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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AIR PRODUCTS and CHEMICALS, INC.,
Petitioner,

v.

EVONIK OPERATIONS GMBH and
EVONIK CORPORATION,
Patent Owner.

Case IPR2024-00611
Patent 10,471,380 B2

Record of Oral Hearing
Held: May 23, 2025

Before JO-ANNE M. KOKOSKI, AVELYN M. ROSS, and ALYSSA A. FINAMORE, *Administrative Patent Judges*.

APPEARANCES:

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The above-entitled matter came on for hearing Friday, May 23, 2025, commencing at 10:00 a.m. EDT, via video-conference.

P-R-O-C-E-E-D-I-N-G-S

9:59 a.m.

JUDGE KOKOSKI: Good morning. Today we'll hear arguments in IPR2024-00611 concerning US Patent No. 10,471,380 B2. I am Judge Kokoski, and I'm joined today by Judges Ross and Finamore.

Let's start with appearances, beginning with Petitioner.

MR. LANE: Good morning, Your Honors. This is John Lane from Fish & Richardson, and also with me today is Grace Kim from Fish & Richardson.

JUDGE KOKOSKI: Okay. Thank you.

Patent Owner?

MR. BRAGINSKY: Good morning, Your Honor. This is Philip Braginsky from Tarter Krinsky & Drogin.

MR. LANTIER: And good morning, Your Honor. This is Greg Lantier from Wilmer, Cutler, Pickering, Hale and Dorr, and I'll be presenting for the Patent Owner today.

JUDGE KOKOSKI: Okay. Great. Thank you.

Before we begin, I just want to remind the parties that we each have a copy of the demonstratives that you provided. During your argument, please identify clearly and specifically the demonstrative referenced by slide or screen number so that everyone can follow along and to ensure clarity of the transcript.

We request that you keep your line muted when you're not speaking. Also, please keep in mind that the remote nature of this hearing may result in

audio lags, so please pause prior to speaking so as to avoid speaking over others.

As set forth in the Hearing Order, each party has 30 minutes to present arguments. Petitioner will proceed first and may reserve time for rebuttal.

How much time would you like to reserve for rebuttal, if any?

MR. LANE: Ten minutes, Your Honor.

JUDGE KOKOSKI: Okay. Thank you.

Patent Owner will then have 30 minutes to present their arguments and may reserve time for sur-rebuttal.

How much time would you like to reserve, if any?

MR. LANTIER: Your Honor, I'd like to reserve eight minutes for sur-rebuttal.

JUDGE KOKOSKI: Okay. Great. With that, Petitioner, you may begin when you are ready.

MR. LANE: Thank you, Your Honors, and good morning. I'd like to start with Petitioner's Demonstrative No. 3.

Ungerank's Comparative Example 1, or CE1 as the parties have called it for short -- and I'll use that today if that's okay. CE1 is a three-stage gas separation simulation that used lower selectivity membranes and had high purity products. Notably, as explained in CE1, it uses the configuration in Ungerank's Figure 11.

Turning to Demonstrative 4, the Priske patent very broadly claims three-stage gas separation systems in the same configuration as CE1. In fact, the figure on Priske's cover page is Ungerank's Figure 11, which again, is the configuration used in CE1. And both figures in both patents say they

are illustrative connection arrangements according to the invention. And Priske, like CE1, states that its invention can produce high purity products even with membranes with a lower selectivity.

And therein is the issue, Your Honor. Evonik claims so broadly in the Priske patent the CE1 is within the scope of Priske's claims. And as the Federal Circuit has repeatedly found, for example, in *In re Cuozzo Speed*, claims which are broad enough to read on obvious subject matter are unpatentable even if they also read on non-obvious subject matter. That's *In re Cuozzo Speed*, 793 F.3d 1268 at 1281.

Turning to Demonstrative 5, Priske has one independent claim, claim 1, and it's a relatively long claim with a fairly large number of limitations. But Patent Owner concedes that CE1 meets every limitation in Priske's claim 1 except for the capacity limitation. Patent Owner also concedes that CE1 meets the requirement of many of Priske's dependent claims. In other words, boiled down, Patent Owner's arguments for all these claims are solely based on the capacity limitation in claim 1 by itself rendering these claims patentably distinct from the prior art.

Turning now to Slide 7 and the capacity limitation. Capacity is a coined term in Priske, but it is simply the product of two fundamental, well-known membrane properties multiplied together, surface area and permeance. These properties were well known in the art decades before Priske. Priske's claim 1, and specifically element f.ii., requires that the total capacity in stage 2 of the system is larger than stage 1's capacity. And important to the issues, and as Dr. Baker explained in paragraph 154 of

Exhibit 1003, measuring capacity at the standard conditions in claim 1 is the result of and depends on measuring permeance at those standard conditions.

The claim constructions that Patent Owner proposed for capacity in the standard conditions in claim 1 are the constructions the Petitioner has used throughout this proceeding. But as Petitioner repeatedly explained, for all the prior art at issue, the capacity ratios are the surface area ratios, and that is largely because, as shown in Slide 8, all the prior art here, CE1 and Scholz, are computer simulations. Patent Owner's Response on page 56 states this, and so it's not in dispute. Notably, Priske's examples are all computer simulations also. So everything we're talking about today are computer simulations.

And like most, or at least many computer simulations, in all the prior art simulations, identical membrane properties were used in each of the three stages, aside from the surface area. Dr. Baker explained this in Exhibit 1041 at paragraphs 20 to 24. Specifically, Scholz explains that in its Figure 7 simulations, quote, "properties of cellulose acetate membranes with a selectivity of 20 were used." That's AP-1007 at page 5.

Similarly, CE1 explains that each stage consisted of a hollow fiber membrane module consisting of hollow polyimide fibers. That's Exhibit 1006, column 10, lines 25 to 27, also Exhibit 1038 at paragraph 73.

In other words, Your Honors, despite Patent Owner suggesting the contrary, computer simulations do not use real membranes and they do not use membrane modules. Computer simulations use the properties of membranes, and those properties are typed in on a keyboard into the

computer simulation. Again, there are no actual membranes or membrane modules in computer simulations. They use the properties of membranes.

So again, in all the prior art computer simulations at issue, the membrane properties are identical in each stage. And turning to Slide 9, as Dr. Baker explained, and as common sense would suggest, with identical membranes at each stage, their permeances are identical, no matter what standard conditions they are measured at -- standard conditions in claim 1 or any other standard conditions.

And that, in turn, necessarily means that in all the prior art at issue, CE1 and Scholz's Figure 7, the membrane areas are proportional to the capacities. The permeances cancel out as shown on the bottom of Slide 9 and as Dr. Baker explained. And Patent Owner effectively conceded this on page 33 of its Response. Put slightly differently, Priske's claim 1 covers CE1 with stage 2's membrane being larger than stage 1's membrane.

I will now address a couple of Patent Owner's main arguments. First, as Dr. Baker explained, even though CE1 does not disclose its membrane areas, a POSITA would have understood that the area of stage 2 is larger than the area of stage 1. Patent Owner argues in its Sur-reply at pages 5 to 7 that this is a new argument in Petitioner's Reply. It's not. As shown on Slide 11, in Dr. Baker's first Declaration, Exhibit 1003, that was submitted with the original Petition, Dr. Baker explained why in these types of systems the stage 2 membrane is generally larger than the stage 1 membrane. And he also explained that a POSITA would have understood this.

And these two paragraphs from his Declaration, paragraphs 93 and 94, were cited in the Petition, in the Corrected Petition on Pages 9 and 10, in the

discussion of claim 1's capacity limitation. And further, Dr. Baker also discussed this is in his first deposition before Patent Owner's Response. That was Exhibit 2009 at pages 112 and 113.

In other words, Petitioner could not anticipate every argument and put every detail in its Petition, and the specific idea a POSITA would have understood, that in CE1, stage 2 is larger than stage 1, was not explained in detail in the Petition. But again, this was not new. It was in Dr. Baker's Declaration that was submitted before Patent Owner's Response, and it came up in his deposition at pages 112 to 113.

In our Reply, we and Dr. Baker responded to Patent Owner's argument that a POSITA would have thought the membrane areas were the same in CE1, and we did that by explaining this point more that was already, again, in Dr. Baker's original Declaration. Again, there was no surprise. This argument was in the record and it was discussed in Dr. Baker's deposition before Patent Owner's Response.

Regardless, Petitioner's argument does not depend on this argument. CE1 does not disclose its membrane areas. Thus a POSITA would have been motivated to look at Scholz even if they did not understand or suspect that CE1 stage 2 was larger than stage 1. And in looking at Scholz, a POSITA would have seen that in both of Scholz's optimized three-stage biogas separation systems in the same configuration as CE1 with low selectivity membranes, stage 2 was larger than stage 1.

Somewhat related, Your Honors, Patent Owner argues in its Sur-reply at pages 7 to 8 that this argument is speculative and unsupported. As shown

on Slide 12, that is incorrect. Dr. Baker explained in detail scientifically why a POSITA would believe in CE1 stage 2 was larger than stage 1.

Next, Your Honors, and somewhat related, Patent Owner has argued that in CE1, the membrane sizes are the same in each stage. Turning to Slide 13, in its Response, Patent Owner argued this, that the sizes are the same in CE1, but its argument was solely based on the statement in Ungerank that each stage consisted of a hollow fiber membrane module consisting of polyimide fibers from UBE. Notably, this is attorney argument. There's no cite to any expert declaration for this proposition.

Moreover, it is also wrong. As we've talked about, CE1 is a simulation which Patent Owner concedes in its Response at page 56. There were no actual modules, there were no membranes in the simulation. The simulation used properties that were typed into the computer by the person running the simulation. And CE1 does not disclose the areas, and it does not disclose if the surface areas were typed in or whether they were calculated by the simulations.

Indeed, as Dr. Baker explained, and Patent Owner has not contested, a POSITA would have known that the type of membrane modules identified in CE1 would have been far too large for that system, again showing that those modules were not used in that system. Again, there were no modules used in that system.

Turning to Demonstrative 14, in its Sur-reply, Patent Owner raised a new argument, which is improper to raise in a sur-reply. It argues that Priske itself states that Ungerank's Comparative Example 1 membranes have the same capacity. Not only was this improperly raised for the first time in a

sur-reply, it could have been raised earlier, but it's also legally flawed and factually flawed.

The disclosure in Priske is not available to a POSITA to inform an obvious analysis. That is hindsight, Your Honor. And hindsight usually is a doctrine that is applied to petitioner's or a challenger's argument, but it equally applies to patent owners. In fact, in *KSR*, the Supreme Court noted and explained this when the patent owner, Teleflex, tried to make a teaching away argument based on the contested patent. The Supreme Court found that to judge the prior art patent against the contested patent, quote, "would be to engage in the very hindsight that bias Teleflex rightly urges must be avoided." In other words, as the Supreme Court made clear, hindsight also applies to patent owners, and here, this is Patent Owner improperly using hindsight, improperly using the contested patent to try and show what a POSITA would have understood.

Patent Owner's new argument in its Sur-reply is also factually flawed. Priske's priority date was in 2014, but the Priske patent wasn't published for the first time until mid-2016. So a POSITA would not have had access to that information at the priority date in 2014.

At the end of the day, Your Honors, CE1 is a simulation, as Patent Owner has noted, and it did not use actual modules or membranes. CE1 says nothing about the membrane sizes and does not say if they were input into the simulation or calculated by the computer, and that missing information in CE1 would have led a POSITA to look elsewhere for information to better understand the membrane sizes in these types of three-stage systems with one compressor and low selectivity membranes.

Next, Your Honor, many of Patent Owner's arguments are based on a POSITA actually combining the specific features of CE1 and Scholz's Figure 7. As Demonstrative 17 shows, that is improper. Obviousness does not require creating some kind of Frankenstein system with bits and pieces of the prior art system. Obviousness is about teaching what the prior art teaches and combining the teachings.

Next, Your Honor, I will turn -- well, I'm going to turn quickly to dependent claims. After all the briefing boiled down, the only dependent claims that seem to remain at issue are 9 and 12. As shown on Demonstrative 23 -- or, sorry. Yes. For claim 9, Patent Owner argues in its Sur-reply on page 21 that the ranges in *Titanium Metals* were closer -- the prior art ranges were closer to the claim range than here. And that is just wrong. Their math is wrong there. Dr. Baker has explained the math. Their math is not supported by any expert declaration. Dr. Baker did the math. The difference between CE1 and claim 9 here is two percent, and that's less than in *Titanium Metals*.

For claim 12, as shown as Demonstrative 24, Patent Owner argues that we argue that 1048 and 1049 render claim 12 invalid, and that is not correct. Our argument is based on CE1 rendering claim 12 invalid. 1048 and 1049 were just cited in our Reply to explain that in CE1, the pure gas selectivity is not more than five times the mixed gas selectivity.

Turning now, Your Honors, to Ungerank. The Ungerank patent publication, Exhibit 1038, is indisputably prior art, and it's the prior art that is relied on in the Corrected Petition. Going to Demonstrative 33, Exhibits 1006 and 1038 have the exact same disclosure. Patent Owner has not

contested that. In the Corrected Petition, Petitioner made clear that it was relying on 1038 as the prior art. It explained that the portions of AP-1006 cited herein are prior art as they were published in 1038. In fact, the Corrected Petition identifies Ungerank as prior art under 102(a)(1), which indisputably it is, but 1006 is not, further showing --

JUDGE FINAMORE: Counsel?

MR. LANE: Yes.

JUDGE FINAMORE: This is Judge Finamore. Why didn't Petitioner just cite to Exhibit 1038 in the Petition as opposed to citing to Exhibit 1006?

MR. LANE: Well, Your Honor, the original filed Petition did cite to 1006, and when we did the correction, we didn't want to make tons and tons of changes, so we left the cites to 1006. And part of the reason for doing that is they're much more specific. If you look, for example, at CE1 in 1038, it's in three paragraphs. The title is one paragraph, 72. The rest of it's in 73 and 74. So we would have just been citing these two paragraphs over and over instead of citing to specific line numbers. So we actually provided much more specific citations by leaving in 1006.

JUDGE FINAMORE: Counsel, you're coming up on the end of your argument time, but feel free to go into your rebuttal time if you'd like.

MR. LANE: Okay. I think I'd like about two more minutes, Your Honor, if I may.

Turning to Exhibits 34 and 35, the Board's Exhibit 3001, which we discussed, quoted, cited, explains that Patent Owner's argument is wrong. The entire purpose of the Corrected Petition was to rely on 1038 as prior art and not 1006. And tellingly, Patent Owner never addressed 3001 in its

Response, and even after in our Reply, we addressed, we quoted, we cited 3001. In its Sur-reply, Patent Owner still never addressed 3001. As shown on Slide 35, there was no opposition to the Corrected Petition, no prejudice has been alleged, and the correction was sought less than a week after filing.

Regarding being time-barred, first, this is a new argument in Patent Owner's Sur-reply. And second, Patent Owner has cited zero, no authority whatsoever, that a corrected petition is time-barred when filed after a bar date when, like here, the original petition was filed before the bar date.

Turning now to Patent Owner's expert, Dr. Geise. As shown on Demonstrative -- I might need a minute and a half, Your Honor. As shown on Demonstrative 26, Priske discusses biogas separations throughout its specification. As shown on Slide 27, not surprisingly, the parties agreed the POSITA thus must have experience but is not limited to biogas membrane separations. Demonstrative 28 shows the evidence, but in short, Dr. Geise testified under oath in his deposition that he had no biogas experience and his work is in liquid separations, not gas separations.

In its Sur-reply, Patent Owner tried to shore up Dr. Geise with two new arguments. First, it argued that Petitioner and Dr. Baker agree with Dr. Geise's opinions, which is just flatly wrong. And in fact, as shown on Demonstrative 30, Dr. Geise himself pointed to numerous areas where he disagreed with Dr. Baker, and as shown in the bottom right of that slide, Patent Owner cited those paragraphs throughout its briefs.

Second, Patent Owner tries to turn the definition of POSITA that it agreed to upside down by cropping out the words "but included" from the definition. This is shown on Slide 31. It claims that "including but not

limited to biogas experience" now means not having biogas experience, and that is just not English, Your Honor. Thank you.

JUDGE FINAMORE: All right. It looks like you're about three minutes into your rebuttal time.

JUDGE KOKOSKI: Okay. Thank you.

Patent Owner, you can proceed when you're ready.

MR. LANTIER: Thank you, Your Honor. May it please the Board. Greg Lantier from Wilmer Hale on behalf of Patent Owners Evonik. And I'm joined today by Evonik's lead counsel, Philip Braginsky, of Tarter Krinsky & Drogin, as well as several of our colleagues from both firms.

I'd like to start by thanking Your Honors for the opportunity to discuss the merits of this IPR and would ask that if you have any specific questions or you'd like me to focus on any particular topics, please just let me know, and I'll jump right to those issues.

As you likely saw, we prepared a large number of slides for today's presentation because we weren't really sure what the Petitioner would focus on or what questions Your Honors might have. I just wanted to let you know that I don't plan on covering more than a dozen of those slides, if that, during today's presentation. I am also likely to refer to a couple of the Petitioner's slides, so if you could keep those handy, I would appreciate it.

I'm certainly not going to get to all of the issues that we raised in our Patent Owner Response and in the Sur-reply today. And for those issues that I don't address today, we would rest on our papers with respect to those issues.

Now, if Your Honors would, I would just like to address a couple of points that the Petitioner made in his spoken comments a moment ago that I think probably could use a little bit of clarification before we get started. The first thing that Petitioner said or that I heard Petitioner's counsel say is that Ungerank Comparative Example 1 itself falls within the scope of the challenged '380 patent claims. I would just make the point that there is no ground in the Corrected Petition that relies on the Ungerank patent alone. The only grounds they have are, first, that the ground is the combination of Ungerank with Scholz, or, second, the Scholz reference itself.

The second thing I would say is we didn't hear any comments from Petitioner's counsel during his presentation regarding Ground 2, which is Scholz alone. And so I wouldn't plan to address that. It wasn't addressed in Petitioner's Reply either. Unless Your Honors had specific questions as to Ground 2, in which case, I'm happy to answer them. Otherwise, I'm going to focus on Ground 1 right now.

So with that, Your Honors, if you would turn to Slide 39, I've listed here some of the key deficiencies in the Corrected Petition. And I say that there are two common traits to the deficiencies that we've identified. One is that they reflect a petition that fails to do the necessary work to meet a petitioner's burden to demonstrate that claims should be cancelled in an IPR. This is a petition that was filed on the very last day that the Petitioner could file prior to the one-year bar, and it simply omits evidence on a number of key points that the Petitioner has the burden of demonstrating to be successful in cancelling claims through this proceeding.

But the second commonality is that what we have here is really a classic hindsight analysis. The Petitioner literally starts with an example from the challenged patent and then works backwards and reaches out into the prior art to pluck a claim limitation from a different reference without ever explaining why a person of skill in the art would take that one variable from the other reference without taking any of the other variables from that reference, which indisputably would have taken the overall combined system outside the scope of the challenged claims.

And so with that, Your Honors, please allow me to turn briefly to some of the arguments that we've raised. And again, I'm happy to focus on any issues that you'd like. I'm going to start with very briefly the issue of whether AP-1006 or the prior art focused on in the Corrected Petition -- or the document focused on in the Corrected Petition -- is or is not prior art. And I'd like to direct Your Honors, please, to Slide 44, if you'd be willing to turn there.

I'd like to make clear what happened in the Corrected Petition because what I heard counsel for the Petitioner say during his presentation was that the Corrected Petition relies on AP-1038 as prior art, and I don't think that's correct. The Corrected Petition added exactly three sentences to the original Petition, and those are shown on Slide 44. And if Your Honors would just focus on the very first sentence there. The Corrected Petition didn't say it was relying on changing the basis for Ground 1 to rely on AP-1038. It said, instead, that the portions of AP-1006 cited in the Petition and in the expert Declaration are prior art under Section 102(a)(1) as they were cited because they were cited in this other document, AP-1038.

The Petitioner never even had its expert review AP-1038, and so it's difficult to see how it could have formed the basis for any of the testimony that's before Your Honors. And it could not have changed its ground to be based on AP-1038 at the time that it raised its intent to file a Corrected Petition because it was time-barred from raising a new ground at that point. And that was not a new argument in our Sur-reply, Your Honors. We raised that in our Patent Owner Response at page 29. Wanted to note that because I think that's a little different from what Petitioner's counsel said. And so --

JUDGE FINAMORE: Counsel?

MR. LANTIER: Yes, Your Honor.

JUDGE FINAMORE: This is Judge Finamore. What is Patent Owner's response to Petitioner's argument that there has been no harm to Patent Owner?

MR. LANTIER: I think that that argument misses the mark, Your Honor. You ask about what is the prejudice to the other side when you're evaluating an equitable concern. And equitable concerns or equitable arguments typically focus on whether there is unfair prejudice to one side or the other. This is a statutory issue. Section 311 only allows claims to be cancelled in an IPR where a petition is based on prior art, and this one is not. And Section 315(b) has a one-year time bar that bars the Petitioner from raising a new ground after one year.

There's no consideration in those statutes about what's the prejudice to the other side. Those are statutory requirements that Congress put in place, and I don't believe that the Board would have the ability to vary that

statutory language or excuse the statutory requirements based on finding that there is a lack of prejudice to that Patent Owner.

JUDGE FINAMORE: I understand your position that the inquiry doesn't involve prejudice, but just to answer the question simply, has there been any prejudice to Patent Owner?

MR. LANTIER: There's some prejudice, Your Honor, and that is that if they had originally, for example, relied on the patent publication, there may have been some different 325(d) arguments or other things that we would have raised. But I'm not trying to make a prejudice argument here, Your Honor. Our argument is that these are statutory requirements and that the Board is not in a position to waive those statutory requirements based on a finding of lack of prejudice.

JUDGE FINAMORE: Understood. Thank you.

MR. LANTIER: Yes, Your Honor. And I'm happy to answer any other questions regarding the status of the Ungerank patent as prior art but otherwise would turn to the deficiencies in the Corrected Petition.

JUDGE KOKOSKI: Counsel?

MR. LANTIER: Yes, Your Honor.

(Simultaneous speaking.)

JUDGE KOKOSKI: Before you move on, do you agree that the publication specification and figures are identical between the 1006 and 1038?

MR. LANTIER: No, Your Honor. There's no evidence of that in the record. There's a statement from the attorney. As I said, they didn't have their expert perform any comparison. And I would note that that stands in

stark contrast to what they had Dr. Baker do in his Declaration with respect to the other reference they relied upon, the Scholz reference.

As Your Honors will remember, in Dr. Baker's original Declaration, they had him perform an analysis where he compared the disclosure in Scholz against a document he said he had that showed that it would have been publicly available earlier. And they just didn't do that with respect to AP-1038. Even at the time of Dr. Baker's Supplemental Declaration, he did not ever look at AP-1038, so there's no evidence in the record on which Your Honors could base that finding.

JUDGE KOKOSKI: If there was evidence of identicality, would we still have the same problem of it not being prior art?

MR. LANTIER: You would, Your Honor. Prior art is determined on a document-by-document basis. And a document is either prior art or it is not. The analysis is not, well, here's the document that we admit isn't prior art, but we can point to portions of other documents that we say are prior art that would be identical to this. That's just not the way that prior art is analyzed under the statute and certainly not under the MPEP, which speaks specifically as to how you determine the prior art status of an issued patent under the AIA, and that's by its grant date.

JUDGE KOKOSKI: Okay. Thank you.

MR. LANTIER: So if Your Honors don't have more questions on that, I'll move on to a couple of other issues that I'd like to raise. And if you could please turn to Slide 50. I wanted to talk about the basis for the obviousness argument that's made in Ground 1. In the original Petition -- or the Corrected Petition, excuse me -- the basis for the obviousness case was

that all of the claim limitations were shown in Ungerank Comparative Example No. 1, except for the capacity limitation, which we've been calling 1(f)(ii) .

And both the Corrected Petition and Dr. Baker's Declaration -- and we can see this on Slide 51 in some more detail -- were clear that the position that the Petitioner was taking was that Ungerank Comparative Example 1 was silent as to the membrane areas or their ratios. That's, for example, at Dr. Baker's Declaration, Exhibit 1003, at paragraph 134. Therefore, because there was silence, a person of skill in the art would have to go out and find that information somewhere else, and the person of skill in the art would find it in Scholz.

And we see that also in the Decision on Institution, where the panel granted institution. This is on Slide 52, Your Honor, and it cites the Decision on Institution at pages 13 and 19. But the panel when granting institution was clearly of the view that the theory presented by the Petitioner was that Ungerank's Comparative Example 1 was silent as to the surface areas of the membranes or the ratios to one another.

And that, if we turn to Slide 53, but in particular, to the Ungerank patent AP-1006 at column 10, lines 25 to 27, it is simply factually incorrect. The Ungerank patent is not silent as to the ratios of the membranes at each of the stages. In fact, it states expressly that each stage consisted of a module from UBE, and that module was the NM B01 A type module. And so the theory turned out to be factually incorrect, and I'd say notable that the Petitioner has not identified any case in which this Board or the Federal

Circuit has said that one can disregard an express teaching in the prior art on its way to reaching an obviousness conclusion.

And so what happened after that -- and if Your Honors would turn to Slide 69 -- is that in reply, the Petitioner changed its theory. And its new theory that a person of skill in the art reading the Ungerank Comparative Example 1 would understand it to already teach that the size of what we've been calling the second stage membrane is larger than the size of the membrane at the first stage. That is a new theory, and I do want to address the Petitioner's Slide 11, which the Petitioner's counsel focused on during his comments. That slide cites paragraphs 93 and 94 of Dr. Baker's original Declaration.

And I would just point out to Your Honors that when you go back and Your Honors review those paragraphs, I think what you'll find is that those paragraphs are in a section that describes the Priske patent generally and that the opinions that Dr. Baker offered regarding what a person of skill in the art would understand from reading Ungerank Comparative Example. Those begin at paragraph 104 of his original Declaration. And the same is true if Your Honors go back and look at the pages -- I think they were 9 and 10 of the Corrected Petition that Petitioner's counsel referred you to. Those are not in a section describing Ungerank Comparative Example 1 at all. They are in a general background section essentially with no citation. Their expert just says, "Well, everything here is obvious."

But the obviousness theory in Ground 1 was specifically that Ungerank Comparative Example 1 was silent as to membrane area. And when the Petitioner realized that didn't work because it was inconsistent

with the text of the Ungerank patent, it changed course. And we have on Slide 70 several examples from the Reply at 19 and from Dr. Baker's Supplemental Declaration at paragraphs 29 and 30, where it's clear that this is the new theory presented in the Reply.

There are two problems with that theory, Your Honors. The first is that it comes too late and should be disregarded for that reason. And the second is that it is inconsistent with the documentary evidence of what a person of skill in the art would have understood when reading the Ungerank patent this is before Your Honors.

And if you could turn to Slide 72, we've shown here from Exhibit 2018 the deposition of Dr. Baker at page 29, lines 21 to 25, and then also from the Priske patent, Exhibit 1001, at column 16, lines 21 to 25. The best evidence before Your Honors as to what a person of skill in the art at the time of the priority date of the Priske '380 patent would have understood from reading Comparative Example No. 1 is the description of that exact example in the Priske patent itself, which is Reference Example 1. And their expert agrees with that, and he, in fact, relied on that fact in offering his opinions.

And there, at lines 21 to 25, it states, specifically in column 17, that the reference example, i.e., Comparative Example No. 1, has membrane capacities that are identical in all three stages. At Slide 73, we have Dr. Baker's admission from his deposition, Exhibit 2018, page 31, lines 5 to 14, that, indeed, what the challenged patent itself says about Comparative Example No. 1 and how it would be understood is inconsistent with his new theory in the Reply.

Your Honors, if no questions on that topic, I wanted to turn to one other topic with my remaining time. And that is even if we assume --

JUDGE KOKOSKI: Counsel, sorry again. I do have one question.

MR. LANTIER: And I hope I didn't interrupt you, Your Honor.

JUDGE KOKOSKI: No, no, not at all. How do you respond to Petitioner's argument that looking at something -- at least this is how I understood it -- looking at something in the '380 patent is hindsight in order to be able to determine what a POSITA knew at the time?

MR. LANTIER: Your Honor, I think that's a misunderstanding of what we're looking to the Priske patent for here. The Ungerank Comparative Example 1, which is the prior art in the Ungerank patent itself, states that each stage uses the same module. That's the evidence that in the prior art, the ratio that's taught is 1:1 because each stage is going to use the exact same module.

In the Reply, their expert came in and said, "Well, somebody reading Ungerank Comparative Example 1 would say, 'Well, that can't be right. I'm just going to ignore that express teaching from Ungerank Comparative Example 1, and I am going to think to myself that really probably the second stage membrane is larger than the first stage membrane.'" And so the reason we look to Priske and the '380 patent is because it disproves Dr. Baker's new theory that a person of skill in the art wouldn't have understood Comparative Example 1 to teach a 1:1 ratio, because it's looking at Comparative Example 1. It's starting from that as its own Reference Example 1, and it states expressly that the membranes in Comparative Example 1 have a 1:1 ratio in terms of their capacities.

Did that answer your question, Your Honor? I hope I didn't answer the wrong question.

JUDGE KOKOSKI: No. That was good. Thank you very much.

MR. LANTIER: So, Your Honors, just --

JUDGE FINAMORE: Counsel, you have about a minute left before you get into your rebuttal time.

MR. LANTIER: Yes, Your Honors. And I may go one or two minutes into my rebuttal time, if that's okay.

The last issue I would raise for Your Honors is even if we assumed that there was some reason for a person of skill in the art to look to Scholz Figure 7a or 7b, in order to find a membrane surface area for Ungerank Comparative Example 1, I think that there's a big problem with the Petitioner's analysis here in that what Petitioner is doing, and this demonstrates the hindsight, is it's plucking only the membrane surface area ratios from Scholz Figure 7a or 7b and inserting them into Ungerank Comparative Example 1 while not providing any explanation as to why a person of skill in the art would not also, for example, have used the recycle rate that's described in Scholz.

If that person was going to be borrowing from Scholz to fill in information -- I'm sorry, to replace information in Ungerank Comparative Example 1, why only take the membrane surface area ratio as opposed to also taking the recycle rate when Scholz is telling you this recycle rate is going to make this more profitable for you than using any other recycle rate? And there's simply no evidence in the record as to why that would be done other than this is hindsight. We're looking at the claims. We know we can't

borrow Scholz's recycle rate because if we do borrow it, we're going to take the system outside the scope of claim element 1(f)(ii). Whether we use 7a or 7b, they're both outside. And so really this is just a pure hindsight analysis here.

And so, Your Honors, I would very respectfully suggest a few questions, if Your Honors wanted to ask them of the Petitioner. One is, can the Petitioner identify any precedent for an obviousness theory that's predicated on a person of skill in the art disregarding an express teaching in an asserted prior art reference in order to make the combination? Similar to what Petitioner is doing in disregarding column 10, lines 25 to 27 here.

Second, where in the record has the Petitioner provided any rationale based on evidence for why a person of skill in the art would have taken only the membrane surface areas from Scholz Figures 7a and b but not also the recycle rate?

And then third, and this ties in to the second one, what evidence is there in the record that if you took the membrane surface areas from Scholz Figure 7a or Figure 7b and used them or just their ratios in Ungerank Comparative Example 1 that it wouldn't result in changing the recycle rate or the pressure quotient in a way that would take the overall system outside the scope of claim 1? I think there are no good answers to those questions, and I think they demonstrate the deficiencies in the Corrected Petition here.

And then, Your Honors, the last thing I would say is there was some criticism levied against our expert, Dr. Geise. We addressed that, I think, in the Sur-reply, but if you have any questions about that, I'd like to make sure I had an opportunity to respond to them.

I would just say, Your Honors, absolutely no issue in this case comes down to any criticism of Dr. Geise's opinions. The Reply does not criticize any specific opinion. And their expert admitted that he reviewed Dr. Geise's Declaration and he did not identify a single error in that Declaration. So, Thank you, Your Honors.

JUDGE KOKOSKI: Thank you. I think you have about five minutes left for your rebuttal, if I'm doing the math right, and I may not be. We'll confirm that before you start.

Petitioner, you have seven minutes remaining, and you can start whenever you'd like.

MR. LANE: Thank you, Your Honors. In the time I have left, I would, of course, like to address any questions Your Honors have and respond to a few points that Patent Owner's counsel made.

First, turning to Petitioner's Demonstrative 19, there is no hindsight here. Petitioner's expert explained four different reasons why a POSITA would have been motivated to use lower selectivity membranes at the priority date. And that motivation to use lower selectivity membranes would have led them to CE1, and the missing information in CE1 about the surface areas would have led them to Scholz, and that would have led to the claimed invention. There's no hindsight. Counsel said that we were using an example from the patent, but I'm not sure what Counsel was referring to. We are basing it on CE1, which was before Priske.

And the reason Counsel asked why would a person just look to the surface areas instead of the recycle in Scholz, the answer is simple. That's because that was what was missing in CE1. CE1 had its recycle rate. The

missing information was the surface areas in Scholz -- or sorry, in Comparative Example 1.

JUDGE KOKOSKI: So how do you answer Patent Owner's argument that the identification of that module would have led a POSITA to know what the module sizes were -- or what the membrane sizes were -- in Comparative Example 1?

MR. LANE: Yes, Your Honor. As I explained, as Patent Owner conceded in their Response at page 56, Comparative Example 1 is a simulation, a computer simulations. There were no modules used. And Dr. Baker explained that the modules that are identified in CE1 are far, far too large for that system, and Patent Owner never disputed that in its Sur-reply.

It says modules, but it would have been absolutely clear to a POSITA that no modules were used. Again, simulations don't have real membranes or modules. They have properties that are typed into the keyboard on the computer.

JUDGE KOKOSKI: Then why would that module number be identified, if it's not something from which we could take the information to insert into the simulation?

MR. LANE: Right, Your Honor. Because it was identifying the membranes which properties were used. And further, as Dr. Baker explained in 1041, it also identified that they were hollow fiber. And the computer simulations let the user designate something called either cross flow or concurrent flow, and hollow fiber is signaling that they used cross flow in the simulation, as Dr. Baker explained. But again, it's a simulation.

There were no modules, and those modules that are identified are far, far too large, which is uncontested.

JUDGE KOKOSKI: Thank you.

MR. LANE: Second, Your Honor, I wanted to go back to 1038. Again, Patent Owner has never dealt with Exhibit 3001, which clearly shows its argument is incorrect. The fact that Dr. Baker didn't cite 1038 is irrelevant because, again, it has the same disclosure as 1006. Counsel, for the first time today, said they don't agree that 1006 and 1038 have the same disclosure, but they never identified any differences in the briefs. They never contested that in their briefs, and, if there were differences, you would think they would have pointed them out.

Substantively, those documents are the same. The only difference is the formatting, the paragraphs versus the lines, and some of the headers of the examples are formatted differently, but substantively, they are identical.

And there was no prejudice, as Counsel essentially admitted. There couldn't have been because we identified the issue less than one week after the original Petition, nine months before the Patent Owner's Response, and as shown in Exhibit 3001 on Slide 34, we offered for Patent Owner to have extra time for its Response because of the Corrected Petition, and Patent Owner took us up on that. They had extra time because of the Corrected Petition. There was no prejudice. And importantly, it was not opposed. They did not oppose as shown on Slide 35.

JUDGE FINAMORE: Counsel, is there --

JUDGE ROSS: Counsel --

(Simultaneous speaking.)

JUDGE FINAMORE: -- is there --

(Laughter.)

JUDGE FINAMORE: Thanks.

Is there any support for Petitioner's position that a patent that itself doesn't qualify as prior under 102(a)(1) is nonetheless prior art because it is identical to a publication that would qualify as prior art under 102(a)(1)?

MR. LANE: I'm not sure if I have authority on that, Your Honor, but I think the point is we relied on the 1038 disclosure, the patent publication, as prior art. I think the record -- you know, Patent Owner is trying to twist our words, and I understand why, into a gotcha argument because that's a silver bullet for them, but the record is clear, in especially 3001, that the whole purpose of the Corrected Petition was to rely on 1038 as prior art and not 1006.

With the time I have left, if there's no more questions, Your Honor, briefly, we've explained why the modules in CE1 are not the same. It was a simulation. They were no modules, and those modules identified were far too big. With regard to the hindsight, again, it equally applies to Patent Owner. They cannot use the Priske patent to inform what a POSITA would have thought in an obviousness analysis. The Supreme Court itself made that clear in *KSR*, 550 U.S. 398 at page 426.

Thank you, Your Honors.

JUDGE KOKOSKI: Okay. Thank you very much.

Patent Owner, you have actually four and a half minutes left for your surrebuttal, and you can begin whenever you'd like.

MR. LANTIER: Thank you, Your Honor. Just a few points here. The first is touching on the argument here that Ungerank Comparative Example 1 is a simulation. It doesn't say it's a simulation, but even if it were, I think that's a little bit of a red herring of an argument because what it says is that each stage used the identical module as every other stage -- in other words, that the ratios of the membranes of the different stages were identical to one another.

And that's really the point. So I don't agree, and we don't agree with what the Petitioner has said about a person of skill in the art disregarding the particular surface areas of those modules, but even if you accepted that, it wouldn't really change anything because it still says that the ratios of the membranes at each stage are 1:1. And that is exactly the opposite of the theory that Ground 1 presents, which is that it's silent and you don't have any idea what ratio the stages have to one another, and so, therefore, you've got to go out into the prior art and look elsewhere.

(Simultaneous speaking.)

JUDGE KOKOSKI: Counsel?

MR. LANTIER: Yes, Your Honor.

JUDGE KOKOSKI: How do you respond to the argument that the modules were too big for the system and apparently that may have been a reason why it would be disregarded in that way?

MR. LANTIER: Two responses. The first is the one I just said, Your Honor, which is it says they're the same module in each place, so it would still say the ratio is 1:1. And the second is that it's just their expert's say-so that the module is too big. It is what the prior art reference says, and I don't

think that Counsel identified any case where an express teaching in the prior art was disregarded as sort of the basis for an obviousness combination, which is what Your Honors would have to do here in order to find for the Petitioner on Ground 1.

There's no evidence in the record that actually those are too large. No simulation was actually run by their expert, despite his repeated statement that he's done thousands of simulations. When I asked him, "Did you do a simulation here?" they claimed privilege over it, so you can draw your own conclusions about the way that those simulations turned out. But I think that that would be our answer to that question, Your Honor.

I don't mean to cut off any other questions if you have more questions on that topic.

JUDGE KOKOSKI: No, thank you.

MR. LANTIER: With respect to Exhibit 3001, Your Honors, I just want to make clear we did not contest the filing of the Corrected Petition. That is a request to file. It's a procedural request saying we've got an error and we want to file a new petition. Agreeing not to oppose a motion to file a corrected petition doesn't mean that you agree to all the arguments that are in the corrected petition.

What they did in the Corrected Petition was they raised an argument that the portions of AP-1006 that appear in other documents qualify as prior art under Section 102(a)(2). There's no basis for that argument. We didn't need to contest whether they could file the Corrected Petition, but it certainly doesn't mean that we agreed with the arguments on the substance that they were making in that Corrected Petition.

So, Your Honors, if you don't have other questions, I don't believe that there are any other areas I thought needed to be addressed based on the Petitioner's reply comments.

JUDGE KOKOSKI: Okay. Thank you very much.

MR. LANTIER: Thank you very much, Your Honors.

MR. LANE: Thank you, Your Honors.

JUDGE KOKOSKI: So the case is now submitted to the panel for determination and preparation of the final written decision, and we are adjourned.

(Whereupon, the above-entitled matter went off the record at 11:02 a.m.)

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