

In The Matter Of:
VF Outdoor, LLC v.
Cocona, Inc.

Abigail Oelker, Ph.D.
August 10, 2018

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

3 -----

4
5 VF Outdoor, LLC

6 Petitioner

7 v.

8 Cocona, Inc.

9 Patent Owner

10
11 Patent No. 8,945,287

12 Inter Partes Review No. IPR 2018-00190

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15
16 DEPOSITION OF ABIGAIL OELKER, Ph.D.

17 Friday, August 10th, 2018

18 9:00 a.m.

19
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22
23
24 COURT REPORTER: Jill E. Shepherd, RPR, CSR

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15 ALSO PRESENT:

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17
18 Indhira LaPuma,

19 Innovation counsel for VF Corporation

20 Alameda California
21
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23
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I N D E X

WITNESS

PAGE

ABIGAIL OELKER, Ph.D.

Examination by Mr. Jackson

5

E X H I B I T S

NO.

DESCRIPTION

PAGE

Exhibit 1 VF Exhibit 1005, Declaration
of Abigail Oelker, Ph.D.

8

Exhibit 2 VF Exhibit 1001 U.S. Patent
Number 8,945,287 (Haggquist)

9

Exhibit 3 VF Exhibit 1002
PCT WO 95/33007

9

Exhibit 4 VF Exhibit 1003
PCT WO 00/70795 (Halley)

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

2 * * * * *

3 ABIGAIL OELKER, Ph.D., a witness,
4 called for examination by counsel for Patent
5 Owner, having been satisfactorily identified
6 by the production of her Massachusetts
7 driver's license, being first sworn by the
8 Notary Public, was examined and testified as
9 follows:

10 * * * * *

11 EXAMINATION BY MR. JACKSON

12 Q. Good morning, Dr. Oelker. My name is Jason
13 Jackson. I'm an attorney with Kutak Rock
14 and I'm representing Cocona in IPR number
15 2018-00190.

16 And I don't believe we've met before,
17 have we?

18 A. Not since this morning.

19 Q. Fair enough. Okay.

20 Please state your full name for the
21 record.

22 A. My full name is Abigail Marie Oelker.

23 Q. And for whom are you testifying today?

24 A. I'm testifying on behalf of the

1 VF Corporation.

2 Q. Were you retained by VF or by their counsel?

3 A. I was retained by their counsel, yes.

4 Q. Did you meet with counsel in anticipation of
5 this meeting?

6 A. Yes.

7 Q. About how long did you meet?

8 A. I think it was approximately two-and-a-half
9 hours. Yes.

10 Q. And who is your current employer?

11 A. My current employer is Exponent.

12 Q. What does Exponent do?

13 A. Exponent is a science and engineering
14 consulting firm.

15 Q. What is your position there at Exponent?

16 A. I am a managing scientist.

17 Q. What's a managing scientist do?

18 A. Well, basically I provide technical
19 expertise for clients in a range of
20 industries, and at the manager level I
21 supervise others.

22 Q. Have you been deposed before?

23 A. Yes, I have.

24 Q. And how many times have you been deposed?

1 A. One time.

2 Q. When was that?

3 A. In December of 2017.

4 Q. Was that a patent case?

5 A. No. It was not.

6 Q. What was the nature of that case?

7 A. It was a product liability case.

8 Q. What was the product at issue in that case?

9 A. The product at issue were labels and
10 adhesives used on car seats.

11 Q. So I'm going to first go over a few ground
12 rules. You have probably heard these
13 before. Let me know if you want any
14 clarification or have any questions.

15 I will be asking you a series of
16 questions. I want you to answer to the best
17 of your knowledge. If you don't understand
18 a question, I want you to ask me, and I will
19 be happy to rephrase as best I can.

20 Today is not a contest. If at any
21 point you need a break, let me know. I plan
22 on stopping at least every hour or so.

23 Is there any reason why you can't give
24 a full and accurate testimony today?

1 A. No.

2 Q. Please keep in mind the court reporter
3 cannot record nods or nonverbal gestures, so
4 please answer verbally. And also, please,
5 before you answer my question, I would ask
6 that you pause to give your counsel time to
7 lodge any objections.

8 A. Okay.

9 Q. We'll go ahead and introduce into the record
10 a couple of exhibits.

11 (Exhibit Number 1 marked.)

12 Q. This is Exhibit 1. This is VF Exhibit 1005,
13 Declaration of Abigail Oelker, Ph.D.

14 Please take a moment, Dr. Oelker, to
15 confirm that that is indeed your
16 declaration. I will represent that this a
17 printout of the declaration that was served
18 in this case.

19 A. (Witness reviewing document.)

20 I can confirm that this looks like my
21 declaration.

22 Q. Okay. Thank you.

23 MR. JACKSON: Next is what I will
24 mark as Exhibit 2.

1 (Exhibit Number 2 marked.)

2 Q. What I have marked as Exhibit 2 is
3 VF Exhibit 1001. It is U.S. patent number
4 8,945,287 to Haggquist. And I will also
5 represent that this a printout of VF
6 Exhibit 1001. Please take a moment and
7 confirm that that is the correct exhibit.

8 A. (Witness reviewing document.)

9 Looks good.

10 Q. And we can get this out of the way.

11 MR. JACKSON: We will move on to
12 Exhibit 3. This is PCT publication
13 WO 95/33007 to inventor Dutta. I think I'm
14 saying that right.

15 (Exhibit Number 3 marked.)

16 Q. I marked this as Exhibit 3. This is
17 VF Exhibit 1002. I will represent this is a
18 copy of VF Exhibit 1002 from the case.

19 Please take a moment and review it and
20 confirm that that is the correct.

21 A. (Witness reviewing document.)

22 This is correct.

23 (Exhibit Number 4 marked.)

24 Q. Last, but not least, the exhibit that I have

1 marked Exhibit 4, it is marked also with
2 VF Exhibit 1003. This is an International
3 Patent Publication Number WO 00/70975 with
4 first named inventor David Halley. I will
5 represent that this is a copy of VF
6 Exhibit 1003 from the case. Please take a
7 moment to confirm that is the correct
8 reference.

9 A. (Witness reviewing document.)

10 This appears to be correct as well.

11 Q. Okay. Thank you.

12 I'd like you to first turn to your
13 declaration. That's what I've marked as
14 Exhibit 1. I will -- if it's okay with you,
15 I will refer to that as your report or your
16 declaration. Is that okay?

17 A. Of course.

18 Q. And likewise, for the patent at issue here,
19 I might refer to that as the '287 patent, if
20 that's okay.

21 A. Of course.

22 Q. I'd like you to turn to paragraph 38 in your
23 report. That's on page 13.

24 A. Yes. I'm there.

1 Q. Do you have an understanding of the level of
2 ordinary skill in the art with respect to
3 the '287 patent?

4 A. Yes. And as you can see, we have it written
5 here in paragraph 39.

6 Q. Thank you.

7 Can you define for me the level of
8 skill in the art with respect to the '287
9 patent?

10 A. So the level that we proposed, and that I
11 believe the board agreed with, was that the
12 person of ordinary skill in the art at the
13 time of the invention would have a degree --
14 advanced degree or a bachelor's in science
15 with relevant experience in relevant fields.
16 So including materials, polymers, materials
17 that undergo absorption, light and
18 interaction with matter, waterproof
19 breathable materials and garments. And we
20 go on to say that a four-year degree in
21 chemistry, chemical engineering, polymer
22 chemistry or physics, or of course
23 completion of courses in those areas, such
24 as organic and physical chemistry and

1 polymer science and physical chemistry would
2 have been appropriate for a POSA.

3 Q. Okay. Thank you.

4 At what time did you define the level
5 of ordinary skill in the art with respect to
6 this patent?

7 A. What do you mean by that question?

8 Q. What was the time of invention that you are
9 using when you created your level of
10 ordinary skill?

11 A. Oh, yes. So that would have been, I
12 believe, May 9, 2006. So the priority date
13 of the patent-in-suit --

14 Q. Okay.

15 A. -- the '287.

16 Q. Fair enough.

17 In May of 2006, at that time, were you
18 a person of ordinary skill in the art?

19 A. Yes.

20 Q. With respect to this patent?

21 A. Yes, I was.

22 Q. And what was your experience at that time
23 with respect to this technology?

24 A. So at that time I had a bachelor's degree in

1 chemical engineering with experience and
2 coursework in the areas of chemistry,
3 organic chemistry, physical chemistry; of
4 course, all the requisite chemical
5 engineering courses, including experience
6 working with particles in fluidized beds and
7 things of that nature that would have been
8 part of the curriculum.

9 I also had several years experience in
10 very hands-on chemistry in my graduate
11 school at that point.

12 Q. Were you familiar with waterproof breathable
13 membranes at that time?

14 A. I was familiar in -- yes. Yes.

15 Q. At that time, in 2006, would you have had an
16 understanding of a one-layer waterproof
17 breathable membrane?

18 A. I believe so, yes.

19 Q. Okay.

20 What would your understanding be at
21 that time?

22 A. So at that time I would have understood that
23 a one-layer breathable membrane would -- did
24 you say one-layer waterproof breathable or

1 just one-layer breathable?

2 Q. That's a great question. Let's go with
3 waterproof breathable.

4 A. Right. So I would have understood that a
5 one-layer waterproof breathable membrane
6 would have been a membrane that would not
7 let water go through, but would let, indeed,
8 vapor go through.

9 Q. Were you familiar with what was known as
10 two-layer or 2-L waterproof breathable
11 membranes at that time?

12 A. I may or may not have heard of that
13 particular name for such membranes at the
14 time, but it would have been something with
15 the construction that was well within my
16 area of knowledge from chemical engineering
17 and chemistry.

18 Q. What would the two layers have comprised?

19 A. Well, that depends on -- I mean, I'm sure
20 there's more than one kind of two layers.
21 So I would imagine potentially the layer to
22 confer its waterproof nature and the layer
23 to be the transport for water vapor.

24 Q. Okay.

1 At the time, would you have been
2 familiar with three-layer or 3-L waterproof
3 breathable membranes?

4 A. Again, I might not have been familiar with
5 the terminology, but it would have been
6 technology that I would have knowledge of
7 how it worked in general once I would have
8 reviewed it.

9 Q. Okay. Thank you.

10 What I'd like to do next is turn your
11 attention to the '287 patent, which is
12 marked as Exhibit 2.

13 Circling back for one moment, in 2006
14 would you have had an understanding of what
15 was known as 2.5 or two-and-a-half-layer
16 waterproof breathable membrane?

17 A. Similarly, I think that terminology would
18 not have been familiar to me, but, again the
19 technology would be well within my
20 wheelhouse.

21 Q. Okay.

22 I'd like to turn your attention to
23 Claim 1 of the '287 patent, column 10.

24 A. Okay.

1 Q. Is it correct that you reviewed this patent
2 as part of preparing your report?

3 A. That is correct.

4 Q. Is it correct that you have an understanding
5 of this patent?

6 A. That's correct.

7 Q. And also you have an understanding of
8 Claim 27?

9 A. Yes.

10 Q. Okay.

11 What I would like to do is walk
12 through the language in Claim 27 and get
13 your understanding as a person of ordinary
14 skill in the art with respect to the
15 language in the claim.

16 A. Okay.

17 Q. And sometimes I might refer to you as a
18 skilled artisan. What I mean to refer to is
19 a person of ordinary skill in the art, but
20 that's a mouthful.

21 A. Of course.

22 Q. Okay. So I will say skilled artisan.

23 A. Of course.

24 Q. I'd like to focus on the first sentence that

1 ends with a colon.

2 Can you read that for me, please?

3 A. Yes, I can. Would you like me to read it
4 aloud?

5 Q. Yes, please.

6 A. The first -- oh, the first one starting with
7 the, "liquid-impermeable breathable"?

8 Q. I'm sorry, the very first line.

9 A. Very beginning.

10 Q. The very beginning, yes.

11 A. So Claim 27 begins, "A waterproof
12 composition comprising."

13 Q. Do you have an understanding of the word
14 "comprising" in that claim?

15 A. I have a general understanding. I do not
16 have a legal understanding. So I understand
17 that in reading patent claims some words can
18 mean particular things, so I understand that
19 to mean "consisting of."

20 Q. In your understanding of the word
21 "comprising," does that mean that additional
22 elements can be added to this claim, or does
23 that mean that the claim is limited to
24 exactly what is recited here?

1 MR. GERGELY: Objection. It calls
2 for legal conclusion.

3 A. Could you repeat that, please?

4 Q. Yeah. I'm trying to get your understanding
5 of "comprise," Dr. Oelker, and how it
6 affects what's recited in the claim. Let me
7 see if I can rephrase that.

8 Can additional elements not recited in
9 Claim 27 be added to the claim? For
10 example, a third thickness -- I'm making
11 that up -- or is it defined only -- is it
12 limited only to what's recited in Claim 27?

13 A. With respect to the '287 patent, it claims
14 what's written in the claim specifically.
15 That's my understanding.

16 Q. Okay.

17 Looking at the first phrase, "a
18 waterproof composition," do you have an
19 understanding of that phrase?

20 A. Yes.

21 Q. And what is your understanding of that
22 phrase?

23 A. Well, it means some kind of an article that
24 would repel water and water wouldn't be able

1 to go through within the conventional
2 understanding of "waterproof." And I
3 understand that that does not preclude
4 something from eventually having a
5 waterproof breakthrough time, but a POSA
6 would understand that it's resistant to
7 water going through.

8 Q. With regard to the resistance you mentioned,
9 what phase of water are you referring to?

10 A. That's specifically talking about the liquid
11 phase of water.

12 Q. Is there any language in Claim 27 that
13 defines the thickness of the waterproof
14 composition?

15 A. I believe so. So the waterproof composition
16 has as its components the cured base
17 material with the active particles. And so,
18 yes, that would have -- that would be the
19 first thickness.

20 Q. So in your opinion, Dr. Oelker, the first
21 thickness is the thickness of the overall
22 waterproof composition?

23 A. Correct.

24 Q. I'd like you to drop down and look at the

1 fourth line of Claim 27. I'd like to focus
2 on the first phrase up until the comma. I
3 will read that for the record. It recites,
4 "a plurality of the particles in contact
5 with the liquid-impermeable breathable cured
6 base material."

7 Do you see that phrase?

8 A. Yes.

9 Q. I'd like to step through this and get your
10 understanding as a skilled artisan.

11 Do you have an understanding of the
12 phrase "a plurality"?

13 A. Yes.

14 Q. What does the phrase "a plurality" mean to
15 you?

16 A. I believe it means more than one.

17 Q. And so the phrase "a plurality of active
18 particles," refers to more than one active
19 particle; is that fair?

20 A. Correct.

21 Q. Do you have an understanding of the phrase
22 "in contact" in the language we're
23 discussing?

24 A. Yes.

1 Q. What is your understanding of the phrase "in
2 contact"?

3 A. "In contact" means it would be touching or
4 surrounded by.

5 Q. Okay.

6 I'd like to focus your attention on
7 the next phrase, the phrase after the comma,
8 which recites, "the plurality of active
9 particles comprising a second thickness."

10 Do you see that phrase?

11 A. Yes.

12 Q. Okay.

13 And, again, please provide me with
14 your understanding of the phrase "the
15 plurality of active particles."

16 A. Again, that would mean more than one active
17 particle.

18 Q. What is your understanding of the phrase
19 "comprising a second thickness"?

20 A. I would understand that to mean consisting
21 of a second thickness, or having.

22 Q. Okay.

23 So in this phrase, "the plurality of
24 active particles comprising a second

1 thickness," is that the thickness of all of
2 the particles, the plurality of particles
3 that are recited?

4 A. With respect to the second thickness, I
5 believe that has been construed by the board
6 to mean the diameter of the particles or on
7 average.

8 Q. But in your understanding as a skilled
9 artisan.

10 A. I agree with how they have construed it.

11 Q. Okay.

12 Is that -- is the board's opinion part
13 of the materials considered for your report?

14 A. No. Of course not. That was issued after.
15 But we -- when I did submit my report, upon
16 review of this, it was my understanding that
17 in the '287 patent, "second thickness" meant
18 the average diameter of the active
19 particles.

20 Q. Okay.

21 Focusing on the language of the claim,
22 this phrase "the plurality of active
23 particles comprising a second thickness,"
24 focusing not on the board's opinion, but

1 just on your understanding of this language,
2 is that referring to more than one particle
3 or just one particle?

4 A. Again, I believe that would be the average
5 diameter of the particles. So particles
6 will have a distribution. They won't all be
7 one discrete size.

8 Q. I'm a little bit confused.

9 Is the thickness, then, the diameter
10 of just one particle?

11 A. It would be the average diameter of the
12 particles in the -- that's used for the
13 composition.

14 Q. When this phrase refers to the "plurality of
15 active particles," is that not referring to
16 more than one particle of the second
17 thickness?

18 A. It does, but the second -- the average
19 particle diameter reflects the diameter of
20 the particles on average; so it reflects the
21 population or the plurality of particles.

22 Q. I see.

23 Is that recited in the claim?

24 A. It's not -- well, I feel like it's implied

1 by the claim, and it's strongly implied in
2 the text and what a POSA would know in terms
3 of how you determine particle size or
4 diameter.

5 Q. So you are reading "the plurality of active
6 particles" as a particle?

7 A. No. I'm reading "the plurality of active
8 particles" as a population of particles that
9 have an average diameter.

10 Q. Further understanding the word "comprising"
11 here, it says, "the plurality of active
12 particles comprising a second thickness"; it
13 would seem to me as a layperson that's
14 referring to all of them together.

15 A. Well, on average, they will have an average
16 measurement that reflects their particle
17 size. That's what I understand this to
18 mean.

19 Q. I would like to drop down to pending
20 Claim 28.

21 And could you please read Claim 28 out
22 loud for the record?

23 A. Claim 28 states, "The composition of
24 Claim 27, wherein the active particles

1 comprise about zero percent to about
2 75 percent of the total weight of the
3 composition."

4 Q. Do you have an understanding of that
5 language?

6 A. Yes.

7 Q. In Claim 28, when it discusses "the total
8 weight of the composition," is it referring
9 to -- strike that.

10 When it discusses the active particles
11 comprising about zero to about 75 percent,
12 is that referring to one particle or all of
13 the particles?

14 A. Can you repeat that question?

15 Q. Sure.

16 So in Claim 27, it refers to "a
17 plurality of active particles" --

18 A. Correct.

19 Q. -- which we discussed means more than one.
20 In Claim 28, it refers back and says,
21 "Wherein the active particles comprise a
22 certain weight range."

23 Is that a fair statement?

24 A. Correct. That's what it says.

1 Q. The phrase "wherein the active particles,"
2 is that phrase referring to all of the
3 particles together or just one particle?

4 A. That phrase is referring to all the
5 particles together.

6 Q. Okay.

7 But up in Claim 27 where it refers to
8 "a plurality of active particles comprising
9 a second thickness," it's your opinion that
10 that reference is to just one particle?

11 A. No, it's not.

12 MR. GERGELY: Objection. Asked and
13 answered.

14 Q. So can you explain to me as a layperson how
15 a reference to "the plurality of active
16 particles" in Claim 27, being the diameter
17 of one in your opinion, is consistent with
18 Claim 28 where the active particles are
19 considered as a whole?

20 MR. GERGELY: Objection. Misstates
21 the record. Asked and answered.

22 A. I did not say that it was a diameter of one
23 individual particle. What I said was the
24 second thickness is represented by the

1 average diameter of the population of
2 particles.

3 Q. But it's your understanding in Claim 28 the
4 active particles are referring to the
5 plurality of active particles?

6 A. Yes.

7 Q. Turning back to Claim 27, is it correct to
8 say that a moment ago you testified that the
9 first thickness is the thickness of the
10 waterproof composition?

11 A. Yes.

12 Q. Does the waterproof composition include the
13 second thickness?

14 A. Yes. I believe it does.

15 Q. I'm trying to understand how these
16 thicknesses add up to provide the thickness
17 of the waterproof composition recited in
18 Claim 27.

19 Does the claim state that the
20 thickness of the waterproof composition is
21 the first thickness and the second
22 thickness?

23 A. It does not explicitly state that, but
24 that's what a POSA would understand that --

1 would understand that claim to mean. And
2 that's my understanding as well.

3 Q. Would a skilled artisan understand the
4 second thickness to be included in the first
5 thickness?

6 A. Yes.

7 Q. Do you have an understanding of what a
8 skilled artisan would understand a two-and-
9 a-half-layer waterproof breathable membrane
10 to be?

11 A. I have a basic understanding of such things,
12 yes.

13 Q. Can you please tell me that understanding?

14 A. So typically with waterproof compositions,
15 you have multiple layers and they perform
16 different functions, whether it's absorption
17 of skin moisture or transportation of that
18 moisture to the surface, where they can then
19 be evaporated, and you might also have a
20 waterproof layer or coating that prevents
21 water from coming in the other way from the
22 outside.

23 Q. And that would be a two-and-a-half-layer
24 membrane?

1 A. How many layers did I go through? It might
2 be similar to that, yes.

3 Q. Can you clarify for me which is the first
4 and second and which is the half layer in
5 that?

6 A. So my expertise is more in the area of
7 analysis of these individual layers, and so
8 I'm not -- I haven't really opined in my
9 report on the breakdown of whether it's two
10 layers, two and a half, or whether it's
11 three.

12 Q. A moment ago you said you have an
13 understanding and you gave that
14 understanding to me.

15 A. So I have a general understanding of how
16 these things work and what the individual
17 layers would do.

18 Q. Okay.

19 You mentioned a print layer.

20 Can you tell me more about what that
21 means?

22 A. Could you repeat that?

23 Q. I'm sorry.

24 You mentioned a print layer, I

1 believe.

2 A. No. I don't think I used that word.

3 Q. My apology. I misheard you.

4 I would like now to turn your
5 attention, Dr. Oelker, to the Dutta
6 reference. I believe that's Exhibit 3. If
7 it's okay, I will just refer to this as
8 Dutta.

9 A. Of course.

10 Q. And do you have an understanding of the
11 Dutta reference?

12 A. Yes.

13 Q. Okay.

14 You reviewed the reference as part of
15 preparing your report?

16 A. Yes, I did.

17 Q. I'd like to turn your attention to page four
18 of Dutta.

19 A. Okay.

20 Q. Do you see where it says "Summary of the
21 Invention" above line 20?

22 A. Yes.

23 Q. Can you please read for me out loud into the
24 record the first sentence under the "Summary

1 of the Invention."

2 A. It reads, "It has now surprisingly been
3 discovered that the water vapor transmission
4 rate (WVTR) of a nonporous polymeric film
5 can be increased by incorporating into it
6 hydrophilic absorbent particles."

7 Q. Thank you.

8 Do you have an understanding of that
9 sentence?

10 A. Yes.

11 Q. Okay.

12 Can you give me that understanding?

13 A. Well, I think it speaks for itself.

14 Q. As a layperson, can you explain to me what
15 it means?

16 A. So one of the things that they have
17 disclosed in this reference is that they can
18 include hydrophilic absorbent particles into
19 a nonporous polymer film to improve the
20 WVTR.

21 Q. Well, I will have to break that down then --

22 A. Okay.

23 Q. -- as a non-chemist.

24 A. Okay.

1 Q. What is a nonporous polymeric film?

2 A. So it would be a film made of a polymer that
3 doesn't have pores as per this description
4 of such a film.

5 Q. When you say "doesn't have pores," why is
6 that relevant?

7 I'm trying to understanding, is that
8 relevant for water transmission, for air
9 transmission?

10 A. So it might be relevant because maybe the
11 inventor thinks if it's totally nonporous
12 you have a better blocking of wind or air or
13 you have a better blocking of moisture --
14 or, excuse me, of liquid water, so better
15 waterproofness.

16 Q. Okay.

17 At that time, what would have been an
18 example of a nonporous polymeric film?

19 A. To name the first one that comes to mind,
20 you could have had polyethylene in a film.

21 Q. Okay.

22 And then next, I'd like to talk about
23 this phrase, "hydrophilic absorbent
24 particles."

1 Do you have an understanding of that
2 phrase?

3 A. Yes.

4 Q. Okay.

5 Can you explain it to me as you would
6 explain it to a layperson?

7 A. Sure. So hydrophilic means water-loving,
8 absorbent means it would absorb some medium,
9 whether it's gas or liquid. So in this
10 case, they might be talking about water, for
11 example. And particles we've been
12 discussing already, so small bits of some
13 kind of matter whether it's a polymer or you
14 could have metal particles or what have you.

15 Q. Okay. Thank you.

16 What does "absorbent" mean?

17 A. "Absorbent" means that the -- in this case,
18 the particles would be able to take in
19 water. They would likely swell as they are
20 taking in water.

21 Q. And do you have an understanding of a
22 similar phrase, adsorbent?

23 A. Yes. So if adsorbent was applied to
24 particles, it would mean particles that

1 adsorb or trap water or some other fluid or
2 gas onto the -- into the pores or onto the
3 surface.

4 Q. Okay.

5 So explaining it again to a layperson,
6 which in this case is me, can you say it
7 again, the difference between "absorbent"
8 and "adsorbent," because it's so confusingly
9 similar sounding.

10 A. Of course. So "absorb" would be more
11 general or more of a bulk phenomenon where
12 the substance is going in. "Adsorbent"
13 would be limited to the surface, whether
14 that's on the exterior or the shell of a
15 particle, or whether it's in the pores,
16 which all have surfaces.

17 Q. Okay. Thank you.

18 I believe you said a moment ago that
19 hydrophilic absorbent particles swell.

20 A. They may.

21 Q. Can you tell me more about what that means?

22 A. So basically what it would mean is that they
23 would take up -- in this case, if it's
24 hydrophilic, they would take up water and

1 they would become potentially slightly
2 larger as a function of absorbing that
3 water.

4 Q. Do you have an understanding of what role
5 that swelling plays in the invention of
6 Dutta?

7 A. I don't know if it's discussed specifically.
8 I don't think it is.

9 Q. As a person of ordinary skill in 2006, would
10 you have an understanding of the effect of
11 swelling on the invention of Dutta?

12 A. Right. It might result in a slight size
13 change of particles. I think that depending
14 on the membrane or waterproof layer, you
15 might get some swelling of that as well.
16 But I don't know that that's something that
17 they specifically looked at. So I couldn't
18 tell you how much it would change or what
19 effect it would have.

20 Q. Okay. Thank you.

21 Looking again at the first sentence of
22 the summary of the invention, I'm trying to
23 understand how these hydrophilic absorbent
24 particles increase transmission rate.

1 Do you have an understanding of how
2 these particles increase transmission rate
3 in Dutta?

4 A. Well, one of the hallmarks of these
5 references is that they don't get into a
6 whole lot of detail.

7 My understanding in general is that
8 they take up water or they adsorb water,
9 whether it's adsorbing water into pores or
10 absorbing it within the bulk, and then that
11 water is able to diffuse through the film
12 and then it can evaporate on the other side
13 to be released. So the particles would
14 increase the propensity for the film to
15 accomplish that goal.

16 Q. I'm trying to understand that as a
17 layperson.

18 So do these particles increase water
19 vapor transmission by absorbing the water on
20 one side of the membrane?

21 A. That would be part of the mechanism. Again,
22 as I've stated, I think there's more than
23 one mechanism at play in these types of
24 membranes.

1 Q. What mechanisms do you think are at play?

2 A. So I think depending on, first of all, what
3 kind of membrane you have, it will have
4 various propensities to adsorb or wick
5 water, so these two mechanisms will be in
6 play from moving water from their inner
7 surface towards the bulk.

8 Adsorption will play a role there when
9 we're talking about the particles, which as
10 we have seen can also potentially adsorb.
11 So the whole -- so those will be a couple of
12 different mechanisms that will be moving
13 water into the bulk or along the pores of
14 the particles. It will then be diffusing
15 through the membrane. And the adsorb
16 molecules can also diffuse through and then
17 to the other side they will be able to be
18 evaporated off the surface.

19 Q. Do these water molecules, do they -- are
20 they collected by these absorbent particles
21 and then released? How does the -- help me
22 explain how these particles are moving water
23 from the membrane.

24 A. Well, basically, you will have two boundary

1 conditions. So on the inner surface, it
2 will be high moisture vapor and water
3 content relatively to the outer surface
4 ideally. And then you will have diffusion
5 of adsorbed and absorbed moisture throughout
6 the film across that gradient, and then you
7 will be able to evaporate on the other side.

8 So the driving force is basically the
9 concentration gradient across the membrane.

10 Q. How do these absorbent particles affect the
11 concentration gradient across the membrane?

12 A. Well, it seems from the disclosure of these
13 inventions that it -- how does it affect the
14 actual gradient? Hmm. Let me think.

15 I imagine you will have the same
16 gradient, but you might have a lower barrier
17 to diffusion. You might have absorption
18 rather -- or more absorption rather than
19 just absorption by nature of having the
20 particles with their pores. And they will
21 change the energies involved in getting that
22 water across the film.

23 Q. Okay. Thank you.

24 Does the structure of the polymeric

1 film in Dutta change when these absorbent
2 particles swell?

3 A. I don't think they specifically address
4 that. It might, but to what extent? It
5 might be minimal. I don't know
6 specifically.

7 Q. I'd like to turn your attention to
8 page three of Dutta, the paragraph starting
9 line eight.

10 Now, I'd like you to read out loud
11 into the record, please, the sentence
12 starting at line 17, the phrase "in
13 particular."

14 A. "In particular, as the thickness of the
15 nonporous polymer layer is increased, there
16 is a reduction in the water vapor
17 transmission rate (WVTR)."

18 Q. Do you have an understanding of that phrase?

19 A. Yes.

20 Q. Can you explain that to me, please?

21 A. So -- so basically the thicker the layer is,
22 it's going to take more time for the
23 diffusion to occur, and that will increase
24 or that will not help your WVTR. It will

1 have a negative effect. Again, to what
2 extent? Depends upon your thickness change.

3 Q. Sure.

4 A. But it will change your WVTR.

5 Q. So would it be fair to say that generally
6 speaking, given a number of variables, the
7 thicker it is, there's a reduction in WVTR.

8 A. Right. And that's true with or without
9 particles.

10 Q. Okay.

11 Does this understanding of thickness
12 as it relates to water vapor transmission
13 rate reflect the knowledge of a skilled
14 artisan in 2016?

15 A. Can you repeat that for me?

16 Q. Sure.

17 Does this understanding of the effect
18 of thickness on transmission rate, does it
19 reflect or does it comport with the
20 understanding of a skilled artisan in 2006?

21 A. Yes.

22 Q. Okay.

23 Turn your attention to page nine at
24 line 15. Please read aloud into the record

1 the first sentence starting on line 15.

2 A. "The hydrophilic absorbent particles, as
3 used in the present invention, are particles
4 capable of swelling by absorbing a large
5 volume of an aqueous liquid and assuming the
6 form of a gel several times to several
7 thousand times its own weight."

8 Q. Thank you.

9 A moment ago we were talking about the
10 swelling; is that right?

11 A. Yes, we were.

12 Q. Can you explain to me as a layperson how
13 these particles are swelling? Do they
14 physically get bigger? Help me understand.

15 A. Yes. So depending on the particle, with all
16 particles not created equal, if they are
17 taking up water, as is the case here, they
18 would have an accompanying change in their
19 volume and their diameter. Again, that's
20 going to depend on many factors such as
21 their constituent material and, for example,
22 how cross-linked they are. So that would
23 help to inhibit swelling if that's something
24 you wanted for your particle of choice.

1 Q. This is going to reflect my layman's
2 language.

3 How do you "unswell" these swollen
4 particles?

5 A. It's very difficult. But you can put them
6 maybe in an oven or leave them out and let
7 them dry. Yes.

8 Q. How do you shrink them, I guess --

9 A. That's exactly how you --

10 Q. Is there a better word than "unswell" or
11 "shrink"?

12 A. Those are fine. Yeah.

13 Q. I'd like to drop down to the bottom of
14 page nine to the paragraph starting at
15 line 36.

16 Oh, if I could circle back to the
17 swelling -- to the shrinking of these
18 particles, all I can envision is a balloon.

19 When would these absorbing particles
20 that are swelling give up the water that
21 they've captured?

22 A. In which scenario? So during use -- for
23 example --

24 Q. Yes. Just help me understand how -- so I

1 understand they take on water and they grow
2 larger in size as explained by Dutta.

3 How do you get them to give up that
4 water?

5 A. So I think it would be -- you know, it's a
6 reversible process. So it's going to depend
7 on what you have -- so let's for purposes of
8 argument say they are in a film. So it
9 depends on the environment you have on one
10 side of the film versus the other. So if
11 you have a lot of moisture, liquid, or vapor
12 on one side versus dry on the other, once
13 that moisture is going through the film, it
14 will be swollen and absorbed. And as the
15 moisture is diffusing through the film,
16 whether it's absorbed or adsorbed, they will
17 eventually start to de-swell as long as
18 there is a source, a sink; and by that I
19 mean a dry source for them to keep
20 evaporating -- the molecules keep
21 evaporating from the edge of the film.

22 Q. Does it take heat to de-swelled these
23 particles? Where does the --

24 A. No.

1 Q. I'm trying to understand when they --

2 A. No. So evaporation is a process, the speed
3 of which depends upon the temperature. So
4 if you heat it up, it will happen more
5 quickly. But even at room temperature, you
6 will always have water molecules that can
7 evaporate. And as we all know from leaving
8 the cap off of a bottle, it would be a
9 similar phenomenon with these types of
10 particles.

11 Q. So at room temperature, then, would -- these
12 swollen particles will give off its water?

13 A. Yes. As long as the room -- as long as it's
14 not in a puddle of water, yes.

15 Q. Does that de-swelling take energy to
16 accomplish?

17 A. There's energy involved with that sort of a
18 process, yes.

19 Q. Can you explain that to me?

20 A. So evaporation will have a cooling effect.
21 So it's taking energy to cause water to
22 evaporate. So that's why, for example, you
23 sweat when it gets hot, it helps you cool
24 through evaporated cooling.

1 Q. Okay.

2 Now, turning down to line 36, can you
3 please read out loud into the record the
4 first sentence?

5 A. "In addition to hydrophilic absorbent
6 particles, the polymer used to make the
7 films may contain other inert diluent
8 particles such as fillers."

9 Q. Do you have an understanding of that
10 phrase -- excuse me -- of that sentence?

11 A. Of the sentence?

12 Q. Yes.

13 A. So they are talking about some kind of
14 particulate matter that you can include with
15 the film likely to influence the properties
16 of that film.

17 Q. Can you explain to me what this phrase
18 "inert diluent particles" -- am I saying
19 that right? Diluent?

20 A. Diluent.

21 Q. Can you give me your understanding of that
22 phrase?

23 A. So within the context of this patent, they
24 are talking about particles that don't --

1 well, I might even argue, if they are inert
2 diluents, then what are you really using
3 them for. They will probably have a purpose
4 such as reducing the costs of the overall
5 article at the very least. You can also use
6 them to influence mechanical properties and
7 things like that.

8 So I think in the context of this
9 specific sentence and in this specific
10 reference, they are talking about inert
11 meaning not necessarily influencing the MVTR
12 or WVTR, which was the point of this
13 disclosure.

14 Q. That's very helpful.

15 I wanted to understand as a layman
16 that inert just meant not influencing the
17 MVTR of the particles --

18 A. Well, that's in the context of this patent
19 only. I think it's not clear that the
20 inventor would have gone and tried to use
21 all these materials to see if they
22 influenced that MVTR or WVTR. They are just
23 looking at generic films that they could use
24 to include in the film. So I don't think it

1 would be appropriate to make any kind of
2 value judgment based on this sentence of
3 what the particles could or couldn't do in
4 various scenarios.

5 Q. But in the context of Dutta, a skilled
6 artisan would read this to understand the
7 inert particles would -- is it correct to
8 say that, in Dutta, a skilled artisan would
9 understand that these inert particles are
10 not the hydrophilic absorbent particles he's
11 talking about?

12 A. Yes. So Dutta clearly considers them to be
13 separate, a separate category.

14 Q. So taking this first example, end of
15 line 37, "talc," do you know what "talc" is?

16 A. I have a general understanding of "talc."
17 It's a particle. It's a mineral. It comes
18 from the ground.

19 Q. Okay.

20 A. It is often used as a filler.

21 Q. And in the context of Dutta, talc is not one
22 of the hydrophilic absorbent particles; is
23 that correct?

24 A. It looks like it's not, correct.

1 Q. Okay.

2 And then likewise, Dutta considers
3 carbon black one of his inert particles; is
4 that correct?

5 A. That's -- yes, within the context of Dutta,
6 that's how he looks at it, apparently.

7 Q. I would like to turn your attention now to
8 the bottom of page ten. And if you could,
9 please, read into the record the sentence
10 starting on line 37 and ending on line four
11 of the next page.

12 A. So from line 37 of 10 to four of 11?

13 Q. Yes.

14 A. "When the absorbant particles are dispersed
15 in a polymer resin, the size of the
16 particles plays an important role in
17 obtaining the polymer film of this
18 invention. In order for the polymer film to
19 be air impermeable, it is necessary that the
20 hydrophilic absorbent particles are at least
21 partially embedded in the polymer resin such
22 that at least one surface of the film is
23 substantially smooth by being free of the
24 particles."

1 Q. Thank you.

2 I'd like to walk through that and get
3 your understanding of some of the language
4 that is used.

5 When Dutta says, "the size of the
6 particles play an important role," do you
7 have an understanding of that phrase?

8 A. Yes.

9 Q. What is your understanding of that phrase?

10 A. Well, I understand it means what it says.
11 Dutta is concerned that the size of the
12 particles are important for his invention
13 and important for what overall thickness of
14 film you would have or want to use.

15 Q. Does the size of the particle play a role in
16 the moisture vapor transmission rate in
17 Dutta?

18 A. You know, I don't recall if he studied that.
19 So to do that, you'd want to see films made
20 with different size particles, and then see
21 the WVTR as a function of particle size. I
22 don't know that that's in here.

23 Q. Would a skilled artisan in 2006 have an
24 understanding of the role that particle size

1 plays in the WVTR?

2 A. I think you would have a general
3 understanding that the number of particles
4 and the surface area of the particles is
5 all -- and the amount in the film is all
6 going to play a role in not only the WVTR or
7 MVTR that you might get, but also in the
8 mechanical properties of the film and other
9 properties likely too.

10 Q. In addition to the number of particles, are
11 you aware as a skilled artisan of the effect
12 on the -- of the size of the individual
13 particles? As he states here, size plays a
14 role.

15 A. Yes. So he's saying that -- right. So you
16 wouldn't want to have a film that's so thin
17 that the particles poke all the way through
18 it. That film might be weaker. You
19 wouldn't want to have a film that's
20 incredibly thick because maybe then you are
21 not getting a good enough diffusion rate to
22 merit using that for your intended
23 application. And that could be an issue
24 regardless of what size particles you have

1 or how many.

2 Q. Okay. Thank you. That was helpful.

3 Looking at the second sentence that
4 we've been discussing, it starts on line
5 one, page 11, do you have an understanding
6 of this discussion that one surface of the
7 film is substantially smooth?

8 A. Yes. So I think he doesn't -- he doesn't
9 seem to want or seem to find that it's
10 important to have one side of the film not
11 having particles jutting out from it. That
12 seems to me that it's subjective. There's
13 not really a description to what extent that
14 would be acceptable.

15 Q. Is it fair to say that this language teaches
16 that at least on one side, as you said, the
17 particles are not sticking out of the film?

18 A. That's what it's implying, yes.

19 Q. Do you have an understanding of why that
20 would be important in the invention of
21 Dutta?

22 A. Well, clearly Dutta thinks that it's
23 important for air impermeability. I think
24 that air impermeability and waterproofness

1 would also be dependent on what kind of
2 particles those are and what they are made
3 out of and how tortuous the pores are and
4 things like that. I think all these factors
5 would come into play and just not how much
6 they are sticking out from the surface.

7 Q. In the next sentence, starting on line four,
8 I will read this into the record, Dutta
9 says, "Therefore the minimum thickness of
10 the polymer film is controlled by the size
11 of the particles."

12 Can you explain to me what he means
13 there?

14 A. Sure. So Dutta seems to be concerned that
15 you don't want to have a film that's too
16 small based on how large your particles are.

17 MR. JACKSON: Counsel, I would
18 suggest a break. It's been an hour.

19 MR. GERGELY: Sure.

20 MR. JACKSON: If that's okay with
21 you.

22 MR. GERGELY: Yeah.

23 MR. JACKSON: Go off the record.

24 (Short recess.)

1 Q. Dr. Oelker, picking up where we left off, if
2 I recall, we were talking about Dutta. And
3 I would like to turn your attention to
4 page 23 of Dutta, and specifically to
5 table one. Let me know when you are there.

6 A. I'm there, yes.

7 Q. Do you see the column that says "Absorbent
8 Particle"?

9 A. Yes, I do.

10 Q. And you see in the row, it starts with
11 example 1A? Do you see that row?

12 A. Yes.

13 Q. Okay.

14 Do you know what Nalco is? It's in
15 the next column over.

16 A. Nalco is a brand name.

17 Q. Do you have an understanding based on the
18 disclosure of Dutta what Nalco is?

19 A. Not Nalco specifically. But Nalco 1181 is a
20 type of particle.

21 Q. That would be an absorbent particle?

22 A. As per this? Yes.

23 Q. Okay.

24 And then looking down one row, you see

1 where it says "Sephadex G-200-50"?

2 A. Yes.

3 Q. Do you have an understanding of what
4 material that "Sephadex" is?

5 A. Yes. So that's another type of absorbent
6 particle as understood by Dutta.

7 Q. Looking at the third column, you see where
8 it says "Amount of Particle"?

9 A. Yes.

10 Q. You see that there are two parentheses
11 there, "phr"? Do you see that language?

12 A. Yes.

13 Q. Can you tell me what "phr" means?

14 A. I'm not absolutely certain what it means;
15 but in this context, I understand that to be
16 a percent by weight. So I don't know what
17 the acronym stands for.

18 Q. Okay.

19 Dr. Oelker, I would like to move to
20 Exhibit 4, which is Halley.

21 A. Okay.

22 Q. Let me know when you have Exhibit 4 handy.

23 A. I have it.

24 Q. And you have an understanding of Halley; is

1 that correct?

2 A. Yes. That is correct.

3 Q. If I could turn your description of the
4 invention to page two at the top where it
5 says, "Description of the Invention." Let
6 me know when you have gotten there.

7 A. I am here.

8 Q. Could you please read out loud for the
9 record the first sentence of the description
10 of the invention?

11 A. Yes. It reads, "According to the present
12 invention, it has now been surprisingly
13 discovered that the incorporation of a
14 particulate solid (particularly in low
15 concentrations) in a polymer coating
16 improves the abrasion-resisting properties
17 of the polymer coating even to the extent
18 that the pattern of abrasion-resisting dots
19 is no longer an absolute requirement."

20 Q. Do you have an understanding of that
21 sentence?

22 A. Yes.

23 Q. I'd like to have you walk through it with me
24 so I can break down to a layperson what this

1 means. First, I would like to start with
2 the phrase "a particulate solid."

3 Do you see that phrase?

4 A. Yes, I do.

5 Q. Can you give me your understanding of what
6 "a particulate solid" is?

7 A. I would understand "a particulate solid" to
8 be basically solid particles.

9 Q. Do they need to be absorptive particles?

10 A. Not necessarily.

11 Q. Do they need to be adsorptive particles?

12 A. Not necessarily.

13 Q. So it's a very generic term, "a particulate
14 solid"?

15 A. It seems to be; yes, that's generic.

16 Q. You see the phrase "improves the abrasion-
17 resisting properties of the polymer
18 coating"?

19 A. Yes.

20 Q. Can you explain to me what that means?

21 A. So in the context of Halley, it means that
22 inclusion of particulate solids improves
23 abrasion resistance. So I understand that
24 to mean that the polymer coating would be

1 less susceptible to marks or scuffs or other
2 forms of abrasion based on inclusion of said
3 particles.

4 Q. So it makes it tougher? If I were to choose
5 a lay term, what does abrasion-resistance
6 mean?

7 A. Well, "tougher" as a lay term might be very
8 different than "tougher" as a scientific
9 term; it has very specific meaning. I would
10 limit it to saying less susceptible to
11 abrasion-related damage.

12 Q. If you had to tell a lay jury what
13 "abrasion-related damage" might mean,
14 because they probably have never seen the
15 term, how would you describe that to a jury?

16 A. I would understand abrasion to be scuffs and
17 scrapes and any kind of mechanical
18 alteration of the surface.

19 Q. Thank you.

20 I'd like to turn your attention to
21 page seven, line 19.

22 Do you see where it says "Black Pearls
23 2000 Carbon Black"?

24 A. Yes, I do.

1 Q. Do you have an understanding of what that
2 material is?

3 A. I understand that that's a particular brand
4 and product that consists of carbon black.

5 Q. Can you tell me as a layperson what carbon
6 black is?

7 A. Carbon black are basically particles of
8 carbon.

9 Q. Are those particles of carbon absorptive as
10 disclosed in Halley?

11 A. As disclosed in Halley, I'm not sure if they
12 are absorptive.

13 Q. As disclosed in Halley, are they adsorptive?

14 A. I don't recall that Halley specifically
15 looks at adsorption.

16 Q. Okay.

17 Do you understand the difference
18 between "carbon black" and "activated
19 carbon"?

20 A. In general terms, yes.

21 Q. Can you please explain that to me?

22 A. So my understanding is that "carbon black"
23 is made with some kind of furnace treatment
24 and grinding and that "activated carbon"

1 typically requires an additional
2 furnace/chemical treatment step to activate
3 it. So both types of carbon -- well, there
4 is activated carbon or carbon black. They
5 are basically porous particles, but they may
6 have slightly different overall surface area
7 based on how many pores they have and what
8 pore size they have.

9 Q. So clarify my understanding, to go from a
10 carbon black to an activated carbon requires
11 some processing; is that right?

12 A. Yes. I think that's typically how it's
13 done.

14 Q. Okay.

15 And is it correct to say that process
16 results in the carbon particles having more
17 pores?

18 A. I think they might have more pores. I think
19 that what you want to be careful about is
20 not to limit -- you know, say that, oh,
21 there is only one type of carbon black or
22 there's only one type of activated carbon.
23 I imagine there's a range of carbon blacks
24 that are also available, as there also would

1 be a range of activated carbon available.

2 So you would have a range of particle sizes,
3 you'd have a range of porosities and surface
4 area in both populations, in carbon black
5 and activated carbon.

6 Q. Would it be fair to call the carbon black an
7 unactivated carbon?

8 A. I guess you could.

9 Q. Help me understand, I see there is this
10 term, "carbon soot."

11 Do you know what "carbon soot" is, if
12 I'm saying that right?

13 A. Soot, I imagine it would have some
14 similarities with both carbon black and
15 activated carbon.

16 Q. Has carbon soot been processed to increase
17 the number of pores or is it unprocessed
18 like carbon black that hasn't --

19 A. Is carbon soot specifically referred to in
20 Halley? Can you point me to where they are
21 talking about carbon soot?

22 Q. I may in a minute. There are many of these
23 references that refer to carbon soot.

24 Yes. It's the first page of text.

1 A. Okay.

2 Q. Line 28.

3 A. In Halley?

4 Q. Yes. There's a phrase, "especially soot
5 particles."

6 A. Okay.

7 Q. So to answer your question, that is a
8 reference in Halley to "soot particles."

9 A. So I don't understand that to be specific to
10 that -- that might be a term you use
11 synonymously with other types of carbon. I
12 don't have a specific understanding of how
13 soot would be different because soot, to me,
14 conveys it's been burned in a furnace or
15 some other type of heat. And so, you know,
16 that's the case for carbon black and for
17 activated carbon.

18 Q. I'd like to turn your attention to
19 page eight of Halley and to table one.

20 A. Okay.

21 Q. Do you have an understanding of table one?

22 A. Could you repeat that?

23 Q. I will.

24 Do you have an understanding of table

1 one?

2 A. Yes, I do.

3 Q. Do you know what method was used in Halley
4 to determine the MVTR shown in table one?

5 A. I imagine -- well, can we look at an example
6 specifically?

7 Q. Sure.

8 A. I want to make sure we're on the same page.
9 I don't see that they specifically called
10 out a particular test method in this
11 disclosure. They do have an airflow test
12 and then they talk -- they speak generally
13 about MVTR.

14 Q. Okay.

15 If you look at the MVTR column in
16 table one, you see that there are rows
17 designated "control," and "one," "two," and
18 "three"; is that correct?

19 A. That's correct.

20 Q. Can you explain to me the trend in MVTR as
21 it goes from control through table three --
22 excuse me -- through row three?

23 A. Yes. So it appears that between the control
24 and the three samples, that MVTR goes up for

1 the three samples; those are samples that
2 contain particles.

3 Q. Do you know what methods would have been
4 used in 2006 to measure MVTR?

5 A. Well, I don't know which exact method they
6 used. I understand that there are probably
7 several, whether they are published by ASTM
8 International or they are published by the
9 AATCC, which is a textile organization. But
10 generally speaking, you likely have the
11 textile covering a cup that has desiccant.
12 You have it exposed to a humidity chamber,
13 so a very controlled environment, and you
14 are measuring the weight of the desiccant in
15 a cup as a function of time. So that's one
16 example of a very general method you can use
17 to determine the MVTR or WVTR of a fabric.

18 Q. Does Halley tell us what methods they used
19 in these tests?

20 A. (Witness reviewing document.)

21 So it does reveal that test methods
22 for MVTR are given in another patent, and it
23 lists a patent specification.

24 Q. Okay.

1 A. And I do not believe I have that in front of
2 me.

3 Q. Would you have an understanding of the error
4 or expected error in the tests reflected by
5 table one?

6 A. No.

7 Q. Do you have any understanding of whether the
8 apparent increase in MVTR in row one is
9 within the expected error of the test in
10 table one?

11 A. Well, they haven't reported any sort of
12 standard deviation for multiple samples, so
13 I can't definitively say that, no.

14 Q. And what trend is shown in MVTR going from
15 row one to row two to row three?

16 A. Well, based on these numbers, it appears --
17 again, given our limitation with having
18 apparently one sample recorded, it appears
19 that there is a higher MVTR in the articles
20 that contain the particles.

21 Q. What is the relationship between the
22 particle weight of the MVTR shown in the
23 table?

24 A. There appears to be a general trend between

1 particles and not particles. There does not
2 necessarily appear to be a clear trend
3 between the actual particle loading and the
4 MVTR.

5 Q. Okay.

6 I'd like turn you to table two,
7 leaving table one.

8 Do you have an understanding of
9 table two?

10 A. Yes.

11 Q. Can you tell me what is described in
12 table two?

13 A. So table two appears to talk about a
14 different type of article, so instead of a
15 membrane, it says "fabric and membrane."
16 And it shows a control sample without
17 particles and a couple of samples with
18 particles.

19 Q. Is the MVTR greater in the control or in the
20 samples with particles?

21 A. For this specific fabric plus membrane
22 article, it appears to be higher, but,
23 again, we don't know -- we don't have a
24 standard deviation to say to what extent it

1 may be higher.

2 Q. Even if it's higher in the control?

3 A. Yes.

4 Q. As a skilled artisan, do you understand the
5 trend in the MVTR as the particle percent
6 weight increases or changes?

7 A. In table two?

8 Q. Yes.

9 A. There doesn't appear to be a trend. The
10 numbers jump around is what I mean by that,
11 rather than going in a particular upwards or
12 downwards direction.

13 Q. Do you have any understanding of what might
14 cause the numbers to jump around?

15 A. Well, it's hard to know for sure not having
16 been present when these measurements were
17 taken, but I imagine there might be an
18 artifact of maybe they only ran one sample
19 of each. And so you'd expect to get -- you
20 would expect to need to have a couple of
21 samples or a population in order to get a
22 more consistent number. It could mean that
23 maybe their loading is too low to get a
24 certain effect or maybe too high to get a

1 certain effect. There's many ways that the
2 result could be influenced based on the
3 sample of construction and things like that.

4 Q. Okay.

5 I may have asked you this before, my
6 apologies, if I did: Are the particles
7 added in table one, are those absorptive
8 particles?

9 A. I believe these are specifically carbon
10 black particles. I'm not sure if carbon
11 black is absorptive versus adsorptive. I
12 know that it does adsorb moisture, but I
13 don't know that it absorbs.

14 Q. So in your opinion, carbon black does
15 adsorb?

16 A. Yes.

17 Q. Does Halley disclose that the addition of
18 particles increases MVTR?

19 A. Yes. We can see that in table one.

20 Q. Is it your understanding as a skilled
21 artisan that Halley comes to a conclusion
22 that the addition of the solid particles
23 increases MVTR?

24 A. Well, again, you see that's the case for the

1 example shown in table one.

2 Q. But it's also correct to say that we don't
3 know what the experimental error is in table
4 one? Is that correct?

5 A. Well, that's true for many patents in my
6 experience; but, yes, they have not recorded
7 those extra values.

8 Q. And do we know what testing method Halley
9 used in table one?

10 A. Well, we can have a good idea that they
11 probably used the cup and desiccant method,
12 but they have cited this other application
13 or -- yeah, the other patent application,
14 and I don't recall what -- if that recites a
15 specific method or not.

16 Q. But without knowing a specific method, we
17 don't know what the expected error is; is
18 that correct?

19 A. We would need more information to know the
20 expected error; that is correct.

21 Q. So can you conclude that the MVTR in table
22 one is greater than the expected error or
23 less than the expected error?

24 A. What I can conclude from table one is that

1 it looks like the MVTR is increasing when
2 you have the particles versus when you
3 don't. I don't really have a sense of what
4 exactly the expected error would be on those
5 particular values.

6 Q. Okay. Thank you, Dr. Oelker.

7 I'd like to look back for a minute to
8 the '287 patent.

9 A. Okay.

10 Q. If I could look at column two, line 31, you
11 see the sentence that starts with the
12 phrase, "In some embodiments"?

13 A. Column two, line 31?

14 Q. Yes.

15 A. Yes, I see it.

16 Q. Can you read that sentence out loud into the
17 record, please?

18 A. Yes. "In some embodiments, the active
19 particles may be protected from losing
20 activity before, during, or after (or any
21 combination thereof) the process of
22 producing the membrane."

23 Q. Do you have an understanding of that
24 sentence?

1 A. Yes.

2 Q. Can you give me that understanding?

3 A. Yes. So in this patent, they are talking
4 about -- sorry, I lost my place.

5 Q. It's line 31.

6 A. Thirty-one?

7 Q. Yeah.

8 A. (Witness reviewing document.)

9 They are talking about protecting the
10 activity of the particles by encapsulating
11 them.

12 Q. Can you explain to me why they would need to
13 be protected as discussed here?

14 A. Well, as discussed here, again, we are at
15 line 31, this print is very small, so there
16 seems to be an implication here that
17 protection will help you retain the activity
18 or the function of the particles in the
19 membrane.

20 Q. When the '287 patent talks about protecting
21 the particles, do you know how that's
22 accomplished?

23 A. So in '287, I believe they've disclosed
24 encapsulation of the particles as a

1 protective method.

2 Q. Can you explain to me as a layperson how
3 encapsulating these particles protects them?

4 A. So in the context of this patent, I
5 understand it to disclose that you mix the
6 particles with your encapsulant. The
7 encapsulant then surrounds the particles,
8 and then it can be, perhaps, optionally
9 removed at a later date after the particles
10 are made into a film; or apparently here it
11 can even be done during -- before or during
12 the making of the membrane itself.

13 Q. Is the encapsulant in the '287 used to
14 protect the pores of particles?

15 A. I imagine it's intended to protect the
16 particle as a whole.

17 Q. Particle as a whole?

18 A. Um-hum.

19 Q. Is there any significance to using an
20 encapsulant on a particle with a high
21 porosity here?

22 A. Yeah. I believe the intent would be to
23 cover up the pores, so you could then
24 uncover them.

1 Q. Why would it be important to cover up the
2 pores?

3 A. Well, certainly the '287 discloses that it's
4 important to uncover them. I would imagine
5 that when you are making the film, you can
6 have the pores covered up by the polymer
7 that's constituting the film itself, so
8 polyurethane or what have you. And the goal
9 here is to add some kind of sacrificial
10 boundary layer around the particle to
11 prevent that from happening.

12 Q. Are the pores important for increasing MVTR
13 in the '287 patent?

14 A. That's the stated goal, one of the stated
15 advantages of this invention. I don't
16 recall that they specifically did testing to
17 look at the influence of porosity or number
18 of pores of various particle types on the
19 MVTR, but I believe that's the goal.

20 Q. Would activated carbon be one of these high
21 porosity particles that would be used in
22 this patent?

23 A. I believe that's in one of the claims, yes.
24 That's in Claim 10 and I think Claim 37.

1 MR. JACKSON: Counsel, I'd like to
2 go off the record for just a few minutes.
3 Then I think I should be able to wrap this
4 up shortly.

5 MR. GERGELY: Sure.

6 MR. JACKSON: Off the record.

7 (Short recess.)

8 MR. JACKSON: Thank you,
9 Dr. Oelker, for your time today. That
10 completes our questioning. And we reserve
11 our right to ask follow-up questions if
12 counsel has any redirect. I will pass the
13 witness.

14 MR. GERGELY: No, no redirect.

15 MR. JACKSON: Okay. Very good.
16 That concludes the deposition today. Thank
17 you.

18 (Whereby the proceedings were
19 concluded at 11:00 a.m.)

20 * * * * *

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