -- it does list a second adhesive layer.

Q. (BY MR. ROESER) Okay. The layer (b) is labeled as a polyolefin bulk layer, correct?

A. That is correct.

Q. And layer (d), which is an oxygen-barrier layer, separates layers (c), as in Charlie, and (e), as in echo, which are both described as adhesive layers, correct?

MR. LEVY: Objection, form.

A. That is correct.

Q. (BY MR. ROESER) Okay.

A. That is correct.

Q. And layer (a), which is the contact layer, is separated from layer (c), Charlie, the -- the intermediate adhesive layer, by layer (b), a polyolefin bulk layer, correct?

MR. LEVY: Objection, form.

A. That is the way it's listed in paragraph 12 of Riis.

Q. (BY MR. ROESER) Okay. And let's look at -- let's go down to Figure 1 of Riis, which is PDF page 60. And I just want to look at that since we're going to talk about Exhibit 1 -- or, I'm sorry, Figure 1 of Riis, which is Exhibit 7.

A. Yes, I'm there.

Q. Okay. And this is also a six-layer film that's depicted in Riis.

A. That is presumably -- it's listed as Figure 1. I presume it refers to those six layers in paragraph 12.

Q. Okay. Let's turn to paragraph 135, which is PDF 38 of Riis. And do you understand paragraph 135 to be a detailed description of Figure 1?

A. Yes, I do.

Q. Okay. So in describing Figure 1, which

has six labeled layers, six numbered layers, "On the surface is the product-contacting layer 1 . . . ." Do you see that?

A. I do.

Q. And that corresponds to layer (a) in paragraph 12 of Riis, the product-contacting layer -- or article-contacting layer?

A. I'm sorry. Is there a question in there?

Q. There was a question mark on the end of that.

Do you understand that the product-contact- -- contacting layer in Figure 1 corresponds to the product-contacting layer (a) in paragraph 12?

A. Yes, I understand that to be the case.

Q. Okay. The same thing with layer 2, do you see in paragraph 135 of Riis, Riis describes layer 2 as a polyolefin bulk layer; do you see that?

A. I see that on page 38, paragraph 135.

Q. And that corresponds to layer (b) in paragraph 12 of Riis, correct, the polyolefin bulk layer?

A. That's -- seems to be the case, yes.

Q. Okay. The same thing -- I'm just going to walk you through all -- all the layers. Layer 3 is

the first intermediate adhesive layer of Figure 1 which corresponds to paragraph (c), Charlie, in paragraph 12; is that correct?

A. That is correct.

Q. Layer 4 is the oxygen-barrier layer, which corresponds to layer (d), which I believe is delta, in paragraph 12?

A. That is correct.

Q. Layer 5 is labeled as the second intermediate adhesive layer in Figure 1, which corresponds to layer (e) in paragraph 12; is that correct?

A. That is correct.

Q. And layer 6 is the exterior protective layer at Figure 1, and that corresponds to layer (f) in Figure 12 -- or paragraph 12 of Riis?

A. That is also correct.

Q. Okay. Okay. Now, if we go down to Riis in paragraph 135, still --

Actually, backing up, in paragraph 135, when Riis describes each layer of Figure 1, it says that that layer is "adjacent and in contact with" the preceding layer. Do you see that?

A. Could you say that again, please?

Q. Right. I'm sorry.

So in paragraph 135 of Riis, when it describes what the layer is, layer 1, 2, 3, 4, and 5 --

A. Yes.

Q. -- Riis discloses that that layer is "adjacent and in contact with," and then it lists the preceding layer again?

A. Yes, I see that. Okay. Yes.

Q. So then in -- for example, "Adjacent and in contact with the polyolefin bulk layer 2 is a first intermediate adhesive layer 3."

A. I see that.

Q. Okay. And the same thing with layer 1, "Adjacent and in contact with the product-contacting layer 1 is a polyolefin bulk layer 2." Do you see that?

A. I do.

Q. Okay. Now, paragraph 135 goes on to state that "It will be understood that a film as described herein," meaning Figure 1, "may have any number of one or more layers . . . ." Do you see that?

A. I do.

Q. Okay. So Riis is saying we can have two polyolefin bulk layers; we can have two or three or

four adhesive layers; two oxygen barriers, et cetera. You can have any number of layers of that disclosed film; is that your understanding?

MR. LEVY: Objection, form.

A. The way that I read that, when it says, "may have any number of one or more layers," to me it would indicate that it doesn't necessarily have to have more layers; it could actually have fewer layers.

Q. (BY MR. ROESER) Got it. So taking Figure 1, the six-layer film, you can add in multiple of those layers, you could take out multiple of those layers, correct? Is that how you understand that sentence to read in Riis?

A. That is correct.

Q. Okay. So what would happen in Figure 1, the disclosure of Riis, if you just took out the polyolefin bulk layer 2? What would happen to the film?

MR. LEVY: Objection, form, incomplete hypothetical.

A. I don't know how well EAA would adhere to the COC. My suspicion is that the polyethylene is put there as a way to keep things compatible between the COC and the EAA. I haven't done tests on this, but I'm not sure about how well the EAA would adhere

to the COC.

So -- but in principal, you should be able to remove that polyolefin layer and rely on just a single adhesive, or tie layer, for the purposes of the function of this assembly.

Q. (BY MR. ROESER) So if the EAA layer could adhere to a COC layer and an aluminum layer, then what is the purpose of an LDPE layer?

A. Well, more than likely to provide additional mechanical strength.

Q. Okay. All right. Now, it goes on to -- let me see.

All right. So we've been talking about the adhesive and the tie letter. So let's go to paragraph 20 of Riis, which is on page 8 of 64, PDF page 8.

A. Yes, I'm there, uh-huh.

Q. All right. So -- in this paragraph, Riis discloses that an adhesive, or tie layer, is used to promote the adhesion of that layer to another surface; is that correct?

A. That is generally the idea behind an adhesive layer, yes.

Q. Okay. And this is just, I guess, a common-sense question, but an adhesive layer can't

adhere layers it doesn't touch; is that your understanding?

MR. LEVY: Objection, form.

A. An adhesive layer must contact the layers that it is adhering.

Q. (BY MR. ROESER) Okay. And what -- what is the purpose of an adhesive or a tie layer? Does it serve any other purpose other than adhering the two layers in which it's in contact with?

A. The basic idea of adhesion is to be able to bring different components together in such fashion that they don't come apart during application. So in the case of a sandwich or laminated-type structure, you don't want the material to peel apart, and so the adhesive layer prevents that from happening.

Q. Is there any other function that an adhesive layer serves other than keeping the multilayers together?

MR. LEVY: Objection, form.

A. That is the primary objective. If there are other attributes, and, for example, it can be used to -- as a term that they use in -- in this field, "scalp," if it can be used to capture any diffusing molecules, that would be a plus. If it were able to add any mechanical stability, that would be a plus.

But the primary goal would be to just promote adhesion between the layers that it is contacting.

Q. (BY MR. ROESER) So let's look at -- let's turn to paragraph 71 of Riis now.

A. Seven one?

Q. Yes, sir, which is on page twenty- -- PDF page 22.

A. Yes, I'm there.

Q. Okay. And this paragraph adheres --

In the section of Riis entitled "Tie Layers," which starts on paragraph 70, do you see that?

A. I do.

Q. Okay. And Riis discloses that "A multifunctional layer is preferably formulated to aid in the adherence of one layer to another layer without the need of using separate adhesives by virtue of the compatibility of the materials in that layer to the first and second layers." Do you see that?

A. I do.

Q. Okay. So Riis discloses that you want a tie layer -- one tie layer that adheres to both layers that it's in contact with?

A. That's -- that's exactly what I just

said, yes.

Q. As opposed to having two tie layers, one that adheres to one layer and another that adheres to the other layer?

MR. LEVY: Objection, form.

A. So within that same paragraph, it points out correctly that separate adhesives might be needed due to the compatibility with the materials that are being adhered.

So, for example, as I had previously mentioned, the EAA might not have significant compatibility with the COC, but it has been shown numerous times that LDPE is compatible with EAA, and, therefore, one actually can take advantage of this compatibility so that together, that LDPE and EAA -- it's -- basically, it's a coextruded layer, would serve as the adhesive between the contact layer and the base layer.

But a lot of this depends on compatibility as well. So we want to have adhesive layers that are compatible with the layers that are being contacted.

Q. (BY MR. ROESER) In forming your opinion, did you consider the compatibility of EAA as the tie layer to COC?

A. I did not explicitly consider that aspect, no.

Q. Did you consider the compatibility of the EAA layer as an adhesive to the LDPE layer?

A. I did not expressly consider that, although I routinely ran into it in several of the previous-art patents. So I believe that it was well known to a skilled artisan that that combination was effective.

Q. Did you include that in your report?

A. I believe -- I'm not sure if I expressly mentioned that, but let me check. If we start talking about compatibility, then that -- that opens up an entirely different topic.

Q. And is that a topic that you addressed in your declaration?

A. I mention the word "compatibility" once, in paragraph 70 on page 36, by pointing out that "Since the compatibility of adjacent polymer layers can preclude interfacial mixing," which is not what you want, and that basically reduces adhesion, and the "adhesive (or tie) layer is often included to ensure the stability of the laminate."

So it's important to ensure that when you're dealing with polymeric materials, if you want

those layers to remain stable and not come apart, or what we would call "delaminate," we wind up ensuring that there's sufficient compatibility between the polymers.

Q. But in your -- in your declaration, you didn't expressly consider the compatibility of EAA to LDPE or COC, correct?

A. That is correct.

Q. Okay. Now let's go back to Riis, paragraph 71, same paragraph, the very next sentence -- actually, this is two sentences from that. Paragraph 71 of Riis states, "The adhesive layer may suitably be less than 10 percent and preferably between 2 percent and 10 percent of the overall thickness of the multilayer film." Do you see that?

A. I do.

Q. So Riis teaches that the tie layer in the multilayer film should be between 2 percent and 10 percent of the overall thickness?

A. I see that. Yes, it is written in paragraph 71.

Q. And that's what Riis -- so Riis teaches that you want a fairly thin adhesive layer with respect to the overall thickness of the multilayer film?

MR. LEVY: Objection, form.

Q. (BY MR. ROESER) Is that your understanding?

A. It is. Thank you.

Q. And it's your understanding that preferably Riis wants -- it teaches that the overall -- that the thickness of the tie layer should be between 2 percent and 10 percent of the overall thickness of the film; is that your understanding?

A. It's -- it's -- right. So in general, the adhesive layer in any laminated -- laminated structure, for the purpose of adhesion, should be relatively thin compared to the other layers comprising the structure of interest; so saying that it may suitably be less than 10 percent and preferably between 2 and 10 percent.

I don't know if I would necessarily agree with putting numbers on it, but certainly it does indicate that the adhesive layer should be relatively thin compared to the entire structure.

Q. But Riis -- Riis does put numbers on it, correct? It says between 2 percent and 10 percent is what you want the tie layer to be with respect to the thickness of the overall film?

MR. LEVY: Objection, form.

A. Riis does say "preferably between 2 and 10 percent of the overall thickness."

Q. (BY MR. ROESER) And what are the advantages of having -- I know you just discussed some of them. What are -- what are the advantages of having a thin tie layer in a multilayer film?

A. The tie layer serves only one primary purpose, and that is to basically behave as an adhesive, as a glue, if you will.

The analog is, if you were trying to assemble a plastic model, you would use a very, very thin layer of glue to hold the parts together. You wouldn't want to have something that was incredibly thick.

And so this is essentially that same idea: You want to have -- ensure that you're getting the -- the most use of the polymer with as little polymer as possible. So you want it to spread evenly, uniformly, and you want to ensure that it is a relatively thin contribution to the overall assembly.

Q. And Riis states, I think in the next sentence -- I'll highlight it here. Is cost -- thin layers, obviously you're using less polymer so that it's more cost-effective; would you agree with that?

MR. LEVY: Objection, form.

A. That's -- so while I was discussing that, I was thinking more in terms of performance. But, yes, from a manufacturing standpoint, cost becomes an important consideration. And, typically, the adhesives are going to be a bit more expensive than the other components that are introduced here, like the polyolefins.

Q. (BY MR. ROESER) And that's exactly what I had highlighted. So in paragraph 71, Riis said that "Adhesive resins are often more expensive than other polymers so the tie layer thickness is usually kept to a minimum consistent with the desired effect." Do you see that?

A. I do, yes.

Q. So -- so Riis also teaches that it's a cost benefit to have thinner tie layers, right?

MR. LEVY: Objection, form.

A. That's a very -- that's a very important pragmatic aspect.

Q. (BY MR. ROESER) And, conversely, what would happen if you have a thick tie layer with respect to the overall thickness of the multilayer film? Are there any disadvantages or negative effects that a thick tie layer would have?

MR. LEVY: Objection, form, incomplete

hypothetical.

A. So without having actually examined those types of sandwiched structures, what I believe would happen is that, A, the cost, of course, based on what we've just said, would potentially be prohibitive; and, secondly, the properties of the assembly could be compromised to the point where the material no longer behaves as it is needed to behave.

Q. (BY MR. ROESER) Okay. And finishing out paragraph 71, Riis discloses essentially a five-layer multilayer film. Do you see that?

A. Yes. Okay. There we go.

Q. And that multilayer film comprises a first adhesive layer positioned between and in direct contact with an exterior layer and a core barrier layer. Do you see that?

A. I do.

Q. And then a second tie layer between and in direct contact with that same oxygen-barrier layer and the interior layer. Do you see that?

A. I do.

Q. So in this embodiment that is disclosed in paragraph 71, Riis doesn't disclose two adjacent tie layers, does it?

MR. LEVY: Objection, form.

A. No. Based on what is written there, there are single tie layers, but it doesn't specify whether or not the tie layers are a single component or are coextruded bilayers.

Q. (BY MR. ROESER) It doesn't -- in paragraph 71, Riis doesn't say that the tie layer -- it says a singular tie layer, correct, on each of those?

A. It says -- in both cases it says that there is a -- a tie layer, but it doesn't say what the composition of that tie layer is.

Q. It doesn't disclose a multilayer tie layer. It doesn't say that, does it, in paragraph 71?

A. It does not, but it doesn't preclude the possibility of having a multicomponent tie layer.

Q. I understand. I'm just asking what it -- what it says in paragraph 71, and it doesn't say a multilayer tie layer, does it?

A. It doesn't -- it does not specifically state -- state that, but it doesn't eliminate the possibility as well.

Q. What makes a thin tie layer prefer- -- perform preferably to a thicker tie layer?

A. Typically, the properties of the adhesive are going to be significantly different

because of its function compared to the other layers within the materials -- within the assembly.

So in the '624 patent, as an example, the direct-contact layer has a purpose. It is meant to come in contact with these pharmaceuticals.

It also has an important secondary function, which is it has to be mechanically stable; otherwise, this packaging is going to fall apart.

So it has its particular uses.

The adhesive layer serves the purpose of ensuring that the contact layer doesn't come apart from the base layer. That is its primary function.

If you start -- as I mentioned earlier, if you start to make that -- that adhesive layer thicker and thicker, you might find that now the mechanical properties can be compromised.

As an example, adhesives are typically low glass-transition-temperature materials. And the reason for that is that the molecules have to be mobile. Those are what adhere to the surface. Those are what promote adhesion, unless you're dealing with chemical types of interactions.

But if you're looking at simple adsorption, you're looking at mobile chains on the surface. And so that means that adhesives tend to

have relatively poor mechanical properties by themselves, whereas the COC has good mechanical properties. The base layer, being a metal foil, has excellent mechanical properties.

So we don't want that adhesive layer to be too thick, not only from a cost standpoint, but also from a performance standpoint.

Q. Let's go to paragraph 65, which deals with bulk layers. And we're still in Riis. Paragraph 65 is on page 20.

So what's the purpose of a bulk layer? We were just talking about tie layers. What's -- what's the purpose of a bulk layer in a multilayer film?

A. Well, Riis specifically states that this layer can provide additional functionality, such as improving mechanical properties, such as stiffness, or improved machinability, improved flexibility, improved barrier properties, and reduced costs; and it too can serve as a compatibilizer between the adhesive -- the dedicated adhesive and another layer. So, in essence, it joins; it becomes part of the adhesive layer.

Q. Do bulk layers always become part of the adhesive layer?

A. They don't have to. If they are very

thick, then they could be used for other mechanical property or other property attributes, such as the ones that Riis lists here.

But if you notice that the bulk layer that's listed here has a thickness from 0.1 to 7 mils, that's very, very thin. And so, once again, we're not looking at a thick layer.

So the term "bulk" is what often gets misconstrued, because when we say the word "bulk," we tend to think large.

But in the context of polymers, "bulk" simply means that we are at such a size scale that we can use the properties of the polymer that correspond to what we would have at larger-length scales.

So, for example, density: If we were to start thinking about very thin polymer layers that could be on the order of tens of nanometers, we might find that the density actually changes because the polymer film is so thin.

But when we're talking about these types of thicknesses, we can use -- we can rely on the properties that we would expect for a polymer in its normal usage.

Q. So the -- the 0.1 to 7 mils thickness of the bulk layer disclosed in paragraph 65, that's going

to be relative to the overall thickness of the film?

A. To the overall thick- -- I mean, that -- that is -- they're providing an absolute thickness relative -- it's not relative. It is a thickness that one could potentially measure by ellipsometry. So it is a thickness.

But if you read on from that statement, it even says it can be omitted.

Q. Right. But -- but if you're -- if you're including a bulk layer, you're going to want that bulk layer to be relative to the other layers in that multilayer film?

A. You still want --

MR. LEVY: Objection -- let me get an objection. Objection, incomplete hypothetical.

A. If you -- it depends on how you want to use this layer. If -- if you wanted to contribute to machinability, mechanical properties, et cetera, then you might want it to be slightly thicker.

If you want it to be used in concert with another adhesive like EAA, then you probably want it to be on the thinner side.

Q. (BY MR. ROESER) All right. Let's switch gears again. Let's -- let's pull up and mark Exhibit 8 to your deposition.

(Deposition Exhibit 8 was remotely introduced.)

A. Are we finished for the moment with Riis?

Q. For the moment, yes, sir.

A. Okay. And which one are we looking at now? This is -- oh, Tatarka. Okay.

Q. Yes. I'm sorry. This exhibit is Exhibit 1008 in this PGR proceeding and it is U.S. Patent No. 9,452,593 2, Tatarka.

A. Yes, I have it.

Q. Okay. So is this the Tatarka reference that you opine upon in your declaration?

A. It is.

Q. Okay. And -- and I'm going to discuss -- is it "Wip-ich" or "Wipe-ich"? I'm -- I call it "Wip-ich," but that's probably --

A. Yeah, "Wip-ich" is fine. "Wip-ich" is fine.

Q. Okay. Let's pull up and mark Exhibit 9 to your deposition, which is Exhibit 1005 in this PGR proceeding.

(Deposition Exhibit 9 was remotely introduced.)

Q. And that is the Handbook of Polymers to

Wypych.

A. Yes.

Q. And for the record, you have hard copies of both Exhibit 8 and Exhibit 9 in front of you?

A. Yes.

Q. All right. So for the purposes of your opinions on obviousness in this PGR proceeding, you rely on Wypych and Tatarka for the disclosure of material properties, correct?

A. That is correct.

Q. And specifically the material properties that you rely on these two references for are the loading ranges and the melting points for the relevant polymers and layers discussed in the '624 patent, correct?

A. Primarily just the thermal properties.

Q. The thermal properties.

Okay. Any other properties other than the loading or the melting points that you would rely on these references for?

MR. LEVY: Objection, form.

A. Loading values were determined independently, so only thermal properties from these two resources.

Q. (BY MR. ROESER) Okay. Okay. I think

we can be done with those two exhibits right now.

MR. ROESER: I'm actually at a transition point if y'all want to take another break. We've been going an hour. I know y'all are an hour ahead. It's up to y'all if you want to take a break or not.

MR. LEVY: Sure. That makes sense. Do you want to do lunch now, or would you rather wait to the next break? We can either do one now or do a little bit later one.

THE VIDEOGRAPHER: Let me take us off the record. Off the record. The time is 5:18 UTC --

MR. ROESER: Yeah. Thank you. Yes. Let's go off the record first.

THE VIDEOGRAPHER: -- 11:18 Mountain.

(Recess taken 11:18 a.m. to 12:01 p.m. Mountain Daylight Time.)

THE VIDEOGRAPHER: Back on the record. The time is 6:01 p.m. UTC, 12:01 p.m. Mountain.

Q. (BY MR. ROESER) All right. Dr. Spontak, you understand we are back on the record and you are still under oath?

A. I understand that.

Q. Okay. And we just took a break for lunch. Did you discuss the testimony that you've

given, or the testimony you anticipate to give, with counsel during our break?

A. No. We just discussed the general approach that I've been taking, along with the differences between Star Wars and Star Trek.

Q. Oh, what are -- I won't even go into it. I know -- I know the differences. Okay.

All right. Let's go to Exhibit 1 again, your declaration, starting at paragraph 96, which I'll share. All right. Have I shared the correct screen?

A. That's not my declaration.

Q. Is that a Zoom tab and the -- what are y'all looking at? Is this the --

A. It says "Patentability of the Challenged Claims Over the Applied References."

Q. Yeah, that should be your declaration on paragraph 96.

A. I haven't gotten to 96 yet. No. Wait. Oh, yes, it is. I apologize. Yes.

Q. No worries.

A. I was looking for the first page.

Q. Got it. Yeah, yeah.

Okay. So Exhibit 1, paragraph 96 to paragraph 112 of your declaration, that sets forth your opinions with respect to Ground 1 of the petition

that the term "aggressive chemical-resistant film" is indefinite, correct?

A. Yes. The first part of that does, yes.

Q. Yes. Just -- and I'm just talking about the term "aggressive chemical-resistant film."

A. Yes. Okay.

Q. Okay.

A. Yes.

Q. So paragraphs 96 to 112 sets forth your opinions with respect to that ground, correct?

A. I'm just checking to see if it ends on 112. Yes, that is correct.

Q. Okay. Other than the opinions you set forth in those paragraphs, do you have any other opinions why the term "aggressive chemical-resistant film" is indefinite?

A. Everything that I opine on is contained within this particular section of my report.

Q. Okay. Okay. And you have no other opinions other than that, as you sit here today?

A. Not with regard to the '624 patent, no.

Q. Okay. And I think I have the answer to this -- we talked about it earlier -- but I want to pull it up and make sure. I want to mark and pull up Exhibit 10 to your deposition.

(Deposition Exhibit 10 was remotely introduced.)

Q. Which is the Patent Trial and Appeal Board Decision Granting Institution of a Post-Grant Review in this proceeding.

A. Yes, I have it.

Q. Okay. And you -- just for the record, you have a hard copy of that in front of you?

A. This -- although it looks like -- this looks different from what I have. You're not talking about this document (indicating), right?

Q. It should be -- on the top right, it should say "Paper 14" with a date of June 20, 2023.

A. No. It -- it's definitely not this document.

Q. Okay.

A. Let me see if I have that. I don't think I have that in hard-copy form. Okay. Let me see if I can find it.

Q. And I can -- I can maybe short-circuit this. I think you mentioned earlier that you have not reviewed this document, correct?

A. I have not reviewed any documents that were new to me since I filed my report.

Q. Okay.

A. I haven't read them in any detail. Let me put it that way.

Q. And you haven't -- so you just haven't reviewed this decision yet?

A. No. That doesn't look at all familiar.

Q. Okay.

A. Although I -- I see that you've included it with the deposition documents. It is -- yeah, I -- I -- I have it here soft, in electronic copy.

Q. Okay. And I just -- I was just confirm- -- I was going to ask you some questions on it if you had reviewed it, but since you haven't, then that's fine.

A. Okay.

Q. All right. Let's move on to paragraphs -- go back to Exhibit 1, paragraphs 113 through 118 of your declaration. That sets forth your opinions that the term "loading" is indefinite, correct?

A. Yes.

Q. Other than the opinions set forth in paragraphs 113 through 118 of your declaration, do you have any other opinions on why you think the term "loading" is indefinite?

A. No. I think this covers it rather

completely.

Q. Okay. So as you sit here today, you have no other opinions on --

A. Right.

Q. -- why "loading" is indefinite?

A. I have no other opinions on that.

Q. All right. Let's turn to para- -- the next section -- actually, it is two sections. So the section dealing with Ground 2, that "Riis Renders Claims 1 through 13 Obvious" in your declaration, which includes paragraphs 120 to 210. Do you see that?

A. I do, yes.

Q. Okay. Other than the opinions set forth in paragraphs 120 through 210 of your declaration, do you have any other opinions why you think Riis renders Claims 1 through 13 of the '624 patent obvious?

A. No. What I've written covers precisely my professional opinion on this. No -- no other opinions.

Q. Okay. Thank you.

So we previously discussed that Riis does not disclose the pharmaceutical active agent rivastigmine, correct?

A. That is true.

Q. And Riis does not disclose loading ranges for any of its layers, does it?

A. I'm just checking. I don't -- just give me a moment, please.

Q. Sure.

A. So Riis doesn't provide the actual values of the loading, but those values can be calculated from the thicknesses of the layers that are reported.

Q. Right. That wasn't meant to be a trick question or anything. I was just asking if -- if Riis expressly disclosed loading ranges.

A. Not the loading values explicitly. But --

Q. Okay.

A. -- but for -- for some -- for a skilled artisan, those thicknesses could be easily translated into loading values.

Q. And that was easy for you to do, to calculate the loading ranges from what's disclosed?

A. It was extremely -- it was extremely easy to do.

Q. Okay. The same sort of questions with melting point: Riis doesn't disclose the relative melting point of its layers, does it?

A. I believe that's where I wound up relying on a sister patent. Let me just check on that, please.

So we're now talking about Claim 2; is that correct?

Q. Yes, Claims 2 and 3.

A. Right. So this would be -- start on page 82 of my declaration.

Q. And maybe -- maybe I can short-circuit this. If you want to look at paragraph 211 of your declaration.

A. I'm at 211. Okay.

Q. So, I mean, Riis -- Riis does not disclose specific material properties of the film, such as the loading ranges and the relative melting points of the component tie layer and contact layer, correct?

MR. LEVY: Object to form.

A. So based on what is written in 211, that is correct. Property values were obtained from other sources.

Q. (BY MR. ROESER) Got it. Okay. Let's go back up to paragraph 120 of your report. And we're back to Ground 2.

So it's your opinion that Riis renders

Claim 1 of the '624 patent obvious, correct?

A. That is correct.

Q. And, specifically, your opinion is that "Riis's inventive film of Example 5 renders [all] the claims of the '624 patent obvious"?

A. That is correct.

Q. Okay. Let's go down to paragraph 126, dealing with the claimed limitation of Claim 1 that's listed as Claim 1.c in your declaration, "coextruding a tie layer and a contact layer to provide a coextrusion layer." Do you see that?

A. I do.

Q. Okay. So that's the element I want to talk about. If we want to turn back to Exhibit 7 to your declar- -- to your deposition, which is Riis, and specifically if we turn to paragraph 174 of Riis.

A. Yes, I'm there.

Q. And this is in a section of Riis that described Example 5, correct?

A. That is correct. That's paragraph 173.

Q. Okay. Okay. So Riis states that -- okay. The sealant film --

So, first of all, let me back up. Riis Example 5 is an eight-layer film, correct?

A. I'm sorry. Where -- where are you now?

Q. I'm still on paragraph 174.
A. Oh, okay.
Q. Just generally, Example 5 of Riis is an eight-layer film?
A. Okay.
Q. Is that correct?
A. Yes, it does say eight layers at the bottom. Okay. Yes. I'm with you.
Q. Okay. And in Example 5, Riis states that "the sealant film was a three-layer coextrusion of EAA, LDPE, and Ethylene-norbornene copolymer, or COC, which was extrusion coated onto the aluminum foil surface of the multilayer base film to produce an eight-layer film having the structure," and then it lists the layers. Do you see that?
A. I do.
Q. Okay. And taking -- and then it lists out the films and their thicknesses. Do you see that?
A. I do.
Q. And it says that the eight-layer film of Riis has a total thickness of 3.0 mils, or 76 microns?
A. Yes.
Q. Okay. And I've actually added those up, and if you carry it out to the hundredth decimal place, it's 3.04 mils, but I think Riis just rounded

to the nearest tenth.

So the film in Example 5, it states it was produced in the same manner for comparative Example 2. Do you see that? The second line.

A. Oh, you -- oh, you're back on there. Okay. Yes, yes. Okay. We're good.

Q. Okay. And if we go to Example 2 of Riis, Example 2 states that the base film was produced in the same manner as that for Example 1. Do you see that?

A. Yes.

Q. And then Example 1 of Riis states how the base film was produced; is that your understanding?

A. Yes. They seem to build on each other, right? Yes.

Q. Okay. And it states that the aluminum foil surface of the multilayer base film has a structure of OPET, primer, LDPE, EAA, and foil. So is that your understanding, that those are the five layers of the base film incorporated by reference into Example 5 of Riis?

A. Yes. This -- this would be the protective exterior, but, yes, okay.

Q. Okay. In that base film, the EAA layer,

that's serving as a tie layer, correct?

MR. LEVY: Objection, form.

A. Certainly the EAA would be a tie layer, and it's likely that the LDPE is also part of that tie layer, but it's not explicitly stated.

Q. (BY MR. ROESER) Okay. So is it your opinion that the LDPE layer and the base film of Example 5 is also serving as a tie layer?

A. In this case, it would be my opinion that, yes, it most likely is part of a tie layer, an adhesive layer.

Q. So your opinion is that both the LDPE layer and the EAA layer in Riis's Example 5 of the base film, those are both acting as tie layers?

MR. LEVY: Objection, form.

A. Yes, that would be my opinion.

Q. (BY MR. ROESER) Let's go back to paragraph 174, which is the disclosure in Riis of Example 5. Can you see that?

A. I do.

Q. So Riis's disclosure of -- and I want to talk specifically about this 0.65 mil LDPE layer that is adjacent to the 0.43 mil COC layer. Do you see what I'm talking about?

A. I do.

Q. Okay. Riis's Example 5 doesn't expressly state that this LDPE layer is a tie layer, does it?

A. Not explicitly in Riis, but certainly elsewhere LDPE and EAA are used together as a tie layer. But in this case, it's not written explicitly.

Q. Right. It's not written explicitly that it's a tie layer, but it's your opinion that this 0.65 mil LDPE is a tie layer; is that correct?

MR. LEVY: Objection, form.

A. So the LDPE layer is 0.65 mils, and the EAA is 0.17 mils.

Q. (BY MR. ROESER) Right. So -- so even -- let me back up.

Paragraph 174 of Riis doesn't call the 0.65 mil LDPE layer a tie layer; is that correct?

A. That is correct, it does not explicitly call it a tie layer.

Q. But it's your opinion that that L- -- that 0.65 mil LDPE layer is a tie layer in Riis's Example 5?

A. And it -- it serves as an adhesive layer to connect the -- the contact layer with the base layer.

Q. So the 0.65 mil LDPE layer is a tie

layer in Riis's Example 5; that's your opinion?

MR. LEVY: Objection --

A. It's --

MR. LEVY: -- to form, asked and answered.

A. The EAA and the LDPE are -- both combine to form the adhesive layer, the tie layer.

Q. (BY MR. ROESER) Understood. Understood. I'm not trying to draw a distinction between EAA and LDPE. I'm just -- so the EA- -- the 0.17 mil EAA layer that is in between the foil layer and the LDPE layer, that is a tie layer --

A. Yes.

Q. -- in Riis's Example 5?

A. Yes.

Q. In addition to that EAA layer as a tie layer, it's your opinion that the 0.65 mil LDPE layer is also serving as a tie layer?

A. Yes.

MR. LEVY: Objection, form, asked and answered.

Q. (BY MR. ROESER) Is that your opinion?

A. Yes, that is correct.

Q. Okay. And so because you are -- because it's your opinion that the LDPE layer and the EAA

layer are both functioning as tie layers, that is the basis -- that is one of the bases for your opinion that Riis renders obvious this claim element of Claim 1, correct, this coextruding a tie layer and a contact layer to provide a coextrusion layer?

A. Yes. There is an adhesive layer, which consists of EAA and LDPE sublayers, and the contact layer, which is the COC.

Q. Would your opinion change if LDPE -- if this 0.65 mil LDPE layer was indeed a bulk layer?

MR. LEVY: Objection, form, incomplete hypothetical.

A. Please define for me what you mean by "bulk layer," because I've already told you what I consider a bulk layer to mean.

Q. (BY MR. ROESER) And if you could remind me what that is.

A. That it is sufficiently thick that we can use the bulk properties of the polymer instead of having to consider thickness variations when we start entering into nanoscale dimensions.

Q. Can you point me in your declaration where you state that?

A. There's one point in particular. So it has to do with -- I actually provide an example of

where this happens. It's a very well-known phenomenon in polymers, and --

Q. I'm sorry. Where -- what --

A. Oh, I'm sorry. It's on page 24, paragraph 48.

Q. Okay.

A. And if you go to -- towards the bottom, what I point out is that normally when we consider something like a melting point, it is something that we all can experience very easily; it is something that is readily measurable. And when we get to large specimens of a polymer, that tends to reach a relatively constant value.

But if we start changing the way that we process the material or if we start making very, very thin films, much thinner than the ones that we have in the '624 patent, the value of the melting temperature will actually decrease, and that reduction is due to a change in the thickness of lamellae. That is an example where a confinement effect, due to the fact that we're going to nanoscale dimensions, that is what is referred to as the Gibbs-Thomson equation.

So that's a very well-known effect. It doesn't have to do with just polymer lamellae. It actually can be applied to a variety of different

types of properties as we start to approach nanoscale dimensions where surfaces become very, very, very important.

And so when we are talking about the '624 patent, that is where we're -- when we talk about -- when we use the word "bulk," it simply means that we don't have to consider these types of corrections due to size scale. We can use, for example, the bulk density, the bulk melting point because these layers are sufficiently thick for us to be able to do that.

And by the way, just as a point of correction, on page 24, the last sentence of paragraph 48, there is a typo that -- if you want to make a point of correcting it, the last line in parentheses should read, "as the melting temperature decreases," not increases, "the lamellae become thinner."

Q. So paragraph 48, which you just discussed, where -- that's not -- that doesn't reference a bulk layer at all, does it?

A. It doesn't say "bulk," but it's the same principle; that as we start to get to smaller and smaller dimensions, we have to have corrections. And I could show you in equation form how this all comes

about, but I don't think you want to see that.

The point being that if you start to get to smaller and smaller size scales, properties change. And the term "bulk" simply is a good way of saying we can use the properties of polymers that we can find in polymer handbooks or on the NIST website. All of those are valid. That's what the term here, "bulk," means.

It doesn't necessarily mean that we have a very thick layer that is being used for some purpose other than adhesion. It can be; but it doesn't have to be.

Q. Where is that opinion in your declaration, though?

A. Well, it's basically -- it's part of this paragraph 48. It's not written explicitly in those words, but that's exactly what I mean by -- what is meant by "bulk."

When I wrote the declaration, I didn't really think very much of using the term "bulk," because when I was performing the calculations for the loading, I immediately presumed, since these layers were sufficiently thick, that I could use bulk values.

So implicitly -- implicit to my calculations, I had to assume that I was using bulk

values for all the layers.

Q. And that was an assumption you made in forming your opinions in this case?

A. It's the only way that I knew of to be able to calculate loading values. And since the owners of the '624 patent never actually specify how they measure loading values, I had to rely on what someone who is a skilled artisan would rely on.

And that's -- that's actually a very simple calculation when you consider what somebody would normally have at their fingertips if -- and I repeat -- if they make the assumption that they can use bulk property values.

Otherwise, all of the loading values in the '624 patent mean nothing. Otherwise, the comments about the melting temperatures mean nothing. All of those implicitly assume bulk polymer values.

Q. You don't discuss bulk layers with respect to paragraph 48 anywhere in your report, do you?

A. Not explicitly with respect to paragraph 48, but, again, it's implicit. When I mention the Gibbs-Thomson equation, it already points to that direction that if you have anything at nanoscale dimensions, you have to make corrections for

those.

Q. Nowhere in your declaration do you tie the Gibbs-Thomson equation to a bulk layer; is that correct?

MR. LEVY: Objection.

A. That's not -- it's -- I'm sorry.

MR. LEVY: Yeah. Objection, form, asked and answered. Thank you.

A. It's not explicitly written. It is -- it is part of that whole line of thought. Because, again, I didn't consider, when I was writing this, the term "bulk" to make such a big difference. I took that to immediately mean that we could use bulk properties.

Q. (BY MR. ROESER) And you made that assumption even though Riis describes its layers as polyolefin bulk layers?

A. Yes. I mean, again, "bulk" translates into which properties I can use.

And by the way, since -- oh, could you stop for a second? I have one -- one more correction for you. If you go down one, one more page, please. Yes, there we go. Figure 1, I'm sorry, but the EAA and LDPE layers have been inadvertently switched. That's an error on my part. I apologize for that.

Q. Understood.

Okay. Let's go back to paragraph 174 of Riis, actually.

A. Yes.

Q. So the EAA layer is 0.17 EAA layer.

A. Yes.

Q. That's a 0.17 mils thick; is that correct?

A. As written, yes.

Q. In Riis's Example 5?

A. Yes.

Q. So if we take the thickness of that EAA layer over the thickness of the entire multilayer film, which is 3.04 mils if you carried it out to the hundredth decimal, that comes out to be 5.59 percent of the total thickness of the multilayer film of Example 5 in Riis?

A. Should I check that, or should I take your word --

Q. I'll represent -- I'll -- I'll make that representation to you. I've done that math. It's always dangerous to have lawyers do math, but if -- if you want to check me on that, I -- I would be happy to allow you to do that if you have a calculator.

A. I'm going to call up the calculator on

my computer.

Q. It's always good to check -- check a lawyer's math.

A. So approximately 5.7 percent, yes.

Q. Okay. So you agree that the 0.17 mil EAA layer in Riis's Example 5 falls within that preferred range that Riis teaches for the thickness between 2 percent and 10 percent for its tie layers?

A. I do.

Q. Okay. But your opinion is that this 0.65 mil LDPE layer, combined with the 0.17 EAA layer, combine to form the tie layer; is that correct?

A. That is my opinion.

Q. So I've done the math on that as well. If you add the E- -- the 0.17 EAA layer and the 0.65 LDPE layer, if you take that in relation to the overall thickness of Riis's Example 5, that comes out to be -- and I used 3.04 mils for the entire layer -- I carried it out -- that's about 26.97 percent of the overall thickness.

A. I concur. I have about 27 percent.

Q. So that would fall with -- outside of the range that Riis teaches that the thickness of your tie layer should be in relation to the overall multilayer film?

MR. LEVY: Objection, form.
A. That is -- that is --
Q. (BY MR. ROESER) Is that correct?
MR. ROESER: Ryan, did you want to say anything? I'm sorry.
MR. LEVY: Yes. Objection, form.
A. So based on the range -- the preferred range, yes, it would fall outside. The --
Q. (BY MR. ROESER) Okay.
A. The upper part of that was 10 percent.
Q. Correct.
A. But that -- but that doesn't necessarily preclude the possibility of having a larger tie layer, depending on, again, the application, the -- the application requirements, the mechanical requirements, stability requirements, and so forth.
So I agree that 27 percent is greater than 10 percent.
Q. And the only range of preferred -- the only preferable range that Riis teaches for the thickness of its tie layer is 10 percent or lower, correct?
MR. LEVY: Objection, form.
A. That is what was stated earlier as the preferred range, not the --

Q. (BY MR. ROESER) Right.
A. -- exclusive range.
Q. Riis doesn't teach any preferred range higher than 10 percent, does it?
A. Not that I'm aware of, but if you'll give me just a quick moment, I might check on that. Give me just one moment, please.
Q. Sure.
A. And for the record, I am checking Riis now. I don't know if this will work. I'm checking it for percentages to see what --
Q. It does work. I've done that recently.
A. Oh, okay. There are a lot of percentages. Yes, the paragraph on 71 on page 22 specifically states that "The adhesive layer may suitably be less than 10 percent and preferably between 2 and 10," but I don't see anywhere where it says it cannot be greater than 10 percent.
Q. And Riis doesn't disclose any other range for the preferred thickness of a tie layer higher than 10 percent; is that correct?
A. I'm getting there. I only have about ten more percentages to look at.
I think that is the only place where it specifically mentions the recommended thickness.

Q. And let me know when you're done looking and we can move on.

A. I'm at my last three.

Q. Okay.

A. That one, I don't even see it in the claims.

Yep, that's -- that was the only place in the whole patent where it appears.

Q. And just since you mentioned claims, if you'll look at Claim 18 of Riis, which is on page 56.

A. Yes, I'm there.

Q. It discloses, "A drug-resistant, flexible, multilayer packaging film comprising," and then it lists six layers. Do you see that?

A. I do. It's the same six layers that we saw earlier.

Q. Right. And it describes layer (b) as a polyolefin bulk layer, correct?

A. That is correct.

Q. It doesn't describe it as an adhesive layer.

A. It doesn't refer to it that way.

Q. Okay. And I had a question. You had mentioned, when you -- and I'll just ask you to restate your opinion. I don't want to misstate it.

But essentially saying that when you were forming your opinions and the term "bulk" came up, you immediately thought that meant something other than it performing a bulk function. And -- and please restate that for me if that's incorrect.

MR. LEVY: Objection.

A. That is --

MR. LEVY: Go ahead.

A. That is incorrect. It doesn't refer to it as performing a bulk function. It says that we can describe its properties as a bulk material.

So -- and the difference is that when -- for example, again, when I calculated loading values, I used densities that were tabulated in reference sources. Those are bulk values.

I did not account for any kinds of variations due to thickness constraints, as I would have to, for example, if I were dealing with nanoscale laminates where I might have to take into account the effect of layered thickness on properties.

So the term "bulk," in my mind, translated to using bulk properties to describe the polymer, not to describe its function.

Q. (BY MR. ROESER) So Riis -- your reading of Riis, when Riis describes a layer as a bulk layer,

that's not -- that doesn't have anything to do with that layer's function, in your opinion?

MR. LEVY: Objection, form.

A. It doesn't specifically state what that function is. It simply says that it is sufficiently thick so that we can assign to it bulk properties, such as melting point, density, et cetera.

Q. (BY MR. ROESER) In forming your opinions as set forth in your declaration, did you take into account the function of the bulk layer as described in Riis?

A. So when I saw that there was a polyethylene layer that was situated between the contact layer and the EAA layer, I immediately assigned that to part of the tie layer, so that now the tie layer consisted of LDPE sublayers -- a sublayer with an EAA sublayer, so it was part of the coextrusion process.

Q. And you didn't take into account that LDPE layer's function in forming your opinions; is that correct?

MR. LEVY: Objection, form.

A. Well, as I just said, the function that I assigned, then, to it was that since it was located between the two layers that were of primary concern,

the contact layer and the base layer, its function was to serve as an adhesive.

Q. (BY MR. ROESER) Can LDPE serve other functions than just being an adhesive?

A. Oh, certainly, certainly. It can have an effect on the bulk properties -- the bulk mechanical properties, but that didn't seem to be of concern here.

It can have an effect on certainly the coextrusion process since it does have a melting point, and one has to be cognizant of that for extrusion.

So it can have other effects, if you will, but those were not the primary concern here. I didn't consider those other effects, as I was directing my opinions strictly to the '624 patent.

Q. Let's turn back to your declaration and move on to Claim Element 1.e, which you discuss at paragraph 136 on page 66.

A. Yes, I have it.

Q. Okay. And you incorporate your analysis with respect to Claim Element 1.c; is that correct?

A. Yes.

Q. Okay.

A. Basically, it is the same idea.

Q. Right. Essentially, the same -- same methods and opinions that you had above with Claim Element 1.c.

A. That is correct.

Q. Okay. My --

A. Go ahead.

Q. So this -- oh, I'm sorry.

A. No, I was -- I was just saying that 1.e basically follows up directly on 1.c. So, yes, you were correct.

Q. Right. Right. And this claim element states, "coating the coextrusion layer consisting of the tie layer and the COC of the contact layer directly to the base layer comprising the aluminum." Do you see that?

A. This is the last sentence of 136? Oh, you're doing the first sentence. No, you're doing the last sentence.

Q. I'm doing the heading. It's just a claim element of --

A. Oh, okay. Yes. Yes.

Q. Got it. Okay. And we had talked about the differences earlier between "consisting of" and "comprising" when used in a patent term. Do you remember that?

A. I do.

Q. Okay. And here, the claim element is that "the coextrusion layer consisting of the tie layer and the COC of the contact layer." Do you see that?

A. I do.

Q. So would you agree that the use of the term "consisting of" excludes other claim limitations not listed?

MR. LEVY: Objection, form.

A. I'm sorry. I don't understand that question. Could you rephrase it, please?

Q. (BY MR. ROESER) Absolutely. So "consisting of" excludes claim limitations not listed; is that your understanding?

A. Correct.

Q. So in this claim term, the coextrusion layer excludes anything other than a tie layer and a COC of the contact layer, correct?

A. Yes, I agree with that.

Q. So if, for example, the coextrusion layer were to be made of a tie layer, a bulk layer, and the COC of the contact layer, that would not meet this claim element, correct?

MR. LEVY: Objection, form.

A. No, I disagree with that strongly, because the tie layer can consist of sublayers, and the sublayers can consist of LDPE and EAA. So it falls immediately in line with the requirement for a tie layer, because it doesn't say the tie layer has to be a single layer. The tie layer can consist of more than one layer or, I think more appropriately put, the tie layer can consist of one or more sublayers that act as an adhesive.

Q. (BY MR. ROESER) And my question is a little different. I understand that's your opinion.

But my question is, if you insert a bulk layer with the tie layer and the COC, the contact layer, that wouldn't, in your opinion, meet this claim element because it includes an additional layer not listed?

MR. LEVY: Objection, form.

A. I would call that a sublayer, and so the sublayers act together to form a single tie layer.

So, no, I still contend that it fits directly into this requirement, consisting of a single tie layer and a single contact layer, inasmuch as the tie layer now consists of sublayers, one of which is this polyolefin, which is again considered bulk because we can apply bulk properties to it, and the

EAA layer. So I -- I don't see where there's a difference between the two.

Q. (BY MR. ROESER) And let's take my same question, but whenever I reference "bulk layer," I'm -- in my question, a bulk layer performing a bulk function. So -- so my question --

A. Can you -- can you specify what kind of bulk function?

Q. Well, let's look at Riis. Let's look at paragraph 65.

A. Okay.

Q. Oh, that's your declaration.

And maybe let me back up. So Riis discloses that "A bulk layer may be provided to provide additional functionality such as stiffness or heat sealability or to improve machinability, cost, flexibility, barrier properties, et cetera." Do you see that?

A. I do.

Q. So -- but you didn't apply that disclosure in forming your opinions; you applied your own definition of what a bulk layer is; is that correct?

MR. LEVY: Objection, form.

A. Yes. I simply applied the necessary

assumption to apply bulk properties to that layer.

It says that a bulk layer may be provided to provide this additional functionality. It doesn't say it must be.

And so this bulk layer to which you're referring does not have to be a stand-alone additional function layer. It can, in fact, be part of the tie layer, the adhesion, the adhesive layer. And so it would be essentially a sublayer to the entire tie layer.

Q. (BY MR. ROESER) Paragraph 165 [sic] describes a bulk layer based on its function, correct, addit- -- it states it in that definition, "additional functionality such as stiffness"; would you agree with that?

A. A bulk layer can provide those additional functions. I have -- I am not arguing that point at all. It can.

It doesn't say that the bulk layer may be provided for these particular reasons. It can be provided simply to act as part of the adhesive layer, and that's the way that I read into it.

Q. And that's the reading that you applied in forming your opinions?

A. Exactly, because that is precisely what

is done in some of the other patents to which I've read, that it was a combined LDPE-EAA adhesive layer.

Q. Paragraph 40 -- no.

Paragraph 65 of Riis does not discuss the Gibbs-Thomson equation, does it?

A. No, but it -- I would be very surprised if it did.

Q. Okay. Paragraph 65 of Riis does not disclose or discuss crystallinity or the -- how crystalline a polymer is, does it?

A. No, it does not.

Q. Okay. Now, let's go to Claim Element 1.

Well, hold up. I'm sorry.

A. I am not sure where you're going. Are we back to my -- are we still in Riis or going back to my declaration?

Q. We are going to go back to your declaration, Exhibit 1.

A. Okay. Thank you.

Q. And so let me ask, before we move on, your definition of "bulk" that you applied in forming your opinions, that would apply for every layer, correct?

A. It would apply in the COC contact layer because we used bulk properties to describe that

layer; it would be used in the LDPE and EAA layers as the tie or adhesive layer; and if you have additional layers, it would be used for those as well.

Everywhere we have a layer and we need to be able to ascribe some property, we need to be able to say that it is, in fact, a bulk property. If it's not, then we potentially have to make corrections for thickness.

Q. Example 5 of Riis provides the thicknesses for its layers, doesn't it, paragraph 174 of Riis?

A. Yes, I'm pretty sure that they provided the thicknesses, yes.

Q. Okay. Let's go back to your declaration, Exhibit 1, Claim Element 1.f, which is paragraph 137.

A. Yes, I'm there.

Q. And this claim element, and I'm reading from the heading, is "allowing the coextrusion layer coated to the base layer to adhere to form the aggressive chemical-resistant film"; is that correct?

A. That is correct.

Q. And this section of your report includes paragraphs 137 to 140. Do you see that?

A. Okay. I'm just seeing where it ends.

Yes, that is correct.

Q. And let's look at paragraph 139.

A. Okay.

Q. So you state, "A POSITA would recognize that product material references provide relevant information concerning physical and processing properties of each material."

A. Yes, I see that.

Q. Okay. And then the next paragraph, 140, you cite to the Wypych -- Wypych reference and the Tatarka reference. Do you see that?

A. Yes.

Q. Now, Ground 2 of the petition, that ground states -- it's -- the ground is that Riis renders the claims of the '624 patent obvious. You understand -- is that your understanding of Ground 2?

A. Well, it's Riis with supporting information, but yes.

Q. Okay. And the supporting information that you have with respect to Claim Element 1.f in paragraph 140, that support is the Wypych reference and the Tatarka reference?

A. Yes. I believe there's actually a section of my report that brings these all together. It combines them.

Q. And I'm -- and I'm only talking about this one claim element, this claim element with 1.f, which is set forth in paragraphs 137 through 140.

So is it your understanding that Ground 3 of the petition is that Riis, in combination with Wypych and Tatarka, render the claims of the '624 patent obvious?

A. I believe that is, in fact, the case. Let me just verify that. Yes, that's Ground 3 on page 102. Yes.

Q. So in your opinion with respect to Ground 2 of Claim Element 1.f, that's set forth in paragraph 140, is that the Wypych and the Tatarka reference, those -- that's background knowledge of what a POSITA would know and combined with Riis to render this claim obvious; is that correct?

MR. LEVY: Objection, form.

A. Those -- those -- those are --

Q. (BY MR. ROESER) Those are examples.

A. Those are examples, not necessarily the only ones, but those are examples that were available to a skilled artisan prior to the filing of the '624 patent.

Q. You don't provide any other examples in this section other than Wypych and Tatarka, do you?

A. I don't think so.

Q. Well, and my question is, comparing Grounds -- your opinions for Grounds 2 and 3, in Ground 2 you're using the Wypych and Tatarka as background knowledge of what a POSITA would know; is that a correct understanding?

A. It's used for that background information, yes.

Q. And then in Ground 3, you're using Tatarka and Wypych as a combination, actual prior references with Riis; is that a correct understanding?

A. They all -- I consider all of those to be background information that a skilled artisan would have at his or her fingertips before the filing of the '624 patent.

Q. But with respect to your opinions in Ground 3, you're actually using Wypych and Tatarka in combination with Riis to form the obviousness grounds. They're not just background information in Ground 3; is that a correct understanding?

A. Oh, I don't know if I'm actually -- let's see. For Wypych -- I mean, essentially, they are giving me the opportunity to examine melting-point differences, but I -- I don't -- I'm not using them in terms of taking data from them and using those in

calculations, no. I'm not doing that. I only do that with regard to Riis.

So they certainly are background information in general that someone would have available to them prior to 2015, but they -- I think that to try to understand the variations in melting points, it's important to look at these closely to be able to say that, yes, they do, in fact, fall within the same guidelines as the '624 patent.

Q. So your opinions with respect --

A. I'm not quite sure I understand the question very well. I'm sorry.

Q. That's fine. And we'll come back to that whenever we get to Ground 3. I just wanted to confirm that you were -- just confirm the questions I just asked.

Okay. Let's turn to paragraph 148 of your declaration. It starts on page 72.

A. I have that.

Q. Actually, I don't have questions on that right now.

Let's go to paragraph 150 in your discussion with Claim Element 1.i.

A. Yes, okay.

Q. And --

A. And by the way, this is another typographical error that you should be aware of. In that header, the m2 should be "m" superscripted "2" to indicate a meter squared.

Q. Understood.

THE REPORTER: I couldn't hear that. To indicate a what?

THE DEPONENT: I'm sorry?

THE REPORTER: You said "to indicate a," and it cut off.

THE DEPONENT: Oh, I'm sorry.

A. So in the subsection title "ix," the last entry says "g/m2." It should read "g" slash "m" superscripted "2."

Q. (BY MR. ROESER) And that was to indicate meter squared?

A. That is correct.

Q. Okay. So this claim element includes a loading in the range of 7 to 20 grams per meter squared, correct?

A. That is correct. And this specifically states it's for "the tie layer, or the one or more layers of the tie layer."

Q. Right. That is the claim element, the claim element we're on.

A. Yes.

Q. So we already discussed that Riis itself does not disclose the loading of any layer, correct?

A. Not the value of the loading level -- loading level, but, instead, the thickness; and from the thickness, one can determine what the loading level is.

Q. And -- okay. So it's your opinion that a POSITA would have sought to determine the loading based on the known thicknesses of a polymer layer and the known material densities of each polymer layer; is that correct?

A. It's a trivial calculation, yes.

Q. That you were easily able to perform?

A. Yes.

Q. And you calculated that by the units of grams per meter squared?

A. I -- the -- in the final answer that I docked in one center in the page -- in the declaration are expressed in grams per meter squared.

Q. And the '624 patent describes loading in the same unit measures, grams per meter squared, correct?

A. That is correct.

MR. ROESER: Okay. All right. I'm at a

natural breaking point unless you want to keep going. It's been about an hour.

MR. LEVY: No, I think it's a good break.

THE DEPONENT: Yes.

MR. ROESER: Okay. About ten minutes?

THE DEPONENT: I appreciate it. I appreciate it. Thank you.

THE VIDEOGRAPHER: Going off the record. The time is 7:12 p.m. UTC, 1:12 p.m. Mountain.

(Recess taken 1:12 p.m. to 1:24 p.m. Mountain Daylight Time.)

THE VIDEOGRAPHER: We're back on the record. The time is 7:24 p.m. UTC, 1:24 p.m. Mountain.

Q. (BY MR. ROESER) All right. Dr. Spontak, do you understand we are back on the record and you're still under oath?

A. I understand that.

Q. And during the break did you discuss the substance of the testimony you've given, or the testimony you anticipate to give, with your counsel?

A. No. We -- I just received a suggestion to move less quickly when I'm going from one document to another. And we also discussed the food at the

hotel where I'm staying.

Q. Ah. Okay. Good advice, and I hope the -- I hope the food is good.

Let's look at the section of your report titled "Motivation to Combine and Reasonable Expectation of Success," which includes paragraphs 160 to 165. Do you see that?

A. Okay. So that starts on page 78, right?

Q. Yes, sir, 78, paragraphs 160 to 165. Oh, I'm not sharing my screen. I'm sorry.

All right. Is that up on the screen for you?

A. It is.

Q. Okay. Perfect.

Okay. Other than the opinions set forth in paragraphs 160 to 165 of your declaration, do you have any other opinions regarding a motivation to combine and reasonable expectation of success with respect to Claim 1 of the '624 patent?

A. No, I do not.

Q. And if we look at paragraph 160, it's your opinion that "a skilled artisan would have been motivated to follow Riis's disclosure to recreate the film of Example 5 and would have had a reasonable expectation of doing so to arrive at the claimed

invention," is that your opinion?

A. I believe that is the case, yes.

Q. Okay. So a skilled artisan would go to Riis's Example 5, recreate that film, and it's your opinion that they would arrive at the claimed invention by doing so?

A. That is correct.

Q. A skilled artisan would not have to modify Riis's Example 5 in any way to arrive at the claimed invention; is that your opinion?

MR. LEVY: Objection, form.

A. Of which claimed invention? The one in Riis?

Q. (BY MR. ROESER) So this is --

A. Is that --

Q. This is Claim 1 of the '624.

A. Okay. Okay.

Q. So is it your opinion that the skilled artisan would just recreate Riis's Example 5 without modification to arrive at the invention of the -- of Claim 1 of the '624 patent?

MR. LEVY: Objection, form.

A. Yes, I do believe so.

Q. (BY MR. ROESER) All right. Let's turn to Claim 13 of the '624 patent, which in your

declaration starts at paragraph 201. And that is on page --

A. 96.

Q. Yes, sir, Claim -- page 96.

A. Yes. Yep.

Q. Okay. With respect to Claim 13 of the '624 patent --

A. Uh-huh.

Q. -- are your opinions -- let me start over.

Paragraphs 201 through 205 of your declaration set forth your opinions with respect to Claim 13 of the '624 patent with respect to Ground 2; is that correct?

A. That is correct.

Q. Other than the opinions set forth in paragraphs 201 to 205 of your declaration, do you have any other opinions why Riis renders Claim 13 obvious?

A. I have no additional opinions.

Q. Okay. And the same questions with respect to your opinions starting with the section titled "Motivation to Combine and Reasonable Expectation of Success," that is paragraphs 206 through 210 of your declaration; is that correct?

A. Yes, I see it.

Q. Okay. Do you have any other opinions about a motivation to combine and reasonable expectation of success with respect to Claim 13 of the '624 patent, under Ground 2, other than those set forth in paragraphs 206 through 210?

A. I have no additional opinions.

Q. And your opinion, if you look at paragraph 206, is that "a skilled artisan would have been motivated to follow Riis's disclosure to recreate the eight-layer laminate comprising an aggressive chemical-resistant film of Example 5 and would have had a reasonable expectation of doing so to arrive at the claimed invention." Is that your opinion?

A. It is.

Q. So it's your opinion that a skilled artisan would simply recreate Riis's Example 5, without having to modify it, and they would have arrived at the claimed invention of Claim 13 of the two -- the '624 patent?

A. That is correct.

Q. Okay. Let's turn to Ground 3, which starts at paragraph 211 on page 102. So is it -- I just want to confirm, your opinion under Ground 3 is that the combination of Riis, Wypych, and Tatarka renders Claims 1 through 13 of the '624 patent

obvious; is that correct?

A. Yes. I think I might have inadvertently said that fell under Ground 2. This is Ground 3, which is the combination.

Q. Ground 3 is the combination of Riis, Wypych, and Tatarka?

A. Yes.

Q. Understood.

And so your reference to Wypych and Tatarka in Ground 2, you were using Wypych and Tatarka as just background knowledge that you think a POSITA would have had at the time of the invention?

MR. LEVY: Objection, form.

A. I think that's a fair way of putting it. Ground 2 really relies on Riis.

Q. (BY MR. ROESER) Okay. And other than --

So paragraphs 211 through 262 set forth your opinions with respect to Ground 3; is that correct?

A. Yes.

Q. Other than the opinions set forth in paragraphs 211 through 262 of your declaration, do you have any other opinions why Riis, Wypych, and Tatarka, as a combination, render the claims of the '624 patent

obvious?

A. I have no additional opinions.

Q. Okay. And if we go to paragraph 235, paragraph 235 to 241, that sets forth your opinions with respect to motivation to combine and reasonable expectation of success with respect to Claim 1 of the '624 patent under Ground 3, correct?

A. I'm just trying to see what this was. Just one moment, please.

Q. Sure.

A. But, yes, this is Claim 1, and this is a combination. Yes. Okay.

Q. Okay. So paragraphs 235 through 241 set forth your opinions with respect to the motivation to combine and reasonable expectation of success with respect to Claim 1 of the '624 patent under Ground 3; is that correct?

A. That is correct.

Q. Other than the opinions set forth in those paragraphs, do you have any other opinions of whether or not a person of ordinary skill in the art would be motivated to combine these references or a reasonable expectation of success by combining them?

A. I do not.

Q. Okay. And if you look at paragraph 235.

A. Yes.

Q. Actually, I'm sorry, let's go to 236. You state, "for at least the reasons discussed with respect to Ground II [sic] above, a POSITA would have been motivated to follow Riis's Example 5 to arrive at the claimed inventive film and would have had a reasonable expectation of success in doing so." Is that your opinion?

A. It is.

Q. So your opinion is that a POSITA would simply recreate Riis's Example 5, without modification, to arrive at the claimed invention of Claim -- of Claim 1 of the '624 patent?

MR. LEVY: Objection, form, misstates previous testimony.

A. Since the '624 configuration is a subset of what Riis teaches, it follows that if someone could reconstruct what Riis did, they necessarily would have reconstructed what was in the '624. So, yes, I -- I agree with what is written in 236.

Q. (BY MR. ROESER) And if you look at paragraph 235, your opinion is that "a skilled artisan would have been motivated to look to Wypych and Tatarka in order to learn more about the properties and characteristics of exemplary polymers and to find

suitable commercial sources to obtain polymers for a desired film attribute." Is that your opinion?

A. Not necessarily just those examples, but examples such as those that give the same information.

So as I mentioned earlier, Wypych is -- was one example of a polymer data source. There were others that one could have used.

Tatarka was much more specific about the thermal properties of the COCs, so that one would -- would have, I think, been a requirement. But the Wypych could have been replaced by another source --

Q. You didn't --

A. -- so --

Q. But you didn't replace Wypych with another source in your declaration, did you?

A. I did not, but I'm saying that a skilled artisan could have used, for example, the NIST website or another online data source or even another textbook to find the information that was -- was needed.

Q. Those other sources don't form the basis of Ground 3 of the petition, which is just Riis, Wypych, and Tatarka, correct?

A. Yes. These are the ones that I used. These are the ones that I used to form my opinions. I'm just pointing out that other sources could have

been used for Wypych.

Q. And Wypych -- you do -- let me start over.

Wypych and Tatarka provide the material properties that were missing in Riis?

A. That is correct. The Wypych provides information on melting points, as well as Tatarka, but also information -- basic information of system density, for example, mass density.

Q. Other than the loading and the melting-point material properties, are Wypych and Tatarka being used for any other material properties in this --

A. No.

Q. -- combination?

A. No. Just the thermal properties and density information.

Q. And so combining the density and the melting-point properties disclosed in Wypych and Tatarka, and Riis's -- and the recreation of Riis's Exhibit -- Example 5, that is the basis for your opinions on motivation to combine and reasonable expectation of success under Ground 3?

A. Well, for a skilled --

MR. LEVY: Objection --

THE DEPONENT: Go ahead. I'm sorry.

MR. LEVY: I'm sorry. Let me try that again. Objection, form. Go ahead.

A. For a skilled artisan. So that necessitates the necessary background, education, and/or experience.

So these provided the necessary requirements to reconstruct what Riis had reported, but it also necessarily requires that the skilled artisan is, in fact, skilled in the areas that are required, for example, coextrusion.

Q. (BY MR. ROESER) Okay. Let's look at paragraph 260 through 262 of your declaration.

A. Yes.

Q. And this is a section of your declaration entitled "Motivation to Combine and Reasonable Expectation of Success" that deals with Claim 13 under Ground 3 of the petition, correct?

A. That is correct.

Q. Other than the opinions set forth in paragraphs 260 through 262 of your declaration, do you have any other opinions with respect to the motivation to combine and reasonable expectation of success with respect to Claim 13 under Ground 3?

A. I have no additional opinions.

Q. Okay. And if you look at paragraph 261, so it's your opinion that a POSITA would have formed the aggressive chemical-resistant film according to the claimed invention, which is Claim 13 of the '624 patent, and looked to sources such as Wypych and Tatarka to provide the material properties?

A. That is correct.

Q. Okay. And other than the material properties of density and melting point, you're not looking to Wypych and Tatarka for any -- any other material properties?

A. Not with respect to the '624 patent, but if we were talking about a skilled artisan who wanted to reproduce that same type of multilayered structure, there would have to be additional knowledge associated with, for example, melt flow and cooling characteristics. But those are not explicitly mentioned in the '624 patent, so I did not consider those.

But if we were -- if I were actually supervising someone to try to do this, a person -- a skilled artisan, that would be a necessity, to look at additional prop- -- material parameters that could be quite important when it comes to polymer processing.

Q. And you didn't include any of those

other material parameters in your declaration, did you?

A. I did not, because they weren't relevant to the '624 patent.

Q. Okay. And if you look at paragraph 262, you reference Jester, Merical, and Rivers. Do you see that?

A. Yes.

Q. Are you referencing those through the --

Let me ask you, why are you referencing Jester, Merical, and Rivers in this section of your report?

A. Oh, because those were examples of, essentially, multilayered drug packaging that had been previously reported in the patent literature, and so I wanted to include those as -- as such examples to show that the likelihood of success in producing these types of assemblies was high, as long as one considered the thicknesses, the materials, and the properties of those materials.

So this was essentially just, again, indicating that people have done this before. It wasn't unique in December of 2015.

Q. Jester, Merical, or Rivers, neither of those references form the basis of your Ground 3

obviousness opinions; is that correct?

A. That is correct.

MR. ROESER: And if I could get like a five-minute break to go over some notes and make sure I've covered everything, go off the record for about five minutes and come back on.

THE DEPONENT: Sure. That's absolutely fine.

THE VIDEOGRAPHER: Going off the record. The time is 7:44 p.m. UTC, 1:44 p.m. Mountain.

(Recess taken 1:44 p.m. to 1:50 p.m. Mountain Daylight Time.)

THE VIDEOGRAPHER: We're back on the record. The time is 7:50 p.m. UTC, 1:50 p.m. Mountain.

Q. (BY MR. ROESER) Dr. Spontak, you understand you are back on the record and you're still under oath?

A. I understand that, yes.

Q. And during our very short break, did you speak to your counsel regarding the substance of the testimony you've already given or any anticipated testimony?

A. Not the substance. I just expressed surprise that we moved so quickly.

Q. I'm quick. Getting -- getting in and out.

Okay. Just a few follow-up questions and then I think we can be done for the day.

I want to go back to our discussion about bulk layers and your understanding of what a bulk layer is.

A. Yes.

Q. So your understanding of what a bulk layer is relates to its material properties rather than its functionality; is that correct?

A. That's the way that I --

MR. LEVY: Objection, form.

THE DEPONENT: Go ahead.

MR. LEVY: I'm sorry. Go ahead.

A. That's the way I interpreted it when it came to my calculations and when it came to performing comparisons. So, yes, but I don't discount the possibility that a bulk layer could also be used to introduce an additional function. I just didn't see any evidence of that in the design that was provided in Riis, and that's why I considered it to be part of the tie -- the adhesive layer.

Q. (BY MR. ROESER) And did the fact that the layer was made up of LDPE support your opinion?

A. Yes, based on reports from others in this field. LDPE is often introduced along with EAA as an adhesive layer, and so that was supportive. It wasn't just that I came up with the idea: It has been put into practice.

Q. And I think you mentioned that multiple layers can have a bulk property. Is that -- am I stating that correctly?

MR. LEVY: Objection to form.

A. Not quite. So in -- in trying to understand how the individual layers contribute to the overall performance of the sandwiched structure or the multilayer, however you want to call it, one has to consider the properties of each of those layers or sublayers, and the only way to really do that, unless you start accounting for extremely small thicknesses, is to assume bulk properties, and that's exactly what -- what I did.

So I wouldn't say that a multilayer film has a single bulk property. That's completely wrong. Each layer within a multilayered structure has its own properties that contribute individually to the performance of the entire structure.

Q. (BY MR. ROESER) I want to look at paragraph 144 of your declaration, which is Exhibit 1.

A. Yes.

Q. It's on page -- and specifically the illustration of Riis's Example 5. Do you see that?

A. Yes. We've got the same -- yes.

Q. Why is it, then, that you describe the LDPE layer, as in between the "PEI - Primer Layer" and the "EAA - Adhesive Layer," as an "LDPE - Bulk Layer"?

A. I'm sorry. Oh, you're looking at the one on top. Oh, I'm sorry.

So the '624 patent doesn't really say anything explicitly about the additional exterior layers, right? The '624 focuses on the aggressive chemical-resistant film, which is highlighted in the lower boxed region. And according to the '624, there's a contact layer, there is a tie layer -- those are coextruded -- and there's a base layer.

And even the '624 patent explicitly states that the tie layer can consist of one or more layers. Well, I have them listed here as Tie Layer 1 and 2.

So in the lower part of this diagram on page 71 of my report, it takes the Riis idea and recasts it in terms of what the '624 requires.

Now, if we look at the "additional exterior layers," well, we could have whatever we want

there. The whole idea is that we don't want the -- we don't want the barrier -- we don't want the base -- to be exposed, because it would be so easy to puncture that aluminum foil, in which case it would absolutely be useless. So we need to protect it, and that's what these exterior layers are for.

And so we need -- once again, we need an adhesive that can connect with the aluminum foil. We can have an LDPE layer in here. It doesn't matter whether it serves as an adhesive or as an other-functional layer. We might actually want to make it a little bit more flexible with LDPE.

Then we need a layer that essentially allows us to connect polyethylene to polyethylene terephthalate. Those two polymers are highly incompatible. If you didn't have this primer layer, which is a polyethylenimine, you would wind up delaminating the PET from this device.

So the top layers that are listed as "additional exterior layers" are a -- a series of protection layers that serve to protect the entire device and keep it intact while it's being manufactured, while it's being stored, while it's being applied.

Q. Why do you label the LDPE layer as a

"Bulk Layer," the LDPE -- the LDPE layer that appears in between the "PEI - Primer Layer" and the EEA - Adhesive Layer?

A. Because in the lower part, I am assigning the LDPE as part of the adhesive, so it is part of that tie layer.

In the top part, it can be part of the adhesive layer or, alternatively, for mechanical-property purposes, which is what you saw earlier in Riis, it may be used for other functions, and one of those other functions might be more based on a mechanical reason.

So you might want to have a little bit thicker package so that it doesn't tear very easily; we want to make sure that it's sufficiently flexible so that if it gets bent, it's not going to start cracking; and we also want to protect it from abrasion, such as if it gets rubbed too much.

Now, the PET --

Q. What do you mean -- go ahead. I'm sorry.

A. So the PET on the top layer is the one that will provide the most protection; but the LDPE layer that is just below it might have a different function. It might be necessary to compatibilize with

the adhesive layer. So we have this polyethylenimine as a primer layer, and that will connect or compatibilize with the LDPE, which then is compatible with the EAA.

So I don't know -- and I -- and it's beyond the purview of the function of this additional exterior layer. It's never described in terms of what these additional external layers should do in the '624 patent.

The '624 patent basically says we have this lower layer -- this lower part of the assembly. We know exactly what each -- the role of each one of these parts. And what Riis says is, "Well, let's go ahead and put these on top," and this now forms the entire labyrinth.

Q. You described the LDPE layer as a bulk layer, the LDPE layer that appears in between the primer layer and the adhesive layer of Riis's Example 5 in paragraph 144 of your declaration, correct?

A. I do.

MR. LEVY: Form.

Q. (BY MR. ROESER) You call it a bulk layer. And why do you call it a bulk layer?

MR. LEVY: Objection, form, asked and

answered.

A. As I just said, I could use this LDPE as either part of the adhesive layer or I could use it to gain additional mechanical-property function, which Riis describes in her patent.

Q. (BY MR. ROESER) Okay. Riis describes that, right?

A. As a possible use of LDPE, yes. And it is --

Q. You -- you recognize that Riis describes LDPE for use as a bulk layer?

MR. LEVY: Objection, form.

A. I -- in the upper layer that you see here, I don't think Riis actually describes that in any definitive way.

Q. (BY MR. ROESER) Riis described a polyolefin bulk layer, doesn't it?

A. Riis describes --

MR. LEVY: Object to form.

A. Riis describes how a bulk polyole- -- a polyolefin layer could be used. It may be used for additional purposes. And I'm not --

Q. (BY MR. ROESER) And it may be used as a bulk layer?

A. Right. And that's simply to indicate

that it could be used in the same way as it was in tie layer No. 2, as part of the adhesive, or it could be used for a different purpose that I have not considered because I did not focus on these additional exterior layers when I was developing my opinion.

Q. Well, you do describe the LDPE layer as a bulk layer in this figure, correct?

A. Yes.

Q. So you recognize that LDPE can serve as a bulk layer?

A. Yes. I -- I've said that before. But in the way that I've addressed it with regard to LDPE in the aggressive chemical-resistant film, which is the basis for the '624 patent, I don't consider it to be used for a mechanical-property basis. I had -- I have assumed that it is part of the adhesive layer.

Q. What function is the LDPE bulk layer, as you describe it in your figure, what function is that performing?

MR. LEVY: Objection, form, asked and answered.

A. For the third time, it can either be used as another adhesive layer in exactly the same way as it was down below, or it can be used as a separate layer that adds additional mechanical properties that

might help with machining or processing or whatever the reason might be.

But I left it that way to indicate that it -- this one could be used either way. It's not specified, and it's not relevant to the '624 patent.

Q. (BY MR. ROESER) The LDPE bulk layer, the one you describe as a "Bulk Layer," is adjacent to an "EAA - Adhesive Layer," correct?

A. That -- in -- in the top -- in the top additional exterior layers, beyond the aggressive chemical-resistant film, yes.

MR. ROESER: No further questions.

MR. LEVY: Great. So let me take about a ten-minute break. I'll refer -- I'll talk to my colleague, Dr. Kilgore, and come back and do some redirect here or do some prep --

MR. ROESER: Okay.

MR. LEVY: -- for the questions.

Dr. Spontak, if you want to stay on camera, you're welcome to, or mute your mic or however you want to handle it, but maybe about ten minutes at most.

THE DEPONENT: I'm going to just hit the restroom.

THE VIDEOGRAPHER: Okay. Going off the

record. The time is 8:04 p.m. UTC, 2:04 p.m. Mountain.

(Recess taken 2:04 p.m. to 2:18 p.m. Mountain Daylight Time.)

THE VIDEOGRAPHER: We are back on the record. The time is 8:18 p.m. UTC, 2:18 p.m. Mountain.

EXAMINATION

BY MR. LEVY:

Q. Great. Dr. Spontak, I would like to ask you a couple questions now.

A. Certainly.

Q. Great. And just to clarify, we haven't had any discussions during this previous break, have we?

A. None whatsoever.

Q. Not even about football or about hotels?

A. Not even about Star Trek.

Q. Is that right? Nor with any other attorneys in my firm, right?

A. That is correct.

Q. Okay. Good.

First, I'm trying to recall. I believe you said you had six depositions earlier; is that right?

A. Let me go and just check to make sure that that number is accurate. It looks like I'm at five.

Q. Okay. Were any of those video depositions?

A. No. All of those were in person.

Q. Got it. And this was -- so this is your first video deposition?

A. It is. And I prefer the in-person.

Q. I do too, myself.

Just to clarify, at times your expert declaration, was it on the screen?

A. On the screen that I'm looking at now, yes, it was often brought up, but I was also using my hard copy to try to find the relevant locations.

Q. Okay. I believe you also had a copy on your computer?

A. I did.

Q. Okay. So multiple versions -- or the same version but multiple declarations at the same time?

A. Yeah. Unfortunately, yes.

Q. Okay. So with that said, I want to make sure just to clarify a couple things. First, if we go to page 59 of your declaration.

A. Yes.
Q. Can you read the boldface heading "Ground 2."
A. "Riis Renders Claims 1 through 13 Obvious."
Q. Okay. And you would agree that Riis is the main reference for Ground 2?
A. That is correct.
Q. Okay. If we could, let's go to page 102.
A. Okay.
Q. And you see where it says "Ground 3" in bold?
A. I do.
Q. And can you read that bold heading?
A. Certainly. "The Combination of Riis, Wypych, and Tatarka Renders Claims 1 through 3 -- 1 through 13," excuse me, "Obvious."
Q. Okay. And the next paragraph is 211; is that right?
A. That is correct.
Q. And you would agree that -- with the first sentence, "Ground 3 relies on the teaching of Riis, Wypych, and Tatarka to render Claims 1 through 13 unpatentable as obvious"?

A. That is correct.
Q. Okay. And also if you turn to page 38.
A. Yes.
Q. You see the middle heading there that says "Summary"?
A. Yes.
Q. Okay. And that states "Summary of the Applied References"?
A. That is correct.
Q. Now, is the first reference there Riis?
A. It is, Exhibit No. 1004.
Q. Great. If you turn to page 45.
A. Uh-huh.
Q. At the top you see another reference?
A. "Wypych (Exhibit 1005)."
Q. And then you see lower that page, still page 45, "Tatarka," right?
A. "Tatarka (Exhibit 1008)."
Q. Okay. So those three references are the applied references; is that correct?
A. That is correct.
Q. And if we turn to page 15, still of your declaration --
A. Yes.
Q. -- do you see the boldface heading

there? What is that?

A. "Technology Background - COCs and Systems Utilizing COCs."

Q. Okay. This is where you talk about some of the state-of-the-art, right? In the first sentence, it talks -- even going back to the 1990s?

A. That's right, because the COCs were developed as an outcome of metallocene chemistry with regard to cycloolefins.

Q. Okay. And then if we go to page 16, and paragraph 39, you see where Merical is listed, right? That's a state-of-the-art reference?

A. Where are you looking again? In the middle?

Q. Paragraph -- yeah, paragraph 39, page 16.

A. Uh-huh. "Skilled artisans began incorporating COC polymers in multilayer films at least as early as 2006. For example, U.S. Patent No. 8,003,179 to Merical et al., filed on August 1, 2006 . . . ."

Q. Got it. And then I skipped too far ahead there. If we go back to page 15.

A. Uh-huh.

Q. You also cited Shin et al., with a

diagram; is that right?

A. That is correct.

Q. Okay. And is that diagram -- is that diagram from Shin?

A. It is taken from Shin, and it is used to differentiate a cycloolefin copolymer from a cycloolefin polymer.

Q. If you turn to page 18.

A. Yes.

Q. Okay. Still within the technology background section summarizing the state-of-the-art, do you cite to Jester?

A. Yes. That is several lines down, but it specifically says, "Jester explicitly recognizes that '[f]ilms employing cycloolefin copolymers ('COC' or 'COCs') are well known in the art, and have been used to package consumables.'"

Q. Thank you. Just a couple more questions here.

Let's jump ahead in your expert declaration to page 105.

A. Yes.

Q. Do you see Figure 1 on page 105?

A. I do.

Q. And do you see there where layer 2 is a

polyolefin bulk layer and layer 3 says "first intermediate . . . layer"?

A. I do, "adhesive layer," yes.

Q. Right. "First intermediate adhesive layer." Yes, you -- I appreciate the correction.

If you would now please turn the next page to paragraph 216.

A. Yes.

Q. And if you would, please, for the record, read paragraph 216.

A. "Regarding layer 2, Riis provides that 'a polyolefin bulk layer can serve as an adhesive or tie layer,' and that '[p]referred bulk layers comprise one or more polyolefins such as polyethylene.'" And that is Exhibit 1004.

Q. Okay. And I believe there's two paragraphs there?

A. You want 217 as well?

Q. No. I apologize. After Exhibit 1004, are there paragraphs?

A. Oh, there are two, 65 and 135.

Q. Okay. And I believe you said earlier, Exhibit 1004 is Riis; is that right?

A. I believe that is the case. Let me -- that is correct.

Q. Great. Since you have Riis there, let's -- let's turn to that exhibit for just a second.

A. Okay.

Q. And I believe the first cited paragraph you said was 65. Are you there, Dr. Spontak?

A. I'm here. What would you like me --

Q. Yeah. Just generally speaking, what does paragraph 65 describe?

A. It describes a bulk layer.

Q. Okay. And does paragraph 65 state that polyolefins can be part of the bulk layer?

A. It doesn't explicitly say that.

Q. Would you read the second sentence out loud for the record, please.

A. "Preferred bulk layers" -- oh, "Preferred bulk layers comprise one or more polyolefins such as polyethylene, ethylene-alpha olefin copolymers, polypropylene, polybutene, ethylene copolymers having a majority amount by weight of ethylene polymerized with a lesser amount of a comonomer such as vinyl acetate, and other polymeric resins falling in the 'olefin' family classification."

Q. Okay. So does paragraph 65 state that polyolefins can be part of the bulk layer?

A. Yes, it does -- it -- absolutely. The

polyolefins can be part of that bulk layer.

Q. Okay. And I know earlier there's been some discussion about LDPE. Do you recall that?

A. Yes.

Q. Can LDPE -- is it a polyolefin?

A. It is, certainly. It's low-density polyethylene.

Q. Okay. And if you recall, when we were talking about your expert report earlier, paragraph 216, you listed paragraph 65 and you also listed paragraph 135 of Riis as far as the citation?

A. Yes.

Q. Let's now go to paragraph 135 of Riis.

A. And that was on page 216 of my report, correct?

Q. It was paragraph 216, page 106.

A. Okay. I'm sorry. Okay. I just want to make sure I'm getting the right paragraphs here.

Q. Oh, there's a -- there's a lot of numbers, a lot of paragraphs, a lot of exhibits, so . . .

A. Okay. So --

Q. So if you look at paragraph 216, again, you read that into the record earlier where "Riis provides that 'a polyolefin bulk layer can serve as an

adhesive or tie layer' and that '[p]referred bulk layers comprise one or more polyolefins such as polyethylene.'" Do you see that?

A. From my report, yes.

Q. Yes. And there's portions there in quotations, right?

A. Right. That's actually what I'm looking for right now.

Q. Okay. Well, if we look next on Riis, you already read through paragraph 65. The other citation you see there is 135, right?

A. That is correct, and I'm at that right now.

Q. Okay. So let's go to 135, paragraph 135 of Riis, which is Exhibit 7 here.

A. Uh-huh.

Q. Now, if I recall, either you or a combination of opposing counsel read paragraph 135, at least a portion of it earlier. Do you recall that?

A. Yes, I do.

Q. Okay. What -- what I just want -- I don't need the whole thing read, but there's a portion missing. Would you please read the last sentence of paragraph 135 of Riis.

A. The last sentence reads, "In some

embodiments, a polyolefin bulk layer can serve as an adhesive or tie layer."

Q. Perfect. Okay. And we can put that away. We don't need to discuss that portion anymore.

And I guess just some quick general questions. Do you recall opposing counsel asking about Wypych and Tatarka regarding loading ranges and melting temperatures earlier?

A. We didn't get into too many details, but yes.

Q. Okay. And you've reviewed Riis, and would you agree that you cannot calculate loading just based on the mil depth of Riis; you need density as well?

A. Well, you need -- right, you need the density. You can't just take the thickness of the layer. You need to have the density.

Q. So to make sure the record is clear, Riis discloses a mil depth; do you agree with that?

A. Yes. What you call "mil depth," I would call a "layer thickness" in -- and it's expressed in mils.

Q. Okay. And it's your opinion you need density as well?

A. Yes, absolutely.

Q. And did you consider Wypych for providing those values?

A. Yes. Wypych could be used, as well as a number of other sources, for densities.

Q. Okay. And then -- got it. Okay.

And then also melting point, did you consider those as well from, you know, Wypych or Tatarka?

A. The ones that were of particular interest to me were the ones from Tatarka --

Q. Right.

A. -- but yes. And there -- I also relied on some of the commercial data sheets for other melting points.

Q. That makes sense.

And there are claims of the '624 patent that included melting points, right?

A. Yes.

MR. LEVY: Okay. Dr. Spontak, I have no further questions, but opposing counsel might have some questions at this point.

MR. ROESER: I do not have any reexamination questions at this moment.

THE VIDEOGRAPHER: I think this concludes today's deposition. The time is 8:35 p.m.

UTC, 2:35 p.m. Mountain, and we are off the record.

(At 2:35 p.m. Mountain Daylight Time the proceedings were not being videotaped.)

THE REPORTER: Randy, were you ordering the transcript?

MR. ROESER: Yes. On an expedited basis as well. I think y'all might have been in contact with Megan Borgemoen in our office for that, but I can follow up and confirm. But, yes, we are ordering the transcript.

THE REPORTER: And, Ryan, were you ordering a copy?

MR. LEVY: Let's do the same.

THE VIDEOGRAPHER: Would you like a copy of the video?

MR. ROESER: I do not right now, no. Do I have, like, a window to order that?

THE VIDEOGRAPHER: You can order it whenever you like.

MR. ROESER: Okay. Perfect. But no video right now.

THE VIDEOGRAPHER: And Mr. Levy?

MR. LEVY: No, sir, not right now.

THE REPORTER: And, Ryan, did you want exhibits with yours?

MR. LEVY: Sure, just so we have a clean record.

THE REPORTER: And will you handle signature?

MR. LEVY: Sure.

WHEREUPON, the within proceedings were concluded at the approximate hour of 2:36 p.m. Mountain Daylight Time on the 31st day of August, 2023.

* * * * *

I, RICHARD J. SPONTAK, Ph.D., do hereby certify that I have read the above and foregoing deposition and that the same is a true and accurate transcription of my testimony, except for attached amendments, if any.

Amendments attached ( ) Yes ( ) No

_____
RICHARD J. SPONTAK, Ph.D.

The signature above of RICHARD J. SPONTAK, Ph.D., was subscribed and sworn or affirmed to before me in the county of _____, state of _____, this _____ day of _____, 2023.

_____
Notary Public
My Commission expires:

Huhtamaki Flexible Packaging Germany 8/31/23 (tcm)

REPORTER'S CERTIFICATE

STATE OF COLORADO)
) ss.
CITY AND COUNTY OF DENVER)

I, TRACY C. MASUGA, Registered Professional Reporter and Certified Realtime Reporter, do hereby certify that previous to the commencement of the examination, the said RICHARD J. SPONTAK, Ph.D., was duly sworn or affirmed by me to testify to the truth in relation to the matters in controversy between the parties hereto; that the said deposition was taken in machine shorthand by me at the time and place aforesaid and was thereafter reduced to typewritten form; that the foregoing is a true transcript of the questions asked, testimony given, and proceedings had.

I further certify that I am not employed by, related to, nor of counsel for any of the parties herein, nor otherwise interested in the outcome of this litigation.

IN WITNESS WHEREOF, I have affixed my signature this 5th day of September, 2023.

__X__ Reading and Signing was requested.

_____ Reading and Signing was waived.

_____ Reading and Signing is not required.

Tracy C. Masuga
Registered Professional Reporter
Certified Realtime Reporter

Errata Sheet

NAME OF CASE: HUHTAMAKI FLEXIBLE PACKAGING GERMANY GMBH & KG vs DANAPAK FLEXIBLES A/S

DATE OF DEPOSITION: 08/31/2023

NAME OF WITNESS: Richard J. Spontak, Ph.D.

Reason Codes:

1. To clarify the record.

2. To conform to the facts.

3. To correct transcription errors.

Page _____ Line _____ Reason _____

From _____ to _____

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