

In the Matter Of:

VF OUTDOOR, LLC

vs

COCONA, INC.

STEPHEN J. CALLAN

December 14, 2018



1 UNITED STATES PATENT AND TRADEMARK OFFICE

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3 BEFORE THE PATENT TRIAL AND APPEAL BOARD

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VF OUTDOOR, LLC
Petitioner,

7

v.

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COCONA, INC.,
Patent Owner.

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Case No.: IPR2018-00190

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Patent No.: 8,945,287

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DEPOSITION OF STEPHEN J. CALLAN

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Taken on behalf of the Petitioner

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December 14, 2018

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Carla M. Klaustermeier, RPR, CCR, CSR, CRR

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Illinois CSR License No. 084-004691

Missouri CCR License No. 1278

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Job No. MP-201301

<p style="text-align: right;">Page 2</p> <p style="text-align: center;">I N D E X O F E X A M I N A T I O N</p> <p>WITNESS: STEPHEN J. CALLAN</p> <p>Examination By Mr. Gergely5</p> <p>Examination By Mr. Jackson175</p> <p>Examination By Mr. Gergely186</p> <p style="text-align: center;">I N D E X O F E X H I B I T S</p> <p>Exhibit 18</p> <p>Declaration Submitted for this Case</p> <p>Exhibit 216</p> <p>Haggquist Patent Application</p> <p>Exhibit 356</p> <p>'287 Patent</p> <p>Exhibit 488</p> <p>Drawing</p> <p>Exhibit 5119</p> <p>Safety Data Sheet from Asbury Carbons</p> <p>Exhibit 6126</p> <p>Dutta Reference</p> <p>Exhibit 7130</p> <p>Patent 4,194,041</p> <p>Exhibit 8136</p> <p>Wang Article Labeled VF 1028</p> <p>Exhibit 9136</p> <p>Wang Document Entitled "Microporous Layer with Composite Carbon Black"</p> <p>Exhibit 10145</p> <p>Halley Reference</p>	<p style="text-align: right;">Page 4</p> <p style="text-align: center;">UNITED STATES PATENT AND TRADEMARK OFFICE</p> <p style="text-align: center;">-----</p> <p style="text-align: center;">BEFORE THE PATENT TRIAL AND APPEAL BOARD</p> <p style="text-align: center;">VF OUTDOOR, LLC</p> <p style="text-align: center;">Petitioner,</p> <p style="text-align: center;">v.</p> <p style="text-align: center;">COCONA, INC.,</p> <p style="text-align: center;">Patent Owner.</p> <p style="text-align: center;">-----</p> <p>Case No.: IPR2018-00190</p> <p>Patent No.: 8,945,287</p> <p>DEPOSITION OF STEPHEN J. CALLAN, produced, sworn, and examined on behalf of the Petitioner, December 14, 2018, between the hours of 9:00 in the forenoon and 3:26 in the afternoon of that day, at 10 South Broadway, Suite 1400, St. Louis, Missouri 63102, before Carla M. Klaustermeier, a Registered Professional Reporter, Certified Court Reporter, Certified Shorthand Reporter, and Certified Realtime Reporter.</p> <p style="text-align: center;">A P P E A R A N C E S</p> <p>Mr. Peter A. Gergely, of Merchant & Gould, PC, 1801 California Street, Suite 3300, Denver, CO 80202, appeared on behalf of the Petitioner, VF Outdoor, LLC.</p> <p>Mr. Jason S. Jackson, of Kutak Rock LLP, 1650 Farnam Street, The Omaha Building, Omaha, NE 68102, appeared on behalf of the Patent Owner, Cocona, Inc.</p> <p>Also Present via Realtime Feed: Ms. Kathleen Ott</p>
<p style="text-align: right;">Page 3</p> <p style="text-align: center;">(Exhibits Continued)</p> <p>Exhibit 11148</p> <p>Document Entitled Introduction to Organic Laboratory Techniques</p> <p>Exhibit 12162</p> <p>Document Entitled Fluorescent-Based Genetic Analysis for a Microfluidics Device</p> <p>Exhibit 13162</p> <p>Larger Document Entitled Fluorescent-Based Genetic Analysis for a Microfluidics Device</p> <p>Exhibit 14164</p> <p>Cocona's Infringement Claim Chart</p> <p>Exhibit 15169</p> <p>Document Entitled "Water Sorption in a Dextran Gel"</p> <p>Exhibit 16175</p> <p>Document Referencing Errors in Dutta Patent</p> <p>The original exhibits were retained by the court reporter and are to be attached to Counsel's transcript.</p>	<p style="text-align: right;">Page 5</p> <p>IT IS STIPULATED AND AGREED by and between counsel for the Petitioner and counsel for the Patent Owner that the deposition of STEPHEN J. CALLAN may be taken in shorthand by Carla M. Klaustermeier, a Registered Professional Reporter, a Certified Court Reporter, a Certified Shorthand Reporter and Certified Realtime Reporter, and afterwards transcribed into typewriting, and the signature of the witness is reserved by agreement of counsel and the witness.</p> <p style="text-align: center;">* * * * *</p> <p>STEPHEN J. CALLAN,</p> <p>of lawful age, being produced, sworn, and examined on the part of the Petitioner, and after responding "I do" to the oath administered by the court reporter, deposes and says:</p> <p style="text-align: center;">* * * * *</p> <p style="text-align: center;">[EXAMINATION]</p> <p>BY MR. GERGELY:</p> <p>Q Good morning, sir. Please state your name for the record.</p> <p>A Stephen Jeffrey Callan.</p> <p>Q And what do you do for a living?</p> <p>A I'm a polymer chemist.</p> <p>Q And are you employed by a company?</p> <p>A I own and operate Polymer Testing of</p>

<p style="text-align: right;">Page 6</p> <p>1 St. Louis, Inc.</p> <p>2 Q And what's their line of business?</p> <p>3 A I specialize in military and industrial</p> <p>4 failure analysis and reverse engineering of polymeric</p> <p>5 compounds.</p> <p>6 Q So for failure analysis, what kind of work</p> <p>7 do you do typically?</p> <p>8 A Military, I have conducted failure analyses</p> <p>9 on the Longbow missile, the Patriot missile, the Simon</p> <p>10 missile, nuclear missile transport vehicles, nuclear</p> <p>11 submarines, Hubble telescope, space shuttle.</p> <p>12 Q And are you testing polymeric materials?</p> <p>13 A I can't tell you too much because most of</p> <p>14 it's national defense.</p> <p>15 Q Gotcha.</p> <p>16 A But I specialize in polymeric materials.</p> <p>17 Q Okay. And then what is safe for a</p> <p>18 non-defense client? What would a failure analysis</p> <p>19 consist of?</p> <p>20 A General Motors, Ford, and Chrysler</p> <p>21 automotive. Failures I brought in when an entire</p> <p>22 factory shuts down to figure out why and prescribe</p> <p>23 corrective action to get it going again. For</p> <p>24 coatings, for cars, you know, air bags, body panels,</p> <p>25 headlamps, on engine shims, hoses, belts. That's for</p>	<p style="text-align: right;">Page 8</p> <p>1 representing VF Outdoor, LLC.</p> <p>2 MR. JACKSON: Jason Jackson representing</p> <p>3 Cocona, Inc.</p> <p>4 THE WITNESS: Steve Callan, Polymer Testing</p> <p>5 of St. Louis, Inc.</p> <p>6 MR. GERGELY: And we have Kathy Ott and</p> <p>7 Andrew Larsen from my firm may be watching a</p> <p>8 transcript from time to time on a feed.</p> <p>9 Can you mark that as Callan 1?</p> <p>10 (Exhibit 1, Declaration Submitted for</p> <p>11 this Case, was marked for</p> <p>12 identification.)</p> <p>13 Q (By Mr. Gergely) Sir, I've handed you what's</p> <p>14 been marked as Callan 1. Is this the declaration</p> <p>15 you've submitted in this case?</p> <p>16 A One moment. Yes.</p> <p>17 Q So how is your billing working in this case?</p> <p>18 Are you getting paid by IMS, or are you getting paid</p> <p>19 by Cocona or Kutak Rock?</p> <p>20 A IMS.</p> <p>21 Q IMS. And so it -- I saw in here that your</p> <p>22 rate was -- was it 650 an hour?</p> <p>23 A 625.</p> <p>24 Q 625. And then of that, how much is paid to</p> <p>25 you?</p>
<p style="text-align: right;">Page 7</p> <p>1 auto.</p> <p>2 But I mean, if you look around the room,</p> <p>3 I've done this for 30 years. I've had my own after</p> <p>4 30 years. Things I had reverse engineered and done</p> <p>5 failure analysis on are everywhere.</p> <p>6 Q So in terms of failure analysis, are you</p> <p>7 trying to figure out what went wrong with a product,</p> <p>8 or are you sometimes trying to test a product to show</p> <p>9 that it has, you know, a certain amount of stress or</p> <p>10 wear associated with it before it fails?</p> <p>11 A Some of both. Most often, I'm brought in</p> <p>12 while a failure event is in process.</p> <p>13 Q And then in terms of reverse engineering,</p> <p>14 what does that entail?</p> <p>15 A I can reverse polymeric materials down to</p> <p>16 propylene and tell you where they bought the wrong</p> <p>17 materials. I invented the methods starting while I</p> <p>18 was in graduate school.</p> <p>19 Q And have you done any of that work in this</p> <p>20 case?</p> <p>21 A I have not.</p> <p>22 Q Have you been asked to?</p> <p>23 A I have not.</p> <p>24 MR. JACKSON: Can we do a quick roll call?</p> <p>25 MR. GERGELY: Sure. So Peter Gergely</p>	<p style="text-align: right;">Page 9</p> <p>1 A 425.</p> <p>2 Q And do you see the bills that are submitted</p> <p>3 by IMS to Kutak Rock or Cocona?</p> <p>4 A I do not.</p> <p>5 Q Okay. Do you know how much you've billed on</p> <p>6 this matter?</p> <p>7 A As my part of 425 an hour?</p> <p>8 Q Yeah. I -- I -- because I assume you're not</p> <p>9 seeing -- you're not seeing the bills for 625.</p> <p>10 A I don't -- that's right. I send hours.</p> <p>11 Q Yeah. So how much -- how much have you</p> <p>12 billed?</p> <p>13 A 55,000 approximately.</p> <p>14 Q Okay.</p> <p>15 A I don't know the exact number.</p> <p>16 Q 55,000?</p> <p>17 A (The witness nodded head up and down.)</p> <p>18 Q And has that been -- has that been paid?</p> <p>19 A It has.</p> <p>20 Q And that was -- the 55,000 was for -- for</p> <p>21 what? For reading documents and preparing the</p> <p>22 declaration?</p> <p>23 A That's correct.</p> <p>24 Q And then getting ready for today's</p> <p>25 deposition?</p>

Page 10

1 A Well, that's separate.

2 Q Okay. And then you met with Mr. Jackson for

3 that purpose?

4 A I did.

5 Q Okay. And that was -- what was that,

6 yesterday?

7 A Yes.

8 Q Okay. And I see towards the back of the

9 document under your rate schedule, it said you had a

10 minimum engagement amount. Is that -- is that

11 requirement driven by IMS or by you?

12 A Where are you looking?

13 Q It would be in -- after your signature in

14 the CV section towards the back. It's on the back

15 page of what you're looking at.

16 A Where are you looking?

17 Q So keep going back. It's this page. There

18 you go.

19 So there's a -- there's a line item that

20 says "Minimum Engagement Amount," and my question was,

21 is that requirement driven by you or by IMS?

22 A By IMS.

23 Q And under -- under your experience, it says

24 you have -- you specialize in formulation,

25 deformation, research, and development polymers. Is

Page 11

1 that a fair description of your expertise?

2 A I specialize in failure analysis, and it

3 encompasses formulation and deformation.

4 Q Do you have any education or training or

5 relevant experience with particles?

6 A Yes.

7 Q And what is that?

8 A I have been analyzing particulate additives

9 to polymers since 1979.

10 Q And which ones have you analyzed?

11 A Which particles?

12 Q Correct.

13 A You want me to list all the particles?

14 Q Is it a long list?

15 A It is.

16 Q Well, maybe I'll give you some examples. Is

17 activated carbon one?

18 A Yes.

19 Q Silica gel?

20 A Yes.

21 Q Zeolites?

22 A Yes.

23 Q Aluminum oxide?

24 A Yes.

25 Q Zinc oxide?

Page 12

1 A Yes.

2 Q Cinoxate?

3 A No.

4 Q What did -- do you know what cinoxate is?

5 A From the chemical structure, I don't know it

6 by heart. No.

7 Q Okay. But do you know -- do you know it's

8 an additive to sunscreen?

9 A I do not.

10 Q Okay. So are you familiar with cinoxate at

11 all?

12 A I know that it is an adsorptive particle.

13 Q Okay. How do you know that?

14 A Studying cinoxate before this.

15 Q Okay. You mean before this case --

16 A No --

17 Q -- before this case?

18 A During the development and the initial.

19 Q I'm sorry. So you became familiar --

20 A I have studied sunscreen.

21 Q Okay. But did -- you studied cinoxate with

22 respect to this matter that we're working on?

23 A Yes.

24 Q Okay. And then what did you do?

25 A What did I do regarding what?

Page 13

1 Q Well, you said you had studied it, so -- and

2 you said you became familiar that it's an adsorptive

3 particle. So I'm asking you, how did you come to that

4 understanding?

5 A I looked for the definition of cinoxate in

6 my text and what it is.

7 Q Okay. So you looked it up in the textbooks?

8 A Yes.

9 Q And did you see that it was a liquid?

10 A I did not.

11 Q What did you see with respect to cinoxate?

12 A I studied it specifically regarding whether

13 it was absorptive or adsorptive.

14 Q Okay. And what was the name of that text

15 you were looking at or literature?

16 A I have a library. I don't know the specific

17 one.

18 Q Would it surprise you if cinoxate was a

19 liquid?

20 A I don't know.

21 Q Do you know one way or the other whether

22 it's a liquid or a solid?

23 A I do not.

24 Q If it's a solid, can it be an adsorptive

25 particle? Excuse me.

Page 14

1 A If it's a particle, then it's a solid.
 2 Q Yeah.
 3 A If it's a liquid, it would be in solution as
 4 it's produced at marketplace. That's why I don't know
 5 what it is.
 6 Q Okay. All right. Now, in terms of other
 7 particles, are you familiar with titanium dioxide?
 8 A Yes.
 9 Q Okay. How about molecular filter-type
 10 materials?
 11 A Yes.
 12 Q Okay. And what's a molecular filter-type
 13 material?
 14 A It's an adsorptive particle that --
 15 Q Just -- I don't want you an answer --
 16 A -- filters --
 17 Q Let me -- before you finish. Just for the
 18 record, in this case, there's a distinction between
 19 absorptive and adsorptive. So just be clear in your
 20 answer when you're saying absorptive with a B or a
 21 D --
 22 A Yes.
 23 Q -- because it sounded like it came out a
 24 little garbled, so I just wanted to --
 25 A Okay. Ask the question again.

Page 15

1 Q -- interrupt you before you answer.
 2 A Yes, sir.
 3 Q So the question was, what is a molecular
 4 filter-type material?
 5 A There are two types of molecular filter-type
 6 materials. One is absorptive. One is adsorptive.
 7 Their functions are that they separate molecules by
 8 their size.
 9 Q Okay. So give me an example of an absorp --
 10 in your view, an absorptive molecular filter material.
 11 A I think many kinds can be absorptive or
 12 adsorptive depending on whether they are activated.
 13 Q Okay. Can you give me an example of an
 14 absorptive --
 15 A Silica gel and zeolites can be absorptive or
 16 adsorptive depending on they are chemically treated
 17 and thermally treated.
 18 Q And then can you give me a molecular
 19 filter-type material that is adsorptive with a D?
 20 A That's what I'm saying is they both can be.
 21 Q Okay.
 22 A It depends on whether they're treated or
 23 not.
 24 Q Okay. So zeolites are naturally occurring;
 25 correct?

Page 16

1 A Zeolites can be either.
 2 Q Now, a material doesn't have to be treated
 3 to be active; correct?
 4 A Incorrect.
 5 Q Did you read Dr. Haggquist's patent
 6 application where he described active particles?
 7 A Yes.
 8 Q Okay. And did you see the passage where he
 9 said that certain types of materials are active and
 10 occur in nature?
 11 A Yes.
 12 Q Okay. So would that be an example of an
 13 untreated particle that's active?
 14 A Show me exactly where you're referring to,
 15 please.
 16 Q Sure. Here we go.
 17 MR. GERGELY: Can you mark that as Callan 2.
 18 (Exhibit 2, Haggquist Patent
 19 Application, was marked for
 20 identification.)
 21 Q (By Mr. Gergely) I've handed you what's been
 22 marked as Callan 2. It's been previously marked in
 23 the case as Haggquist 6 and Daniels 4. Are you
 24 familiar with this document?
 25 A Yes.

Page 17

1 Q Okay. This is the Haggquist patent
 2 application, and I'd like to draw your attention to
 3 paragraph 28. And do you see --
 4 A One moment.
 5 Q Oh, sure.
 6 A Yes, sir.
 7 Q Okay. So do you see where Dr. Haggquist
 8 writes in paragraph 28, "Active particles are
 9 particles that have pores or traps and have the
 10 capacity to adsorb substances in solid, liquid, and/or
 11 gas phases and combinations thereof."
 12 Do you see that?
 13 A I do.
 14 Q And is that a fair definition of active
 15 particle?
 16 A Repeat it, please, and show me where you
 17 are.
 18 Q The -- just the first sentence there I just
 19 read to you.
 20 A Okay.
 21 Q From paragraph 28. I was asking you, is
 22 that a fair definition of active particles?
 23 A Not completely. Active particles are
 24 particles that have these properties on their surface.
 25 Q And what do you mean by "surface"?

Page 18

1 A I mean the exterior surface of the particle.
 2 Q Okay. And in some of these particles, that
 3 exterior surface can extend from the perimeter or edge
 4 of the particle down into the interior; correct?
 5 MR. JACKSON: Object to form.
 6 A Define "interior."
 7 Q (By Mr. Gergely) Well, I mean, take a look
 8 at the cover of the patent publication.
 9 A I am looking at it.
 10 Q Do you see -- do you see how 120 describes
 11 the pores?
 12 A Yes.
 13 Q Okay. And do you see how they extend as
 14 cracks or canyons into the interior of the particle?
 15 A Not into the interior. It's a surface.
 16 Q How -- in actuality, how deep do those
 17 cracks or pores extend down into the particle?
 18 A I think it's different for different
 19 particles.
 20 Q How about for activated carbon?
 21 A If you're asking for percent cross-section,
 22 I don't have a number.
 23 Q Do they extend relatively deep down into the
 24 particle?
 25 A They do not.

Page 19

1 Q I mean, do they go halfway or 25 percent?
 2 Can you ballpark it?
 3 MR. JACKSON: Object to form.
 4 A It's a surface phenomenon. It's not a core
 5 phenomenon.
 6 Q (By Mr. Gergely) Right. I guess, if I were
 7 to ask you, for example, like a 10-micron activated
 8 carbon particle in diameter, how deep do some of those
 9 pores or cracks extend?
 10 MR. JACKSON: Object to form. Foundation.
 11 A I don't have a percent.
 12 Q (By Mr. Gergely) Okay. Do you have a -- do
 13 you have any estimate in mind?
 14 A It's a surface phenomenon. It doesn't
 15 penetrate to the core. It doesn't penetrate halfway
 16 into the core. It's a surface phenomenon.
 17 Q Right. But at some point before the
 18 particle was treated, it didn't have these pores;
 19 correct?
 20 MR. JACKSON: Object to form.
 21 A Are you talking about carbon?
 22 Q (By Mr. Gergely) Right.
 23 A Before it was treated, it had the surface
 24 pores, but they were filled with low molecular weight
 25 organic residue. That's why it absorbs.

Page 20

1 Q Before they were treated?
 2 A Yes.
 3 Q Okay. And then what does the treatment do?
 4 A The treatment cleans out the pores.
 5 Q Okay. And --
 6 A And seals the inside. It's chemical and
 7 thermal.
 8 Q And when the organic material is taken out
 9 of those pores, what I'm asking you is, can you
 10 ballpark how deep those pores are?
 11 A I can ballpark that they're a surface
 12 phenomenon.
 13 Q That's it? You can't ballpark how deep they
 14 are?
 15 A As a percent cross-section?
 16 Q Well, sure. Like -- I mean, I'll give you
 17 an example. If I'm standing on the rim of the Grand
 18 Canyon, we know that it's a mile deep from the rim.
 19 So I'm asking, if you're standing on the rim of an
 20 activated carbon, how deep down do those pores or
 21 cracks go?
 22 MR. JACKSON: Object to form. Calls for
 23 speculation. Improper hypothetical.
 24 A It would be different on different
 25 particles.

Page 21

1 Q (By Mr. Gergely) Right. And I'm asking you
 2 to bring it -- bring it back to activated carbon.
 3 MR. JACKSON: Same objections.
 4 A It would be different for individual
 5 particles of activated carbon.
 6 Q (By Mr. Gergely) And when you say this is a
 7 surface phenomenon, what do you mean?
 8 A I mean that it doesn't penetrate into the
 9 core of the particle.
 10 Q Okay. And then you'll agree with me,
 11 though, these pores form cracks in the surface of the
 12 particle; correct?
 13 MR. JACKSON: Object to form.
 14 A No. I don't know that it creates cracks.
 15 Q (By Mr. Gergely) Okay. And what --
 16 A They're more like cavities.
 17 Q Okay. Cavities. These are cavities in the
 18 surface?
 19 A Yes.
 20 Q Okay. And do you know how deep those
 21 cavities extend from the edge of the particle?
 22 MR. JACKSON: Object to form. Foundation.
 23 A They extend a fraction of the
 24 cross-sectional diameter.
 25 Q (By Mr. Gergely) Okay. And some amount we

Page 22

1 don't know; is that right?

2 A Some amount is different for every single

3 particle.

4 Q Okay. Now, in term- --

5 A And different locations on a particle.

6 Q Now, in terms -- in terms of, say, water or

7 water vapor binding to a cavity, is the water -- is

8 the water or water vapor going to bind to the, say,

9 the bottom of the cavity as well as the sides and

10 maybe the top?

11 MR. JACKSON: Objection. Form. Foundation.

12 A That depends on what's at the bottom.

13 Q (By Mr. Gergely) Well, what do you mean?

14 A Activated carbon is created by -- think of

15 it as a beehive. And you remove the honey from the

16 beehive structure, and you seal the inside. That's

17 what activated carbon is. So it depends on how much

18 has been removed and what is in the core and where

19 it's sealed.

20 Q What do you mean by "sealed"? What is it

21 sealed with?

22 A Thermally. It's brought to 900 degrees

23 centigrade or above.

24 Q And what does the sealing do?

25 A It closes the cavities in the interior

Page 23

1 surface.

2 Q I guess I'm not following you. What do you

3 mean by "closing"?

4 A It seals them. It brings the carbon

5 together and closes the cavern.

6 Q This is before activation or after

7 activation?

8 A As part of activation.

9 Q Okay. But the cavity still exists; correct?

10 A The cavity on the exterior surface exists,

11 but not the cavities in the core. Well, they're

12 sealed from the exterior.

13 Q Now, what exactly is going on in terms of,

14 say, water or water vapor with activated carbon and

15 its -- is it binding to those pores or binding to

16 those cavities?

17 MR. JACKSON: Objection. Form. Foundation.

18 A It's an adsorptive mechanism. Is that what

19 you're asking?

20 Q (By Mr. Gergely) Yeah. And I guess I'm

21 asking you, what is an adsorptive mechanism? Do you

22 know how that works?

23 A Van der Waals forces and surface tension.

24 Q Van der Waals. And what's a van der Waals

25 force?

Page 24

1 A It's a weak -- a weak hydrogen bond.

2 Q Okay. So is there a weak hydrogen bond

3 between what and what?

4 A Between the wall of the cavity as in Callan

5 Exhibit 2, the front page, and the water molecules.

6 Q Okay. So there's hydrogen bonding going on

7 between --

8 A The surface tension will draw it in, and

9 hydrogen bonding may or may not be going on. I don't

10 know. You asked me what could be.

11 Q Okay.

12 A It depends on what the composition is there

13 and how clean it actually becomes. I am responsible

14 for -- ZOLTEK Company is the leading carbon graphite

15 fiber supplier to the Department of Defense. They've

16 been my client since 1994. I invented their methods

17 to quantify and conduct quality control to find out

18 how much of this material is extracted from these

19 pores.

20 Q Okay. And you believe that hydrogen bonding

21 could be going on in those cavities?

22 A It depends on what's still in the cavity

23 wall.

24 Q Okay. Would there be -- would the

25 hydrogen -- would there be some hydroxyl group causing

Page 25

1 that hydrogen bonding to go on?

2 A It depends on how clean it is. That's why I

3 was brought in.

4 Q Okay. Now, are you aware of some active

5 particles where there is hydrogen bonding going on

6 between, say, the solid particle and the water or the

7 water vapor?

8 A Ask the question again, please.

9 Q So you mentioned the concept of hydrogen

10 bonding which may or may not be occurring in activated

11 carbon. Are you aware of active particles where you

12 know or it's been documented that hydrogen bonding is

13 occurring between water and the solid particle?

14 A I would have to look at my records.

15 Q Okay. Do you know if silica gel does that?

16 MR. JACKSON: Object to form. Foundation.

17 A I know that non-activated silica gel does

18 it. I'm not sure if activated silica gel does it.

19 Q (By Mr. Gergely) And do you know if zeolites

20 do that?

21 A I believe the same scenario.

22 Q And do you know if activated alumina does

23 that?

24 A I believe it does not.

25 Q Now, what about graphite? Is that an

Page 26

1 activated particle?

2 A It's the same as activated carbon. It can

3 be -- that's what I do for ZOLTEK is I determine if it

4 is activated or not and what remnants there are,

5 organic molecules.

6 So the answer is yes. Graphite can be

7 activated or not activated.

8 Q Now, is -- if a substance is

9 non-activating -- non-activated, would you

10 characterize it as an adsorbent particle?

11 A Not necessarily.

12 Q If it's adsorbent, would you -- would you

13 characterize it as activated?

14 A If it's highly adsorbent --

15 Q Okay.

16 A -- that's what activation is.

17 Q So you're -- you're -- you are saying that

18 an activated particle is one that is highly adsorbent;

19 is that right?

20 A Yes.

21 Q Okay. And do you know if the '287 patent

22 actually claimed highly adsorbent particles?

23 MR. JACKSON: Object to form. Foundation.

24 A Yes. By defining the particles as

25 activated.

Page 27

1 Q (By Mr. Gergely) So in your mind you

2 would -- okay. So did you -- did you see any

3 characterization in the specification as to the degree

4 of adsorbency?

5 MR. JACKSON: Object to form. Foundation.

6 Document's not an exhibit in this deposition.

7 A Ask the question again, please.

8 Q (By Mr. Gergely) So did you see anything in

9 the specification of the '287 patent which

10 characterized the degree of adsorbency?

11 A Activated particles means highly active.

12 Q Now, I want to -- before we get to the '287,

13 I want to draw your attention back to the Haggquist

14 publication which we were talking about. We were

15 talking about paragraph 28.

16 Now, do you see in paragraph 28,

17 Dr. Haggquist says, going onto the second line, "These

18 pores can vary in size, shape, and quantity depending

19 on the type of active particle."

20 A Yes.

21 Q Is that a true statement?

22 A Yes.

23 Q And then he goes on to state, "For example,

24 some particles naturally have pores such as volcanic

25 rock, and other particles such as carbon may be

Page 28

1 treated with extreme temperature and an activated

2 agent such as oxygen to create the pores."

3 Do you see that?

4 A I do.

5 Q Okay. So Dr. Haggquist is stating that

6 there are active particles that naturally have pores;

7 correct?

8 MR. JACKSON: Object to form.

9 A There are active particles that have been

10 exposed naturally to the extreme temperatures that

11 cause activation.

12 Q (By Mr. Gergely) Okay. So -- but there's

13 not a separate -- there's not a separate step where

14 someone has activated it in a lab. They just

15 naturally occur; correct?

16 A It's volcanic rock. Activation is initiated

17 at 900 degrees centigrade. Volcanic rock was above

18 that temperature.

19 Q Now, volcanic rock, is that zeolites?

20 A No. I don't know that volcanic rock is

21 zeolites.

22 Q Okay. Is zeolites -- are zeolites derived

23 from volcanic rock?

24 A I would have to look at my records.

25 Q Okay. And in paragraph 29, do you see that

Page 29

1 Dr. Haggquist states, "Active particles are particles

2 that can adsorb a substance or have the potential to

3 adsorb a substance."

4 Do you see that?

5 A I do.

6 Q And do you agree with the veracity of that

7 statement?

8 A Clarify your question.

9 Q Sure. Dr. Haggquist told the world in his

10 patent application which was incorporated into the

11 '287 patent that active particles are particles that

12 can adsorb a substance or have the potential to adsorb

13 a substance. Do you see that?

14 A Yes.

15 Q Do you agree with that definition?

16 MR. JACKSON: Object to form.

17 A With the understanding that they're talking

18 about active particles or particles that can adsorb a

19 substance or have potential to adsorb a substance on

20 their surface.

21 Q (By Mr. Gergely) Okay. So -- and again,

22 "surface" means what?

23 A The cavities on the exterior surface.

24 Q Okay. And some of those cavities can

25 extend -- because they're cavities, they extend into

Page 30

1 the particle; correct?

2 A They do.

3 Q Albeit not to the core. Is that your point?

4 A They're a surface -- a surface cavity.

5 Q Now, I was asking you about molecular

6 filter-type materials, and you gave the example of, I

7 believe, silica gel, and you gave another one. Oh,

8 zeolites. Are you aware of any other molecular

9 filter-type materials?

10 A I'd have to look at my records.

11 Q Okay. Is Sephadex a molecular filter?

12 A It's an absorptive molecular filter.

13 Q But -- so -- but you'll agree with me that

14 it's a molecular filter, but you characterize it as

15 absorptive; is that right?

16 A Yes.

17 Q Have you seen literature where it's been

18 described as adsorptive?

19 MR. JACKSON: Object to form. Foundation.

20 A No.

21 Q (By Mr. Gergely) Okay. You did read the

22 exhibits that were submitted with Dr. Oelker's

23 declaration --

24 A Yes.

25 Q -- correct?

Page 31

1 (The court reporter clarified.)

2 MR. GERGELY: It's O-E-L-K-E-R.

3 Q (By Mr. Gergely) There was a reference by

4 Sherma where Sherma described Sephadex as having the

5 capacity to adsorb water. Do you recall reading that

6 passage?

7 A I recall reading that, but I don't agree

8 with that.

9 Q Understand. And why don't you agree with

10 that?

11 A Because the method that you use to identify

12 if something is adsorptive on particles that contain

13 low molecular weight organics in their exterior

14 surface cleans out those cavities. It has the

15 potential to be active. It doesn't mean it's active.

16 Q All right. I'd like to follow up with you

17 on that. So do you mean that Sephadex has the

18 potential to be active?

19 A I don't know that Sephadex does. I know

20 that in carbon black, it has the potential to be

21 active if you process it to activate it.

22 Q All right. Let's -- let's stick -- stay

23 away from carbon black for the moment. Now, you know

24 what Sephadex is; right?

25 A I do.

Page 32

1 Q Okay. And what is Sephadex for the record?

2 A That's polydextran.

3 Q Okay. And it's cross-linked?

4 A Yes.

5 Q Okay. And what does that mean?

6 A Cross-linked is when you take polymer chains

7 and you interlink the polymer chains. The degree of

8 cross-linking affects the amount of swell.

9 Q Okay. And have you examined Sephadex under

10 a microscope?

11 A I have not.

12 Q Okay. Would you agree it's a porous

13 material?

14 MR. JACKSON: Object to form.

15 A No. I would not agree to that.

16 Q (By Mr. Gergely) Okay. Have you seen it

17 described in the literature as porous?

18 MR. JACKSON: Object to form.

19 A I have seen it described as absorptive.

20 Q (By Mr. Gergely) Now, have you -- have you

21 ever seen it -- have you ever seen it described as

22 non-porous?

23 MR. JACKSON: Object to form. Foundation.

24 A I think I would have to go to my

25 declaration.

Page 33

1 Q (By Mr. Gergely) I may be able to help you

2 out. If you take a look at paragraph 65, I think you

3 discuss Sephadex there.

4 A Yes, sir.

5 Q Okay.

6 A A person of ordinary skill in the art would

7 understand that Sephadex is an absorptive particle.

8 This falls dramatically and absorbs 24 grams per gram

9 of water as it swells. It is not an adsorptive

10 particle.

11 Q Okay. So that's your statement; correct?

12 A Yes.

13 Q There's no citation to any literature of

14 that point?

15 A That's correct.

16 Q But the 24 grams per gram, that's taken from

17 somewhere, some piece of literature?

18 A Sephadex literature.

19 Q Okay. And have you ever seen Sephadex

20 described as adsorptive with a D?

21 A I would have to look at the Sephadex

22 literature again to see if it was cited within that.

23 Q Okay. But you do recall where Sherma stated

24 it had the capacity to adsorb water, with a D, and you

25 stated you reviewed that passage and you disagreed

Page 34

1 with it; correct?

2 A Show me that passage, please.

3 Q Yeah. You know, I don't have a paper copy

4 with me. I could pull it up on my computer and show

5 it to you if that'd be okay with Mr. Jackson.

6 MR. JACKSON: Sure.

7 THE WITNESS: Do I have a copy of that?

8 MR. JACKSON: What exhibit number was that,

9 Peter?

10 MR. GERGELY: It was 1026, but it was in the

11 materials that he reviewed, but I don't know if you

12 have those with you or not. But I have them on my

13 computer. Oh, no, it's not 1026. Give me a minute.

14 1023.

15 So I'm about to show the witness a copy of

16 Exhibit 1023 that was submitted with the petition.

17 Specifically, page 168 out of 1356, Table 7.

18 Q (By Mr. Gergely) Sir, I'll represent to you

19 this is the Sherma article we've been discussing. And

20 do you see where the authors list that Sephadex has a

21 capacity for adsorption of water?

22 A I see where he says that.

23 Q Okay. And I take it this refers to your

24 earlier answer where you say you disagree with him?

25 A I see the table, but I do not see where the

Page 35

1 numbers came from --

2 Q Okay.

3 A -- within the text.

4 Q And do you see the statement where Sephadex

5 is reported as having a capacity to adsorb water?

6 A Yes. But that doesn't mean it has the

7 ability to absorb as is without being treated.

8 Q What do you mean by that?

9 A I mean that when you have a molecule that's

10 highly absorptive.

11 Q With a B?

12 A With a B. Absorptive. The absorption event

13 overwhelms adsorption as it wicks water in through the

14 cross-section.

15 Q And how do you -- how do you -- how do you

16 determine whether or not a material is adsorbing water

17 versus absorbing water? What kind of test would you

18 run?

19 MR. JACKSON: Object to form.

20 A In carbon black, it's an iodine number.

21 It's a titration.

22 Q (By Mr. Gergely) And any other tests you

23 could run?

24 A I would have to look at my notes.

25 Q What's the adsorption-desorption isotherm,

Page 36

1 if you know?

2 MR. JACKSON: Object to form.

3 A Show me what you're referring to, please.

4 Q (By Mr. Gergely) Have -- have you heard

5 those terms?

6 A Yes.

7 Q Okay. Well, what's your understanding

8 without looking at a document?

9 A Show me --

10 Q Well, I'm asking --

11 A My understanding is I need to see the

12 document you're describing.

13 Q Well, I'm asking you generally. I don't

14 have to show you a document. What is your

15 understanding of the adsorption-desorption isotherm?

16 MR. JACKSON: Object to form.

17 A My understanding is I need to see the

18 document you're referring to understand what you're

19 asking.

20 Q (By Mr. Gergely) Well, it's a concept. If I

21 ask you, "What is sodium?" you don't need a document

22 to describe that. So I'm asking you, without seeing a

23 document -- and it's a fair question -- what is the

24 adsorption-desorption isotherm?

25 MR. JACKSON: Object to form. Foundation.

Page 37

1 A I need to see the document you're referring

2 to.

3 Q (By Mr. Gergely) Are you --

4 MR. GERGELY: Are you going to instruct him

5 not to answer?

6 (The court reporter clarified.)

7 MR. JACKSON: I said, I have not instructed

8 the witness not to answer.

9 Q (By Mr. Gergely) I'm asking you as a general

10 proposition. What is the adsorption-desorption

11 isotherm?

12 MR. JACKSON: Objection. Form. Foundation.

13 Also, speculation.

14 Q (By Mr. Gergely) And you don't need to see a

15 document. If you know what it is, you can say that.

16 You don't need to see a document.

17 A I know that there's different ways to

18 interpret it.

19 Q What are some of the ways?

20 MR. JACKSON: Same objections.

21 A Adsorption-desorption would be the rate of

22 adsorption versus the rate of desorption at a given

23 temperature. Isotherm is constant temperature. I

24 don't know that that's what you're referring to.

25 Q (By Mr. Gergely) Okay. Is it also over at a

<p style="text-align: right;">Page 38</p> <p>1 given pressure?</p> <p>2 MR. JACKSON: Objection to form.</p> <p>3 Foundation. Scope.</p> <p>4 A Could it be run at different pressures?</p> <p>5 Yes.</p> <p>6 Q (By Mr. Gergely) And what does -- what does</p> <p>7 the adsorption-desorption isotherm reflect?</p> <p>8 MR. JACKSON: Objection. Form. Foundation.</p> <p>9 Scope.</p> <p>10 A The rate of adsorption-desorption.</p> <p>11 Q (By Mr. Gergely) And if -- if a particle is</p> <p>12 adsorptive, will it have an adsorption-desorption</p> <p>13 isotherm?</p> <p>14 MR. JACKSON: Same objections.</p> <p>15 A You have to show me what you're describing.</p> <p>16 I don't know the context of what you're asking.</p> <p>17 Q (By Mr. Gergely) Why --</p> <p>18 A Are you asking me about what particles?</p> <p>19 Q Well, I'm asking you just generally. Why --</p> <p>20 why is the adsorption-desorption isotherm analyzed?</p> <p>21 MR. JACKSON: Objection. Form. Foundation.</p> <p>22 Calls for speculation. Scope.</p> <p>23 A I don't know what you're asking.</p> <p>24 Q (By Mr. Gergely) What -- what is the</p> <p>25 relevance in your mind of examining a particle's</p>	<p style="text-align: right;">Page 40</p> <p>1 Have you ever seen Sephadex described in the</p> <p>2 literature as non-porous?</p> <p>3 A I will read my declaration: "Dutta's use of</p> <p>4 Sephadex, a person of ordinary skill in the art will</p> <p>5 understand that Sephadex is an adsorptive particle</p> <p>6 that swells dramatically and absorbs 24 grams per gram</p> <p>7 of water as it swells. It is not an adsorptive</p> <p>8 particle.</p> <p>9 "Sephadex is known for its swelling which is</p> <p>10 its effective quality as it pertains to the</p> <p>11 Dutta-claimed invention. VF's Exhibit 1027, for</p> <p>12 example, describes this in detail.</p> <p>13 "What is a Sephadex? Sephadex beads swell</p> <p>14 considerably in water and electrolyte solutions. The</p> <p>15 degree of swelling is an important characteristic of</p> <p>16 the gel. The swollen gel is washed in a Buchner</p> <p>17 funnel with excess water to remove salt and</p> <p>18 contaminants.</p> <p>19 "To shrink the gel, alcohol is then added at</p> <p>20 intervals under general suction. When the shrunken</p> <p>21 Sephadex has been sucked dry, it can be dried at 60 to</p> <p>22 80 degrees centigrade."</p> <p>23 Q So I appreciate you reading your declaration</p> <p>24 into the record. But back to my question.</p> <p>25 Have you ever seen Sephadex described in the</p>
<p style="text-align: right;">Page 39</p> <p>1 adsorption-desorption isotherm?</p> <p>2 MR. JACKSON: Same objections.</p> <p>3 A Evaluating the rate of adsorption/desorption</p> <p>4 at a given temperature.</p> <p>5 Q (By Mr. Gergely) And -- and why is that</p> <p>6 relevant to a scientist?</p> <p>7 A It would be rel- --</p> <p>8 MR. JACKSON: Same objections.</p> <p>9 A It would be relevant to the activity level.</p> <p>10 Q (By Mr. Gergely) Does an absorptive particle</p> <p>11 have an adsorption/desorption isotherm?</p> <p>12 MR. JACKSON: Objection to form.</p> <p>13 Foundation. Speculation. Scope.</p> <p>14 A Not unless it's treated.</p> <p>15 Q (By Mr. Gergely) Okay.</p> <p>16 A And the test itself is a treatment.</p> <p>17 Q Okay. And by "treated" -- by "treated," you</p> <p>18 mean treated with heat or chemicals; correct?</p> <p>19 A Correct.</p> <p>20 Q All right. I'd asked you the question</p> <p>21 earlier, have you ever seen Sephadex described as</p> <p>22 non-porous in any literature, and you said you'd have</p> <p>23 to look at your declaration. So you've had an</p> <p>24 opportunity to look at your declaration, and I'll ask</p> <p>25 it again.</p>	<p style="text-align: right;">Page 41</p> <p>1 literature as non-porous?</p> <p>2 MR. JACKSON: Objection. Form. Foundation.</p> <p>3 Calls for speculation.</p> <p>4 A I would have to go through the literature to</p> <p>5 look for that exact term.</p> <p>6 Q (By Mr. Gergely) Okay. But you have -- you</p> <p>7 have seen it described in the literature as porous,</p> <p>8 though; correct?</p> <p>9 A Yes.</p> <p>10 Q And do you disagree with that?</p> <p>11 MR. JACKSON: Objection. Form. Foundation.</p> <p>12 Calls for speculation.</p> <p>13 A Porous with cavities filled with organic</p> <p>14 matter. Porous like a sponge, not like an activated</p> <p>15 particle.</p> <p>16 Q (By Mr. Gergely) And do you know the</p> <p>17 mechanism of action for Sephadex and how it binds</p> <p>18 water?</p> <p>19 MR. JACKSON: Object to form.</p> <p>20 A Hydrogen bonds water.</p> <p>21 Q (By Mr. Gergely) So it's the same mechanism</p> <p>22 of action that may be an activated carbon or some of</p> <p>23 these other active particles that you've listed? Say,</p> <p>24 silica gel or zeolites?</p> <p>25 A No, it is not.</p>

Page 42

1 MR. JACKSON: Object to form.

2 Q (By Mr. Gergely) Well, isn't hydrogen

3 bonding hydrogen bonding?

4 A That doesn't mean that they're the same

5 because they both have hydrogen bonding. One is an

6 adsorptive mechanism. One is an absorptive mechanism.

7 Q Well, sir, you would agree with me that if

8 water is binding to an active particle through

9 hydrogen bonding and it's also bonding through

10 Sephadex through hydrogen bonding, that is a common

11 feature between the two particles; correct?

12 MR. JACKSON: Object to form.

13 A It is part of the event. It is not the

14 mechanism.

15 Q (By Mr. Gergely) Well, sir, that's about as

16 mechanical as you can get by describing it at the

17 molecular level or the atomic level what's happening.

18 I'm not sure I follow you.

19 MR. JACKSON: Object to form.

20 Q (By Mr. Gergely) You will agree with me that

21 they're both using hydrogen bonding; correct?

22 MR. JACKSON: Object to form.

23 A It's similar to the rate of activity where

24 you have a great degree of hydrogen bonding in

25 Sephadex.

Page 43

1 Q (By Mr. Gergely) Okay.

2 A And you have surface tension drawing it in

3 as it swells. This material is swelling, sucking that

4 water into the matrix.

5 Q And is there also a surface tension --

6 A So there's a mechanical -- it's not just

7 hydrogen bonding.

8 Q Okay. So there's a mechanical aspect, as

9 well?

10 A Yes.

11 Q And is that mechanical aspect also common to

12 activated carbon and other active particles?

13 A It is not.

14 Q Okay. So those don't use surface tension?

15 MR. JACKSON: Object to form.

16 A You're -- you're claiming apples and oranges

17 are both apples, and they're not.

18 Q (By Mr. Gergely) Well, does -- does

19 activated carbon, when water is binding to it, use

20 surface tension?

21 A Yes.

22 Q Okay. And so when water -- and I don't want

23 to use any loaded terms with you. But when water is

24 taken in by Sephadex, is it being retained in

25 Sephadex?

Page 44

1 MR. JACKSON: Object to form.

2 A Clarify your question.

3 Q (By Mr. Gergely) Well, we know water goes

4 into Sephadex; correct?

5 A It's absorbed into Sephadex.

6 Q Okay. All right. So that's your term.

7 A No. That's the definition from the Sephadex

8 manual.

9 Q Sir, when -- when water is taken in by

10 Sephadex, and you say -- you say adsorb, is that water

11 retained in Sephadex until it's dehydrated?

12 MR. JACKSON: Object to form. Foundation.

13 A Some of it, yes.

14 Q (By Mr. Gergely) Okay. And is that also

15 true with respect to activated carbon? When activated

16 carbon takes in, or in your word, adsorbs the water,

17 is it retaining that water until it's dehydrated?

18 MR. JACKSON: Object to form. Foundation.

19 Also, Peter, I wasn't sure if you said absorb or

20 adsorb. Sorry.

21 MR. GERGELY: I meant A-D.

22 A You have to define until it's dehydrated.

23 To dehydrate Sephadex, you need to put it in an oven.

24 Q (By Mr. Gergely) No. I'm ask- -- right.

25 And I'm asking --

Page 45

1 A You don't need to do that to activate a

2 carbon.

3 Q Okay. Well, all right. Let's -- let's use

4 silica gel as an example. When that takes in water,

5 you have to put it into some sort of oven or microwave

6 to get the water out; correct?

7 A Correct.

8 Q Okay. Now, in both cases, say Sephadex or

9 activated carbon or silica gel, are those particles

10 retaining the water?

11 MR. JACKSON: Object to form.

12 A You're talking about are they retaining the

13 water for what duration of time and what environment?

14 Sephadex retains the water unless you put it in an

15 oven at 80 degrees centigrade.

16 Q (By Mr. Gergely) And how do you get the

17 water out of activated carbon?

18 MR. JACKSON: Object to form.

19 A It will transport in ambient atmosphere.

20 Q (By Mr. Gergely) It'll just -- it'll

21 evaporate?

22 A Yes.

23 Q Okay. And then silica gel, we know you have

24 to put into some type of oven or microwave; correct?

25 A An oven.

Page 46

1 Q Okay. And then commonly, people sometimes
2 accelerate the process by putting it in a microwave;
3 right?
4 A I've never heard that.
5 Q Okay. All right. But it's -- you'll agree
6 that some people put silica gel into an oven in order
7 to get rid of the water?
8 A I've done it myself.
9 Q Okay. Any other active particles you put
10 into an oven to get the water out?
11 MR. JACKSON: Object to form.
12 A Not that I know of.
13 Q (By Mr. Gergely) Okay. You know, we've been
14 going about an hour. You want to take --
15 A But silica gel is not an active particle.
16 Q Well, you said silica gel's not an active
17 particle?
18 A Unless it's activated.
19 Q Okay. But Haggquist describes it as an
20 active particle; correct?
21 A He describes it as a form of it is an active
22 particle.
23 Q Well, he doesn't say "form."
24 A No, he does. He says everything that is in
25 that list is an active particle.

Page 47

1 Q Ah. But he doesn't -- he doesn't make any
2 distinctions between different types of silica gel,
3 does he?
4 MR. JACKSON: Object to form.
5 A The fact that it's in the list of active
6 particles is active silica gel.
7 Q (By Mr. Gergely) And so are you talking
8 about degrees of activity?
9 MR. JACKSON: Object to form.
10 A I'm talking about activated or not
11 activated.
12 Q (By Mr. Gergely) Well, silica gel has pores
13 in it; correct? Even before it's, quote-unquote,
14 activated; right?
15 MR. JACKSON: Object to form.
16 A I would have to look at that.
17 Q (By Mr. Gergely) Okay.
18 A The activation may open the pores up.
19 MR. GERGELY: Okay. Let's -- let's take a
20 few-minute break. We've been going about an hour.
21 MR. JACKSON: That's fine.
22 MR. GERGELY: So maybe five minutes or
23 whatever you need.
24 THE WITNESS: Sure.
25 (A brief recess was taken.)

Page 48

1 Q (By Mr. Gergely) Sir, before we went off the
2 record, we were looking at your declaration, and I
3 want to go back to your -- to the CV section of your
4 declaration towards the back. Yes. That's the page.
5 You were on it with your picture.
6 So you're listing your relevant experience,
7 and one of the pieces of relevant experience was
8 experience in the chemical analysis of the Surfynol
9 product line and offers moisture vapor transmission
10 rate analyses. Do you see that?
11 A On this page? Where are you?
12 Q No. On the page with your picture.
13 A Where are you reading? Yes, I see it.
14 Q Yeah. And then how is that relevant to this
15 case?
16 A Surfynol is one of the materials involved
17 with encapsulating particles.
18 Q And have you done any analysis with respect
19 to surfynol in this case?
20 A Any testing?
21 Q Yeah.
22 A No.
23 Q Now, turning your attention to your
24 declaration, page 5 -- actually, page -- on page 4,
25 you said one of the documents you reviewed was SMTL

Page 49

1 dressings datacard. Do you see that?
2 A I do.
3 Q And did you provide a copy of that with your
4 declaration?
5 A I did.
6 Q Okay. What exhibit is that?
7 A I don't know the number.
8 Q Okay. And how about the -- on the next
9 page, "Concise Encyclopedia of Polymer Science and
10 engineering definitions of carbon black, activated
11 carbon, and graphite." Do you see that?
12 A I do.
13 Q And were those provided with your
14 declaration?
15 A Yes.
16 Q Okay. And again, you don't know what the
17 exhibit numbers are?
18 A I don't know that they have an exhibit
19 number at this point.
20 Q Okay. I'm asking because I haven't seen it.
21 Do you recall that you printed those pages out and
22 physically provided them to counsel?
23 A Yes.
24 Q Okay.
25 MR. GERGELY: Jason, do you know what

Page 50

1 exhibits those are?

2 MR. JACKSON: I'll take a look, Peter.

3 MR. GERGELY: Okay.

4 MR. JACKSON: If we have those, we'll give

5 them to you, certainly. I just don't recall.

6 Q (By Mr. Gergely) Now, as I was asking you

7 some questions about Sephadex, how would you

8 characterize the surface of Sephadex? Where is that?

9 MR. JACKSON: Object to form.

10 A First, you're missing a point about

11 Sephadex. May I explain?

12 Q (By Mr. Gergely) Please.

13 A Dutta defines Sephadex as an absorbent

14 particle, and Dutta chemistry demands that only

15 absorbent particles are used. You're focusing on

16 possible adsorptive properties of Sephadex. If

17 Sephadex is used as an adsorptive particle by Dutta,

18 the Dutta patent does not exist as prior art.

19 Q I appreciate the preamble. But my question

20 is, what is the surface of Sephadex?

21 MR. JACKSON: Object to form.

22 A It's an amorphous surface. What is your

23 question? It's a polymer bead.

24 Q (By Mr. Gergely) Okay. So where is the

25 surface on Sephadex?

Page 51

1 A The surface is like the surface of this

2 marble.

3 Q Well, but it -- Sephadex is -- it's

4 cross-linked; correct?

5 A Partially.

6 Q Okay. And do those cross-links extend into

7 the interior of the bead?

8 A They are throughout.

9 Q Okay. And is that part of the surface?

10 A Is the cross-link the part of the surface?

11 Q Yeah. I mean, is --

12 A Microscopically? Possibly. There are

13 cross-link chains that are at or near the surface.

14 Yes. It's a polymer matrix. Think of it like

15 spaghetti or, I explain, if you take trees that have

16 the leaves off them and you jam them together and then

17 you start linking those strands together, those are

18 the cross-links.

19 Q Yeah. I think you're spaghetti analogy is

20 probably a good one. So if you had a ball of

21 spaghetti, would the surface both -- both be on the

22 outside of the ball and on the inside of the ball?

23 MR. JACKSON: Object to form.

24 A No.

25 Q (By Mr. Gergely) Why not?

Page 52

1 A Because it's a pellet. The surface is the

2 outside of the ball.

3 Q Right. But there are -- there are -- the

4 surface of a material that's made up of spaghetti-like

5 strands, the surface can both be on the edge of the

6 material and on the inside; correct?

7 A The surface of this material is on the

8 outside of the ball. Not on the interior.

9 Q And why do you say that?

10 A Because it's a sphere. It's a pellet.

11 Q And does that change when it's wetted?

12 A It swells. It's still a sphere.

13 Q It's a sphere made up of cross-link

14 spaghetti-like strands; correct?

15 A Microscopically.

16 Q Well, sure. Everything we're talking about

17 today is all microscopic; right?

18 A I don't know about every single thing we're

19 talking about is microscopic, but go on.

20 Q Well, we've been talking about, you know,

21 particles of activated carbon. Those are microscopic;

22 right?

23 A These are activated carbons. They are

24 macroscopic. They're not microscopic.

25 Q Okay. Now, but that's a -- what you just

Page 53

1 showed me in a tin, those are -- those are

2 agglomerations of particles; correct?

3 A Those are particles and agglomerations of

4 particles.

5 Q Okay. But the actual individual particles

6 are microscopic; correct?

7 A Of that?

8 Q Yeah.

9 A No.

10 Q What do you define as microscopic?

11 A For those particles?

12 Q Correct.

13 A Those particles are a combination of

14 materials that are macroscopic and microscopic. Do

15 they contain dust, fine little dust submicron

16 particles? They do. This does. It also contains

17 macroscopic particles.

18 Q Okay. But are the pores in the individual

19 particles, are those microscopic?

20 A Yes.

21 Q Okay. And that's true with just Sephadex,

22 too? The individual strands of dextran are

23 microscopic; correct?

24 A On a different scale. You can see the

25 individual pores in activated carbon at a few

Page 54

1 thousand X. At a few thousand X, you don't see
 2 individual strands of polymer.
 3 Q Okay. What level of magnification would you
 4 have to use to see that?
 5 A Hundreds of thousands.
 6 Q Okay. And are those strands the surface of
 7 Sephadex?
 8 MR. JACKSON: Object to form.
 9 A I don't understand your question. Clarify
 10 your question, please.
 11 Q (By Mr. Gergely) Well, I understand that
 12 you're saying that activated carbon has cavities, and
 13 everything in that cavity is considered surface;
 14 correct?
 15 A Yes.
 16 Q Because that is a -- it is a solid material;
 17 correct?
 18 A Sometimes, yes.
 19 Q Okay. And then Sephadex, likewise, is a
 20 solid material; correct?
 21 A Yes.
 22 Q Okay. And I'm asking you, what is the solid
 23 surface of Sephadex?
 24 A The exterior surface.
 25 Q And what is that?

Page 55

1 A It's a polymer matrix.
 2 Q So is anywhere on the polymer matrix
 3 considered the surface of Sephadex?
 4 A It is not. The exterior surface of the bead
 5 is the surface of Sephadex.
 6 Q And why are you drawing that distinction?
 7 A Because that is where the Sephadex particle
 8 comes into contact with the exterior environment.
 9 Q How about when it's in contact with water?
 10 There is water penetrating into the interior of the
 11 bead; correct?
 12 A Yes.
 13 Q And there is, through hydrogen bonding,
 14 water binding to the dextran; correct?
 15 A But it has to pass through the surface to
 16 get to the interior.
 17 Q Okay. And the interior is also part of the
 18 surface; correct?
 19 A It is not.
 20 Q And why are you drawing that distinction?
 21 A Because the surface is where the particle
 22 comes into contact with the external environment.
 23 Q It's all solid whether it's on the
 24 exterior --
 25 A The surface of this table is the surface of

Page 56

1 the table where it comes in contact with the air.
 2 Because there is an interior to the table doesn't mean
 3 it's surface is not in contact with the external
 4 environment.
 5 Q So you're saying -- you're saying the
 6 interior of a Sephadex bead is not in contact with the
 7 exterior environment such as water? Is that what
 8 you're saying?
 9 A Unless water has absorbed into it through
 10 the surface.
 11 Q Well, maybe we'll table this issue for later
 12 in the deposition.
 13 Now, going to your declaration, you state on
 14 page 11, paragraph 26, at the end, you say, "The Board
 15 is correct that the terms "absorption" and "adsorbed"
 16 are not in the '287 patent."
 17 Do you see that?
 18 A That is correct.
 19 Q Did you double-check that to ensure that
 20 that was accurate?
 21 A They are typos.
 22 Q Okay. So for example, on Column 2 -- well,
 23 let's make it an exhibit.
 24 (Exhibit 3, '287 Patent, was marked for
 25 identification.)

Page 57

1 Q (By Mr. Gergely) I've handed you what's been
 2 marked as Callan 3 which is the '287 patent previously
 3 marked as Daniels 10 and Haggquist 5.
 4 So I'd like to draw your attention to
 5 Column 2. So under "Summary of the Disclosure," do
 6 you see the reference to odor absorbing and infrared
 7 absorption?
 8 A What line are you speaking about, please?
 9 Q 19 through 21.
 10 A Yes.
 11 Q Okay. So do you see the reference to odor
 12 absorbing and infrared, IR, absorption?
 13 A I do.
 14 Q Okay. It is -- it's your contention that's
 15 typos?
 16 A Yes.
 17 Q And what did you do to confirm that?
 18 A There are 112 references to adsorption
 19 within a few pages of this patent. It's very clear
 20 that the author is discussing adsorption, not
 21 absorption.
 22 Q Okay. And then you further qualify that
 23 with degree of adsorption; correct?
 24 MR. JACKSON: Object to form.
 25 A Clarify your question.

Page 58

1 Q (By Mr. Gergely) Well, you said that this
2 patent is all about adsorption; correct?
3 A Yes.
4 Q Okay. And so now I understand you to say
5 that what this is really about is highly adsorptive
6 particles versus particles that merely adsorb;
7 correct?
8 A Correct.
9 Q And do you see anything in the patent or the
10 Haggquist application which talks about the degree of
11 adsorptivity?
12 MR. JACKSON: Object to form.
13 A The definition as an active particle is a
14 highly adsorbent particle. That's the definition of
15 it.
16 Q (By Mr. Gergely) Okay. And then you said
17 that active particles can have different degrees of
18 activity; correct?
19 A Yes.
20 Q Now, what was your reference to 112? You
21 said, "uses adsorption 112 times"?
22 A It does.
23 Q Okay. Did you mean active particles
24 112 times?
25 A I would have to go to -- there were

Page 59

1 two different calculations. I would have to go to the
2 exact --
3 Q Okay. So on paragraph 29.
4 A Paragraph 29 of --
5 Q Your declaration.
6 A Adsorptive particle -- the adsorptive
7 property of the activated particle is 41 times.
8 Q Okay. And then 112 references to --
9 A -- to active particles. Correct. I'm
10 corrected.
11 Q So back to the '287 patent. You said that
12 the reference to odor absorbing and infrared
13 absorption are wrong?
14 A It's a typo.
15 Q Okay. Is there such -- is there such a
16 thing as infrared adsorption?
17 A Yes.
18 Q And what is that?
19 A Infrared light adsorbing at the surface of a
20 particle.
21 Q And is there literature describing that
22 phenomenon?
23 MR. JACKSON: Object to form. Foundation.
24 Scope.
25 A It wasn't presented within this, but yes.

Page 60

1 Q (By Mr. Gergely) You've seen that term used?
2 A Yes.
3 Q Okay. Do you know of any references off the
4 top of your head?
5 MR. JACKSON: Object to form.
6 A I know that I've done it myself with an
7 infrared spectrometer.
8 Q (By Mr. Gergely) I'm asking you, are
9 there -- are there references that you're aware of
10 that use the term "infrared adsorption"?
11 A I will have to look through my manual of my
12 text.
13 Q Now, does Sephadex trap water?
14 MR. JACKSON: Object to form.
15 A Define "trap."
16 Q (By Mr. Gergely) Retain.
17 A Yes.
18 Q And do you know whether or not it's
19 adsorbing water?
20 A It is not.
21 Q So you dispute that it adsorbs water?
22 A I do. Not only I do, if it's adsorbing
23 water, the Dutta patent doesn't exist as prior art in
24 this case.
25 Q Well, you've sort of let Haggquist off the

Page 61

1 hook with saying that certain things are typos. Do
2 you know if Dutta, for example, was using "absorb" in
3 a generic sense rather than "adsorb" in a scientific
4 sense?
5 MR. JACKSON: Object to form. Foundation.
6 Scope. Leading.
7 A I know that the Dutta patent is full of the
8 term "absorb," not adsorb.
9 Q (By Mr. Gergely) And would you agree that
10 scientists sometimes will use those terms
11 interchangeably?
12 A No.
13 MR. JACKSON: Form. Scope. Leading.
14 Q (By Mr. Gergely) Well, we know Haggquist had
15 some typos; right?
16 A That doesn't mean he used them
17 interchangeably. That's a typo. Dutta had typos.
18 Dutta had typos, too.
19 Q So --
20 A If you don't allow typos, then again, the
21 Dutta patent doesn't exist.
22 Q And why do you say that?
23 A Because in Dutta's presentations to the
24 patent board for application of this patent, he had
25 typos and presented them as typos to the patent board.

Page 62

1 Q Can you show me that in your declaration? I
2 wasn't sure -- I'm not sure what you're talking about.
3 A Yes. It's going to take a minute.
4 Q Okay.
5 A It is referred specifically with the
6 citation.
7 Q Okay. Maybe we'll get to it at -- once we
8 get into Dutta. But your best recollection is there
9 are some typos in Dutta?
10 A That's my best recollection.
11 Q Okay. All right. Maybe we'll get to it
12 later. I don't want you to read the entire document.
13 But maybe as we --
14 A It's referred to and cited exactly where
15 that comes from.
16 Q Now, I want to ask you some questions about
17 hydrogen bonding. Is that -- is that referred to as
18 hydrophilic process?
19 MR. JACKSON: Objection. Form. Foundation.
20 A Yes.
21 Q (By Mr. Gergely) Okay. So if there's some
22 hydrogen bonding going on in activated carbon at the
23 surface, that would be considered hydrophilic on a
24 certain level, i.e., water-loving?
25 A I don't know where you would draw the line

Page 63

1 with hydrophilic.
2 Q Okay. But --
3 A I wouldn't consider it hydrophilic. No.
4 Q Okay. If there's -- if there's -- but if
5 there's hydrogen bonding, an OH group will attract
6 water; correct?
7 A Yes.
8 Q Okay. And is that a hydrophilic process?
9 A Hydrophilic is water-loving. Is hydrogen
10 bonding defined as hydrophilic? I don't know that
11 that's the case. No.
12 Q Okay. I'd like to ask you some questions
13 about first and second thickness. Now, as I
14 understand your position on first thickness, what does
15 that mean?
16 A I present it in my claim.
17 Q Okay.
18 A In my declaration.
19 Q Okay. And --
20 A Page 15.
21 Q Page 15.
22 A Would you like me to read it?
23 Q No. I think I see it. So is this where it
24 starts on paragraph 37?
25 A It is.

Page 64

1 Q Okay. And then -- so I don't -- I don't see
2 your definition of "first thickness."
3 A It's Claim 27.
4 Q Right. But do you give any special
5 definition of first thickness?
6 A I agree with Claim 27.
7 Q Okay. So you say, for example, on 38, you
8 say, "A person of ordinary skill and art would clearly
9 understand that first thickness is the physical
10 dimension of the cured base material and not of other
11 claim elements."
12 A As in this exemplar.
13 Q Okay.
14 A Would you like to mark it as an exhibit?
15 Q No. I think I understand it. But what
16 you're showing to me is a cured polymer in a -- in a
17 jar, small jar?
18 A It's a cured polyester.
19 Q Okay.
20 A In a scintillation vial.
21 Q Okay. And when you say "cured," it means it
22 was once a solution, and now it's been solidified?
23 A There is another sample that has the uncured
24 polyester. The same polyester that's here. It's a
25 liquid.

Page 65

1 Q It's viscous and it's moving?
2 A That's right.
3 Q All right. And then once it's cured, it's
4 solid?
5 A That's correct.
6 Q Correct. Okay.
7 And then in 39, you say, "A person of
8 ordinary skill in the art understands that the cured
9 base material of Claim 27 is the layer or membrane on
10 which the active particles are applied."
11 A Correct.
12 Q Do you see that?
13 And you chose the word "on"; correct?
14 A Yes.
15 Q Can it also be "in"?
16 A It cannot. Because if it were -- if you
17 were to apply it and it were uncured, it would be
18 immersed. It wouldn't be "on." "In" is immersed,
19 not -- not on. That's not what Claim 27 says.
20 Q Oh, I thought Claim 27 --
21 A May I discuss?
22 Q Yeah. Sure. I mean, Claim 27 doesn't say
23 "on." It just says "in contact with"; correct?
24 A I can explain.
25 Q Okay.

Page 66

1 A Would you like me to?

2 Q Sure.

3 A "A water-proof composition comprising a

4 liquid, impermeable, breathable, cured base material

5 comprising the first thickness."

6 I would like this as an exhibit, if that's

7 possible.

8 MR. JACKSON: We'll see what we can do. But

9 just describe what's in your hand.

10 A This is a -- this is a cured polyester

11 resin. If it's cured and you put activated carbon in

12 contact with it, it doesn't go in. It's on. If it's

13 uncured and you put it in, it goes in. But that's not

14 what it's describing.

15 Q (By Mr. Gergely) Okay. But what if -- what

16 if you put the activated carbon in the uncured

17 solution and then cure it together? Don't you have

18 a --

19 A If you were to do that, the activated carbon

20 goes to the bottom, and you don't have a Haggquist

21 geometry of the cross-section. These particles are

22 sitting on the bottom. They don't poke through the

23 surface.

24 Q Uh-huh. Well, what --

25 A To have the Haggquist geometry, you have to

Page 67

1 do exactly what he says. You have to cure it. You

2 have to place it on. Then you add -- and this is the

3 base material. Then you add base material, and you

4 have a second thickness.

5 Q Sir -- now, Haggquist was using activated

6 particles with a 10-micron diameter; correct?

7 A Correct.

8 Q Okay. And that's capable of being mixed

9 into polyurethane; correct? Into a suspension?

10 MR. JACKSON: Object to form.

11 A You mean, in a solution like the black

12 coloration here? What are you referring to?

13 Q (By Mr. Gergely) Well, why don't we take a

14 look at the '287 patent.

15 A Yes.

16 Q So do you have the '287?

17 A I'm looking at it.

18 Q Yeah. So why don't you take a look at

19 Column 8, Example 1.

20 A Column 8?

21 Q Yeah.

22 A Yes.

23 Q And he states that polyurethane solutions

24 were combined with protective activated carbon. Do

25 you see that?

Page 68

1 A Yes.

2 Q Okay. Then he goes on to state, "The

3 protected activated carbon was suspended in the

4 polyurethane solution, and the mixture was applied to

5 a nylon-woven fabric."

6 Do you see that?

7 A Yes.

8 Q Okay. And so I guess what I'm asking you

9 is, is that what he's doing is creating a suspension

10 of the particles in the solution?

11 A He's creating layer two, not layer one.

12 Q Well --

13 A I am showing you, physically, particles

14 mixed in a base resin, a base formula.

15 Q Oh, I see what you're -- you're showing

16 me -- now, these are -- what you're showing me are

17 very large particles; correct?

18 A They are.

19 Q Okay. And this is -- is this this Aqua-Tech

20 stuff that you've put on the table?

21 A Correct.

22 Q And these particles are much larger than

23 10 microns; correct?

24 A They are.

25 Q Okay.

Page 69

1 A But the intent is to make it a macroscopic

2 ratio to show you what is being created.

3 Q Okay.

4 A The ratio is correct, 2.5 to 1, for the

5 particle thickness. It's just so you can see

6 macroscopically what I see on the microscope and what

7 I have seen on the microscope for 30 years on the

8 electromicroscope with particles.

9 Q Now, in Example 1, he goes on to state that

10 the membrane coated on a -- the membrane is coated on

11 a substrate, in this case, nylon-woven fabric.

12 A Yes.

13 Q And he says the membrane having a thickness

14 of 1 mil. And do you understand that the membrane is

15 the mixture of the polyurethane and the activated

16 carbon?

17 A It would be in this, yes --

18 Q No. I'm asking you --

19 A -- in Claim 27.

20 Q I'm asking about Example 1.

21 A Okay.

22 Q What your understanding of Example 1 is

23 the -- is the 1 mil a membrane that he's referring to

24 the activated carbon in polyurethane mixed together?

25 A No. The 1 mil is the nylon-woven fabric.

Page 70

1 Q Well, he says, "Resulting in a membrane
2 coated on a substrate, the membrane having a thickness
3 of 1 mil."
4 Do you see that?
5 In this case, the substrate is the nylon
6 woven, and I'm asking you, is the membrane 1 mil
7 thick?
8 A Where are you reading, please?
9 Q So he says here, "The mixture" -- I take
10 that to be a mixture of activated carbon and
11 polyurethane; correct?
12 A Yes.
13 Q -- "is dried and cured in an oven, where at
14 least a portion of the protective substance is removed
15 resulting in a membrane coated on a substrate, the
16 membrane having a thickness of 1 mil."
17 Do you see that?
18 A Yes.
19 Q Okay. Is that membrane the activated carbon
20 in the polyurethane?
21 A Yes.
22 Q Okay. And then the substrate is the nylon
23 woven; correct?
24 A Yes. Basically, saying I created the second
25 thickness and applied it to a nylon-woven fabric.

Page 71

1 Q Well, the nylon-woven is not the first
2 thickness; right?
3 A In this case, it is.
4 Q Well, but the claim says that the first
5 thickness is a liquid, impermeable, cured base
6 solution; correct?
7 A In Claim 27, yes.
8 Q Yeah. And the nylon-woven is not a liquid,
9 impermeable, cured base solution. It's a woven.
10 A Actually, it is.
11 Q Well, sir, they don't say it was created
12 from solution.
13 A Nylons can be created from solution.
14 Q Right. But in this -- in this example, he's
15 not saying that -- he's saying that he's applying it
16 to a woven.
17 A Which is a cured nylon. That's a solid.
18 Q Well, I mean, nylons can be made in lots of
19 different ways; correct? They can be extruded?
20 A Yes.
21 Q And that's not a cured -- that's not a cured
22 solution, is it?
23 A It can be. Cured nylons are very
24 water-sensitive, so yes, it could be.
25 Q Sir, if a material is made through

Page 72

1 extrusion, that's not being made from solution;
2 correct?
3 A That is correct.
4 Q All right. So in this Example 1 that we're
5 referencing, the activated carbon in the polyurethane
6 is 1 mil thick. Do you agree with that?
7 A Yes.
8 Q Okay. And do we know how thick the nylon
9 woven is? It's just not stated.
10 A It's not stated that I see.
11 Q Now, it's your contention -- what is -- what
12 is -- I'm not sure what your contention is. Are you
13 saying that in Haggquist he is actually creating a
14 liquid impermeable base material and then putting the
15 active particles on top of that? Is that what you're
16 saying?
17 MR. JACKSON: Object to form.
18 A I'm saying he does exactly what he
19 describes.
20 Q (By Mr. Gergely) And what do you mean by
21 that?
22 A In Claim 27, a waterproof composition
23 comprising a liquid impermeable, breathable, cured
24 base material comprising the first thickness. He
25 takes a polymer resin. He cures it and makes it into

Page 73

1 a first thickness that's cured and solid.
2 You can't put activated carbon into the
3 solid. It's solid. That's not part of the process.
4 This is the first thickness.
5 Q You understand Claim -- for example, you're
6 reading Claim 27; right?
7 A I am. Yes.
8 Q So you understand that's not a method claim?
9 You understand that's an apparatus claim?
10 A No. It's a method claim.
11 Q You said -- you said --
12 A I'm saying --
13 Q -- you say 27 is a method claim?
14 A He is telling you what he's doing.
15 Q On what basis do you say 27 is a method
16 claim?
17 A A waterproof composition comprising a
18 liquid, impermeable, breathable, cured base material.
19 He's saying cured. That's a method.
20 Q Do you have any patents of your own?
21 A No.
22 Q Have you been an inventor on any patents?
23 A Not cited.
24 Q Okay. Have you participated in a patent
25 prosecution?

<p style="text-align: right;">Page 74</p> <p>1 A Yes.</p> <p>2 Q How?</p> <p>3 A I was an expert in patent litigation.</p> <p>4 Q Okay. Which one?</p> <p>5 A I'll have to look at my record. There's</p> <p>6 been three, I think, in my career.</p> <p>7 Q Yeah. Because I just saw one federal --</p> <p>8 federal case that you'd been listed on.</p> <p>9 A That was a mulch --</p> <p>10 Q The CMH -- CMH case?</p> <p>11 A Yeah. That was a mulch patent.</p> <p>12 Q That was a patent case?</p> <p>13 A Yes.</p> <p>14 Q Is that where you gained an understanding of</p> <p>15 method claims versus apparatus claims?</p> <p>16 MR. JACKSON: Object to form. Scope.</p> <p>17 A You're asking me if this is a method, and</p> <p>18 I'm telling you, as a scientist, it's a method.</p> <p>19 Q (By Mr. Gergely) All right. So in your</p> <p>20 view, tell me what this method claim means.</p> <p>21 A This method is a waterproof composition</p> <p>22 comprising a liquid, impermeable, breathable, cured</p> <p>23 base material comprising of first thickness. It is</p> <p>24 saying that the inventor is taking a liquid, uncured</p> <p>25 resin, placing it in a container of some kind, around</p>	<p style="text-align: right;">Page 76</p> <p>1 A liquid impermeable, breathable, cured -- a method,</p> <p>2 an action -- base material comprising a first</p> <p>3 thickness. A plurality of active particles in contact</p> <p>4 with the liquid, impermeable, breathable base</p> <p>5 material, in contact with, is a second thickness.</p> <p>6 The only possible way you can have this</p> <p>7 second thickness is exactly as it's described as a</p> <p>8 method if it's cured. It becomes a hard material.</p> <p>9 Otherwise, it sinks, and it doesn't comply with the</p> <p>10 description of the '287 patent.</p> <p>11 Q Well, sir, what you showed me is a</p> <p>12 mixture -- to your left is a mixture of activated</p> <p>13 carbon polyurethane.</p> <p>14 A No. It's polyester.</p> <p>15 Q Polyester. Okay. So it's a mixture of</p> <p>16 activated carbon and polyester as the top layer;</p> <p>17 correct?</p> <p>18 A Yes.</p> <p>19 Q And it's possible to do that; correct?</p> <p>20 A It's the only way to comply with Claim 27</p> <p>21 the way it's written.</p> <p>22 Q Why is that?</p> <p>23 A Because it's written as a waterproof</p> <p>24 composition comprising a liquid, impermeable,</p> <p>25 breathable, cured base material comprising a first</p>
<p style="text-align: right;">Page 75</p> <p>1 the surface of some kind, and curing it until it</p> <p>2 becomes solid.</p> <p>3 Q Sir, I'll represent to you -- and</p> <p>4 Mr. Jackson will agree -- that Claim 27 is not a</p> <p>5 method claim. It's not a series of steps. It's a</p> <p>6 composition claim. Does that change your answer?</p> <p>7 MR. JACKSON: I want to object to that.</p> <p>8 Scope. Foundation. Form.</p> <p>9 A I'm telling you what this means to me as a</p> <p>10 scientist and a coating scientist.</p> <p>11 Q (By Mr. Gergely) And sir, to understand what</p> <p>12 the claim means, would you then go to the</p> <p>13 specification?</p> <p>14 A Clarify your question.</p> <p>15 Q Sir, is the specification relevant to your</p> <p>16 understanding of what this claim means?</p> <p>17 A What specification are you describing?</p> <p>18 Q The words that are in the '287 patent from</p> <p>19 the first word to the last word before --</p> <p>20 A They do say this.</p> <p>21 Q Okay. And where does it say that?</p> <p>22 A Can I finish --</p> <p>23 Q Yeah. Go ahead.</p> <p>24 A -- Claim 27?</p> <p>25 The first thickness is exactly what it says.</p>	<p style="text-align: right;">Page 77</p> <p>1 thickness. It has to be cured. If it's cured and you</p> <p>2 put activated carbon on it, it doesn't fall into it.</p> <p>3 It's not in it. It's not immersed in it. It's on it.</p> <p>4 If you were to violate that and put it in</p> <p>5 contact before it were cured and it's not solid, but</p> <p>6 it says to be solid, it would sink to the bottom. If</p> <p>7 it sinks to the bottom, you don't have the description</p> <p>8 of activated carbon particles that poke through the</p> <p>9 surface that are a necessary part of the patent and</p> <p>10 are part of the difference between Dutta science and</p> <p>11 Haggquist science. Dutta science says, specifically,</p> <p>12 you don't do that.</p> <p>13 Q How about the example all the way over to</p> <p>14 your left? Does that have some activated carbon</p> <p>15 poking out on the surface?</p> <p>16 A Yes, it does.</p> <p>17 Q Okay. And you'll agree with me that that</p> <p>18 top layer is activated carbon and polyurethane mixed</p> <p>19 together; correct?</p> <p>20 A It is activated carbon and polyester mixed</p> <p>21 together.</p> <p>22 Q With polyester mixed together.</p> <p>23 Would that same relationship exist with</p> <p>24 respect to activated carbon and polyurethane mixed</p> <p>25 together?</p>

Page 78

1 A Yes.

2 Q You would have some activated carbon?

3 A This is activated carbon and polyurethane

4 (indicating).

5 MR. JACKSON: Can you describe what's in

6 your hand, Steve?

7 A It's an aluminum pan with a mixture of

8 activated carbon and polyurethane. And you'll note

9 that there's a difference between this sample, this

10 exemplar, and the sample of the first and second

11 thickness in the scintillation vial, in that the

12 activated carbon in this case covers the surface of

13 the particles that are protruding out.

14 That's what encapsulation is about.

15 Encapsulation is about covering those surfaces so that

16 you can uncover them because if you were to just

17 immerse this in polyurethane, it would coat the

18 surface. Dutta teaches not to do that. This is Dutta

19 with Nalco 1181 equivalent, sodium polyacrylate, and

20 it does not penetrate through the surface.

21 Did I answer your question?

22 Q (By Mr. Gergely) I'm not sure you did.

23 But -- now, turning your attention to paragraph 54.

24 A In my declaration?

25 Q Yeah.

Page 79

1 A Yes.

2 Q You said that Example 1 is directed towards

3 preparing multiple samples of material, some with

4 active particles and some without. Do you see that?

5 A I do.

6 Q And you say, "Each of the films was made

7 1 mil thick because that is the standard draw down

8 blade thickness for ASTM E-96."

9 A Yes.

10 Q And what does that mean?

11 A That means for ASTM E-96, you'd compare

12 apples to apples. The samples that you're testing

13 need to be the same thickness.

14 Q Okay. So some of the --

15 A A 1 mil draw down blade is a standard

16 draw down blade for the coatings, the field of

17 coatings technology.

18 Q Okay. So you're comfortable --

19 A The testing.

20 Q So you're comfortable in stating that the

21 control films and the experimental films were all

22 1 mil thick?

23 A Yes.

24 MR. JACKSON: Object to form.

25 Q (By Mr. Gergely) And what does that mean?

Page 80

1 A That's actually important for a couple of

2 reasons. The first reason is that they're all 1 mil,

3 so you're comparing apples to apples.

4 Q And what are you looking at right now? Oh,

5 you're looking at the patent.

6 A It's the '287 patent.

7 Q Okay. So you're looking at --

8 A Well, Figure 2, Figure 3, and Figure 4.

9 Q Okay. So Figure 2 -- Figure 2, Figure 3,

10 and Figure 4. So you feel that all of these -- all of

11 these samples here are all 1 mil thick?

12 A That's the way I understand it. Yes.

13 Q Okay.

14 A That's important for a couple of reasons.

15 One is it means you're comparing apples to apples with

16 the water vapor transmission rates. To have

17 comparable numbers, you have to have comparable

18 thicknesses.

19 But it's also important that the control is

20 1 mil thick, and you're using 10-micron particles.

21 That complies with the description in Claim 27.

22 Q Well, wait a second. I thought a control

23 does not have any --

24 A A control does not. But these other samples

25 are the base formula with activated carbon in it.

Page 81

1 Q You're losing me. I mean, I'm looking at --

2 I'm looking at Figure 2.

3 A Figure 2?

4 Q Figure 2. It doesn't say -- it says,

5 "Control, zero carbon."

6 A That's right. It's a 1 mil control without

7 activated carbon, 1 mil thick.

8 Q Okay.

9 A And then the other samples have activated

10 carbon that is 10-micron diameter. And that complies

11 with the definition in Claim 27 that the ratio of 2.5

12 to 10 is the thickness of the base layer with the

13 particle size.

14 Q The base --

15 A The 2.5 is a threshold, not a definition of

16 thickness.

17 Q So the base layer -- what are you saying is

18 the base layer?

19 A The control.

20 Q You're saying -- so the base layer has no

21 active particles in it?

22 A Correct.

23 Q And then -- so the -- in these tests, the

24 control is simply the base layer by itself,

25 polyurethane, 1 mil thick; correct?

Page 82

1 A Yes.

2 Q And then what is -- what, for example --

3 let's look at Figure 2.

4 A Okay.

5 Q These experiments, 1 through 7.

6 A Yes.

7 Q Those -- the total thickness of the membrane

8 is 1 mil thick as well?

9 A Yes.

10 Q Okay. And what's -- what's the composition

11 of that?

12 A The composition in the control is 80 grams

13 of polyurethane without any carbon or Surfynol --

14 Q Okay.

15 A -- 485. Now, Sample 1 has 80 grams of

16 carbon -- 80 grams of polyurethane with 20 grams of

17 carbon and 10 grams of Surfynol 485.

18 Q Okay.

19 A But this carbon is 10-micron diameter, and

20 it complies with the definition in Claim 27.

21 Q And why do you say that? Explain that to

22 me.

23 A Because Claim 27 is a definition of a

24 threshold, not a definition of thickness. The

25 10-micron diameter particle is the minimum thickness,

Page 83

1 not the defined thickness of the second thickness. So

2 you have a material that has control that is

3 25 microns, 2.5 times, with the other samples being

4 materials that have 10-micron diameter particles, 2.5.

5 Q So in terms of these -- I mean, can you draw

6 this for me because I'm having a hard time following

7 you, what you're saying these -- I understand what the

8 control sample looks like. That's straightforward.

9 That's a 1 mil thick.

10 A The other samples are the second thickness

11 as in this vial. But they are ratios of, for

12 Sample 1, 80 grams of polyurethane with 20 grams of

13 carbon, carbon being 10-micron diameter.

14 Q Can you -- can you draw --

15 A You're looking at it.

16 Q Well, it's -- that's -- why don't we do it

17 on a piece of paper because that's hard to visualize.

18 A You're looking at it, but yes, I will --

19 Q No, no. I mean for the record.

20 A Okay. I think you should make that an

21 exhibit myself.

22 Q Yeah. I mean, maybe we will later, but I

23 need to -- so can you just -- I'd ask you to draw it

24 on the exhibit, but we probably should keep that

25 clean.

Page 84

1 MR. JACKSON: Yeah. Let's keep that clean.

2 MR. GERGELY: So can you just draw --

3 THE WITNESS: I need a ruler. Can you get

4 me a ruler, please? A straight edge of some kind.

5 MR. JACKSON: Let's use this as a straight

6 edge. Tell me if you need something else.

7 Is that thick enough, Steve? Do you want a

8 thicker one?

9 THE WITNESS: I'm fine.

10 Q (By Mr. Gergely) You don't have to draw

11 every single one. You can just --

12 A All right.

13 Q Why don't you just do -- why don't you do

14 Experiment 1.

15 A Okay.

16 Q And if you want, you can use PU as shorthand

17 for polyurethane.

18 A All right. I'm going to draw the second

19 lower so I can --

20 Q Yeah. Please. Just to set it off.

21 A Yeah. Okay. I'm not sure this is exactly

22 what you're after and what you want me to explain, but

23 there is a control that is 80 grams of liquid -- of

24 liquid, impermeable, breathable, cured base material

25 comprising what would be the equivalent of a first

Page 85

1 thickness. That is the base material without the

2 activated carbon.

3 Sample 1 below that is 80 grams of

4 polyurethane mixed with 20 grams of activated carbon

5 that is 10-micron diameter.

6 Q Okay.

7 A But it is made into a 25-micron thick layer

8 with 10-micron diameter particles. So it is

9 equivalent to the Thickness 2 visually as I have shown

10 and made.

11 Q Okay. So --

12 A With some of the particles poking through

13 the surface as defined.

14 Q So I'm -- I need to ask --

15 A The important point is the ratio is 2.5 to

16 1. This is 25 microns, and the particles are

17 10 microns, and that's what's described.

18 Q Okay. So -- so I'm -- you're pointing to

19 your drawing, and up top, you have -- it looks like a

20 bracket that says 25 microns.

21 A I do.

22 Q Is that 1 mil?

23 A 25.4 microns is 1 mil.

24 Q Okay. So give or take. So you have in the

25 margin, control 1 mil equals 25 microns.

Page 86

1 A Yes.

2 Q And there are two lines drawn next to the

3 word "control" and "1 mil." Does that reflect --

4 A A thickness.

5 Q -- a single layer?

6 A A thickness, yes.

7 Q And then what are these two lines down here?

8 A That was where I began to draw the second

9 except for there wasn't enough room to put the

10 description, so that means nothing. I brought it

11 down.

12 Q Oh, okay. Can you just put an X through

13 that just indicating that that was a mistake?

14 A It wasn't a mistake. I was trying to make

15 it more clear for you.

16 Q Got it. And so I appreciate the clarity.

17 So going down to the figure below that, you say

18 Figure 2, and is that the word "sample"?

19 A Sample 1 as in --

20 Q Sample 1.

21 A -- listed in the table. You said to do

22 Sample 1.

23 Q Oh, okay.

24 A This is listed as Sample 1 --

25 Q Sample 1.

Page 87

1 A -- in Figure 2.

2 Q And you've drawn -- you've drawn a

3 1-mil-thick film; correct?

4 A Correct.

5 Q And then you have particles of activated

6 carbon suspended in that film; correct?

7 A That's correct.

8 Q And that film is comprised of what?

9 A 80 grams of polyurethane and 20 grams of

10 activated carbon.

11 Q Okay. And then some surfactant?

12 A The surfactant would not be particulate.

13 Q Okay.

14 A But it's important to note, also, that you

15 have not just the 10-micron particles. I drew little

16 specks. That's not what's really in there is just

17 10-micron particles. When you -- when they create the

18 10-micron particles of activated carbon, they pass

19 them through a sieve, and they are not all 10-micron.

20 It's not a bead like a marble like Sephadex. They are

21 irregular shapes. They don't lay down like soldiers.

22 They fit in, like, jagged pieces. And you don't have

23 just 10-micron. You have 10-micron, and because it's

24 a sieve, it's 10-micron, and anything below 10-micron

25 also comes through.

Page 88

1 Q Yeah. So --

2 A And some of them are bigger than 10-micron.

3 Q So --

4 A So I drew little specks.

5 Q Yeah, yeah, yeah. No. I appreciate it.

6 So -- so just to be clear for the record, both the

7 control and the experiment on your drawing, those are

8 single-layer films with -- that are 1 mil thick;

9 correct?

10 A Yes. Because they were made for a water

11 vapor transmission experiment where you need to

12 compare apples to apples.

13 MR. GERGELY: Okay. Okay. All right. And

14 then -- why don't we mark this? What are we up to?

15 (Exhibit 4, Drawing, was marked for

16 identification.)

17 Q (By Mr. Gergely) So we're just going to mark

18 that as Callan 4.

19 Now, you used the phrase -- they don't --

20 you said they don't lay down like soldiers?

21 A Correct.

22 Q And I think you used a similar phrase in

23 your declaration. What do you mean by that?

24 A They don't line up like marbles. Marbles

25 line up like metal atoms where you have them in a

Page 89

1 layer, and if you put a layer on, they fit in the

2 voids nice and neat. Activated carbon doesn't do

3 that. It's irregularly shaped particles.

4 Q Okay.

5 A And you don't only have one layer.

6 Q Of activated carbon?

7 A That's right.

8 Q I understand. So like -- so using your

9 10-micron example with, you know, putting in, you

10 know -- which one did you choose? Did you choose

11 Sample 1?

12 A You asked me to do Sample 1.

13 Q Yeah. Okay. So that's 20 grams of carbon?

14 A Yes.

15 Q Okay. So when you're putting 20 grams of

16 carbon into a polyurethane solution, when you're

17 saying that they're not laying down like soldiers,

18 what do you mean? It's not a single mono layer of

19 particles? Is that what you're saying?

20 A It is not.

21 Q Okay. So there's this -- there's this

22 claimed ratio in Claim 27, and rather than me trying

23 to paraphrase it, I'll read it to you. It says, "The

24 first thickness comprises a thickness at least 2.5

25 times larger than the second thickness, but less than

Page 90

1 an order of magnitude larger than the second
2 thickness."

3 Do you see that?

4 A I do.

5 Q Okay. In -- in the example you just drew,
6 how would that -- how would that claim be met by the
7 example you drew on Callan 4?

8 MR. JACKSON: Object to form.

9 A Because this ratio is a threshold ratio
10 based on the particle size of the activated carbon.
11 It doesn't define the thickness of the layer. It
12 defines the threshold of the thickness.

13 Q (By Mr. Gergely) Okay. And so if we know
14 that if you have a 1 mil thick sample, that's
15 25 microns, and you have activated carbon particles
16 that are 10 microns in diameter, you will meet that
17 2.5 threshold; correct?

18 MR. JACKSON: Object to form.

19 A Ask the question again, please.

20 Q (By Mr. Gergely) So in the example you just
21 drew, you drew a 1 mil thick sample comprised of
22 polyurethane plus activated carbon. And I asked you,
23 how is that -- how is Claim 27 met by the example you
24 drew? And --

25 A The water vapor transmission experiment was

Page 91

1 designed with the control being the proper thickness
2 for the particle size being used. That's what I'm
3 saying.

4 Q Okay. Is this -- is this example covered by
5 Claim 27? And when I say "this example," the one you
6 drew in Callan 4?

7 MR. JACKSON: Object to form. Scope.

8 A It complies with Claim 27 in that the
9 control layer compared to the particle size thickness
10 being used is correct. Do both of these meet the
11 ratio to each other? No. Because you're running a
12 water vapor transmission experiment, and if you did
13 that, you wouldn't compare apples to apples. They
14 have to both be the same thickness.

15 Q (By Mr. Gergely) Right. And I guess what
16 I'm asking you is in the 1 mil thick sample with the
17 activated carbon added into it that's on Callan 4, how
18 is that 2.5 ratio met?

19 MR. JACKSON: Object to form. Scope.

20 A That is Thickness 2. It's not a 2.5 ratio
21 by itself. That is a second thickness. That is the
22 second thickness, the top layer on the scintillation
23 vial with the base material and the carbon particles
24 on top of it. It's only the second thickness. It's
25 not the entire cross-section.

Page 92

1 What you're asking, if that were to be done
2 in this experiment, you would be comparing apples to
3 oranges. That's why this experiment is done this way.

4 Q (By Mr. Gergely) So --

5 A They're both made with the same thickness.
6 With that done, then you later can do calculations
7 based on the water vapor transmission rate for the
8 total thickness for that formula.

9 Q Now, is there -- in the specification of the
10 '287 patent, is there an example where the ratio is
11 met, the 2.5 to 10 ratio?

12 A Yeah.

13 Q Where is that?

14 A Figure 2 and Figure 3. They both do the
15 same thing. They have a control, and then they have
16 the control plus activated carbon. And they're both
17 1 mil. So it's a 1 mil control being used with a
18 10-micron diameter activated carbon. And that's
19 25-micron to 10-micron.

20 Q I'm not sure what you're saying. Are you
21 saying that this -- are you saying that the -- you
22 would be creating a 2-mil thick sample?

23 A No. I'm not saying that. I'm saying you
24 had to compare 1 mil to 1 mil, or those experiments
25 would be invalid.

Page 93

1 Q Okay.

2 A So they had to be made that way.

3 Q Understand.

4 A Okay? And you're making them with 1 mil
5 thick control and 10-micron diameter particles being
6 used in the carbon black. So the threshold ratio of
7 the control to the particles is met as described in
8 Claim 27.

9 Q Right. And I understand this -- what
10 you're --

11 A But you have the first layer and second
12 layer separated. They're not together. They're not
13 built to be the full cross-section because they have
14 to be made 1 mil thick each or the experiment is
15 invalid.

16 Q Well, I guess what I'm asking is, you're
17 talking about the MVTR experiments as being one --
18 comparing 1 mil to 1 mil. I'm trying to understand
19 where in the patent it's described that you have a
20 first thickness -- you have a membrane comprised of
21 the first thickness that's pure polyurethane, and then
22 you have a second thickness which includes the active
23 particles.

24 A That's Claim 27.

25 Q No. But I meant in the specification. I'm

Page 94

1 saying, where in the specification?

2 A That's what the tables are describing.

3 That's what they are.

4 Q Well --

5 A They are -- they tell you in the table what

6 they're doing. They say a control is 80 grams

7 polyurethane, 0 grams carbon. That's the control.

8 That's the base material.

9 Q Right.

10 A Sample 1 that you had me draw was 80 grams

11 polyurethane and 20 grams carbon.

12 Q Right. It's the base --

13 A But the carbon is 10 micron diameter, and

14 the control is 25 microns.

15 Q Right. I'm still not following you. But

16 that's -- that's in the Experiment No. 1, that's a

17 single layer material; correct?

18 A Yes.

19 Q Okay.

20 A That's the second thickness.

21 Q That is --

22 A That is an example of the second thickness,

23 and there are other examples of the second thickness.

24 That's what's being done here.

25 Q In Sample 1 -- excuse me -- Experiment 1

Page 95

1 that you drew, what's the first thickness?

2 A The control.

3 Q But --

4 A That's exactly what is -- the control is

5 80 grams polyurethane. Pure polyurethane. Pure base

6 material. This (indicating).

7 Q You're -- you're losing me because --

8 A How can I help you understand?

9 Q Experiment No. 1 is polyurethane and

10 activated carbon mixed together; correct?

11 A Yes. Sample 1.

12 Q By itself. There's no -- there's no -- in

13 your view, there's no first thickness there; correct?

14 A Correct.

15 Q Okay.

16 A It is an example of a mixture of a second

17 thickness.

18 Q Okay. And that's -- that's your opinion;

19 correct?

20 A It's not an opinion.

21 Q Sir, can you explain to me -- well, like,

22 give me -- just give me an example --

23 A This is a mix sheet from a coating

24 scientist.

25 Q Right. I'm not following you. I mean, we

Page 96

1 just went through Figure 2. So those are all going to

2 be single-layer materials; correct?

3 A They are.

4 Q Okay. It's not --

5 A The control is a single layer of the base

6 material and Samples 1 through 7 are single-layer

7 versions of the second thickness that is presented

8 right here (indicating).

9 Q Well, and that's -- and that's where the

10 disconnect is happening.

11 A It's not a disconnect.

12 Q Well, sir, where in the patent does it show

13 that there's a first and second thickness that has

14 discrete layers?

15 MR. JACKSON: Object to form.

16 A That's the definition of what is created in

17 Claim 27.

18 Q (By Mr. Gergely) No, no, no. I'm asking

19 you, in the specification, where is it shown that

20 there is a sample or experiment with two discrete

21 layers?

22 A They are making the two discrete layers

23 individually to show you what they are and to compare

24 apples to apples.

25 Q And where does it show that?

Page 97

1 A On this table.

2 Q Yeah. But --

3 A It tells you what they're mixing.

4 Q Yeah. But that table shows the control

5 which is a single layer of polyurethane by itself?

6 A Correct.

7 Q And then it shows 1 through 7 which is a

8 single layer of polyurethane mixed with activated

9 carbon; correct?

10 A Yes.

11 Q And so I guess I'm asking you, where is it

12 shown on that table that there is a two-layer membrane

13 comprised of polyurethane on the bottom and activated

14 carbon and polyurethane on the top?

15 A There is not. That's not what's being

16 created. They are individual layers of isolated

17 control and isolated versions of the second thickness.

18 The control is the base material without the

19 activated carbon.

20 Q Okay.

21 A So that you can run water vapor transmission

22 experiments to compare the water vapor transmission

23 rate between the control and the layer that contains

24 activated carbon. Otherwise, you can't even run that

25 measurement.

Page 98

1 Q Well, sir, you say that this Figure 2 has a
 2 two-layer membrane, but I don't see it. Where is it?
 3 A It's not a two-layer membrane. They are
 4 individual versions of the control and have different
 5 formulations of the control to the base layer of the
 6 first thickness as the control and different versions
 7 of a formulation of the second thickness that contains
 8 the polyurethane and the carbon.
 9 Q Well, why -- why --
 10 A So you can compare the water vapor
 11 transmission rate apples to apples for 1 mil
 12 thickness.
 13 Q But where is --
 14 A You can't --
 15 Q Sir, in --
 16 A You can't identify --
 17 Q Sir, in the test samples, Experiments 1
 18 through 7, where is the first thickness?
 19 A The control.
 20 Q Sir, the claim talks about a membrane having
 21 a first and second thickness.
 22 A Yes.
 23 Q Where is that shown in the specification?
 24 A It is shown in Figure 2 and Figure 3. They
 25 are created. They compare apples to apples. They run

Page 99

1 water vapor transmission. If you didn't run them this
 2 way, isolated from each other, you could not find out
 3 what thickness to water vapor transmission rate is
 4 versus the control without the activated carbon.
 5 Q Well, sir, where -- I think we may need to
 6 take a break.
 7 A I'm trying to explain.
 8 Q No. I understand. Let's go off the record.
 9 (A lunch recess was taken.)
 10 Q (By Mr. Gergely) So, sir, drawing your
 11 attention back to the '287 patent which is -- what did
 12 we mark it as?
 13 A Callan Exhibit 3.
 14 Q Thank you.
 15 So, sir, I was trying to understand. You
 16 were referring to Figure 2 as showing a second
 17 thickness formula; is that correct?
 18 A Yes.
 19 Q Okay. And Figure 2 doesn't say second
 20 thickness formula, does it?
 21 MR. JACKSON: Object to form.
 22 A It is the second thickness formula.
 23 Q (By Mr. Gergely) Well, sir, it doesn't say
 24 it; correct?
 25 A It does say it by saying carbon polyurethane

Page 100

1 at 80 grams and 20 grams. Yes, it does. This is a
 2 mix sheet that a coating chemist uses to make a
 3 coating.
 4 Q Sir, you agree with me it does not say on
 5 the face of it "second thickness formula"?
 6 A It does to a coatings chemist. It says
 7 exactly that.
 8 Q And sir, it doesn't say that first thickness
 9 is the control or anything else on this sheet;
 10 correct?
 11 MR. JACKSON: Object to form.
 12 A Yes, it does. It says the first thickness
 13 is pure polyurethane, and that's exactly what's
 14 described in Claim 27.
 15 Q (By Mr. Gergely) Okay. Can you show me in
 16 Example 1, in the specification -- first of all,
 17 what -- what is the -- what is the base material?
 18 A In Claim 27?
 19 Q Yeah.
 20 A A liquid, impermeable, cured base material.
 21 Q And in the example, is that --
 22 A Polyurethane or polyester.
 23 Q Okay. So in your view, it's a pure
 24 polyurethane or something similar?
 25 A It doesn't have to be pure. It has to not

Page 101

1 include the active ingredient of the activated carbon.
 2 Q Okay.
 3 A Of the material being studied, whatever is
 4 being studied.
 5 Q Now --
 6 A Can I --
 7 Q Sure. Go ahead.
 8 A Another example would be when you go into a
 9 hardware store and Sherwin-Williams has their base
 10 formula, and then you bring it to the tinting agent to
 11 get your color. They use that same base formula for
 12 many different colors, and then you add the color.
 13 It's the same thing that's happening.
 14 Q Sir, and as I understand it, in Figure 2,
 15 the inventors were trying to compare Experiments 1
 16 through 7 which included the activated particle and
 17 the polyurethane against the control which just
 18 contained polyurethane only; correct?
 19 A Yes.
 20 MR. JACKSON: Object to form. It wasn't a
 21 question.
 22 Q (By Mr. Gergely) And were they -- were they
 23 using that to demonstrate that there was an improved
 24 MVTR?
 25 MR. JACKSON: Object to form.

Page 102

1 A As a scientist, they were using it to
2 document whatever that becomes, whatever the answer
3 is. Not to -- not to come out with one result.
4 Q (By Mr. Gergely) Right. But were they --
5 were they -- does this data show that there's an
6 improved MVTR of a polyurethane and activated carbon
7 mixture versus the control which is just a
8 polyurethane layer?
9 MR. JACKSON: Object to form.
10 A Yes, it does.
11 MR. JACKSON: Sorry.
12 A Yes, it does.
13 Q (By Mr. Gergely) Okay. So and as I
14 understand it -- I just want it to be clear for the
15 record -- your opinion is that Claim 27 show- -- is
16 limited to two discrete layers: One, the base being
17 pure polyurethane or some other cured base material;
18 correct?
19 A Yes.
20 MR. JACKSON: Object to form. Scope.
21 Q (By Mr. Gergely) And the second layer being
22 a mixture of activated particles with something else;
23 correct?
24 A In Claim 27, is the base layer. Sorry. In
25 Claim 27, it's the base layer.

Page 103

1 Q What's the base layer?
2 A Whatever's being used as the first thickness
3 is the base formula for the second thickness. That's
4 what base formula means.
5 Q Well, but where does base formula appear in
6 the claim -- in the -- in the patent? You just said
7 base formula. Is that a term that you made up?
8 A Base material to a scientist, to a coatings
9 chemist, is the same thing as a base formula to a
10 polymer chemist.
11 Q Well, sir, in the claim, the only reference
12 with respect to base material is the first thickness;
13 correct?
14 A No. It's also in the second thickness. A
15 plurality of active particles in contact with a liquid
16 impermeable, breathable, cured base material,
17 plurality of active particles comprising a second
18 thickness.
19 Q So are you saying that there's two base
20 materials?
21 A I'm not saying that at all. No.
22 Q What are you saying?
23 A I'm saying as in this specimen that I
24 prepared as an exemplar, the base material of this is
25 polyester resin without the activated carbon. That's

Page 104

1 the first thickness. The second thickness is that
2 same polyester resin mixed with activated carbon.
3 Q Okay. And what you -- what you've just held
4 up --
5 A As a chemist, we interchange base material
6 and base formula.
7 Q Now, sir, what you just held up, where is
8 that -- where is that structure shown in the
9 '287 patent?
10 MR. JACKSON: Object to form.
11 Q (By Mr. Gergely) In the -- in the
12 specification. Let's set aside the claims. In the
13 specification, where is that structure shown?
14 A It's going to take a minute for me to --
15 Q Sure.
16 A If I understand what your question is, it's
17 Figure 1.
18 Q Anywhere else besides Figure 1?
19 A Well, Figure 1 answers exactly what you're
20 asking. Do you want me to go through that? No?
21 Q Sure. Tell me -- tell me your
22 interpretation of Figure 1.
23 A At 110 is, "Provide a base solution, (e.g.,
24 a polyurethane solution," as I have made, or "a
25 polyacrylic solution, or a 1,3 propanediol

Page 105

1 terephthalate solutions" --
2 (The court reporter clarified.)
3 THE WITNESS: And I'm sorry. I'll read
4 slow.
5 A This is on Figure 1, VF Exhibit 1001. And
6 the item labeled 110 reads, "Provide a base solution,
7 e.g., a polyurethane solution, a polyacrylic solution,
8 or a 1,3-propanediol tarathylate solutions." Are you
9 ready?
10 Q (By Mr. Gergely) Yes.
11 A 120, "Provide active particles -- e.g.,
12 protected active particles, unprotected particles.
13 Mix together active particles in base solution. Apply
14 mixture to a substrate, which is the base material,
15 and remove protective substances from protected active
16 particles."
17 Q Sir --
18 A The substrate right here is the base
19 material. They say base material.
20 Q Well, wait a second, sir. Where does it say
21 base material in Figure 1?
22 A It says, "Mix together active particles in
23 base solution." That is the base material, and it
24 says, "Apply mixture to a substrate, which is the base
25 material," or they wouldn't call it base material for

Page 106

1 what this is mixed from.

2 Q Sir, it says you're mixing together the

3 active particles in a base solution; correct?

4 A Yes.

5 Q And it says apply it to a substrate. It

6 doesn't say apply it to a base material.

7 A By saying base solution, they tell you

8 they're applying it to this substrate.

9 Q Sir, the -- so I'm not following you. It

10 says apply mixture to a substrate. It doesn't say

11 apply it to a base material.

12 A But they say mix together active particles

13 in base solution and apply it to a substrate. That

14 means the substrate is the base solution without the

15 active particle.

16 Q How do you deduce that?

17 A Because that's how a coatings chemist makes

18 a coating.

19 Q Well, the substrate could be anything;

20 right?

21 A Not in this -- on this page.

22 Q Well, it doesn't say what the substrate is.

23 A It does when it says, "Mix together active

24 particles and base solution." The base solution is

25 what it's applied to, the substrate. As a coatings

Page 107

1 chemist, that's how you make a coating. That's how

2 you define a coating. That's how you create the mix

3 sheet.

4 Q Well, sir, the patent actually makes a

5 distinction between the base material and the

6 substrate; right?

7 A It does. But not in this case. I have been

8 in hundreds of paint factories. This is how they do

9 it. This is describing what is done in the field in

10 the factory.

11 Q Okay. And then where in the patent does it

12 show this 2.5 to 10 ratio in the example you just

13 provided?

14 A It doesn't give you the ratio in this.

15 Q Okay. Does it do any --

16 A You asked me where there's two layers.

17 Q Right. Now, is there anywhere in the patent

18 that shows that ratio in a two-layer configuration?

19 MR. JACKSON: Object to form. Scope.

20 A I'll need a moment. The answer is, I don't

21 know, but I need to check something.

22 Q (By Mr. Gergely) Okay.

23 A Okay. The answer is, I don't know. And the

24 reason I don't know is Figure 5. Because I need the

25 notebooks and data behind that to know whether those

Page 108

1 were materials made in the thickness ratio. I know

2 that they're two-sided, so they have two different

3 compositions. One composition on one side and one --

4 it says Burlington rougher side, Burlington smoother

5 side.

6 That means that there is a rougher side that

7 indicates and equates to the activated carbon side and

8 the smoother side that relates to the control. I

9 don't know what those samples are, what their

10 thicknesses are, what the ratios are because that's

11 not presented other than the definition of what's

12 happening here.

13 Q Okay. So is it fair to say the patent

14 itself doesn't disclose the 2.5 to 10 ratio?

15 A I don't know that it doesn't. I don't have

16 enough information to say that.

17 Q Okay. But you've spent 10 or 15 minutes

18 reviewing the patent cover to cover. Have you seen

19 any disclosure in the patent of that 2.5 to 10 ratio

20 in the two-layer configuration?

21 A I may be --

22 MR. JACKSON: Objection to form. Scope.

23 A -- seeing it right here, and I don't know.

24 Q (By Mr. Gergely) Okay. So the answer is you

25 don't know?

Page 109

1 MR. JACKSON: Same objections.

2 A The answer is, there's not enough

3 information to know.

4 Q (By Mr. Gergely) Okay. Now, in paragraph 50

5 of your declaration --

6 A Yes.

7 Q -- you state that, "Based on my 40 years of

8 experience, in my professional opinion, petitioner's

9 claim that the second layer thickness is the particle

10 size of the active particles is, in a word,

11 ridiculous, and this phrase should not be used to

12 qualify or characterize the board's construction."

13 Do you see that?

14 A I do.

15 Q And what do you mean by "ridiculous"?

16 A I mean, it's not reality. It's a fantasy of

17 Dr. Oelker that she sees this being -- dealing with

18 things that are pellets and marbles and lay down like

19 soldiers. And these particles do not. They suspend

20 in the material.

21 And when you have the second thickness, the

22 second layer, they don't all lay down in one

23 orientation because if you look at the activated

24 particles, they are irregularly shaped and irregularly

25 sized. They don't lay down like marbles.

Page 110

1 Q Do you understand that the inventor during
2 prosecution history may have equated the second
3 thickness with the particle size of Asbury 5564 in
4 order to obtain allowance of his claims?
5 MR. JACKSON: Objection. Form. Scope.
6 Leading. Foundation.
7 A I understand that he described that as a
8 threshold thickness, not as the thickness of the
9 layer.
10 Q (By Mr. Gergely) Well, nonetheless, you saw
11 the passage I'm talking about where he said -- he was
12 making reference to the diameter, and then in parens,
13 he put the second thickness; right?
14 A The threshold of the second thickness.
15 Q Well, sir, in order to make this 2.5 to
16 10 ratio work, if we're dealing with a 1-mil-thick
17 material and you have a 10-micron particle in it, it
18 would meet that 2.5 threshold; correct?
19 MR. JACKSON: Objection to form. Scope.
20 Foundation.
21 A Ask the question again, please.
22 Q (By Mr. Gergely) If you're dealing with a
23 1-mil-thick material and you have the activated carbon
24 mixed into that, it would meet that threshold;
25 correct?

Page 111

1 MR. JACKSON: Objection.
2 A Not that layer because it's only one layer.
3 The threshold is a ratio of the first thickness to the
4 second thickness, not a ratio of only one layer.
5 Q (By Mr. Gergely) Well, again, sir, you
6 haven't been able to point me anywhere in the patent
7 which shows a two-layer configuration with that
8 particular ratio; correct?
9 MR. JACKSON: Objection. Form. Scope.
10 A I don't know that.
11 Q (By Mr. Gergely) So if -- assuming that
12 you're wrong and assuming that the board is correct,
13 construction is correct, that the first thickness can
14 include the activated particles and the second
15 thickness can be defined by diameter --
16 A The board is wrong, and I am not wrong.
17 Q Okay.
18 A You're asking me to assume something that's
19 not real.
20 Q All right. So -- so when you're saying that
21 this construction is ridiculous, you're calling the
22 board's opinion ridiculous?
23 A The -- I'm saying the board misunderstands,
24 and Dr. Oelker is ridiculous.
25 Q So is it your contention that Dr. Oelker --

Page 112

1 A The board didn't come up with this.
2 Dr. Oelker did.
3 Q Right. But you understand that the board
4 came up with a preliminary claim construction that
5 agreed with that position?
6 MR. JACKSON: Objection. Form. Scope.
7 A Based on misrepresentation by Dr. Oelker
8 what this is about.
9 Q (By Mr. Gergely) Do you unders- --
10 A The board -- the board didn't understand
11 that this is the first thickness and it's cured.
12 Q Do you understand that the board is
13 comprised of three patent law judges who have
14 significant experience?
15 A The board is wrong.
16 MR. JACKSON: Objection. Form. Scope.
17 A Wrong is wrong.
18 Q (By Mr. Gergely) And how much experience do
19 you have in interpreting patents?
20 MR. JACKSON: Objection. Form. Scope.
21 Q (By Mr. Gergely) As compared to the board.
22 MR. JACKSON: Objection. Form. Scope.
23 Foundation. Calls for speculation.
24 THE WITNESS: Do I answer?
25 Q (By Mr. Gergely) Yeah. You can answer.

Page 113

1 MR. JACKSON: You can answer to the best of
2 your understanding.
3 A To the best of my understanding, the board
4 has been misled.
5 Q (By Mr. Gergely) So you're --
6 A The board has been misled with
7 misrepresentations of the term "active particle, first
8 thickness, second thickness," and they based their
9 position based on being misled with those definitions.
10 Q So your contention is that Dr. Oelker misled
11 them?
12 A Dr. Oelker is wrong, and that led them to
13 them being misled. Was it her intent? I don't know
14 that. She's wrong.
15 Q Now, in Dutta, Dutta's preferred embodiment
16 uses Sephadex; correct?
17 A Yes. As one of the examples, yes.
18 Q All right. And then there are some other --
19 A Nalco 1181.
20 Q Okay. And other similar type materials are
21 suggested; correct?
22 A Nalco 1181 is a super hydrophilic particle.
23 Q Now, you said in your declaration that in
24 61, that the particles are capable of swelling by
25 absorbing a large volume of an aqueous liquid and

<p style="text-align: right;">Page 114</p> <p>1 assuming the form of gel several times to several 2 thousand times its own weight. Do you see that? 3 A Where are you? On 61? 4 Q Yeah. Page 28. 5 A Yes. 6 Q Now, is that -- in your view, is that what's 7 actually happening, or is the inventor, Dutta, simply 8 stating that these particles are capable of doing 9 that? 10 MR. JACKSON: Object to form. 11 A In Dutta's example, it is actually 12 happening. With Sephadex and with Nalco 1181. 13 Q (By Mr. Gergely) You believe that they're 14 swelling several times to several thousand times their 15 own weight? 16 A I believe they are capable, and whether they 17 do or not depends on the matrix they're embedded in. 18 Q Okay. And sir, you state here, "The 19 particles absorb moisture, swell, stretch the 20 material, and by their stretching, create pores in the 21 material that allow the moisture/water to escape." 22 Do you see that? 23 A Yes. 24 Q What do you mean by pores? Do you mean 25 holes?</p>	<p style="text-align: right;">Page 116</p> <p>1 Q Okay. 2 A I'm talking about the Sephadex particle and 3 the Nalco particle is expanding. 4 Q Okay. But where are the pores being 5 created? As being -- like, for example, Sepha- -- 6 excuse me -- Dutta uses polyurethane. 7 A It's within the polyurethane matrix. 8 Q So pores are being created? 9 A Yes. But the pores are not empty pores. 10 They're filled with Sephadex or Nalco. 11 Q Okay. And so -- 12 A What I'm specifically saying is that when 13 that happens, it allows some adjoining particles to 14 come in contact with each other in a path for the 15 absorbed water to flow through. 16 Q All right. So -- but these aren't -- these 17 aren't holes -- are these like micropores, or what are 18 these? 19 A These are the particles. The physical 20 location of the Sephadex and Nalco particles within 21 the polyurethane or polyester matrix. What happens is 22 they're like a marble. They're a pellet. And they 23 absorb 24 times their weight. That's not 24 times 24 their volume. 25 They are trying to expand against the</p>
<p style="text-align: right;">Page 115</p> <p>1 A It depends on whether you're talking about 2 Halley or Dutta. 3 Q Dutta. 4 A Read exactly where you're -- 5 Q Bottom of page 28 over onto 29. 6 A If I understand what you're asking -- 7 Q Yeah. 8 A -- the Sephadex and Nalco particles swell. 9 And when they swell, if the matrix allows the 10 swelling, they will get larger. The pore is the 11 increased diameter of the Sephadex or Nalco particle. 12 But it is consumed with materials. Not vacant like a 13 cavity of unactivated particle. 14 Q So when you're referring to pores, you're 15 referring to pores in Sephadex; is that right? 16 A No. I'm referring to Sephadex causing 17 expansion of the matrix it's applied to -- applied on. 18 Q Okay. And so tell me, what do you mean by 19 pores? Do you mean actual holes? Like are you 20 referring to, like, cracks or -- 21 A I'm not talking holes like a vacant hole 22 like a cave. 23 Q Okay. 24 A Like the picture with -- no. That's not 25 what I'm talking about.</p>	<p style="text-align: right;">Page 117</p> <p>1 polyurethane or polyester matrix. They may or may not 2 be touching the next particle. But as they expand, 3 they may make contact within the matrix to allow one 4 particle to come in contact with the next and, 5 therefore, water vapor to be absorbed and start 6 flowing through from the absorption mechanism. That's 7 what I'm saying. 8 Q I see. So these pores are being created in 9 the polyurethane itself? Or is it -- is it creating 10 sort of a passageway? 11 A It's creating a passageway. 12 Q Okay. All right. But it's -- but it's -- 13 just to be clear, it's not creating a hole in the 14 polyurethane? 15 A Correct. 16 Q Because otherwise, the MVTR would go 17 extremely high? 18 A Correct. It is not doing that. 19 Q Okay. Okay. All right. 20 On 62, you mention that there -- Dutta also 21 discloses some inert diluent particles as fillers? 22 A Yes. 23 Q And that includes talc; right? 24 A Yes. 25 Q And silica. And what's silica? Is that a</p>

<p style="text-align: right;">Page 118</p> <p>1 generic description?</p> <p>2 A Silica is generally more -- silica is</p> <p>3 purified sand.</p> <p>4 Q Okay. Is it sometimes referred to as silica</p> <p>5 gel?</p> <p>6 A It's not the same thing.</p> <p>7 Q Is it sometimes referred to -- is silica gel</p> <p>8 sometimes referred to as silica?</p> <p>9 A Not as far as I know.</p> <p>10 Q Okay. And then calcium carbonate, carbon</p> <p>11 black, titanium dioxide. Now, titanium dioxide is one</p> <p>12 of the particles that's listed by Dr. Haggquist as an</p> <p>13 active particle; correct?</p> <p>14 A Correct.</p> <p>15 Q Okay.</p> <p>16 A But it's an active titanium dioxide. It's</p> <p>17 not the same titanium dioxide being listed as the</p> <p>18 particle that's inert in Dutta. It's a different</p> <p>19 animal.</p> <p>20 Q Well, what's the significance to you of</p> <p>21 "inert"? What does that mean?</p> <p>22 A It's means it's used as a filler usually.</p> <p>23 Titanium dioxide is used for many things. It's a</p> <p>24 tinting agent in many different plastics and paints.</p> <p>25 It's also used as a UV absorber, inappropriately in</p>	<p style="text-align: right;">Page 120</p> <p>1 to the introduction of this document. It's not cited</p> <p>2 in the witness' testimony or in the parties' papers.</p> <p>3 It's not cited in the deposition notice. It's also</p> <p>4 objectionable as lacking authentication. And hearsay</p> <p>5 and foundation.</p> <p>6 And Peter, instead of repeating those, can I</p> <p>7 have a standing objection to questions relating to</p> <p>8 this --</p> <p>9 MR. GERGELY: Yes.</p> <p>10 MR. JACKSON: -- so we have a clear record?</p> <p>11 Thank you.</p> <p>12 Q (By Mr. Gergely) Sir, I'm handing you what's</p> <p>13 been marked as Callan Exhibit 5. Sir, have you seen</p> <p>14 this safety data sheet before from Asbury Carbons?</p> <p>15 A No.</p> <p>16 Q And who is Asbury Carbons?</p> <p>17 A I don't know Asbury Carbons.</p> <p>18 Q You're unfamiliar with them?</p> <p>19 A Correct.</p> <p>20 Q Okay. And do you see that the product</p> <p>21 identifier is coconut shell activated carbon?</p> <p>22 A Yes.</p> <p>23 Q And do you see that the grade is 5564?</p> <p>24 A Yes.</p> <p>25 Q Do you understand that's the same activated</p>
<p style="text-align: right;">Page 119</p> <p>1 some paints. But if you -- you can activate titanium</p> <p>2 dioxide, and the technology is fairly new to create an</p> <p>3 activated form of titanium dioxide.</p> <p>4 Q Now, could inert mean chemically inert?</p> <p>5 A That is what it means.</p> <p>6 Q Oh. Now, activated carbon is inert;</p> <p>7 correct?</p> <p>8 A No.</p> <p>9 Q Where do you -- and why do you say that?</p> <p>10 A Activated carbon transports water and other</p> <p>11 chemicals.</p> <p>12 Q But isn't it chemically inert?</p> <p>13 A When you describe the function of a filler</p> <p>14 as inert in a polymer or a coating, it's not only</p> <p>15 chemical. It's also mechanical. Does it add or</p> <p>16 change the physical properties? Many industrial and</p> <p>17 military failures are caused by particles that are</p> <p>18 inert and added at different loadings or leaving the</p> <p>19 matrix at the desired loading and changing the</p> <p>20 physical properties. Inert does not only mean</p> <p>21 chemical.</p> <p>22 (Exhibit 5, Safety Data Sheet from</p> <p>23 Asbury Carbons, was marked for</p> <p>24 identification.)</p> <p>25 MR. JACKSON: Let me, for the record, object</p>	<p style="text-align: right;">Page 121</p> <p>1 carbon that's disclosed in the '287 patent?</p> <p>2 MR. JACKSON: Object to form.</p> <p>3 A Can you tell me where in the patent it lists</p> <p>4 that?</p> <p>5 Q (By Mr. Gergely) Column 9, line 24.</p> <p>6 A Yes, sir.</p> <p>7 Q And so do you understand that this is the</p> <p>8 Asbury 5564 that's disclosed in the patent?</p> <p>9 MR. JACKSON: Object to form. Scope.</p> <p>10 A I don't know that. I know it's being</p> <p>11 claimed.</p> <p>12 Q (By Mr. Gergely) Okay. Sir, drawing your</p> <p>13 attention to paragraph 8.2.3 of the safety data sheet,</p> <p>14 do you see where it says, "Virgin-activated carbon is</p> <p>15 inert and insoluble"?</p> <p>16 A I'm not seeing where you are. 8.2 --</p> <p>17 Q -- .3.</p> <p>18 A I do see it.</p> <p>19 Q Okay. And have you seen other literature</p> <p>20 describing activated carbon as inert?</p> <p>21 MR. JACKSON: Object to form. Scope.</p> <p>22 Foundation.</p> <p>23 A This isn't talk -- this is talking about</p> <p>24 environmental exposure controls. It's talking about</p> <p>25 biological activity. Not that it is inert in other</p>

Page 122

1 ways.

2 Q (By Mr. Gergely) And is -- does inert mean

3 non-reactive?

4 MR. JACKSON: Object to form. Foundation.

5 A May I answer?

6 MR. JACKSON: Scope.

7 Yes.

8 A Ask the question again, please.

9 Q (By Mr. Gergely) Does inert mean

10 non-reactive?

11 A In this case, inert is described under

12 environmental exposure controls as "Virgin-activated

13 carbon is inert and insoluble." Inert being inert to

14 biological activity, not inert to chemistry.

15 Q Okay. And then turning your attention to

16 paragraph 10.1 of the document, do you see under

17 "Reactivity," it says, "Virgin coconut shell-activated

18 carbon is non-reactive under ambient conditions."

19 Do you see that?

20 A I do.

21 Q And what do you understand that means?

22 MR. JACKSON: Object to form.

23 A I don't understand what that means. There's

24 not enough information.

25 Q (By Mr. Gergely) Sir, is it possible that in

Page 123

1 Dutta, Dutta was referring to titanium dioxide and the

2 other particles as inert for the same reasons that

3 activated carbon is inert?

4 MR. JACKSON: Object to form and scope.

5 Foundation.

6 A Not as a coatings chemist. No.

7 Q (By Mr. Gergely) Have you ever seen any

8 literature stating that activated carbon is not inert?

9 MR. JACKSON: Objection. Form and scope.

10 A It's adsorptive, so yes. I've seen

11 literature saying it's adsorptive, and therefore, it

12 is not inert.

13 Q (By Mr. Gergely) So if something is

14 adsorptive, it's not inert?

15 MR. JACKSON: Objection to form.

16 A That's correct.

17 MR. JACKSON: Scope.

18 A You have to be careful defining what you are

19 saying is inert and not inert and the purpose of the

20 term inert in the context.

21 Q (By Mr. Gergely) Sure. I -- I was just

22 asking you within the context of Dutta because it just

23 simply said "inert," and they didn't say the reason

24 why. So...

25 A Because in -- may I answer?

Page 124

1 Q Please.

2 A In coatings science, inert is used as a

3 filler. It means you add it in there to cut costs.

4 Not to modify physical properties or chemical reactive

5 reactivity. That's the function of inert in coatings

6 science.

7 Q Now, I understand you've taken the position

8 that Dutta teaches keeping the membrane thin; correct?

9 A Yes.

10 Q And you say that's a reason why Dutta would

11 not suggest to the reader to perhaps add active

12 particles; correct? Because if you add active

13 particles, that would increase the thickness; is that

14 right?

15 MR. JACKSON: Object to form.

16 A I'm not sure I understand your question.

17 Q (By Mr. Gergely) Well, I guess, what was

18 your point in your declaration of saying that Dutta

19 teaches a thin membrane?

20 A To point out a difference between Dutta and

21 the Haggquist patents.

22 Q And what -- what's the significance of --

23 why is the thinness of the membrane significant in

24 your mind?

25 A Because they teach different constructions

Page 125

1 of the material they're inventing.

2 Q And sir, in paragraph 64, you made a point

3 about smoothness.

4 A Yes.

5 Q And you said, "Dutta also teaches keeping

6 the surface of the membrane smooth."

7 A Yes.

8 Q And then Dutta says that the particles

9 should be at least partially embedded. Do you see

10 that?

11 A Well, that goes on to say, "...partially

12 embedded in the polymer resin such that at least one

13 surface of the film is substantially smooth and being

14 free of the particles."

15 Q So if the Sephadex is partially embedded,

16 that doesn't mean wholly embedded; correct?

17 A On one side.

18 Q Correct.

19 A Yes.

20 Q Okay. They could be sticking out of the

21 polyurethane?

22 A On one side.

23 Q And then did you see that Dutta actually

24 also suggested laying down the Sephadex in a separate

25 layer?

Page 126

1 MR. JACKSON: Objection. Form. Scope.
 2 Foundation.
 3 A Show me where you're talking about.
 4 Q (By Mr. Gergely) So this is --
 5 MR. GERGELY: Can you mark that?
 6 (Exhibit 6, Dutta Reference, was marked
 7 for identification.)
 8 Q (By Mr. Gergely) So I'm handing you what's
 9 been marked as Callan 6 which was previously Daniels 9
 10 which is the Dutta reference.
 11 A Okay.
 12 Q And my question to you is, in reading Dutta,
 13 did you see the portion where Dutta actually suggested
 14 laying down the Sephadex in a second layer on top of
 15 the polyurethane?
 16 A And I'm asking you to show me exactly where
 17 you're talking about, please.
 18 Q Yeah. On page 12 of Dutta, lines 23 through
 19 30.
 20 A Yes.
 21 Q Okay. So Dutta is actually suggesting not
 22 just mixing the particles into the polyurethane, but
 23 actually laying them on top in a separate layer;
 24 correct?
 25 MR. JACKSON: Objection. Form.

Page 127

1 Hypothetical.
 2 A What are you describing?
 3 Q (By Mr. Gergely) Well, what do you think
 4 he's describing?
 5 MR. JACKSON: Objection. Form. Scope.
 6 A I'm going to have to read the context before
 7 and after to be sure, so I'm going to take time to do
 8 that.
 9 Q (By Mr. Gergely) Sir, are you ready to
 10 answer?
 11 A I believe I'm ready to answer. Yes. Go
 12 ahead and ask again.
 13 Q So is Dutta describing here a two-layer
 14 configuration with the polymer resin on the bottom and
 15 the particles laid down on top?
 16 MR. JACKSON: Object to form. Foundation.
 17 A No.
 18 Q (By Mr. Gergely) What is he describing?
 19 A An alternate manufacturing method to make
 20 the one layer.
 21 Q Sir, he says, "For example, a layered
 22 arrangement of the polymer resin and the absorbent
 23 particles can be used to fabricate useful products."
 24 Why is that not a two-layer configuration?
 25 MR. JACKSON: Object to form.

Page 128

1 A Because what he's describing is another way
 2 to make a layer with his particles where he has the
 3 pellets laying down first and then brings the resin in
 4 contact with it to make that one layer.
 5 Q (By Mr. Gergely) Well, actually, sir, it
 6 says, "In this case, a film of the polymer resin is
 7 first formed and the absorbent particles can then be
 8 uniformly distributed over the film."
 9 Do you see that?
 10 A Yes.
 11 Q And what you described is the exact opposite
 12 of that text.
 13 A Let me make sure. I'm not trying to do
 14 that.
 15 Q Okay.
 16 A What he's describing is not actually a Dutta
 17 film according to the patent. What he's -- what he's
 18 describing is, "In this case, a film of the polymer
 19 resin is first formed, and the absorbent particles can
 20 then be uniformly distributed over the film while it
 21 is in a form capable of adhering to the particles,
 22 meaning it's uncured. It's not cured. So that's why
 23 you can put the particles in contact with it and bond
 24 them to it to make a single layer.
 25 Q And at some point, it's cured together;

Page 129

1 correct?
 2 A Yes.
 3 Q Okay. And sir, that's a -- that's a
 4 two-layer material.
 5 A That's not what they're -- that's not what
 6 they're saying.
 7 Q All right. So in your view, what's the
 8 layer arrangement that he's disclosing? What are the
 9 layers?
 10 MR. JACKSON: Object to form.
 11 A What are the layers?
 12 Q (By Mr. Gergely) Yeah. He said there's a
 13 layered arrangement of the polymer resin in the
 14 absorbent particles. So what's the layered
 15 arrangement?
 16 A That's exactly what he says. "In this case,
 17 the film of the polymer is first formed, and the
 18 absorbent" -- so what they're saying is they first put
 19 polymer on the bottom of the glass. It is uncured.
 20 And then they add particles on top of it, uncured. It
 21 makes the same composition as this (indicating). It's
 22 just a different manufacturing technique.
 23 MR. JACKSON: I'm sorry, Steve. When you
 24 say "this," can you tell the court reporter what
 25 you're referring to?

Page 130

1 A It's the same composition as the pan that
2 has the Nalco 1181 from a Pamper's diaper embedded in
3 polyurethane where you don't have the super absorbent
4 particle poking through the surface. If he's not
5 doing that, he's violating his own patent.

6 Q (By Mr. Gergely) Sir, is polyurethane an
7 absorbent material?

8 A It dep- -- not super absorbent.

9 Q Is it -- is it hydrophilic?

10 A It does have hydrophilic properties. Yes.

11 Q Okay. And sir, on to Halley, you're saying
12 in paragraph 69, "It is important to note this coating
13 contains a hydrophilic film that is described as
14 unique in transporting water solely by the absorption
15 evaporation mechanism."

16 Do you see that?

17 A I do.

18 Q Now, the patent that you're citing doesn't
19 have -- doesn't mention active particles at all, does
20 it?

21 MR. JACKSON: Object to form. Foundation.

22 A I'd have to read it carefully for that. Are
23 you talking about the '41 patent?

24 Q (By Mr. Gergely) Yeah.
25 (Exhibit 7, Patent 4,194,041, was

Page 131

1 marked for identification.)

2 A And what is your question, please?

3 Q (By Mr. Gergely) Yeah. I mean, does this --
4 does this Patent 4,194,041 concern particles, or is it
5 just dealing with membranes?

6 MR. JACKSON: Object to form.

7 A Give me a moment.
8 (The court reporter clarified.)

9 Q (By Mr. Gergely) Sir, are you ready to
10 answer?

11 A No.

12 Q Well, let me -- let me try to cut to the
13 chase for you. Drawing your attention to your
14 declaration in paragraph 89.

15 A Paragraph what? Are you asking me not to
16 finish reading?

17 Q Yeah.

18 A Okay. Paragraph 89. Yes.

19 Q Now, in paragraph 89, you say at the end,
20 "Halley did not say that activated carbon particles
21 and active particles are expressly forbidden to be
22 used as Halley's particulate solids by
23 Patent 4,194,041," and then you cite that patent at
24 Column 3, lines 54 to 56.
25 And so drawing your attention to that patent

Page 132

1 in Column 3, line 54 to 56, does that say anything
2 about active particles or particulate solids at all?

3 A Give me a moment. Okay. What is the
4 question?

5 Q So you said that U.S. Patent 4,194,041
6 expressly forbids active particles to be used as
7 Halley's particulate solids.

8 A Yes.

9 Q And then you cite a passage. And so my
10 question to you is, I don't see anything in that
11 passage about particles and particles being forbidden.

12 A These continuous hydrophilic films are
13 unique in transporting water solely by the
14 absorption-evaporation mechanism. Activated carbon
15 particles do not transport water by the
16 absorption-evaporation mechanism.

17 Q Well, nor are they films; correct?

18 MR. JACKSON: Object to form.

19 Q (By Mr. Gergely) The absorption-evaporation
20 mechanism here is in reference to a film; correct?

21 A Yes.

22 Q There's no mention in here about particles;
23 correct?

24 A There is mention that you cannot use
25 adsorption. You have to use absorption.

Page 133

1 Q Well, sir, it says the films operate by a
2 certain mechanism.

3 A Correct.

4 Q Correct. And sir, there's nothing that says
5 you can't use an active particle in connection with
6 those films?

7 A But there is something that says, "These
8 continuous," which are not really continuous,
9 "hydrophilic films are unique in transporting water
10 solely by the absorption of evaporation mechanism."
11 You can't make a film with adsorptive
12 particles instead of absorptive particles and have a
13 film that is continuous hydrophilic film unique in
14 transporting water solely by the absorption of
15 evaporation mechanism. You can't put those particles
16 in there and comply with this patent.

17 Q Well, sir, Halley used the films of the
18 '041 patent; correct?

19 A Yes.

20 Q And he used Black Pearls 2000; correct?

21 A I'd have to look. But I don't -- I'm not
22 disagreeing.

23 Q Okay. I'll represent to you in one of his
24 examples, he uses Black Pearls 2000.
25 A I agree.

Page 134

1 Q It's a form of carbon black; correct?

2 A Yes.

3 Q Sir, are you aware that Black Pearls 2000

4 has been described in the literature as both porous

5 and having the ability to adsorb water?

6 MR. JACKSON: Object to form.

7 A After treatment. Not as is. The mere fact

8 that you run iodine tests to measure that it can

9 adsorb means you clean out those pores. You change

10 the chemistry to the same phenomenon that happens when

11 you create activated particles. That particle is not

12 like that until the test is performed.

13 Q (By Mr. Gergely) Okay. And are you

14 referring to a reference right now?

15 A I'm referring to the method of identifying

16 that carbon black is adsorptive. The method itself,

17 you boil it in hydrochloric acid before you -- you add

18 iodine to it.

19 So the fact that it claims it's adsorptive

20 means it can be. It can be changed from what it is to

21 something that could have some adsorptive property.

22 Q It has the -- it has the capacity to adsorb?

23 A No. Not the case. It has the capacity to

24 be changed to something that can adsorb.

25 Q So you have seen references in the

Page 135

1 literature to Black Pearls 2000 as having the capacity

2 to adsorb water?

3 A No. I have had -- I've seen references and

4 literature of carbon blacks that have the ability to

5 be changed to something to adsorb, and they -- they

6 measure that ability and quantify that ability with

7 something called iodine number.

8 But that test itself is a reaction with

9 hydrochloric acid boiling do change the carbon black.

10 It's not that it has activity, that a carbon black has

11 adsorbant activity. It has the ability to be changed.

12 Q And one of ordinary skill in the art would

13 know how to do that in 2005; correct?

14 MR. JACKSON: Object to form. Foundation.

15 A How to do what?

16 Q (By Mr. Gergely) To do what you just said.

17 MR. JACKSON: Objection. Form. Foundation.

18 Speculation.

19 Q (By Mr. Gergely) You're saying that running

20 the test itself activates the particle. Is that what

21 you're saying?

22 A Yes.

23 Q Okay. And that was known as of the time of

24 the filing of this '287 patent?

25 A With minimal activity. Not to create an

Page 136

1 active particle. There's a world of difference. It's

2 the difference between this jar covering this table

3 and surface area instead of covering 25 acres. When

4 they have the iodine numbers of carbon blacks, they're

5 very small numbers.

6 Q What do you mean iodine numbers? What's an

7 iodine number?

8 A Iodine number represents the ability to

9 become active.

10 Q And how is that expressed?

11 A Iodine number. Grams iodine per gram carbon

12 black.

13 Q Have you -- have you -- did you review the

14 Wang references in this case?

15 A I -- what -- what paper is it? I don't know

16 them by the names that you do.

17 Q Sure.

18 (Exhibit 8, Wang Article Labeled

19 VF 1028, was marked for

20 identification.)

21 (Exhibit 9, Wang Document Entitled

22 "Microporous Layer with Composite

23 Carbon Black", was marked for

24 identification.)

25 Q (By Mr. Gergely) So I've handed you what's

Page 137

1 been marked as Callan Exhibits 8 and 9 which have been

2 previously marked in other depositions.

3 MR. JACKSON: Are those pre-existing

4 documents, Peter?

5 MR. GERGELY: Yeah.

6 THE WITNESS: 28. I don't know what the

7 other one is.

8 MR. JACKSON: Do you have a copy of

9 Callan 9? Or I can just grab this to make objections.

10 That's fine.

11 MR. GERGELY: Yeah, yeah. That's fine.

12 MR. JACKSON: Can I see that?

13 THE WITNESS: I don't know. Is this one of

14 the exhibits that I already have, or is this something

15 new?

16 MR. GERGELY: Well, Callan 8 was of record

17 and Callan 9 was introduced in previous depositions.

18 THE WITNESS: I haven't seen it, though.

19 MR. JACKSON: Okay. Well, before you begin,

20 I'll make some objections to Callan 9 and talking

21 about --

22 (The court reporter clarified.)

23 MR. JACKSON: I'm sorry. I'll make

24 objections to Callan 9 entitled "Microporous Layer

25 with Composite Carbon Black."

Page 138

1 THE WITNESS: I'm going to take a break and
2 use the bathroom while --
3 MR. JACKSON: Let me finish my objections
4 first.
5 THE WITNESS: Okay.
6 MR. JACKSON: Let's see. I want to object
7 to this document as not cited in the deposition
8 notice, as not cited in the expert declaration or in
9 the party's papers, as lacking foundation, lacking
10 authentication, and as hearsay under the federal
11 rules.
12 Thank you.
13 MR. GERGELY: Okay. Let's take a short
14 break.
15 (A brief recess was taken.)
16 MR. JACKSON: Peter, will you grant me a
17 standing objection?
18 MR. GERGELY: Yes.
19 MR. JACKSON: Thank you.
20 MR. GERGELY: Yeah.
21 Q (By Mr. Gergely) So sir, drawing your
22 attention to, I believe it's Callan 8 which is a Wang
23 article that's labeled VF 1028. Do you see it?
24 A Yes.
25 Q Okay. So this was -- this was one that was

Page 139

1 submitted with Dr. Oelker's declaration. And did you
2 see in -- on page 284 how the author states that
3 BP powder which is the Black Pearls powder --
4 A You're getting ahead of me.
5 Q Sure.
6 A 284.
7 Q Page 284.
8 A Oh, okay. Go ahead.
9 Q Yeah. It's under Figure 2.
10 Do you see how the author says, "From the
11 viewpoint of tailoring surface properties, BP powder
12 in possession of high surface area and capability" --
13 A Hold on. Where are you? Are you on
14 paragraph below Figure 2?
15 Q Yes.
16 A Where in the paragraph?
17 Q That starts "From the viewpoint."
18 A Okay. Gotcha.
19 Q Okay. And you understand the author is
20 defining BP as Black Pearl 2000?
21 A I don't know that.
22 Q Okay.
23 A But go on.
24 Q Okay. Do you see in -- on the facing page
25 in paragraph 2.1 the author defines BP as Black

Page 140

1 Pearl 2000?
2 A In Section 2.1?
3 Q Correct. About eight lines down.
4 A I do. Okay. Go ahead.
5 Q And do you see, back to where we were
6 looking at under Figure 2, do you see where the author
7 says that BP powder has a high surface area and
8 capability to adsorb water?
9 A I see that's what it says.
10 Q Okay. And do you have any reason to doubt
11 that?
12 A I do.
13 Q Have you -- and what do you base that on?
14 A I base that on carbon blacks have organic
15 material on their outer surface that makes them not
16 have high adsorption.
17 Q And when you say "not have high adsorption,"
18 what do you mean by that?
19 A I mean that all of the cavities on the
20 surface that adsorb are packed with organic residues.
21 Sometimes inorganic, also. So they're not open to
22 adsorb until you run the test to measure adsorption.
23 It may have the possibility of becoming highly active,
24 but not as a carbon black.
25 Q And so, in your view, does Black Pearls 2000

Page 141

1 have a low pore volume because of this organic
2 material that's clogging the pores?
3 MR. JACKSON: Object to form. Foundation.
4 A My position is that carbon blacks, the pores
5 are filled with organic residues.
6 Q (By Mr. Gergely) And have you ever seen
7 Black Pearls 2000 being described as non-porous or not
8 having the capability to adsorb water?
9 MR. JACKSON: Object to form. Foundation.
10 A Ask the question again. Are you asking if
11 I've seen literature out there?
12 Q (By Mr. Gergely) Yeah. Have you seen
13 literature describing Black Pearls 2000 as not porous
14 or not having the capability to adsorb water?
15 A I've seen literature stating that carbon
16 black in general is not porous because of the fact
17 that it has these residues, and I've seen micrographs
18 and I've seen it myself.
19 Q And have you seen --
20 A Otherwise, it would not be called carbon
21 black. It would be called something else.
22 Q Sir, did you tender to the board with your
23 declaration a paper stating that carbon black did not
24 have the capability to adsorb water, in other words,
25 non-porous? And if so, what was that paper?

<p style="text-align: right;">Page 142</p> <p>1 MR. JACKSON: Object to form. Foundation.</p> <p>2 A Have I cited a reference --</p> <p>3 Q (By Mr. Gergely) Correct.</p> <p>4 A -- specifically saying that? I don't know.</p> <p>5 I'd have to look. I'm citing my experience.</p> <p>6 Q And sir, turning your attention to Callan 9</p> <p>7 which is the next Wang article. It was marked as</p> <p>8 Haggquist 9 and Daniels 16.</p> <p>9 A I have it in front of me.</p> <p>10 Q Take a look at paragraph 3.1. And do you</p> <p>11 see where the author reports that Black Pearls 2000</p> <p>12 has a surface area of 1501.8 meters square per gram?</p> <p>13 A I see where it claims that.</p> <p>14 Q Okay. And is that a relatively high surface</p> <p>15 area as compared to activated carbon?</p> <p>16 MR. JACKSON: Object to form. Scope.</p> <p>17 A I don't know that it actually has that</p> <p>18 surface area or that if it is activated it has that</p> <p>19 surface area. I don't know enough about what this is</p> <p>20 to answer your question.</p> <p>21 Q (By Mr. Gergely) Okay. And then do you see</p> <p>22 that the authors go on to state that, "This can be</p> <p>23 explained by the tremendous difference in pore volume</p> <p>24 and pore size distribution. The Black Pearls 2000</p> <p>25 reveals smaller particle size and larger pore volume</p>	<p style="text-align: right;">Page 144</p> <p>1 A Yes.</p> <p>2 Q And what does it mean?</p> <p>3 A It means the volume of the pores within the</p> <p>4 particulate.</p> <p>5 Q And in your experience with activated</p> <p>6 particles, is 2.67 relatively high pore volume?</p> <p>7 A I don't know.</p> <p>8 MR. JACKSON: Object to form. Foundation.</p> <p>9 A You're asking me things that I haven't had</p> <p>10 time to look at.</p> <p>11 Q (By Mr. Gergely) Okay.</p> <p>12 A I don't even know this is real.</p> <p>13 Q Now, sir, on to your declaration on page 41.</p> <p>14 A Yes.</p> <p>15 Q Sir, do you see that Table 1 actually shows</p> <p>16 an improved MVTR in the experiments versus the</p> <p>17 control?</p> <p>18 A Yes.</p> <p>19 Q Okay. And then as you pointed out, Table 2</p> <p>20 does not; correct?</p> <p>21 A Correct.</p> <p>22 Q And is there a reason you didn't cite</p> <p>23 Table 3?</p> <p>24 MR. JACKSON: Objection. Foundation.</p> <p>25 Do we have that in the deposition?</p>
<p style="text-align: right;">Page 143</p> <p>1 as compared to acetylene black from which we can</p> <p>2 deduce that the MPL made of Black Pearls 2000 involves</p> <p>3 more micropores than that of acetylene black."</p> <p>4 Do you see that?</p> <p>5 A I see what it says.</p> <p>6 Q Okay. And would you agree the authors are</p> <p>7 reporting that Black Pearls 2000 is a porous material?</p> <p>8 MR. JACKSON: Objection.</p> <p>9 A I don't know that. I haven't read the</p> <p>10 article. I don't know the total context of what the</p> <p>11 article is about.</p> <p>12 Q (By Mr. Gergely) And do you see in Table 2,</p> <p>13 the authors report that Black Pearls 2000 has a pore</p> <p>14 volume of 2.67 cubic centimeters per gram?</p> <p>15 A I see that's what the table says.</p> <p>16 Q Okay. Do you know what the pore volume is</p> <p>17 for activated carbons?</p> <p>18 MR. JACKSON: Objection. Form. Foundation.</p> <p>19 A I don't know that offhand. No.</p> <p>20 Q (By Mr. Gergely) Okay. Is --</p> <p>21 A And I don't know that this is a real number</p> <p>22 or this is a number from having removed the carbon</p> <p>23 residue.</p> <p>24 Q Sir, are you familiar with the term "pore</p> <p>25 volume"?</p>	<p style="text-align: right;">Page 145</p> <p>1 A I thought that I did. I did on</p> <p>2 paragraph 91.</p> <p>3 Q (By Mr. Gergely) Oh, okay. And that -- that</p> <p>4 table actually shows an improved MVTR as well;</p> <p>5 correct?</p> <p>6 A No. It shows the opposite.</p> <p>7 Q Where are you looking?</p> <p>8 A Can we have the Halley document? Do I have</p> <p>9 it?</p> <p>10 Q Oh, were you -- I was asking about Table 3.</p> <p>11 A That's what I'm saying, is I don't have</p> <p>12 Table 3 within the document here, but I did refer to</p> <p>13 it.</p> <p>14 Q Okay.</p> <p>15 (Exhibit 10, Halley Reference, was</p> <p>16 marked for identification.)</p> <p>17 Q (By Mr. Gergely) All right. I'm handing you</p> <p>18 what's been marked as Callan 10 which is the Halley</p> <p>19 reference.</p> <p>20 A Yes.</p> <p>21 Q So I was asking you about Table 3, and the</p> <p>22 question I was asking is, does Table 3 show an</p> <p>23 improved MVTR?</p> <p>24 A It does not. It shows a reduced MVTR.</p> <p>25 Q Table 3?</p>

Page 146

1 A Correct.

2 Q I'm not sure --

3 A We're looking at the same table.

4 Q I'm not sure we are.

5 A Table 3.

6 Q Oh. Yeah, we are. Okay.

7 So the control, the MVTR is 6344. Do you

8 see that?

9 A What we see is that if you compare Tables 1,

10 Tables 2, and Table 3, Table 1 is membrane; Table 2 is

11 membrane plus fabric; and Table 3 is fabric plus

12 membrane plus dots. When you add the dots, the

13 moisture vapor transmission rate does down

14 dramatically. It does not go up. It's the opposite

15 of what Haggquist teaches.

16 Q Well, it looks like the control is 6344 in

17 Experiment No. 1 is 7736. Isn't that an improvement?

18 A No. Because the control -- if the control

19 for this system would be membrane, membrane, plus

20 fabric, fabric plus membrane plus dots, the control

21 would be no dots, and that's the same thing as we have

22 in Table 2, fabric plus membrane, where you have

23 13,477. I don't know where the 6344 comes from, but

24 that is not what this is saying.

25 Q Did you discuss this in your declaration?

Page 147

1 A I did.

2 Q Where did you discuss that?

3 A Point 91, paragraph 91.

4 Q Paragraph 91. You said, "Also in this

5 regard, data from Halley does not support any argument

6 that the Halley technology improves moisture vapor

7 transport capacity as shown by the decrease in MVTR in

8 Halley Table 1 and Halley Table 2."

9 A Correct. Versus Table 3.

10 Q I don't see any mention of Table 3 in your

11 declaration.

12 A The experiment was Table 1, Table 2, and

13 Table 3.

14 Q Okay. And is there a reason you didn't

15 mention Table 3 in your declaration?

16 A I thought it was.

17 Q All right. Now, do you know that Cocona has

18 another expert in this case, Dr. Daniels?

19 A I don't know where his --

20 MR. JACKSON: Objection to form. Scope.

21 A I don't know anything about who that is

22 or -- I know that I'm not the only expert.

23 Q (By Mr. Gergely) Okay. So did you -- have

24 you talked to him?

25 A No.

Page 148

1 Q Okay. Have you reviewed his deposition

2 transcript?

3 A No.

4 Q Okay. Have you reviewed any exhibits from

5 his deposition?

6 A Not knowingly. Unless it's the same

7 exhibits we have here.

8 Q Okay.

9 (Exhibit 11, Document Entitled

10 Introduction to Organic Laboratory

11 Techniques, was marked for

12 identification.)

13 Q (By Mr. Gergely) I'm handing you what's been

14 previously marked as Daniels 5 and now we've marked it

15 as Callan 11 as well.

16 A Have I seen it before?

17 Q Yeah. Have you seen it before?

18 A What exhibit is it? It's labeled over. I

19 can't tell if it's one that I've seen or it's

20 something new. That's what I'm asking. Is it a VF

21 exhibit?

22 Q Well --

23 A Something that was --

24 Q -- it was introduced at Dr. Callan's [sic]

25 deposition during his cross-examination.

Page 149

1 A I'm --

2 Q Excuse me. Dr. --

3 A -- Mr. Callan.

4 Q Sorry. It was introduced at Dr. Daniels'

5 deposition during his cross-examination.

6 A So I haven't seen it.

7 Q I'm asking you. Maybe Mr. Jackson showed it

8 to you. I don't know.

9 MR. JACKSON: Object to form.

10 A No. Unless it's the exhibits that are

11 listed, I haven't seen it.

12 Q (By Mr. Gergely) Okay.

13 MR. JACKSON: And I'll object to the

14 document. It's not in Callan's deposition notice.

15 It's not of record in this case. I'll also object on

16 the basis that it's not authenticated, so it lacks

17 foundation, and it's hearsay. And Peter, will you

18 give me a standing objection to the questions related

19 to this document?

20 MR. GERGELY: Yes.

21 MR. JACKSON: Thank you.

22 Q (By Mr. Gergely) So I take it you have not

23 seen this reference before today; is that right?

24 A Correct.

25 Q Okay. I'd like to draw your attention to

Page 150

1 page 718. Well, actually, page 717.
 2 A Okay.
 3 Q And are you familiar with gel
 4 chromatography?
 5 A Yes.
 6 Q Okay. And the authors state that the
 7 stationary phase in gel chromatography consists of a
 8 cross-linked polymeric material. Do you see that?
 9 A Yes.
 10 Q Is that a fair statement?
 11 MR. JACKSON: Object to scope. Foundation.
 12 A They're not telling me what material they're
 13 talking about, so I don't know the answer to that.
 14 Q (By Mr. Gergely) And then do you see where
 15 they go on to state that molecules are separated
 16 according to their size, by their ability to penetrate
 17 a sieve-like structure. Do you see that?
 18 A I do.
 19 Q Okay. And is that your understanding of how
 20 gel chromatography works?
 21 A It's one mechanism.
 22 Q Okay. And do you see where the authors
 23 state, "Molecules permeate the porous stationary phase
 24 as they move down the column." Do you see that?
 25 A I do.

Page 151

1 Q And what's your understanding of what the
 2 stationary phase is?
 3 MR. JACKSON: Objection. Form. Scope.
 4 Foundation.
 5 A This stationary and gel chromatography, you
 6 have a liquid phase and a stationary phase. The
 7 stationary phase is packed in a column, and you pass
 8 the liquid through it with whatever sample you're
 9 trying to cause separations on.
 10 Is that what you're asking?
 11 Q (By Mr. Gergely) So, for example, in
 12 Sephadex, Sephadex would be considered the stationary
 13 phase; correct?
 14 A Yes.
 15 Q All right. And then on over to the facing
 16 page, 718, where the authors bold "Sephadex." Do you
 17 see that?
 18 A Uh-huh.
 19 Q You have to answer yes or no for the record.
 20 A I'm sorry. Yes.
 21 Q Okay. And then the author states, "One of
 22 the most popular materials for gel chromatography."
 23 Do you see that?
 24 A I see where the author says that.
 25 Q All right. Do you agree?

Page 152

1 MR. JACKSON: Objection. Form.
 2 A I don't know whether that's correct or not
 3 correct.
 4 Q (By Mr. Gergely) And then they state, "Most
 5 often, water or aqueous solutions of buffers are used
 6 as the moving phase."
 7 Do you agree with that?
 8 A Where are you?
 9 Q The next sentence.
 10 A Oh, "Most often, water..." I'm aware that
 11 water or buffers are used. I don't know that it's
 12 most often.
 13 Q And do you see where the authors state,
 14 "Chemically, Sephadex is a polymeric carbohydrate that
 15 has been cross-linked. The degree of cross-linking
 16 determines the sizes of the holes in the polymer
 17 matrix."
 18 Do you see that?
 19 A Yes.
 20 Q And do you see where the authors go on to
 21 state, "In addition, the hydroxyl groups on the
 22 polymer can adsorb water which causes the material to
 23 swell."
 24 Do you see that.
 25 A I see it says that.

Page 153

1 Q Do you have any reason to doubt the veracity
 2 of that statement?
 3 MR. JACKSON: Objection. Scope.
 4 Foundation.
 5 A Yes.
 6 Q (By Mr. Gergely) And what's the basis for
 7 doubting the veracity of that statement?
 8 A Because Sephadex is a super hydrophilic
 9 material and that it absorbs water. And when it
 10 absorbs water, you overwhelm anything that adsorbs.
 11 You don't have the absorption mechanism taking place
 12 in a super absorbant material.
 13 Q And sir, what is the difference between
 14 absorption and adsorption?
 15 A Absorption is drawing the liquid entirely
 16 into the particle. Adsorption is a surface
 17 phenomenon.
 18 Q And sir, the -- you'll agree with me, the
 19 authors state here that Sephadex can adsorb water;
 20 correct?
 21 A I agree that's what they say. They're wrong
 22 if you were absorbing water.
 23 Q Can you do both?
 24 A Not if you're absorbing.
 25 Q So -- so you think they're mutually

Page 154

1 exclusive?

2 MR. JACKSON: Object to form. Foundation.

3 A I believe that if you were absorbing, the

4 mechanism is so aggressive that you overwhelm the

5 adsorption sites, and you have water flow through them

6 without adsorbing. It's like a sponge. When you

7 squeeze the sponge and you put it in water and you

8 suck the water up, that water is flowing in. There's

9 no -- there's no adsorption happening even though

10 there may be sites that if you cleaned them out, could

11 adsorb.

12 Q (By Mr. Gergely) Well, at a certain point,

13 the water is sticking to something at a certain point.

14 I mean, this -- this textbook says that the hydroxyl

15 groups --

16 A It doesn't mean it's right because this

17 textbook says it. I haven't read the whole thing.

18 Q Well, I mean, you're familiar with hydroxyl

19 groups; correct? They participate in hydrogen bonding

20 with water?

21 A Yes.

22 Q Okay. And that's the same mechanism if

23 activated carbon is using hydroxyl groups; correct?

24 A In super hydrophilic materials, it's not

25 hydroxyl groups sucking the water in. It's the

Page 155

1 physical mechanism.

2 Q Well, sir, regardless, there is commonality

3 between Sephadex and activated carbon and silica gel

4 and activated alumina and zeolites. They all rely on

5 hydrogen bonding?

6 A No. They don't all rely on hydrogen

7 bonding, and if you would interpret that, they

8 certainly don't all rely on hydrogen bonding equally.

9 Q Well, which ones rely on hydrogen bonding?

10 A That would be a particle-by-particle

11 analysis.

12 Q Does silica gel rely on hydrogen bonding?

13 A I mean, that would be a

14 particle-by-particle, grade-by-grade.

15 Q Does any grade of silica gel rely on

16 hydrogen bonding to --

17 A Does it have hydrogen bonding? Yes. Does

18 it rely on it when it's a super absorbent particle?

19 No. Does it affect the flow rate through? Possibly.

20 Q Now, does activated alumina rely on hydrogen

21 bonding to attract water?

22 A I would have to look at it.

23 Q Okay. And how about zeolites? Does that

24 rely on hydrogen bonding to attract water?

25 A You're asking me questions I would have to

Page 156

1 study before I could answer you. And again, you're

2 ignoring the fact that if Dutta had been considering

3 this an adsorptive particle, the Dutta patent wouldn't

4 be there as prior art.

5 Q What's your point?

6 A My point is you're trying to pursue that

7 this is adsorptive. By doing that, you're trying to

8 prove that Dutta is invalid prior art.

9 Q I -- I'm trying to prove the validity of

10 '287, not Dutta.

11 A That's not what you're doing from what I'm

12 seeing.

13 Q Well --

14 A If you're trying to prove that Dutta uses

15 adsorptive properties and Dutta specifically excluded

16 the use of adsorptive properties to the patent board

17 to get his patent passed, then if he had accepted

18 adsorptive materials, he wouldn't have the patent. It

19 wouldn't be there for this --

20 Q And why is that?

21 A Because it wouldn't exist.

22 Q Why?

23 A It wouldn't -- because the patent board

24 passed it because he claimed that it was only

25 absorptive.

Page 157

1 Q Over -- over prior art that was adsorptive?

2 A Over all other materials.

3 MR. GERGELY: Will you mark this as 12 and

4 13.

5 Q (By Mr. Gergely) Well, sir, certainly,

6 you'll agree with me that Sephadex traps water;

7 correct?

8 A Yes.

9 Q Okay.

10 A May I speak?

11 Q Please.

12 A The fact that it traps water is also part of

13 the reason why Sephadex can't be used because it sucks

14 up biological contaminants and traps them, and it

15 could not be used as a multi-use item if the first

16 time you use them, it sucks up bacteria as if it were

17 a wound treatment.

18 You couldn't give it to the military and

19 say, Here, go out and be exposed to bacteria and keep

20 using it without putting it in a refrigerator or

21 heating it to 60 to 80 degrees C --

22 (The court reporter clarified.)

23 A -- 60 to 80 degrees centigrade because it

24 traps bacteria with that water.

25 Q (By Mr. Gergely) Now, Sephadex can also be

Page 158

1 dehydrated to its original size; correct?

2 A At 60 to 80 degrees centigrade. You don't

3 have those temperatures except for an oven in a house.

4 Q How about in a dryer?

5 A Dryer doesn't get that high.

6 Q What's 60 to 80 C?

7 A 176 Fahrenheit.

8 Q How hot does a dryer get?

9 A Less than that.

10 Q How much less?

11 A Enough less that it wouldn't work.

12 Q And what do you base that on?

13 A I base that on the documents that are

14 provided and the citations that I provided within my

15 declaration that Sephadex is used as a wound treatment

16 because it sucks up. It's in, actually, the Sephadex

17 manual. It sucks up bacteria and traps it.

18 Q And it traps water as well?

19 A With bacteria.

20 Q Well, we know Sephadex traps water; correct?

21 A Yes.

22 Q We know activated carbon traps water;

23 correct?

24 A No. Why do we know that?

25 Q Based on the '287 patent; right? It traps

Page 159

1 water?

2 A It entraps water. It doesn't say it traps

3 water.

4 Q Well, it traps substances; correct?

5 A Show me where you're talking about.

6 Q Oh, here it is. So -- see, your contention

7 is that activated carbon does not trap water?

8 MR. JACKSON: Object to form.

9 A I would have to say it does not. We're

10 discussing Sephadex trapping water for long term where

11 you have to heat it up to 176 Fahrenheit to get rid of

12 the water. Activated carbon does not do that.

13 Q (By Mr. Gergely) I guess I'm asking you

14 because it says that, in Column 4 of the '287 patent,

15 that these active particles are active because they

16 have the capacity to cause chemical reactions at the

17 surface or physical reactions such as adsorb or trap

18 substances.

19 A At the surface.

20 Q Okay. So you're saying that activated

21 carbon cannot trap water?

22 A At the surface, it's a surface activity,

23 yes.

24 Q Okay.

25 A But that water doesn't need 176 degrees

Page 160

1 Fahrenheit to be removed.

2 Q Well --

3 A I have the reference. It's Exhibit 1032.

4 Q Okay. And what does that say?

5 A "Describe the use of Sephadex under the

6 brand name Debrisan for wound care stating when

7 introduced to an exuding would 1 gram of the beads

8 will absorb up to 4 grams of exudates. It has been

9 shown that bacteria and cellular debris present in the

10 wound are taken up by capillary action and become

11 trapped in the spaces between the beads."

12 So if you were using Sephadex and Sephadex

13 comes in contact with a wound or with bacteria which

14 is everywhere, it sucks it up and traps it.

15 Q And so --

16 A Which would make it not viable as a

17 multi-use item.

18 Q Sir, I understand your point with respect to

19 if you stick Sephadex into a wound, it will act that

20 way. But you said it just absorbs bacteria generally.

21 What do you base that on? Which reference?

22 A I base that on the fact that if you do this,

23 there's bacteria on the table.

24 Q And you just rubbed your arm?

25 A If you go to the bathroom and touch the

Page 161

1 toilet, there's bacteria on the toilet.

2 Q And sir --

3 A If you're wearing this as a multi-use

4 garment and you wear it and it wicks up by capillary

5 action bacteria in the environment, it can pick up

6 that bacteria and trap it. I mean, it's the same

7 thing as saying, would you take that Debrisan particle

8 after it's been in a wound and go put it on another

9 patient? You would not.

10 Q And sir, I'm asking you, what are you basing

11 your statement on that Sephadex generally absorbs

12 bacteria in the environment? What are you -- what are

13 you basing that on?

14 A Because it has been shown that bacteria and

15 cellular debris present in the wound are taken up by

16 capillary action. Capillary action is you come in

17 contact, and it sucks it up like a straw.

18 Q And that is a -- that is a wound that's

19 being referenced in that article; correct?

20 A Versus a sweaty arm?

21 Q I don't know, sir. I'll ask you again.

22 What reference states that Sephadex

23 generally sucks up bacteria in the manner that you

24 described?

25 A Exhibit 1032.

Page 162

1 Q Okay. Which is talking about an open wound;
2 correct?
3 A It's not only talking about that. Let's get
4 the Sephadex paper.
5 Q You've cited this wound reference; right?
6 A There are three references. They are the
7 wound reference, the Debrisan particle, and the SMTL
8 or whatever that is. Those three references together
9 all come to the same point.
10 (Exhibit 12, Document Entitled
11 Fluorescent-Based Genetic Analysis for
12 a Microfluidics Device , was marked for
13 identification.)
14 (Exhibit 13, Larger Document Entitled
15 Fluorescent-Based Genetic Analysis for
16 a Microfluidics Device , was marked for
17 identification.)
18 Q (By Mr. Gergely) Now, all right, sir. I'm
19 going to hand you Callan Exhibits 12 and 13. These
20 were marked during Dr. Daniels' deposition. Have you
21 reviewed these papers before?
22 MR. JACKSON: Let me -- let me --
23 A I have not seen them.
24 MR. JACKSON: I need to make objections to
25 these. Do you have copies of these, Peter? I wasn't

Page 163

1 at the Daniels' deposition.
2 MR. GERGELY: I do not have an extra copy.
3 MR. JACKSON: Okay. Well, mind if I take
4 them?
5 THE WITNESS: No. I've never seen them.
6 MR. JACKSON: I'll give them back to you.
7 I'll object to Callan 12 and 13 on the basis
8 that they were not identified in the deposition
9 notice, are not of record in this case, are outside
10 the scope of proper examination, and not been
11 authenticated or hearsay, and lack foundation.
12 Can I have a standing objection for
13 questions for these exhibits, Peter?
14 MR. GERGELY: Yes.
15 MR. JACKSON: Thank you.
16 Q (By Mr. Gergely) Sir, I'd like to draw your
17 attention to page 59 of the larger document which is
18 Callan 13.
19 Do you see where the authors state that
20 Sephadex G-50 beads are commonly used for desalting
21 and gel exclusion chromatography?
22 A I see that it states that.
23 Q And then they go on to state, "In solution,
24 these beads swell and trap water both within the bead
25 and on the surface of the bead in a microfilm when

Page 164

1 placed in a liquid."
2 Do you see that?
3 A I do.
4 Q Okay. And so the authors are reporting that
5 water is both trapped within the Sephadex bead and on
6 the surface. Do you see that?
7 A I do.
8 Q Okay. Do you have any reason to doubt that?
9 A I have no idea. You handed me a, a what, a
10 100-page book, 145-page book that I haven't seen
11 before?
12 Q Are you aware of any references which would
13 state that Sephadex does not trap water on the
14 surface?
15 A I don't know at this time.
16 MR. GERGELY: Okay. All right. Why don't
17 we take another short break and go off the record.
18 (A brief recess was taken.)
19 (Exhibit 14, Cocona's Infringement
20 Claim Chart, was marked for
21 identification.)
22 Q (By Mr. Gergely) Mr. Callan, I'm handing you
23 what's been marked as Callan 14.
24 (Brief comments were made off the
25 record.)

Page 165

1 Q (By Mr. Gergely) So hand you what's been
2 marked as Callan 14 which is Cocona's infringement
3 claim chart which has been marked as VF 1026 and also
4 Haggquist 14. I'd like to draw your attention towards
5 the back of the document. On page 71 of 93, there's
6 an article titled, "KMI Zeolite."
7 A Okay.
8 Q Have you seen this before in this case?
9 A It is one of the exhibits that I reviewed,
10 but I did not review it as thoroughly as others
11 because my understanding was this was an infringement
12 claim chart, and that is the other case.
13 Q Okay. Nonetheless, you reviewed it at some
14 point during this case?
15 A I looked through it briefly.
16 Q Okay. And in this attachment to Cocona's
17 infringement contentions, this KMI Zeolite Company
18 states certain things. First of all, do you know who
19 KMI Zeolite is?
20 A No.
21 Q The authors state that zeolite is a
22 crystalline hydrated aluminosilicate that possesses a
23 unique three-dimensional honeycomb framework. Do you
24 see that?
25 A I do.

Page 166

1 Q Is that a fair description of zeolite?

2 A I don't know enough. I haven't looked at it

3 closely enough or studied this material close enough

4 to answer the questions.

5 Q And the authors state, "This structure

6 creates a series of interconnecting of channels and

7 pores that account for over 50 percent of its total

8 surface."

9 Do you see that?

10 A I do.

11 Q And what do you understand by

12 interconnecting channels and pores?

13 MR. JACKSON: Objection. Form. Scope.

14 Foundation.

15 A I've said that I haven't studied it careful

16 enough.

17 Q (By Mr. Gergely) And then the authors state,

18 "as a result, zeolite acts as a molecular sieve that

19 traps and binds particles of various sizes while

20 allowing others to pass through."

21 Do you see that?

22 A I do.

23 Q Is that how zeolites work?

24 MR. JACKSON: Objection. Form. Scope.

25 Foundation.

Page 167

1 A I would say that's how molecular sieves work

2 with the premise that they are activated and

3 non-activated.

4 Q (By Mr. Gergely) And what does that mean?

5 Sieve. A molecular sieve. Does that mean that --

6 A It's microscopic molecular size, but it's

7 like this.

8 Q Okay.

9 A Irregularly shaped, but it's also

10 three-dimensional.

11 Q Okay.

12 A And I'm holding up ASDM 600-micron

13 laboratory test sieve. All I'm saying is, the answer

14 is, it's like this test sieve but in three dimensions.

15 Q So with respect to zeolites, do particles

16 that are large stick to the pores and smaller

17 particles pass through the pores?

18 A It's mechanical. When you say stick to the

19 pores, if they're too large, it's like this sieve.

20 They don't go through. They stay on one side.

21 Q They get blocked?

22 A They get blocked. Yeah.

23 Q Okay.

24 A And sometimes, they block up and destroy

25 whatever's being used.

Page 168

1 Q Okay. And then the small ones will just --

2 will pass through that pore structure?

3 A Sometimes.

4 Q Okay. So is the structure of zeolite, is

5 that different than activated carbon? Because I

6 understand activated carbon has a solid core; is that

7 correct?

8 A Yes.

9 Q And the zeolite, is it a different

10 structure? Is it more like -- are those pores shot

11 through the material?

12 MR. JACKSON: Object to form.

13 A I would have to study this material to know

14 your -- to answer your question.

15 Q (By Mr. Gergely) Okay. Regardless, it's

16 your understanding, though, that those pores will let

17 the small particles pass through; correct?

18 A Actually, what happens is particles smaller

19 than the pore diameter pass through at different

20 rates. That's what a molecular sieve is about.

21 Q Okay.

22 A Different size particles pass through at

23 different rates.

24 Q Okay. And is -- is Sephadex work similarly?

25 MR. JACKSON: Object to form.

Page 169

1 Q (By Mr. Gergely) You've got this pore

2 structure, and then the big stuff gets stuck in it and

3 the small stuff passes through; correct?

4 A Actually, it does not work that way Sephadex

5 has water media. So when you have a Sephadex column,

6 you have water in the column the entire time, and you

7 have -- you don't have a molecule passing through

8 empty pores. You have molecules passing through a

9 faucet drain that goes through the pores with liquid

10 water in it. It's not the same thing.

11 Q And then -- but the big particles would get

12 stuck in those pores; correct?

13 A If they're big enough, yes.

14 Q Okay. And then the small stuff passes

15 through?

16 A Sometimes. Sometimes, it does not.

17 Q Okay.

18 (Exhibit 15, Document Entitled "Water

19 Sorption in a Dextran Gel", was marked

20 for identification.)

21 Q (By Mr. Gergely) I'm handing you what's been

22 marked as Callan 15 which was marked during

23 Dr. Daniels' deposition as Daniels 8.

24 MR. JACKSON: Is this a VF exhibit, Peter?

25 MR. GERGELY: Correct.

Page 170

1 MR. JACKSON: It is?

2 MR. GERGELY: Oh, it was not submitted in

3 the petition. It was submitted with Dr. Daniel's

4 cross-examination.

5 MR. JACKSON: I'll object to this -- to this

6 document. It was not identified in the deposition

7 notice for Mr. Callan, and it's not cited by the

8 parties or in the papers. It has not been

9 authenticated. It is hearsay and lacks foundation and

10 it is out of scope.

11 With those, Peter, if you'll grant me a

12 standing objection, I won't repeat those.

13 Q (By Mr. Gergely) Well, Mr. Callan, have you

14 seen Callan 15 before today?

15 A No.

16 Q Sir, I'd like to draw your attention to page

17 192. And do you see where the authors refer to water

18 vapor adsorption-desorption studies in Sephadex?

19 A Where are you talking about?

20 Q In the --

21 A Last paragraph?

22 Q -- last paragraph that starts out with "We

23 report."

24 A What is your question?

25 Q Do you see where the authors report water

Page 171

1 vapor adsorption-desorption studies on Sephadex?

2 A Yes.

3 Q Okay. And what does that mean to you?

4 A It means nothing. I haven't studied this.

5 This was just put in front of me.

6 Q Okay. And do you see where the authors then

7 refer to Sephadex as a swelling molecular sieve?

8 A I do.

9 Q And we know that zeolites are molecular

10 sieves; correct?

11 A Yes.

12 Q And you'll agree with me that Sephadex is a

13 molecular sieve; correct?

14 A It can be used as that.

15 Q And sir, I'm drawing your attention to page

16 201, Table 2.

17 A Page 201 or 202?

18 Q Actually, page 203.

19 A Okay.

20 Q Do you see the graph depicted which shows

21 the adsorption-desorption isotherm --

22 A I do.

23 Q -- recorded at three different temperatures?

24 What does -- what does that mean to you as a chemist?

25 A It means nothing right now. I haven't

Page 172

1 studied this paper.

2 Q In activated carbon, when the water is being

3 bound to the pores, is some water also binding to

4 other water molecules in those pores? For example, is

5 it binding to the solid surface and then binding to

6 other water molecules as well rather than the surface?

7 A If there's liquid. If there's gas, there

8 may not be. It depends on the spacing of the water

9 molecules from each other whether they're going to

10 interact or not.

11 Q Okay. But if they are interacting, that

12 would be called a water-water interaction?

13 MR. JACKSON: Objection to form.

14 A I'm sure there's more than one way to

15 describe water molecules interacting with each other.

16 Q (By Mr. Gergely) Okay. But a way to

17 describe it would be a water-water interaction?

18 MR. JACKSON: Objection. Form.

19 Q (By Mr. Gergely) Correct?

20 A A water molecule-water molecule interaction.

21 Q Yeah.

22 A Only?

23 Q Yeah. Is that right?

24 A I don't know if that's right.

25 Q But does activated carbon behave that way?

Page 173

1 At certain times, the water molecules entering the

2 pores will stick to the surface of those pores, but

3 then other times, the water will also stick to another

4 water molecule; is that right?

5 MR. JACKSON: Objection. Scope.

6 Foundation.

7 A I don't know that without studying it.

8 Q (By Mr. Gergely) Okay. Do you think that's

9 what's happening?

10 A I don't know that without studying it.

11 Q Okay. Do you know what the an- -- do you

12 know what an angular-perturbation frequency is?

13 MR. JACKSON: Objection. Form.

14 Pronunciation.

15 THE WITNESS: Perturbation.

16 MR. GERGELY: Perturbation.

17 THE WITNESS: What page are you on?

18 MR. GERGELY: 206.

19 MR. JACKSON: Objection. Scope.

20 Foundation. Authentication. Hearsay.

21 A What are you asking?

22 Q (By Mr. Gergely) Do you know what the

23 angular-perturbation frequency is?

24 A Where are you?

25 Q Page 206.

Page 174

1 A Yeah. I know. I'm on 206, but where on
2 206?

3 Q Towards the -- towards the bottom paragraph.

4 A I don't know enough about the context of
5 this paper and what's being written about to have an
6 interpretation of what you're asking.

7 Q Okay. But do you know what
8 angular-perturbation frequency is?

9 A I don't know enough about what they're
10 describing because I haven't seen the paper until just
11 now.

12 Q Okay. And do you see above on page -- on
13 the same page where the authors state, "The minus 107
14 centimeter vibrational shift is attributed simply to
15 the skeletal field of the gel, and it is proposed that
16 the adsorb water molecules participate in two or more
17 hydrogen bonds involving gel hydroxyl groups and/or
18 ether linkages."

19 Do you see that?

20 A I do.

21 Q Okay. And what does that mean to you as a
22 scientist?

23 A That means this person is theorizing.

24 Q Okay. And they're theorizing that the
25 mechanism's action for water --

Page 175

1 A Centimeters minus 1 is a frequency for
2 infrared, so they're saying there's the infrared shift
3 based on something. I don't know enough about what
4 the paper is saying to know whether that's real or
5 whether the shift is real or whether they have enough
6 resolution on their instrument to actually know this.

7 MR. GERGELY: All right. I don't have
8 anything further for Mr. Callan at this point, if you
9 have any redirect.

10 MR. JACKSON: Let's go off the record.

11 MR. GERGELY: Sure.

12 (A brief recess was taken.)
13 [EXAMINATION]

14 BY MR. JACKSON:

15 Q Hello, Dr. Callan. I'm going to ask you
16 questions very briefly for your redirect examination.
17 Earlier today, you testified about errors in
18 the Dutta patent; is that right?

19 A Yes.

20 Q I would like to give you what is labeled
21 Exhibit 2004. I'm not sure what Callan exhibit label
22 this should have.

23 (Exhibit 16, Document Referencing
24 Errors in Dutta Patent, was marked for
25 identification.)

Page 176

1 MR. GERGELY: Do you have an extra? I'll
2 just follow along. Let me -- let me -- let me grab
3 it. I have it on the computer. So this is 2004.

4 MR. JACKSON: Yes.

5 MR. GERGELY: Okay. I'm with you.

6 Q (By Mr. Jackson) Very quickly, Mr. Callan,
7 was this the document from the prosecution history you
8 were referring to when you were discussing errors in
9 the Dutta patent?

10 A Yes.

11 Q And can you identify for me where in this
12 exhibit it references errors in the Dutta patent?

13 A On the first page under "Dear Sir," it says,
14 "A new page 4 submitted along with marked up original
15 page 4 to correct an error."

16 If you go to page 4 of the same document, in
17 the second to the last paragraph, it reads, "The
18 science behind the present invention is to alter the
19 effective solubility water vapor in the non-porous
20 polymer film by using highly absorbent particles
21 uniformly dispersed within the polymer film."

22 Q Okay. Now, I'd like to turn to your
23 declaration.

24 A There is more.

25 Q Oh, I'm sorry. Please continue.

Page 177

1 A On page 5, bottom paragraph, "Those passages
2 are very general in nature and do not at all suggest
3 the use of absorbent particles that applicant covers
4 in his claimed invention."

5 This is Dutta discussing correction and the
6 defense for the correction in his patent.

7 MR. GERGELY: Objection. Mischaracterizes
8 what he's doing.

9 A Page 6, top paragraph, "Moreover, the
10 definition of hydrophilic is not synonymous with
11 absorbent."

12 Page 7, "Summary of Invention," he has
13 scratched out "permeable" and written -- handwritten
14 in "impermeable" which is the correction that was
15 addressed by the patent board.

16 And the correction that's shown on page 10,
17 if you compare page 10 to page 11, page 10, one reads,
18 "One material of the invention is in the form of
19 waterproof, air impermeable, water vapor permeable,
20 non-porous polymer film."

21 On page 11, it reads the same thing except
22 for "permeable" is scratched out and "impermeable" is
23 handwritten in. That is all.

24 Q (By Mr. Jackson) Okay. Thank you. I'd like
25 to turn now to --

<p style="text-align: right;">Page 178</p> <p>1 A Do you have a paper clip for that?</p> <p>2 Q -- your declaration starting at</p> <p>3 paragraph 76.</p> <p>4 A It'll take a moment. There's a pile.</p> <p>5 Paragraph 76?</p> <p>6 Q Yes.</p> <p>7 A Yes.</p> <p>8 Q Today, you have been asked questions about</p> <p>9 the Dutta reference; is that correct?</p> <p>10 A Yes.</p> <p>11 Q You've also been asked a number of questions</p> <p>12 about absorption and adsorption; is that correct?</p> <p>13 A Yes.</p> <p>14 Q Do you see in the first sentence on</p> <p>15 paragraph 80, it states, "Other teachings in Dutta</p> <p>16 lead directly away from the '287 --</p> <p>17 (The court reporter clarified.)</p> <p>18 Q (By Mr. Jackson) The first sentence in</p> <p>19 paragraph 80, it says, "Other teachings in Dutta lead</p> <p>20 directly away from the '287 patent invention."</p> <p>21 Can you explain to me why a person of</p> <p>22 ordinary skill in the art starting with Dutta would be</p> <p>23 led away from the invention in the '287 patent?</p> <p>24 A Related to thickness or in general?</p> <p>25 Q Any of the reasons that you have discussed</p>	<p style="text-align: right;">Page 180</p> <p>1 and there are -- there is residue underneath the amber</p> <p>2 that does not poke through the surface that has sodium</p> <p>3 polyacrylate in it which is the same thing as</p> <p>4 Nalco 1181. The other pan has activated carbon with</p> <p>5 polyurethane.</p> <p>6 "The '287 patent, on the other hand, teaches</p> <p>7 exposing active particles on the surface of the</p> <p>8 membrane to increase water vapor transmission rate.</p> <p>9 See Exhibit 1004, Figures 2 through 5. Disclosing</p> <p>10 removing encapsulant from active particles on the</p> <p>11 surface again."</p> <p>12 And the comparison here of the exemplars is</p> <p>13 the aluminum pan has polyurethane coating the</p> <p>14 particles, and if you go to the vial with Thickness 1</p> <p>15 and Thickness 2 and you open it up and you look in,</p> <p>16 you can see that the activated carbon particles are</p> <p>17 not coated over. They are exposed.</p> <p>18 Q Thank you, Mr. Callan. One final question</p> <p>19 just for a more complete record. If you could run</p> <p>20 through verbally and describe the demonstratives that</p> <p>21 you have discussed today into the record, please.</p> <p>22 A There are two aluminum pans. One aluminum</p> <p>23 pan has black particulate matter with an amber resin</p> <p>24 with it. The black particulate matter sticks above</p> <p>25 the plane of the amber resin but is also encased and</p>
<p style="text-align: right;">Page 179</p> <p>1 in your declaration.</p> <p>2 A Well, let me discuss. Other teachings in</p> <p>3 Dutta lead away from the '287 patent invention. For</p> <p>4 example, Dutta teaches that the thickness of the</p> <p>5 non-porous polymer layer should be kept at its minimum</p> <p>6 thickness to obtain maximum water vapor transmission</p> <p>7 rate." And that is referring to Exhibit 1002 at</p> <p>8 Column 3, lines 15 to 22.</p> <p>9 "Adding active adsorbant particles under</p> <p>10 Haggquist to the Dutta membrane would increase the</p> <p>11 thickness otherwise present in Dutta which Dutta</p> <p>12 discourages, so Dutta teaches away.</p> <p>13 "Similarly, Dutta teaches keeping the</p> <p>14 surface of the membrane smooth without particles on</p> <p>15 the surface. See Exhibit 1002, Column 11, lines 1</p> <p>16 through 4. The '287 patent, on the other hand,</p> <p>17 teaches exposing active particles on the surface of</p> <p>18 the membrane to increase water vapor transmission</p> <p>19 rate."</p> <p>20 And that is related to the two aluminum pans</p> <p>21 here where I'm describing Haggquist is teaching to</p> <p>22 have the particles on the surface so that they are</p> <p>23 exposed to the environment and can adsorb water, and</p> <p>24 Dutta teaches to have a smooth surface; that Dutta is</p> <p>25 described in the aluminum pan that is amber-colored,</p>	<p style="text-align: right;">Page 181</p> <p>1 covered with the amber resin, and that is</p> <p>2 polyurethane.</p> <p>3 And the purpose is to show why activation --</p> <p>4 or why encapsulation is needed. If you just put these</p> <p>5 particles in polyurethane, they become encased in</p> <p>6 polyurethane. Even if they were to poke through the</p> <p>7 surface, they are covered with polyurethane. And if</p> <p>8 you encapsulate them, you can't unencapsulate them.</p> <p>9 So they poke through the surface as they do in the</p> <p>10 scintillation vial with the base material as</p> <p>11 Thickness 1 and the base material with activated</p> <p>12 carbon black as Thickness 2.</p> <p>13 The amber material is an example of Dutta</p> <p>14 where you have a super hydrophilic particle in the</p> <p>15 matrix of a polyurethane resin not poking through. So</p> <p>16 the purpose is to show poking through versus not</p> <p>17 poking through. It's a macroscopic interpretation of</p> <p>18 what I have been seeing microscopically for 30 years</p> <p>19 under the electromicroscope with particles in carbon</p> <p>20 black and polymeric formulations.</p> <p>21 There are four scintillation vials. One of</p> <p>22 them is a dark black color, and it is polyurethane</p> <p>23 with activated carbon in it. And the purpose is it's</p> <p>24 uncured. In the pans, the polyurethane is cured.</p> <p>25 This is the same resin uncured with activated carbon.</p>

<p style="text-align: right;">Page 182</p> <p>1 So basically, it's the material that is in 2 the Haggquist aluminum pan sample uncured. You can 3 see that uncured, the residue itself, the resin itself 4 is dark, black-colored. The amber resin has picked up 5 the color of the carbon black from the fine particles 6 that are in there. 7 The next three vials are uncured polyester 8 with activated carbon in it, and it's important 9 because the uncured polyester is liquid. I don't know 10 if it will still be liquid in February, but it is 11 liquid today, and it has some viscosity to it. But 12 the activated carbon has sunk to the bottom, and it 13 has a slight dark color to it. 14 The purpose of this example is, for one 15 thing, to show that you have to have a two-layer 16 system with what is described in Claim 27 because when 17 you put the activated carbon in contact with the 18 resin, it sinks to the bottom. If it sinks to the 19 bottom, you don't have what is claimed. It's not 20 cured. 21 Let's go to Claim 27. I don't even know if 22 I have that in front of me anymore. Claim 27 reads, 23 "A waterproof composition comprising a liquid, 24 impermeable, breathable, cured base material 25 comprising a first thickness. If it is uncured,</p>	<p style="text-align: right;">Page 184</p> <p>1 in there protruding through the surface. You would 2 not comply with the definition. 3 Therefore, cured is necessary. Cured base 4 material meaning it is the material, the formula, 5 without the activated carbon. So the next vial with 6 the only transparent is the cured-base material. 7 When you have a cured-base material and you 8 put the activated carbon on top of it with -- mixed 9 with the base material, you get what is described in 10 this patent in Claim 27. And it does not sink to the 11 bottom. You have a two-layer system. And the 12 argument that it's not two-layered is just simply 13 incorrect. 14 "A plurality of active particles in contact 15 with a liquid, impermeable, breathable, cured base 16 material, plurality of particles comprising the second 17 thickness." That is what they're about. There is 18 also activated carbon. The intent of this is to show 19 on a macroscopic scale what I have been seeing for 20 30 years under the electromicroscope testing thousands 21 of polymeric samples that contain inorganic minerals, 22 carbon black, and activated carbon and graphite. 23 Is that what you asked? 24 Q Yes. Thank you. 25 And then you have a container of activated</p>
<p style="text-align: right;">Page 183</p> <p>1 whatever the activated carbon you put in contact with 2 it sinks to the bottom." 3 So when they're saying cured, the polyester 4 resin is cured in the next scintillation vial, it has 5 a clear, cured polymer, transparent. That is a 6 polyester, and it is to show the example of 7 Thickness 1, the first thickness. 8 "A waterproof composition comprising a 9 liquid, impermeable, breathable, cured base material 10 comprising a first thickness." That is what's in this 11 scintillation vial. "A plurality of active particles 12 in contact with the liquid, impermeable, breathable, 13 cured base material, the plurality of active particles 14 comprising a second thickness is what is in the next 15 vial." 16 And this is very important because part of 17 this argument is about the definition of first 18 thickness and second thickness, and is there a first 19 thickness and second thickness? 20 And the answer is, it's written correctly. 21 There has to be a first and second thickness according 22 to the way it is written because if you were to do 23 what they say without this being cured, without it 24 being solid, the carbon black would settle to the 25 bottom, and you would not have carbon black anywhere</p>	<p style="text-align: right;">Page 185</p> <p>1 carbon; is that right? 2 A I do. 3 Q Can you tell me what is that activated 4 carbon and where is it from? What's -- what's on the 5 label? 6 A Everything here is from Walmart except the 7 scintillation vials and the aluminum pans. 8 Q What kind of activated carbon is that? 9 A This is Aqua-Tech Activated Carbon, 10 9 ounces, works in all aquarium filters. 11 (The court reporter clarified.) 12 A Works in all aquarium filters. It's 13 9 ounces. 14 Q (By Mr. Jackson) Okay. And then to clarify, 15 none of your demonstratives are to scale. They're 16 just -- 17 A No. They're intended to show you what I 18 see -- show you on a macroscopic scale what I have 19 been seeing for 30 years analyzing polymeric materials 20 under the electromicroscope as it relates to this 21 patent. 22 MR. JACKSON: Okay. Thank you. I have no 23 further questions. Peter? 24 MR. GERGELY: Yeah. I have some re-cross. 25</p>

Page 186

1 [EXAMINATION]

2 BY MR. GERGELY:

3 Q Sir, so you have these two vials, one where

4 you've said that the activated carbon sinks to the

5 bottom. How much activated carbon was used in this

6 example? How many grams?

7 A It wasn't weighed.

8 Q And how much polyurethane was used or

9 polyester?

10 A What you see.

11 Q Okay. And then in this other sample which

12 shows two layers, how much polyurethane was used in

13 the bottom -- or polyester?

14 A I intentionally poured these two layers as

15 close as I could --

16 Q Okay.

17 A -- with what I was doing at the time.

18 Q Now, this top layer --

19 A So they had the same thickness.

20 Q Now, this top layer, how much polyurethane

21 was used with the -- was less polyurethane used in the

22 top than in the bottom?

23 A Yes.

24 Q Okay.

25 A It's polyester.

Page 187

1 Q Polyester. Now, sir, if you -- did you use

2 about equal amounts of polyurethane with the activated

3 carbon?

4 A I didn't measure. The intent was to have an

5 exemplar of what it looked like.

6 Q Okay. Now, sir, if you simply put -- in the

7 two-layer example, if you got rid of the polyester

8 layer on the bottom, if you simply put what appears to

9 be equal amounts of polyester and activated carbon

10 into the vial, it wouldn't separate as you've shown in

11 this other vial because in this other vial, you've

12 shown much more polyurethane versus activated carbon;

13 correct?

14 A I don't understand your question.

15 Q Well, it's pretty obvious. This top layer

16 uses much less polyester than your example where

17 you're showing the activated carbon sinking to the

18 bottom; correct?

19 A Yes.

20 Q Okay. So is it apples and apples? If you

21 were to use this amount, this, pointing to the

22 two-layer example, if you were to use this amount of

23 polyester and pour it into a vial and add the

24 equivalent amount of activated carbon --

25 A To make only one layer of material,

Page 188

1 Thickness 2?

2 Q Correct. It wouldn't sink to the bottom.

3 It would be -- it would be tantamount to a mixture or

4 a slurry; correct?

5 A If it were only a Thickness 2 composition

6 which is similar to what's being created in the

7 patent? Is that what you're asking?

8 Q Yeah.

9 A Like, in Table --

10 Q No. I'm just asking you if you -- if you

11 were to -- if you were to just take out this bottom

12 layer of polyester in your two-layer example --

13 A What you -- what you're looking at is

14 essentially two similar versions of what it would be.

15 This being 80 grams of polyurethane to 20 grams of

16 carbon and this one being different. They're

17 different ratios.

18 Q Okay. Well, sir, you could -- if you took

19 out this bottom layer of polyester and you just had

20 this top layer of the polyester and activated carbon

21 mixed together, the activated carbon particles would

22 be exposed at the surface; correct?

23 A Correct.

24 Q Now --

25 A But my intent was to show Claim 27 and what

Page 189

1 it would be. And it's -- Claim 27 starts with a cured

2 base material.

3 Q Sir, I'm moving on to a different question.

4 A Okay.

5 Q So, now, as I understand based on

6 Mr. Jackson's questions, you said that Dutta teaches

7 away from adding active particles because that would

8 tend to make the membrane thicker; correct?

9 A Yes.

10 Q Now, the Sephadex particles in Dutta are

11 actually 20 to 50 microns; correct?

12 A Yes.

13 Q And in the Haggquist '287 patent, the

14 activated carbon --

15 A You didn't --

16 Q Let me finish, sir.

17 A I'm sorry.

18 Q -- the activated particles in Haggquist

19 publication are on the order of 10 microns; correct?

20 A Yes.

21 Q So if you were to substitute the Haggquist

22 particles for the Sephadex particles, you would

23 actually be making the membrane thinner, wouldn't you?

24 MR. JACKSON: Objection. Form.

25 A You could be.

Page 190

1 Q (By Mr. Gergely) And in terms of
 2 smoothness --
 3 A May I speak? Not yet?
 4 Q Your counsel can redirect.
 5 Sir, in terms of smoothness, you'll agree
 6 that Dutta suggested that the Sephadex particles be at
 7 least partially embedded; correct?
 8 A On one side. The other side being
 9 completely smooth.
 10 Q Okay. And then he left one side -- one side
 11 could be rough; correct?
 12 A It said partially embedded. That's a vague
 13 definition. But the point is the other side needs to
 14 be smooth.
 15 Q Okay. Well, that's also true when you're
 16 mixing together activated carbon and polyurethane.
 17 One side's going to stick out, and the other side's
 18 going to be smooth; correct?
 19 A You are missing the point. The point of the
 20 reason that Dutta says the side needs to be smooth is
 21 it needs to be the side that's exposed to the
 22 environment.
 23 Q Well, he doesn't say that.
 24 A Yes, he does.
 25 Q He does say that?

Page 191

1 A Yes.
 2 Q Okay. I will look at that reference and
 3 double-check you.
 4 MR. GERGELY: I don't have anything further.
 5 Jason, if you do?
 6 MR. JACKSON: I don't have any further
 7 questions, but Cocona will reserve its right to review
 8 and sign the transcript.
 9 MR. GERGELY: All right. We're done.
 10 Thanks for your time.
 11 (Whereupon, the signature was reserved,
 12 and the witness was excused.)
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Page 192

REPORTER CERTIFICATE

1
 2
 3 I, Carla M. Klaustermeier, Registered
 4 Professional Reporter, Certified Shorthand Reporter,
 5 Certified Court Reporter, and Certified Realtime
 6 Reporter, do hereby certify that there came before me
 7 at 10 South Broadway, Suite 1400, St. Louis, Missouri
 8 63102,
 9
 10 STEPHEN J. CALLAN,
 11
 12 who was by me first duly sworn; that the witness
 13 was carefully examined; that said examination was
 14 reported by myself, translated and proofread using
 15 computer-aided transcription; and the above transcript
 16 of proceedings is a true and accurate transcript of my
 17 notes as taken at the time of the examination of this
 18 witness.
 19
 20 I further certify that I am neither attorney
 21 nor counsel for nor related nor employed by any of the
 22 parties to the action in which this examination is
 23 taken; further, that I am not a relative or employee
 24 of any attorney or counsel employed by the parties
 25 hereto or financially interested in this action.
 Dated December 16, 2018.
Carla M. Klaustermeier
 Carla M. Klaustermeier, RPR, CSR, CCR, CRR

Page 193

1 COMES NOW THE WITNESS, STEPHEN J. CALLAN,
 2 and having read the foregoing transcript of the
 3 deposition taken on December 14, 2018, acknowledges by
 4 signature hereto that it is a true and accurate
 5 transcript of the testimony given on the date
 6 hereinabove mentioned.
 7
 8
 9 _____
 10 (STEPHEN J. CALLAN)
 11
 12
 13 Subscribed to before me this _____ day of
 14 _____, 2018.
 15
 16 _____
 17 Notary Public
 18 My commission expires: _____.
 19
 20 VF OUTDOOR, LLC,
 21 vs.
 22 COCONA, INC..
 23 Reporter: Carla M. Klaustermeier, RPR, CCR, CSR, CRR
 24 Date Taken: December 14, 2018
 25

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--	--	--	--

284 139:2,6,7 287 26:21 27:9,12 29:11 56:16,24 57:2 59:11 67:14,16 75:18 76:10 80:6 92:10 99:11 104:9 121:1 135:24 156:10 158:25 159:14 178:16, 20,23 179:3,16 180:6 189:13 29 28:25 59:3,4 115:5 <hr/> <p style="text-align: center;">3</p> <hr/> 3 56:24 57:2 80:8,9 92:14 98:24 99:13 121:17 131:24 132:1 144:23 145:10,12,21,22,25 146:5,10,11 147:9,10,13, 15 179:8 3.1 142:10 30 7:3,4 69:7 126:19 181:18 184:20 185:19 37 63:24 38 64:7 39 65:7 <hr/> <p style="text-align: center;">4</p> <hr/> 4 16:23 48:24 80:8,10 88:15,18 90:7 91:6,17 159:14 160:8 176:14,15, 16 179:16 4,194,041 130:25 131:4,23 132:5 40 109:7 41 59:7 130:23 144:13	425 9:1,7 485 82:15,17 <hr/> <p style="text-align: center;">5</p> <hr/> 5 48:24 57:3 107:24 119:22 120:13 148:14 177:1 180:9 50 109:4 166:7 189:11 54 78:23 131:24 132:1 55,000 9:13,16,20 5564 110:3 120:23 121:8 56 131:24 132:1 59 163:17 <hr/> <p style="text-align: center;">6</p> <hr/> 6 16:23 126:6,9 177:9 60 40:21 157:21,23 158:2,6 600-micron 167:12 61 113:24 114:3 62 117:20 625 8:23,24 9:9 6344 146:7,16,23 64 125:2 65 33:2 650	8:22 69 130:12 <hr/> <p style="text-align: center;">7</p> <hr/> 7 34:17 82:5 96:6 97:7 98:18 101:16 130:25 177:12 71 165:5 717 150:1 718 150:1 151:16 76 178:3,5 7736 146:17 <hr/> <p style="text-align: center;">8</p> <hr/> 8 67:19,20 136:18 137:1, 16 138:22 169:23 8.2 121:16 8.2.3 121:13 80 40:22 45:15 82:12,15,16 83:12 84:23 85:3 87:9 94:6,10 95:5 100:1 157:21,23 158:2,6 178:15,19 188:15 89 131:14,18,19 <hr/> <p style="text-align: center;">9</p> <hr/> 9 121:5 126:9 136:21 137:1,9,17,20,24 142:6,8 185:10,13 900 22:22 28:17	91 145:2 147:3,4 93 165:5 <hr/> <p style="text-align: center;">A</p> <hr/> A-D 44:21 ability 35:7 134:5 135:4,6,11 136:8 150:16 absorb 35:7 44:19 61:2,8 114:19 116:23 160:8 absorbant 153:12 absorbed 44:5 56:9 116:15 117:5 absorbent 26:10 50:13,15 127:22 128:7,19 129:14,18 130:3,7,8 155:18 176:20 177:3,11 absorber 118:25 absorbing 35:17 57:6,12 59:12 113:25 153:22,24 154:3 absorbs 19:25 33:8 40:6 153:9,10 160:20 161:11 absorp 15:9 absorption 35:12 56:15 57:7,12,21 59:13 117:6 130:14 132:25 133:10,14 153:11,14,15 178:12 absorption-evaporation 132:14,16,19 absorptive 13:13 14:19,20 15:6,10, 11,14,15 30:12,15 32:19 33:7 35:10,12 39:10 42:6 133:12 156:25
--	---	---	---

accelerate 46:2	25 185:3,8,9 186:4,5 187:2,9,12,17,24 188:20, 21 189:14,18 190:16	addressed 177:15	156:3,7,15,16,18 157:1
accepted 156:17		adhering 128:21	adsorptivity 58:11
account 166:7	activates 135:20	adjoining 116:13	affect 155:19
accurate 56:20	activation 23:6,7,8 26:16 28:11,16 47:18 181:3	administered 5:14	affects 32:8
acetylene 143:1,3	active 16:3,6,9,13 17:8,14,22, 23 25:4,11 27:11,19 28:6,9 29:1,11,18 31:15, 18,21 41:23 42:8 43:12 46:9,15,16,20,21,25 47:5,6 58:13,17,23 59:9 65:10 72:15 76:3 79:4 81:21 93:22 101:1 103:15,17 105:11,12,13, 15,22 106:3,12,15,23 109:10 113:7 118:13,16 124:11,12 130:19 131:21 132:2,6 133:5 136:1,9 140:23 159:15 179:9,17 180:7,10 183:11,13 184:14 189:7	adsorb 17:10 29:2,3,12,18,19 31:5 33:24 35:5 44:10,20 58:6 61:3,8 134:5,9,22, 24 135:2,5 140:8,20,22 141:8,14,24 152:22 153:19 154:11 159:17 174:16 179:23	age 5:12
acid 134:17 135:9		adsorbant 135:11 179:9	agent 28:2 101:10 118:24
acres 136:3		adsorbed 56:15	agglomerations 53:2,3
act 160:19		adsorbency 27:4,10	aggressive 154:4
action 6:23 41:17,22 76:2 160:10 161:5,16 174:25		adsorbent 26:12,14,18,22 58:14	agree 21:10 29:6,15 30:13 31:7,9 32:12,15 42:7,20 46:5 61:9 64:6 72:6 75:4 77:17 100:4 133:25 143:6 151:25 152:7 153:18,21 157:6 171:12 190:5
activate 31:21 45:1 119:1	activity 39:9 42:23 47:8 58:18 121:25 122:14 135:10, 11,25 159:22	adsorbing 35:16 59:19 60:19,22 154:6	agreed 5:1 112:5
activated 11:17 15:12 18:20 19:7 20:20 21:2,5 22:14,17 23:14 25:10,18,22 26:1, 2,4,7,13,18,25 27:11 28:1,14 41:14,22 43:12, 19 44:15 45:9,17 46:18 47:10,11,14 49:10 52:21, 23 53:25 54:12 59:7 62:22 66:11,16,19 67:5, 24 68:3 69:15,24 70:10, 19 72:5 73:2 76:12,16 77:2,8,14,18,20,24 78:2, 3,8,12 80:25 81:7,9 85:2, 4 87:5,10,18 89:2,6 90:10,15,22 91:17 92:16, 18 95:10 97:8,13,19,24 99:4 101:1,16 102:6,22 103:25 104:2 108:7 109:23 110:23 111:14 119:3,6,10 120:21,25 121:20 123:3,8 131:20 132:14 134:11 142:15,18 143:17 144:5 154:23 155:3,4,20 158:22 159:7, 12,20 167:2 168:5,6 172:2,25 180:4,16 181:11,23,25 182:8,12, 17 183:1 184:5,8,18,22,	acts 166:18	adsorbs 44:16 60:21 153:10	agreement 5:9
	actual 53:5 115:19	adsorption 34:21 35:13 37:22 57:18, 20,23 58:2,21 59:16 60:10 132:25 140:16,17, 22 153:14,16 154:5,9 178:12	ahead 75:23 101:7 127:12 139:4,8 140:4
	actuality 18:16	adsorption-desorption 35:25 36:15,24 37:10,21 38:7,10,12,20 39:1 170:18 171:1,21	air 6:24 56:1 177:19
	add 67:2,3 101:12 119:15 124:3,11,12 129:20 134:17 146:12 187:23	adsorption/desorption 39:3,11	Albeit 30:3
	added 40:19 91:17 119:18	adsorptive 12:12 13:2,13,24 14:14, 19 15:6,12,16,19 23:18, 21 30:18 31:12 33:9,20 38:12 40:5,7 42:6 50:16, 17 58:5 59:6 123:10,11, 14 133:11 134:16,19,21	alcohol 40:19
	adding 179:9 189:7		allowance 110:4
	addition 152:21		allowing 166:20
	additive 12:8		alter 176:18
	additives 11:8		alternate 127:19
			alumina

25:22 155:4,20 aluminosilicate 165:22 aluminum 11:23 78:7 179:20,25 180:13,22 182:2 185:7 amber 180:1,23,25 181:1,13 182:4 amber-colored 179:25 ambient 45:19 122:18 amorphous 50:22 amount 7:9 10:10,20 21:25 22:2 32:8 187:21,22,24 amounts 187:2,9 an- 173:11 analogy 51:19 analyses 6:8 48:10 analysis 6:4,6,18 7:5,6 11:2 48:8, 18 155:11 162:11,15 analyzed 11:10 38:20 analyzing 11:8 185:19 and/or 17:10 174:17 Andrew 8:7 angular-perturbation 173:12,23 174:8 animal 118:19 answers 104:19 anymore 182:22	apparatus 73:9 74:15 appears 187:8 apples 43:16,17 79:12 80:3,15 88:12 91:13 92:2 96:24 98:11,25 187:20 applicant 177:3 application 16:6,19 17:2 29:10 58:10 61:24 applied 65:10 68:4 70:25 106:25 115:17 apply 65:17 105:13,24 106:5,6, 10,11,13 applying 71:15 106:8 approximately 9:13 Aqua-tech 68:19 185:9 aquarium 185:10,12 aqueous 113:25 152:5 area 136:3 139:12 140:7 142:12,15,18,19 argument 147:5 183:17 184:12 arm 160:24 161:20 arrangement 127:22 129:8,13,15 art 33:6 40:4 50:18 60:23 64:8 65:8 135:12 156:4,8 157:1 178:22 article 34:19 136:18 138:23 142:7 143:10,11 161:19 165:6	Asbury 110:3 119:23 120:14,16, 17 121:8 ASDM 167:12 ask- 44:24 aspect 43:8,11 assume 9:8 111:18 assuming 111:11,12 114:1 ASTM 79:8,11 atmosphere 45:19 atomic 42:17 atoms 88:25 attachment 165:16 attention 17:2 27:13 48:23 57:4 78:23 99:11 121:13 122:15 131:13,25 138:22 142:6 149:25 163:17 165:4 170:16 171:15 attract 63:5 155:21,24 attributed 174:14 authenticated 149:16 163:11 170:9 authentication 120:4 138:10 173:20 author 57:20 139:2,10,19,25 140:6 142:11 151:21,24 authors 34:20 142:22 143:6,13 150:6,22 151:16 152:13, 20 153:19 163:19 164:4 165:21 166:5,17 170:17, 25 171:6 174:13	auto 7:1 automotive 6:21 aware 25:4,11 30:8 60:9 134:3 152:10 164:12 <hr/> B <hr/> back 10:8,14,17 21:2 27:13 40:24 48:3,4 59:11 99:11 140:5 163:6 165:5 bacteria 157:16,19,24 158:17,19 160:9,13,20,23 161:1,5, 6,12,14,23 bags 6:24 ball 51:20,22 52:2,8 ballpark 19:2 20:10,11,13 base 64:10 65:9 66:4 67:3 68:14 71:5,9 72:14,24 73:18 74:23 76:2,4,25 80:25 81:12,14,17,18,20, 24 84:24 85:1 91:23 94:8,12 95:5 96:5 97:18 98:5 100:17,20 101:9,11 102:16,17,24,25 103:1,3, 4,5,7,8,9,12,16,19,24 104:5,6,23 105:6,13,14, 18,19,21,23,24,25 106:3, 6,7,11,13,14,24 107:5 140:13,14 158:12,13 160:21,22 181:10,11 182:24 183:9,13 184:3,9, 15 189:2 based 90:10 92:7 109:7 112:7 113:8,9 158:25 175:3 189:5 basically 70:24 182:1 basing 161:10,13
---	---	---	--

basis 73:15 149:16 153:6 163:7	140:24,25 141:7,13,16, 21,23 142:11,24 143:1,2, 3,7,13 180:23,24 181:12, 20,22 182:5 183:24,25 184:22	182:12,18,19 183:2,25 184:11 186:5,13,22 187:8,18 188:2,11,19	call 7:24 105:25
bathroom 138:2 160:25		bought 7:16	Callan 5:3,11,21 8:4,9,14 16:17, 22 24:4 57:2 88:18 90:7 91:6,17 99:13 120:13 126:9 137:1,9,16,17,20, 24 138:22 142:6 145:18 148:15 149:3 162:19 163:7,18 164:22,23 165:2 169:22 170:7,13, 14 175:8,15,21 176:6 180:18
bead 50:23 51:7 55:4,11 56:6 87:20 163:24,25 164:5	black-colored 182:4	bound 172:3	Callan's 148:24 149:14
beads 40:13 160:7,11 163:20, 24	blacks 135:4 136:4 140:14 141:4	BP 139:3,11,20,25 140:7	called 135:7 141:20,21 172:12
beehive 22:15,16	blade 79:8,15,16	bracket 85:20	calling 111:21
began 86:8	block 167:24	brand 160:6	Calls 20:22 38:22 41:3,12 112:23
begin 137:19	blocked 167:21,22	break 47:20 99:6 138:1,14 164:17	Canyon ____ 20:18
behave 172:25	board 56:14 61:24,25 111:12, 16,23 112:1,3,10,12,15, 21 113:3,6 141:22 156:16,23 177:15	breathable 66:4 72:23 73:18 74:22 76:1,4,25 84:24 103:16 182:24 183:9,12 184:15	canyons 18:14
belts 6:25	board's 109:12 111:22	briefly 165:15 175:16	capability ____ 139:12 140:8 141:8,14, 24
big 169:2,11,13	body 6:24	bring 21:2 101:10	capable 67:8 113:24 114:8,16 128:21
bigger 88:2	boil 134:17	brings 23:4 128:3	capacity 17:10 31:5 33:24 34:21 35:5 134:22,23 135:1 147:7 159:16
billed 9:5,12	boiling 135:9	brought 6:21 7:11 22:22 25:3 86:10	capillary 160:10 161:4,16
billing 8:17	bold 151:16	Buchner 40:16	carbohydrate 152:14
bills 9:2,9	bond 24:1,2 128:23	buffers 152:5,11	carbon 11:17 18:20 19:8,21 20:20 21:2,5 22:14,17 23:4,14 24:14 25:11 26:2 27:25 31:20,23 35:20 41:22 43:12,19 44:15,16 45:2,9,17 49:10,11 52:21 53:25 54:12 62:22 66:11, 16,19 67:24 68:3 69:16,
bind 22:8	bonding 24:6,9,20 25:1,5,10,12 42:3,5,9,10,21,24 43:7 55:13 62:17,22 63:5,10 154:19 155:5,7,8,9,12, 16,17,21,24	built 93:13	
binding 22:7 23:15 42:8 43:19 55:14 172:3,5	bonds 41:20 174:17	Burlington 108:4	
binds 41:17 166:19	book 164:10	business 6:2	
biological 121:25 122:14 157:14	bottom 22:9,12 66:20,22 77:6,7 97:13 115:5 127:14 129:19 174:3 177:1	<hr/> C <hr/>	
black 31:20,23 35:20 49:10 67:11 93:6 118:11 133:20,24 134:1,3,16 135:1,9,10 136:12,23 137:25 139:3,20,25		calcium 118:10	
		calculations 59:1 92:6	

<p>24 70:10,19 72:5 73:2 76:13,16 77:2,8,14,18, 20,24 78:2,3,8,12 80:25 81:5,7,10 82:13,16,17,19 83:13 85:2,4 87:6,10,18 89:2,6,13,16 90:10,15,22 91:17,23 92:16,18 93:6 94:7,11,13 95:10 97:9, 14,19,24 98:8 99:4,25 101:1 102:6 103:25 104:2 108:7 110:23 118:10 119:6,10 120:21 121:1,14,20 122:13,18 123:3,8 131:20 132:14 134:1,16 135:4,9,10 136:4,11,23 137:25 140:14,24 141:4,15,20, 23 142:15 143:22 154:23 155:3 158:22 159:7,12, 21 168:5,6 172:2,25 180:4,16 181:12,19,23, 25 182:5,8,12,17 183:1, 24,25 184:5,8,18,22 185:1,4,8,9 186:4,5 187:3,9,12,17,24 188:16, 20,21 189:14 190:16</p> <p>carbonate 118:10</p> <p>carbons 52:23 119:23 120:14,16, 17 143:17</p> <p>care 160:6</p> <p>career 74:6</p> <p>careful 123:18 166:15</p> <p>carefully 130:22</p> <p>Carla 5:4</p> <p>cars 6:24</p> <p>case 7:20 8:11,15,17 12:15,17 14:18 16:23 48:15,19 60:24 63:11 69:11 70:5 71:3 74:8,10,12 78:12 107:7 122:11 128:6,18 129:16 134:23 136:14 147:18 149:15 163:9</p>	<p>165:8,12,14</p> <p>cases 45:8</p> <p>caused 119:17</p> <p>causing 24:25 115:16</p> <p>cave 115:22</p> <p>cavern 23:5</p> <p>cavities 21:16,17,21 22:25 23:11, 16 24:21 29:23,24,25 31:14 41:13 54:12 140:19</p> <p>cavity 22:7,9 23:9,10 24:4,22 30:4 54:13 115:13</p> <p>cellular 160:9 161:15</p> <p>centigrade 22:23 28:17 40:22 45:15 157:23 158:2</p> <p>centimeter 174:14</p> <p>centimeters 143:14 175:1</p> <p>Certified 5:5,6</p> <p>chains 32:6,7 51:13</p> <p>change 52:11 75:6 119:16 134:9 135:9</p> <p>changed 134:20,24 135:5,11</p> <p>changing 119:19</p> <p>channels 166:6,12</p> <p>characteristic 40:15</p> <p>characterization 27:3</p>	<p>characterize 26:10,13 30:14 50:8 109:12</p> <p>characterized 27:10</p> <p>chart 164:20 165:3,12</p> <p>chase 131:13</p> <p>check 107:21</p> <p>chemical 12:5 20:6 48:8 119:15,21 124:4 159:16</p> <p>chemically 15:16 119:4,12 152:14</p> <p>chemicals 39:18 119:11</p> <p>chemist 5:23 100:2,6 103:9,10 104:5 106:17 107:1 123:6 171:24</p> <p>chemistry 50:14 122:14 134:10</p> <p>choose 89:10</p> <p>chose 65:13</p> <p>chromatography 150:4,7,20 151:5,22 163:21</p> <p>Chrysler 6:20</p> <p>cinoxate 12:2,4,10,14,21 13:5,11, 18</p> <p>citation 33:13 62:6</p> <p>citations 158:14</p> <p>cite 131:23 132:9 144:22</p> <p>cited 33:22 62:14 73:23 120:1, 3 138:7,8 142:2 162:5 170:7</p>	<p>citing 130:18 142:5</p> <p>claim 63:16 64:3,6,11 65:9,19, 20,22 69:19 71:4,7 72:22 73:5,6,8,9,10,13,16 74:20 75:4,5,6,12,16,24 76:20 80:21 81:11 82:20, 23 89:22 90:6,23 91:5,8 93:8,24 96:17 98:20 100:14,18 102:15,24,25 103:6,11 109:9 112:4 164:20 165:3,12 182:16, 21,22 184:10 188:25 189:1</p> <p>claimed 26:22 89:22 121:11 156:24 177:4 182:19</p> <p>claiming 43:16</p> <p>claims 74:15 104:12 110:4 134:19 142:13</p> <p>clarified --- 31:1 37:6 105:2 131:8 137:22 157:22 178:17 185:11</p> <p>clarify ----- 29:8 44:2 54:9 57:25 75:14 185:14</p> <p>clarity 86:16</p> <p>clean 24:13 25:2 83:25 84:1 134:9</p> <p>cleaned 154:10</p> <p>cleans 20:4 31:14</p> <p>clear 14:19 57:19 86:15 88:6 102:14 117:13 120:10 183:5</p> <p>client 6:18 24:16</p> <p>clip 178:1</p> <p>clogging</p>
---	--	---	---

141:2 close 166:3 186:15 closely 166:3 closes 22:25 23:5 closing 23:3 CMH 74:10 coat 78:17 coated 69:10 70:2,15 180:17 coating 75:10 95:23 100:2,3 106:18 107:1,2 119:14 130:12 180:13 coatings 6:24 79:16,17 100:6 103:8 106:17,25 123:6 124:2,5 Cocona 8:3,19 9:3 147:17 191:7 Cocona's 164:19 165:2,16 coconut 120:21 122:17 color 101:11,12 181:22 182:5, 13 coloration 67:12 colors 101:12 column 56:22 57:5 67:19,20 121:5 131:24 132:1 150:24 151:7 159:14 169:5,6 179:8,15 combination 53:13 combinations 17:11	combined 67:24 comfortable 79:18,20 comments 164:24 common 42:10 43:11 commonality 155:2 commonly 46:1 163:20 company 5:24 24:14 165:17 comparable 80:17 compare 79:11 88:12 91:13 92:24 96:23 97:22 98:10,25 101:15 146:9 177:17 compared 91:9 112:21 142:15 143:1 comparing 80:3,15 92:2 93:18 comparison 180:12 complete 180:19 completely 17:23 190:9 complies 80:21 81:10 82:20 91:8 comply 76:9,20 133:16 184:2 Composite 136:22 137:25 composition 24:12 66:3 72:22 73:17 74:21 75:6 76:24 82:10, 12 108:3 129:21 130:1 182:23 183:8 188:5 compositions 108:3 compounds	6:5 comprised 87:8 90:21 93:20 97:13 112:13 comprises 89:24 comprising 66:3,5 72:23,24 73:17 74:22,23 76:2,24,25 84:25 103:17 182:23,25 183:8,10,14 184:16 computer 34:4,13 176:3 concept 25:9 36:20 concern 131:4 Concise 49:9 conditions 122:18 conduct 24:17 conducted 6:8 configuration 107:18 108:20 111:7 127:14,24 confirm 57:17 connection 133:5 considerably 40:14 considered 54:13 55:3 62:23 151:12 consist 6:19 consists 150:7 constant 37:23 construction 109:12 111:13,21 112:4	constructions 124:25 consumed 115:12 contact 55:8,9,22 56:1,3,6 65:23 66:12 76:3,5 77:5 103:15 116:14 117:3,4 128:4,23 160:13 161:17 182:17 183:1,12 184:14 contained 101:18 container 74:25 184:25 contaminants 40:18 157:14 contention 57:14 72:11,12 111:25 113:10 159:6 contentions 165:17 context 38:16 123:20,22 127:6 143:10 174:4 continue 176:25 continuous 132:12 133:8,13 control 24:17 79:21 80:19,22,24 81:5,6,19,24 82:12 83:2, 8 84:23 85:25 86:3 88:7 91:1,9 92:15,16,17 93:5, 7 94:6,7,14 95:2,4 96:5 97:4,17,18,23 98:4,5,6, 19 99:4 100:9 101:17 102:7 108:8 144:17 146:7,16,18,20 controls 121:24 122:12 copies 162:25 copy 34:3,7,15 49:3 137:8 163:2 core 19:4,15,16 21:9 22:18
---	--	---	---

23:11 30:3 168:6	court 5:5,14 31:1 37:6 105:2 129:24 131:8 137:22 157:22 178:17 185:11	cure 66:17 67:1	Debrisan 160:6 161:7 162:7
correct 9:23 11:12 15:25 16:3 18:4 19:19 21:12 23:9 28:7,15 30:1,25 33:11,15 34:1 39:18,19 41:8 42:11,21 44:4 45:6,7,24 46:20 47:13 51:4 52:6,14 53:2,6,12,23 54:14,17,20 55:11,14,18 56:15,18 57:23 58:2,7,8,18 59:9 63:6 65:5,6,11,13,23 67:6,7,9 68:17,21,23 69:4 70:11,23 71:6,19 72:2,3 76:17,19 77:19 81:22,25 87:3,4,6,7 88:9, 21 90:17 91:10 94:17 95:10,13,14,19 96:2 97:6,9 99:17,24 100:10 101:18 102:18,23 103:13 106:3 110:18,25 111:8, 12,13 113:16,21 117:15, 18 118:13,14 119:7 120:19 123:16 124:8,12 125:16,18 126:24 129:1 132:17,20,23 133:3,4,18, 20 134:1 135:13 140:3 142:3 144:20,21 145:5 146:1 147:9 149:24 151:13 152:2,3 153:20 154:19,23 157:7 158:1, 20,23 159:4 161:19 162:2 168:7,17 169:3,12, 25 171:10,13 172:19 176:15 178:9,12 187:13, 18 188:2,4,22,23 189:8, 11,19 190:7,11,18	cover 18:8 108:18	cured 64:10,16,18,21 65:3,8 66:4,10,11 70:13 71:5,9, 17,21,23 72:23 73:1,18, 19 74:22 76:1,8,25 77:1, 5 84:24 100:20 102:17 103:16 112:11 128:22,25 181:24 182:20,24 183:3, 4,5,9,13,23 184:3,15 189:1	declaration 8:10,14 9:22 30:23 32:25 39:23,24 40:3,23 48:2,4, 24 49:4,14 56:13 59:5 62:1 63:18 78:24 88:23 109:5 113:23 124:18 131:14 138:8 139:1 141:23 144:13 146:25 147:11,15 158:15 176:23 178:2 179:1
	covered 91:4 181:1,7	cured-base 184:6,7	decrease 147:7
	covering 78:15 136:2,3	cures 72:25	deduce 106:16 143:2
	covers 78:12 177:3	curing 75:1	deep 18:16,23 19:8 20:10,13, 18,20 21:20
	cracks 18:14,17 19:9 20:21 21:11,14 115:20	cut 124:3 131:12	defense 6:14 24:15 177:6
	create 28:2 87:17 107:2 114:20 119:2 134:11 135:25	CV 10:14 48:3	define 18:6 44:22 53:10 60:15 90:11 107:2
	created 22:14 69:2 70:24 71:11, 13 96:16 97:16 98:25 116:5,8 117:8 188:6	D	defined 63:10 83:1 85:13 111:15
	creates 21:14 166:6	Daniel's 170:3	defines 50:13 90:12 139:25
	creating 68:9,11 72:13 92:22 117:9,11,13	Daniels 16:23 57:3 126:9 142:8 147:18 148:14 169:23	defining 26:24 123:18 139:20
	cross-examination 148:25 149:5 170:4	Daniels' 149:4 162:20 163:1 169:23	definition 13:5 17:14,22 29:15 44:7 58:13,14 64:2,5 81:11,15 82:20,23,24 96:16 108:11 177:10 183:17 184:2 190:13
	cross-link 51:10,13 52:13	dark 181:22 182:4,13	definitions 49:10 113:9
	cross-linked 32:3,6 51:4 150:8 152:15	data 102:5 107:25 119:22 120:14 121:13 147:5	deformation 10:25 11:3
	cross-linking 32:8 152:15	datacard 49:1	degree 27:3,10 32:7 40:15 42:24 57:23 58:10 152:15
	cross-links 51:6,18	dealing 109:17 110:16,22 131:5	degrees 22:22 28:17 40:22 45:15 47:8 58:17 157:21,23 158:2 159:25
	cross-section 18:21 20:15 35:14 66:21 91:25 93:13	Dear 176:13	
	cross-sectional 21:24	debris 160:9 161:15	
	crystalline 165:22		
	cubic 143:14		
corrected 59:10			
correction 177:5,6,14,16			
corrective 6:23			
correctly 183:20			
costs 124:3			
counsel 5:2,9 49:22 190:4			
couple 80:1,14			

dehydrate 44:23	121:20 127:2,4,13,18 128:1,16,18 141:13 174:10 179:21	directed 79:2	distribution 142:24
dehydrated 44:11,17,22 158:1	description 11:1 76:10 77:7 80:21 86:10 118:1 166:1	directly 178:16,20	document 10:9 16:24 36:8,12,14, 18,21,23 37:1,15,16 62:12 102:2 120:1 122:16 136:21 138:7 145:8,12 148:9 149:14, 19 162:10,14 163:17 165:5 169:18 170:6 175:23 176:7,16
demands 50:14	designed 91:1	disagree 34:24 41:10	Document's 27:6
demonstrate 101:23	desired 119:19	disagreed 33:25	documented 25:12
demonstratives 180:20 185:15	desorption 37:22	disagreeing 133:22	documents 9:21 48:25 137:4 158:13
dep- 130:8	destroy 167:24	disclose 108:14	dots 146:12,20,21
Department 24:15	detail 40:12	disclosed 121:1,8	double-check 56:19 191:3
depending 15:12,16 27:18	determine 26:3 35:16	discloses 117:21	doubt 140:10 153:1 164:8
depends 15:22 22:12,17 24:12,22 25:2 114:17 115:1 172:8	determines 152:16	disclosing 129:8 180:9	doubting 153:7
depicted 171:20	development 10:25 12:18	disclosure 57:5 108:19	drain 169:9
deposes 5:15	Device 162:12,16	disconnect 96:10,11	dramatically 33:8 40:6 146:14
deposition 5:3 9:25 27:6 56:12 120:3 138:7 144:25 148:1,5,25 149:5,14 162:20 163:1,8 169:23 170:6	dextran 53:22 55:14 169:19	discourages 179:12	draw 17:2 24:8 27:13 57:4 62:25 79:7,15,16 83:5, 14,23 84:2,10,18 86:8 94:10 149:25 163:16 165:4 170:16
depositions 137:2,17	diameter 19:8 21:24 67:6 81:10 82:19,25 83:4,13 85:5,8 90:16 92:18 93:5 94:13 110:12 111:15 115:11 168:19	discrete 96:14,20,22 102:16	drawing 43:2 55:6,20 85:19 88:7, 15 99:10 121:12 131:13, 25 138:21 153:15 171:15
der 23:23,24	diaper 130:2	discuss 33:3 65:21 146:25 147:2 179:2	drawn 86:2 87:2
derived 28:22	difference 77:10 78:9 124:20 136:1, 2 142:23 153:13	discussed 178:25 180:21	dressings 49:1
desalting 163:20	diluent 117:21	discussing 34:19 57:20 159:10 176:8 177:5	drew 87:15 88:4 90:5,7,21,24 91:6 95:1
describe 36:22 66:9 78:5 119:13 160:5 172:15,17 180:20	dimension 64:10	dispersed 176:21	
describes 18:10 40:12 46:19,21 72:19	dimensions 167:14	dispute 60:21	
describing 36:12 38:15 42:16 59:21 66:14 75:17 94:2 107:9	dioxide 14:7 118:11,16,17,23 119:2,3 123:1	distinction 14:18 55:6,20 107:5	
		distinctions 47:2	
		distributed 128:8,20	

dried 40:21 70:13	40:10 176:19	7:14	130:15 133:10,15
driven 10:11,21	electrolyte 40:14	entering 173:1	event 7:12 35:12 42:13
dry 40:21	electromicroscope 69:8 181:19 184:20 185:20	entire 6:21 62:12 91:25 169:6	exact 9:15 41:5 59:2 128:11
dryer 158:4,5,8	elements 64:11	entitled 136:21 137:24 148:9 162:10,14 169:18	examination 5:17 163:10 175:13,16 186:1
duration 45:13	embedded 114:17 125:9,12,15,16 130:2 190:7,12	entraps 159:2	examined 5:12 32:9
dust 53:15	embodiment 113:15	environment 45:13 55:8,22 56:4,7 161:5,12 179:23 190:22	examining 38:25
Dutta 50:13,14,17,18 60:23 61:2,7,17,18,21 62:8,9 77:10,11 78:18 113:15 114:7 115:2,3 116:6 117:20 118:18 123:1,22 124:8,10,18,20 125:5,8, 23 126:6,10,12,13,18,21 127:13 128:16 156:2,3,8, 10,14,15 175:18,24 176:9,12 177:5 178:9,15, 19,22 179:3,4,10,11,12, 13,24 181:13 189:6,10 190:6,20	employed 5:24	environmental 121:24 122:12	examples 11:16 94:23 113:17 133:24
Dutta's 40:3 61:23 113:15 114:11	empty 116:9 169:8	equal 187:2,9	excess 40:17
Dutta-claimed 40:11	encapsulant 180:10	equally 155:8	excluded 156:15
	encapsulate 181:8	equals 85:25	exclusion 163:21
	encapsulating 48:17	equated 110:2	exclusive 154:1
	encapsulation 78:14,15 181:4	equates 108:7	excuse 13:25 94:25 116:6 149:2
	encased 180:25 181:5	equivalent 78:19 84:25 85:9 187:24	excused 191:12
	encompasses 11:3	error 176:15	exemplar 64:12 78:10 103:24 187:5
E	Encyclopedia 49:9	errors 175:17,24 176:8,12	exemplars 180:12
E-96 79:8,11	end 56:14 131:19	escape 114:21	exhibit 8:10 16:18 24:5 27:6 34:8,16 40:11 49:6,17,18 56:23,24 64:14 66:6 83:21,24 88:15 99:13 105:5 119:22 120:13 126:6 130:25 136:18,21 145:15 148:9,18,21 160:3 161:25 162:10,14 164:19 169:18,24 175:21,23 176:12 179:7, 15 180:9
e.g 104:23	engagement 10:10,20	essentially 188:14	exhibits 30:22 50:1 137:1,14 148:4,7 149:10 162:19
e.g. 105:7,11	engine 6:25	estimate 19:13	
earlier 34:24 39:21 175:17	engineered 7:4	ether 174:18	
edge 18:3 21:21 52:5 84:4,6	engineering 6:4 7:13 49:10	Evaluating 39:3	
education 11:4	ensure 56:19	evaporate 45:21	
effective	entail	evaporation	

163:13 165:9	extend 18:3,13,17,23 19:9 21:21,23 29:25 51:6	fails 7:10	Figures 180:9
exist 50:18 60:23 61:21 77:23 156:21	exterior 18:1,3 23:10,12 29:23 31:13 54:24 55:4,8,24 56:7	failure 6:4,6,8,18 7:5,6,12 11:2	filing 135:24
exists 23:9,10	external 55:22 56:3	failures 6:21 119:17	filled 19:24 41:13 116:10 141:5
expand 116:25 117:2	extra 163:2 176:1	fair 11:1 17:14,22 36:23 108:13 150:10 166:1	filler 118:22 119:13 124:3
expanding 116:3	extracted 24:18	fairly 119:2	fillers 117:21
expansion 115:17	extreme 28:1,10	fall 77:2	film 87:3,6,8 125:13 128:6,8, 17,18,20 129:17 130:13 132:20 133:11,13 176:20,21 177:20
experience 10:23 11:5 48:6,7,8 109:8 112:14,18 142:5 144:5	extremely 117:17	falls 33:8	films 79:6,21 88:8 132:12,17 133:1,6,9,17
experiment 84:14 88:7,11 90:25 91:12 92:2,3 93:14 94:16,25 95:9 96:20 146:17 147:12	extruded 71:19	familiar 12:10,19 13:2 14:7 16:24 143:24 150:3 154:18	filter 15:10 30:11,12,14
experimental 79:21	extrusion 72:1	fantasy 109:16	filter-type 14:9,12 15:4,5,19 30:6,9
experiments 82:5 92:24 93:17 97:22 98:17 101:15 144:16	exudates 160:8	faucet 169:9	filters 14:16 185:10,12
expert 74:3 138:8 147:18,22	exuding 160:7	feature 42:11	final 180:18
expertise 11:1	<hr/> F <hr/>	February 182:10	find 24:17 99:2
explain 50:11 51:15 65:24 82:21 84:22 95:21 99:7 178:21	fabric 68:5 69:11,25 70:25 146:11,20,22	federal 74:7,8 138:10	fine 47:21 53:15 84:9 137:10, 11 182:5
explained 142:23	fabricate 127:23	feed 8:8	finish 14:17 75:22 131:16 138:3 189:16
exposed 28:10 157:19 179:23 180:17 188:22 190:21	face 100:5	feel 80:10	firm 8:7
exposing 179:17 180:7	facing 139:24 151:15	few-minute 47:20	fit 87:22 89:1
exposure 121:24 122:12	fact 47:5 134:7,19 141:16 156:2 157:12 160:22	fiber 24:15	flow 116:15 154:5 155:19
expressed 136:10	factories 107:8	field 79:16 107:9 174:15	flowing 117:6 154:8
expressly 131:21 132:6	factory 6:22 107:10	figure 6:22 7:7 80:8,9,10 81:2, 3,4 82:3 86:17,18 87:1 92:14 96:1 98:1,24 99:16,19 101:14 104:17, 18,19,22 105:5,21 107:24 139:9,14 140:6	Fluorescent-based 162:11,15

focusing 50:15	formulation 10:24 11:3 98:7	161:4	111:5,11 112:9,18,21,25 113:5 114:13 120:9,12 121:5,12 122:2,9,25 123:7,13,21 124:17 126:4,5,8 127:3,9,18 128:5 129:12 130:6,24 131:3,9 132:19 134:13 135:16,19 136:25 137:5, 11,16 138:13,18,20,21 141:6,12 142:3,21 143:12,20 144:11 145:3, 17 147:23 148:13 149:12,20,22 150:14 151:11 152:4 153:6 154:12 157:3,5,25 159:13 162:18 163:2,14, 16 164:16,22 165:1 166:17 167:4 168:15 169:1,21,25 170:2,13 172:16,19 173:8,16,18, 22 175:7,11 176:1,5 177:7 185:24 186:2 190:1 191:4,9
follow 31:16 42:18 176:2	formulations 98:5 181:20	gas 17:11 172:7	give 11:16 15:9,13,18 20:16 34:13 50:4 64:4 85:24 95:22 107:14 131:7 132:3 149:18 157:18 163:6 175:20
forbidden 131:21 132:11	foundation 19:10 21:22 22:11 23:17 25:16 26:23 27:5 30:19 32:23 36:25 37:12 38:3, 8,21 39:13 41:2,11 44:12,18 59:23 61:5 62:19 75:8 110:6,20 112:23 120:5 121:22 122:4 123:5 126:2 127:16 130:21 135:14,17 138:9 141:3,9 142:1 143:18 144:8,24 149:17 150:11 151:4 153:4 154:2 163:11 166:14,25 170:9 173:6,20	gave 30:6,7	glass 129:19
forbids 132:6	fraction 21:23	gel 11:19 15:15 25:15,17,18 30:7 40:16,19 41:24 45:4,9,23 46:6,15 47:2,6, 12 114:1 118:5,7 150:3, 7,20 151:5,22 155:3,12, 15 163:21 169:19 174:15,17	good 5:19 51:20
force 23:25	framework 165:23	gel's 46:16	Gotcha 6:15 139:18
forces 23:23	free 125:14	general 6:20 37:9 40:20 141:16 177:2 178:24	grab 137:9 176:2
Ford 6:20	frequency 173:12,23 174:8 175:1	generally 36:13 38:19 118:2 160:20 161:11,23	grade 120:23 155:15
form 18:5 19:3,10,20 20:22 21:11,13,22 22:11 23:17 25:16 26:23 27:5 28:8 29:16 30:19 32:14,18,23 35:19 36:2,16,25 37:12 38:2,8,21 39:12 41:2,11, 19 42:1,12,19,22 43:15 44:1,12,18 45:11,18 46:11,21,23 47:4,9,15 50:9,21 51:23 54:8 57:24 58:12 59:23 60:5,14 61:5,13 62:19 67:10 72:17 74:16 75:8 79:24 90:8,18 91:7,19 96:15 99:21 100:11 101:20,25 102:9,20 104:10 107:19 108:22 110:5,19 111:9 112:6,16,20,22 114:1,10 119:3 121:2,9,21 122:4, 22 123:4,9,15 124:15 126:1,25 127:5,16,25 128:21 129:10 130:21 131:6 132:18 134:1,6 135:14,17 141:3,9 142:1, 16 143:18 144:8 147:20 149:9 151:3 152:1 154:2 159:8 166:13,24 168:12, 25 172:13,18 173:13 177:18 189:24	front 24:5 142:9 171:5 182:22	Genetic 162:11,15	grade-by-grade 155:14
	full 61:7 93:13	geometry 66:21,25	graduate 7:18
	function 119:13 124:5	Gergely 5:18 7:25 8:6,13 16:17, 21 18:7 19:6,12,22 21:1, 6,15,25 22:13 23:20 25:19 27:1,8 28:12 29:21 30:21 31:2,3 32:16,20 33:1 34:10,18 35:22 36:4,20 37:3,4,9,14,25 38:6,11,17,24 39:5,10,15 41:6,16,21 42:2,15,20 43:1,18 44:3,14,21,24 45:16,20 46:13 47:7,12, 17,19,22 48:1 49:25 50:3,6,12,24 51:25 54:11 57:1 58:1,16 60:1,8,16 61:9,14 62:21 66:15 67:13 72:20 74:19 75:11 78:22 79:25 84:2,10 88:13,17 90:13,20 91:15 92:4 96:18 99:10,23 100:15 101:22 102:4,13, 21 104:11 105:10 107:22 108:24 109:4 110:10,22	gram 33:8,16 40:6 136:11 142:12 143:14 160:7
	functions 15:7		grams 33:8,16 40:6 82:12,15, 16,17 83:12 84:23 85:3,4 87:9 89:13,15 94:6,7,10,
	funnel 40:17		
	<hr/> G <hr/>		
	G-50 163:20		
formed 128:7,19 129:17	gained 74:14		
formula 68:14 80:25 92:8 99:17, 20,22 100:5 101:10,11 103:3,4,5,7,9 104:6 184:4	garbled 14:24		
	garment		

<p>11 95:5 100:1 136:11 160:8 186:6 188:15</p> <p>Grand 20:17</p> <p>grant 138:16 170:11</p> <p>graph 171:20</p> <p>graphite 24:14 25:25 26:6 49:11 184:22</p> <p>great 42:24</p> <p>group 24:25 63:5</p> <p>groups 152:21 154:15,19,23,25 174:17</p> <p>guess 19:6 23:2,20 68:8 91:15 93:16 97:11 124:17 159:13</p> <hr/> <p style="text-align: center;">H</p> <hr/> <p>Haggquist 16:18,23 17:1,7 27:13,17 28:5 29:1,9 46:19 57:3 58:10 60:25 61:14 66:20, 25 67:5 72:13 77:11 118:12 124:21 142:8 146:15 165:4 179:10,21 182:2 189:13,18,21</p> <p>Haggquist's 16:5</p> <p>halfway 19:1,15</p> <p>Halley 115:2 130:11 131:20 133:17 145:8,15,18 147:5,6,8</p> <p>Halley's 131:22 132:7</p> <p>hand 66:9 78:6 162:19 165:1 179:16 180:6</p> <p>handed</p>	<p>8:13 16:21 57:1 136:25 164:9</p> <p>handing 120:12 126:8 145:17 148:13 164:22 169:21</p> <p>handwritten 177:13,23</p> <p>happening 42:17 96:10 101:13 108:12 114:7,12 154:9 173:9</p> <p>hard 76:8 83:6,17</p> <p>hardware 101:9</p> <p>head 9:17 60:4</p> <p>headlamps 6:25</p> <p>heard 36:4 46:4</p> <p>hearsay 120:4 138:10 149:17 163:11 170:9 173:20</p> <p>heart 12:6</p> <p>heat 39:18 159:11</p> <p>heating 157:21</p> <p>held 104:3,7</p> <p>high 117:17 139:12 140:7,16, 17 142:14 144:6 158:5</p> <p>highly 26:14,18,22 27:11 35:10 58:5,14 140:23 176:20</p> <p>history 110:2 176:7</p> <p>Hold 139:13</p> <p>holding 167:12</p> <p>hole</p>	<p>115:21 117:13</p> <p>holes 114:25 115:19,21 116:17 152:16</p> <p>honey 22:15</p> <p>honeycomb 165:23</p> <p>hook 61:1</p> <p>hoses 6:25</p> <p>hot 158:8</p> <p>hour 8:22 9:7 46:14 47:20</p> <p>hours 9:10</p> <p>house 158:3</p> <p>Hubble 6:11</p> <p>hundreds 54:5 107:8</p> <p>hydrated 165:22</p> <p>hydrochloric 134:17 135:9</p> <p>hydrogen 24:1,2,6,9,20,25 25:1,5, 9,12 41:20 42:2,3,5,9,10, 21,24 43:7 55:13 62:17, 22 63:5,9 154:19 155:5, 6,8,9,12,16,17,20,24 174:17</p> <p>hydrophilic 62:18,23 63:1,3,8,9,10 113:22 130:9,10,13 132:12 133:9,13 153:8 154:24 177:10 181:14</p> <p>hydroxyl 24:25 152:21 154:14,18, 23,25 174:17</p> <p>hypothetical 20:23 127:1</p>	<hr/> <p style="text-align: center;">I</p> <hr/> <p>i.e. 62:24</p> <p>idea 164:9</p> <p>identification 8:12 16:20 56:25 88:16 119:24 126:7 131:1 136:20,24 145:16 148:12 162:13,17 164:21 169:20 175:25</p> <p>identified 163:8 170:6</p> <p>identifier 120:21</p> <p>identify 31:11 98:16 176:11</p> <p>identifying 134:15</p> <p>ignoring 156:2</p> <p>immerse 78:17</p> <p>immersed 65:18 77:3</p> <p>impermeable 66:4 71:5,9 72:14,23 73:18 74:22 76:1,4,24 84:24 100:20 103:16 177:14,19,22 182:24 183:9,12 184:15</p> <p>important 40:15 80:1,14,19 85:15 87:14 130:12 182:8 183:16</p> <p>Improper 20:23</p> <p>improved 101:23 102:6 144:16 145:4,23</p> <p>improvement 146:17</p> <p>improves 147:6</p>
--	---	--	---

IMS 8:18,20,21 9:3 10:11,21, 22	initiated 28:16	interrupt 15:1	item 10:19 105:6 157:15 160:17
inappropriately 118:25	inorganic 140:21 184:21	intervals 40:20	
include 101:1 111:14	inside 20:6 22:16 51:22 52:6	introduced 137:17 148:24 149:4 160:7	J
included 101:16	insoluble 121:15 122:13	introduction 120:1 148:10	Jackson 7:24 8:2 10:2 18:5 19:3, 10,20 20:22 21:3,13,22 22:11 23:17 25:16 26:23 27:5 28:8 29:16 30:19 32:14,18,23 34:5,6,8 35:19 36:2,16,25 37:7, 12,20 38:2,8,14,21 39:2, 8,12 41:2,11,19 42:1,12, 19,22 43:15 44:1,12,18 45:11,18 46:11 47:4,9, 15,21 50:2,4,9,21 51:23 54:8 57:24 58:12 59:23 60:5,14 61:5,13 62:19 66:8 67:10 72:17 74:16 75:4,7 78:5 79:24 84:1,5 90:8,18 91:7,19 96:15 99:21 100:11 101:20,25 102:9,11,20 104:10 107:19 108:22 109:1 110:5,19 111:1,9 112:6, 16,20,22 113:1 114:10 119:25 120:10 121:2,9, 21 122:4,6,22 123:4,9, 15,17 124:15 126:1,25 127:5,16,25 129:10,23 130:21 131:6 132:18 134:6 135:14,17 137:3,8, 12,19,23 138:3,6,16,19 141:3,9 142:1,16 143:8, 18 144:8,24 147:20 149:7,9,13,21 150:11 151:3 152:1 153:3 154:2 159:8 162:22,24 163:3,6, 15 166:13,24 168:12,25 169:24 170:1,5 172:13, 18 173:5,13,19 175:10, 14 176:4,6 177:24 178:18 185:14,22 189:24 191:6
incorporated 29:10	instruct 37:4	invalid 92:25 93:15 156:8	
incorrect 16:4 184:13	instructed 37:7	invented 7:17 24:16	
increase 124:13 179:10,18 180:8	instrument 175:6	inventing 125:1	
increased 115:11	intended 185:17	invention 40:11 176:18 177:4,12, 18 178:20,23 179:3	
indicating 78:4 86:13 95:6 96:8 129:21	intent 69:1 113:13 184:18 187:4 188:25	inventor 73:22 74:24 110:1 114:7	
individual 21:4 53:5,18,22,25 54:2 97:16 98:4	intentionally 186:14	inventors 101:15	
individually 96:23	interact 172:10	involved 48:16	
industrial 6:3 119:16	interacting 172:11,15	involves 143:2	
inert 117:21 118:18,21 119:4, 6,12,14,18,20 121:15,20, 25 122:2,9,11,13,14 123:2,3,8,12,14,19,20,23 124:2,5	interaction 172:12,17,20	involving 174:17	
information 108:16 109:3 122:24	interchange 104:5	iodine 35:20 134:8,18 135:7 136:4,6,7,8,11	
infrared 57:6,12 59:12,16,19 60:7,10 175:2	interchangeably 61:11,17	IR 57:12	
infringement 164:19 165:2,11,17	interconnecting 166:6,12	irregular 87:21	
ingredient 101:1	interior 18:4,6,14,15 22:25 51:7 52:8 55:10,16,17 56:2,6	irregularly 89:3 109:24 167:9	
initial 12:18	interlink 32:7	isolated 97:16,17 99:2	
	interpret 37:18 155:7	isotherm 35:25 36:15,24 37:11,23 38:7,13,20 39:1,11 171:21	Jackson's 189:6
	interpretation 104:22 174:6 181:17	issue 56:11	jagged 87:22
	interpreting 112:19		jam 51:16

jar 64:17 136:2	149:16 170:9	led 113:12 178:23	litigation 74:3	
Jason 8:2 49:25 191:5	laid 127:15	left 76:12 77:14 190:10	living 5:22	
Jeffrey 5:21	large 68:17 113:25 167:16,19	level 39:9 42:17 54:3 62:24	LLC 8:1	
judges 112:13	larger 68:22 89:25 90:1 115:10 142:25 162:14 163:17	library 13:16	loaded 43:23	
<hr/>				
K				
<hr/>				
Kathy 8:6	Larsen 8:7	light 59:19	loading 119:19	
keeping 124:8 125:5 179:13	law 112:13	likewise 54:19	loadings 119:18	
kind 6:6 35:17 74:25 75:1 84:4 185:8	lawful 5:12	limited 102:16	location 116:20	
kinds 15:11	lay 87:21 88:20 109:18,22, 25	lines 86:2,7 126:18 131:24 140:3 179:8,15	locations 22:5	
Klaustermeier 5:4	layer 65:9 68:11 76:16 77:18 81:12,17,18,20,24 85:7 86:5 89:1,5,18 90:11 91:9,22 93:11,12 94:17 96:5 97:5,8,23 98:5 102:8,21,24,25 103:1 109:9,22 110:9 111:2,4 125:25 126:14,23 127:20 128:2,4,24 129:8 136:22 137:24 179:5 186:18,20 187:8,15,25 188:12,19, 20	linkages 174:18	long 11:14 159:10	
KMI 165:6,17,19	layered 127:21 129:13,14	linking 51:17	Longbow 6:9	
knowingly 148:6	layers 96:14,21,22 97:16 102:16 107:16 129:9,11 186:12,14	liquid 13:9,19,22 14:3 17:10 64:25 66:4 71:5,8 72:14, 23 73:18 74:22,24 76:1, 4,24 84:23,24 100:20 103:15 113:25 151:6,8 153:15 164:1 169:9 172:7 182:9,10,11,23 183:9,12 184:15	looked _____ 13:5,7 165:15 166:2 187:5	
Kutak 8:19 9:3	laying 89:17 125:24 126:14,23 128:3	list 11:13,14 34:20 46:25 47:5	losing 81:1 <u>95:7</u> _____	
<hr/>				
L				
<hr/>				
lab 28:14	lead 178:16,19 179:3	listed 41:23 74:8 86:21,24 118:12,17 149:11	lots 71:18	
label 175:21 185:5	leading 24:14 61:6,13 110:6	listing 48:6	Louis 6:1 8:5	
labeled 105:6 136:18 138:23 148:18 175:20	leaves 51:16	lists 121:3	low 19:24 31:13 141:1	
laboratory 148:10 167:13	leaving 119:18	literature 13:15 30:17 32:17 33:13, 17,18,22 39:22 40:2 41:1,4,7 59:21 121:19 123:8,11 134:4 135:1,4 141:11,13,15	lower 84:19	
lack 163:11			lunch 99:9	
lacking 120:4 138:9			<hr/>	
lacks			M	
			<hr/>	
			macroscopic 52:24 53:14,17 69:1 181:17 184:19 185:18	
			macroscopically 69:6	
			made 52:4,13 71:18,25 72:1	

79:6 85:7,10 88:10 92:5 93:2,14 103:7 104:24 108:1 125:2 143:2 164:24 magnification 54:3 magnitude 90:1 make 47:1 56:23 69:1 83:20 86:14 100:2 107:1 110:15 117:3 127:19 128:2,4,13,24 133:11 137:9,20,23 160:16 162:24 187:25 189:8 makes 72:25 106:17 107:4 129:21 140:15 making 93:4 96:22 110:12 189:23 manner 161:23 manual 44:8 60:11 158:17 manufacturing 127:19 129:22 marble 51:2 87:20 116:22 marbles 88:24 109:18,25 margin 85:25 mark 8:9 16:17 64:14 88:14,17 99:12 126:5 157:3 marked 8:11,14 16:19,22 56:24 57:2,3 88:15 119:23 120:13 126:6,9 131:1 136:19,23 137:1,2 142:7 145:16,18 148:11,14 162:12,16,20 164:20,23 165:2,3 169:19,22 175:24 176:14 marketplace 14:4	material 14:13 15:4,10,19 16:2 20:8 24:18 32:13 35:16 43:3 52:4,6,7 54:16,20 64:10 65:9 66:4 67:3 71:25 72:14,24 73:18 74:23 76:2,5,8,25 79:3 83:2 84:24 85:1 91:23 94:8,17 95:6 96:6 97:18 100:17,20 101:3 102:17 103:8,12,16,24 104:5 105:14,19,21,23,25 106:6,11 107:5 109:20 110:17,23 114:20,21 125:1 129:4 130:7 140:15 141:2 143:7 150:8,12 152:22 153:9, 12 166:3 168:11,13 177:18 181:10,11,13 182:1,24 183:9,13 184:4, 6,7,9,16 187:25 189:2 materials 6:12,16 7:15,17 14:10 15:6 16:9 30:6,9 34:11 48:16 53:14 83:4 96:2 103:20 108:1 113:20 115:12 151:22 154:24 156:18 157:2 185:19 matrix 43:4 51:14 55:1,2 114:17 115:9,17 116:7,21 117:1, 3 119:19 152:17 181:15 matter 9:6 12:22 41:14 180:23, 24 maximum 179:6 meaning 128:22 184:4 means 27:11 29:22 64:21 74:20 75:9,12,16 79:11 80:15 86:10 103:4 106:14 108:6 118:22 119:5 122:21,23 124:3 134:9, 20 144:3 171:4,25 174:23 meant 44:21 93:25 measure 134:8 135:6 140:22	187:4 measurement 97:25 mechanical 42:16 43:6,8,11 119:15 167:18 mechanism 23:18,21 41:17,21 42:6, 14 117:6 130:15 132:14, 16,20 133:2,10,15 150:21 153:11 154:4,22 155:1 mechanism's 174:25 media 169:5 meet 90:16 91:10 110:18,24 membrane 65:9 69:10,13,14,23 70:1,2,6,15,16,19 82:7 93:20 97:12 98:2,3,20 124:8,19,23 125:6 146:10,11,12,19,20,22 179:10,14,18 180:8 189:8,23 membranes 131:5 mention 117:20 130:19 132:22,24 147:10,15 mentioned 25:9 mere 134:7 met 10:2 90:6,23 91:18 92:11 93:7 metal 88:25 meters 142:12 method 31:11 73:8,10,13,15,19 74:15,17,18,20,21 75:5 76:1,8 127:19 134:15,16	methods 7:17 24:16 microfilm 163:25 Microfluidics 162:12,16 micrographs 141:17 micron 94:13 microns 68:23 83:3 85:16,17,20, 23,25 90:15,16 94:14 189:11,19 micropores 116:17 143:3 Microporous 136:22 137:24 microscope 32:10 69:6,7 microscopic 52:17,19,21,24 53:6,10, 14,19,23 167:6 microscopically 51:12 52:15 181:18 microwave 45:5,24 46:2 mil 69:14,23,25 70:3,6,16 72:6 79:7,15,22 80:2,11, 20 81:6,7,25 82:8 83:9 85:22,23,25 86:3 88:8 90:14,21 91:16 92:17,24 93:4,14,18 98:11 mile 20:18 military 6:3,8 119:17 157:18 mind 19:13 27:1 38:25 124:24 163:3 minerals 184:21 minimal 135:25
---	--	--	--

minimum 10:10,20 82:25 179:5 minus 174:13 175:1 minute 34:13 62:3 104:14 minutes 47:22 108:17 Mischaracterizes 177:7 misled 113:4,6,9,10,13 misrepresentation 112:7 misrepresentations 113:7 missile 6:9,10 missing 50:10 190:19 mistake 86:13,14 misunderstands 111:23 mix 95:23 100:2 105:13,22 106:12,23 107:2 mixed 67:8 68:14 69:24 77:18, 20,22,24 85:4 95:10 97:8 104:2 106:1 110:24 184:8 188:21 mixing 97:3 106:2 126:22 190:16 mixture 68:4 69:15 70:9,10 76:12,15 78:7 95:16 102:7,22 105:14,24 106:10 188:3 modify 124:4 moisture 48:9 114:19 146:13 147:6	moisture/water 114:21 molecular 14:9,12 15:3,5,10,18 19:24 30:5,8,11,12,14 31:13 42:17 166:18 167:1,5,6 168:20 171:7, 9,13 molecule 35:9 169:7 172:20 173:4 molecule-water 172:20 molecules 15:7 24:5 26:5 150:15,23 169:8 172:4,6,9,15 173:1 174:16 moment 8:16 17:4 31:23 107:20 131:7 132:3 178:4 mono 89:18 morning 5:19 Motors 6:20 move 150:24 moving 65:1 152:6 189:3 MPL 143:2 mulch 74:9,11 multi-use 157:15 160:17 161:3 multiple 79:3 mutually 153:25 MVTR 93:17 101:24 102:6 117:16 144:16 145:4,23, 24 146:7 147:7	<hr/> N <hr/> Nalco 78:19 113:19,22 114:12 115:8,11 116:3,10,20 130:2 180:4 names 136:16 national 6:14 naturally 15:24 27:24 28:6,10,15 nature 16:10 177:2 neat 89:2 necessarily 26:11 needed 181:4 nice 89:2 nodded 9:17 non-activated 25:17 26:9 167:3 non-activating 26:9 non-defense 6:18 non-porous 32:22 39:22 40:2 41:1 141:7,25 176:19 177:20 179:5 non-reactive 122:3,10,18 nonetheless 110:10 165:13 note 78:8 87:14 130:12 notebooks 107:25 notes 35:24	notice 120:3 138:8 149:14 163:9 170:7 nuclear 6:10 number 9:15 18:22 34:8 35:20 49:7,19 135:7 136:7,8,11 143:21,22 178:11 numbers 35:1 49:17 80:17 136:4, 5,6 nylon 70:5,22 71:17 72:8 nylon-woven 68:5 69:11,25 70:25 71:1,8 nylons 71:13,18,23 <hr/> O <hr/> O-E-L-K-E-R 31:2 oath 5:14 object 18:5 19:3,10,20 20:22 21:13,22 25:16 26:23 27:5 28:8 29:16 30:19 32:14,18,23 35:19 36:2, 16,25 41:19 42:1,12,19, 22 43:15 44:1,12,18 45:11,18 46:11 47:4,9,15 50:9,21 51:23 54:8 57:24 58:12 59:23 60:5,14 61:5 67:10 72:17 74:16 75:7 79:24 90:8,18 91:7,19 96:15 99:21 100:11 101:20,25 102:9,20 104:10 107:19 114:10 119:25 121:2,9,21 122:4, 22 123:4 124:15 127:16, 25 129:10 130:21 131:6 132:18 134:6 135:14 138:6 141:3,9 142:1,16 144:8 149:9,13,15 150:11 154:2 159:8 163:7 168:12,25 170:5
--	--	--	---

objection 22:11 23:17 37:12 38:2, 8,21 39:12 41:2,11 62:19 108:22 110:5,19 111:1,9 112:6,16,20,22 120:7 123:9,15 126:1,25 127:5 135:17 138:17 143:8,18 144:24 147:20 149:18 151:3 152:1 153:3 163:12 166:13,24 170:12 172:13,18 173:5,13,19 177:7 189:24 objectionable 120:4 objections 21:3 37:20 38:14 39:2,8 109:1 137:9,20,24 138:3 162:24 obtain 110:4 179:6 obvious 187:15 occur 16:10 28:15 occurring 15:24 25:10,13 odor 57:6,11 59:12 Oelker 109:17 111:24,25 112:2, 7 113:10,12 Oelker's 30:22 139:1 offers 48:9 offhand 143:19 open 47:18 140:21 162:1 180:15 operate 5:25 133:1 opinion 95:18,20 102:15 109:8 111:22 opportunity 39:24	opposite 128:11 145:6 146:14 oranges 43:16 92:3 order 46:6 90:1 110:4,15 189:19 ordinary 33:6 40:4 64:8 65:8 135:12 178:22 organic 19:25 20:8 26:5 41:13 140:14,20 141:1,5 148:10 organics 31:13 orientation 109:23 original 158:1 176:14 Ott 8:6 ounces 185:10,13 Outdoor 8:1 outer 140:15 oven 44:23 45:5,15,24,25 46:6,10 70:13 158:3 overwhelm 153:10 154:4 overwhelms 35:13 Owner 5:3 oxide 11:23,25 oxygen 28:2 <hr/> <p style="text-align: center;">P</p> <hr/> packed 140:20 151:7	pages 49:21 57:19 paid 8:18,24 9:18 paint 107:8 paints 118:24 119:1 Pamper's 130:2 pan 78:7 130:1 179:25 180:4, 13,23 182:2 panels 6:24 pans 179:20 180:22 181:24 185:7 paper 34:3 83:17 136:15 141:23,25 162:4 172:1 174:5,10 175:4 178:1 papers 120:2 138:9 162:21 170:8 paragraph 17:3,8,21 27:15,16 28:25 33:2 56:14 59:3,4 63:24 78:23 109:4 121:13 122:16 125:2 130:12 131:14,15,18,19 139:14, 16,25 142:10 145:2 147:3,4 170:21,22 174:3 176:17 177:1,9 178:3,5, 15,19 paraphrase 89:23 parens 110:12 part 5:13 9:7 23:8 42:13 51:9, 10 55:17 73:3 77:9,10 157:12 183:16 partially 51:5 125:9,11,15 190:7, 12 participate 154:19 174:16	participated 73:24 particle 12:12 13:3,25 14:1,14 16:13 17:15 18:1,4,14, 17,24 19:8,18 21:9,12,21 22:3,5 25:6,13 26:1,10, 18 27:19 30:1 33:7,10 38:11 39:10 40:5,8 41:15 42:8 46:15,17,20,22,25 50:14,17 55:7,21 58:13, 14 59:6,7,20 69:5 81:13 82:25 90:10 91:2,9 101:16 106:15 109:9 110:3,17 113:7,22 115:11,13 116:2,3 117:2, 4 118:13,18 130:4 133:5 134:11 135:20 136:1 142:25 153:16 155:18 156:3 161:7 162:7 181:14 particle's 38:25 particle-by-particle 155:10,14 particles 11:5,11,13 14:7 16:6 17:8,9,22,23,24 18:2,19 20:25 21:5 25:5,11 26:22,24 27:11,24,25 28:6,9 29:1,11,18 31:12 38:18 41:23 42:11 43:12 45:9 46:9 47:6 48:17 50:15 52:21 53:2,3,4,5, 11,13,16,17,19 58:6,17, 23 59:9 65:10 66:21 67:6 68:10,13,17,22 69:8 72:15 76:3 77:8 78:13 79:4 80:20 81:21 83:4 85:8,12,16 87:5,15,17,18 89:3,19 90:15 91:23 93:5,7,23 102:22 103:15, 17 105:11,12,13,16,22 106:3,12,24 109:10,19, 24 111:14 113:24 114:8, 19 115:8 116:13,19,20 117:21 118:12 119:17 123:2 124:12,13 125:8, 14 126:22 127:15,23 128:2,7,19,21,23 129:14, 20 130:19 131:4,20,21 132:2,6,11,15,22 133:12,
--	--	---	---

15 134:11 144:6 159:15 166:19 167:15,17 168:17,18,22 169:11 176:20 177:3 179:9,14, 17,22 180:7,10,14,16 181:5,19 182:5 183:11, 13 184:14,16 188:21 189:7,10,18,22 190:6	159:14 175:18,24 176:9, 12 177:6,15 178:20,23 179:3,16 180:6 184:10 185:21 188:7 189:13	173:15,16	plurality 76:3 103:15,17 183:11, 13 184:14,16
particulate 11:8 87:12 131:22 132:2, 7 144:4 180:23,24	patents 73:20,22 112:19 124:21	Peter 7:25 34:9 44:19 50:2 120:6 137:4 138:16 149:17 162:25 163:13 169:24 170:11 185:23	point 19:17 30:3 33:14 49:19 50:10 85:15 111:6 124:18,20 125:2 128:25 147:3 154:12,13 156:5,6 160:18 162:9 165:14 175:8 190:13,19
parties 170:8	path 116:14	petition 34:16 170:3	pointed 144:19
parties' 120:2	patient 161:9	Petitioner 5:2,13	pointing 85:18 187:21
party's 138:9	Patriot 6:9	petitioner's 109:8	poke 66:22 77:8 180:2 181:6,9
pass 55:15 87:18 151:7 166:20 167:17 168:2,17, 19,22	Pearl 139:20 140:1	phase 150:7,23 151:2,6,7,13 152:6	poking 77:15 85:12 130:4 181:15,16,17
passage 16:8 31:6 33:25 34:2 110:11 132:9,11	Pearls 133:20,24 134:3 135:1 139:3 140:25 141:7,13 142:11,24 143:2,7,13	phases 17:11	polyacrylate 78:19 180:3
passages 177:1	pellet 52:1,10 116:22	phenomenon 19:4,5,14,16 20:12 21:7 59:22 134:10 153:17	polyacrylic 104:25 105:7
passageway 117:10,11	pellets 109:18 128:3	phrase 88:19,22 109:11	polydextran 32:2
passed 156:17,24	penetrate 19:15 21:8 78:20 150:16	physical 64:9 116:19 119:16,20 124:4 155:1 159:17	polyester 64:18,24 66:10 76:14,15, 16 77:20,22 100:22 103:25 104:2 116:21 117:1 182:7,9 183:3,6 186:9,13,25 187:1,7,9, 16,23 188:12,19,20
passes 169:3,14	penetrating 55:10	physically 49:22 68:13	polymer 5:23,25 8:4 32:6,7 49:9 50:23 51:14 54:2 55:1,2 64:16 72:25 103:10 119:14 125:12 127:14,22 128:6,18 129:13,17,19 152:16,22 176:20,21 177:20 179:5 183:5
passing 169:7,8	people 46:1,6	picked 182:4	polymeric 6:4,12,16 7:15 150:8 152:14 181:20 184:21 185:19
patent 5:3 16:5,18 17:1 18:8 26:21 27:9 29:10,11 50:18 56:16,24 57:2,19 58:2,9 59:11 60:23 61:7, 21,24,25 67:14 73:24 74:3,11,12 75:18 76:10 77:9 80:5,6 92:10 93:19 96:12 99:11 103:6 104:9 107:4,11,17 108:13,18, 19 111:6 112:13 121:1,3, 8 128:17 130:5,18,23,25 131:4,23,25 132:5 133:16,18 135:24 156:3, 16,17,18,23 158:25	percent 18:21 19:1,11 20:15 166:7	picture 48:5,12 115:24	polymers 10:25 11:9
	performed 134:12	piece 33:17 83:17	polyurethane 67:9,23 68:4 69:15,24 70:11,20 72:5 76:13
	perimeter 18:3	pieces 48:7 87:22	
	permeable 177:13,19,22	pile 178:4	
	permeate 150:23	place 67:2 153:11	
	person 33:6 40:4 64:8 65:7 174:23 178:21	placing 74:25	
	pertains 40:10	plane 180:25	
	Perturbation	plastics 118:24	

77:18,24 78:3,8,17 81:25 82:13,16 83:12 84:17 85:4 87:9 89:16 90:22 93:21 94:7,11 95:5,9 97:5,8,13,14 98:8 99:25 100:13,22,24 101:17,18 102:6,8,17 104:24 105:7 116:6,7,21 117:1,9,14 125:21 126:15,22 130:3, 6 180:5,13 181:2,5,6,7, 15,22,24 186:8,12,20,21 187:2,12 188:15 190:16	poured 186:14 powder 139:3,11 140:7 pre-existing 137:3 preamble 50:19 preferred 113:15 preliminary 112:4 premise 167:2 prepared 103:24 preparing 9:21 79:3 prescribe 6:22 present 63:16 160:9 161:15 176:18 179:11 presentations 61:23 presented 59:25 61:25 96:7 108:11 pressure 38:1 pressures 38:4 pretty 187:15 previous 137:17 previously 16:22 57:2 126:9 137:2 148:14 printed 49:21 prior 50:18 60:23 156:4,8 157:1 process 7:12 31:21 46:2 62:18	63:8 73:3 produced 5:12 14:4 product 7:7,8 48:9 120:20 products 127:23 professional 5:5 109:8 Pronunciation 173:14 propanediol 104:25 proper 91:1 163:10 properties 17:24 50:16 119:16,20 124:4 130:10 139:11 156:15,16 property 59:7 134:21 proposed 174:15 proposition 37:10 propylene 7:16 prosecution 73:25 110:2 176:7 protected 68:3 105:12,15 protective 67:24 70:14 105:15 protruding 78:13 184:1 prove 156:8,9,14 provide 49:3 104:23 105:6,11 provided 49:13,22 107:13 158:14 PU 84:16 publication	18:8 27:14 189:19 pull 34:4 pure 93:21 95:5 100:13,23,25 102:17 purified 118:3 purpose 10:3 123:19 181:3,16,23 182:14 pursue 156:6 put 44:23 45:5,14,24 46:6,9 66:11,13,16 68:20 73:2 77:2,4 86:9,12 89:1 110:13 128:23 129:18 133:15 154:7 161:8 171:5 181:4 182:17 183:1 184:8 187:6,8 putting 46:2 72:14 89:9,15 157:20
popular 151:22 pore 115:10 141:1 142:23,24, 25 143:13,16,24 144:6 168:2,19 169:1 pores 17:9 18:11,17 19:9,18,24 20:4,9,10,20 21:11 23:15 24:19 27:18,24 28:2,6 47:12,18 53:18,25 114:20,24 115:14,15,19 116:4,8,9 117:8 134:9 141:2,4 144:3 166:7,12 167:16,17,19 168:10,16 169:8,9,12 172:3,4 173:2 porous 32:12,17 41:7,13,14 134:4 141:13,16 143:7 150:23 portion 70:14 126:13 position 63:14 112:5 113:9 124:7 141:4 possesses 165:22 possession 139:12 possibility 140:23 Possibly 51:12 155:19 potential 29:2,12,19 31:15,18,20 pour 187:23			Q qualify 57:22 109:12 quality 24:17 40:10 quantify 24:17 135:6 quantity 27:18 question 10:20 14:25 15:3 25:8 27:7 29:8 36:23 39:20 40:24 44:2 50:19,23 54:9,10 57:25 75:14 78:21 90:19 101:21 104:16 110:21 122:8 124:16 126:12 131:2 132:4,10 141:10 142:20 145:22 168:14 170:24 180:18 187:14 189:3 questions 50:7 62:16 63:12 120:7

149:18 155:25 163:13 166:4 175:16 178:8,11 185:23 189:6 191:7	reads 105:6 176:17 177:17,21 182:22	132:20 134:14 142:2 145:15,19 149:23 160:3, 21 161:22 162:5,7 178:9 191:2	rely 155:4,6,8,9,12,15,18,20, 24
quick 7:24	ready 9:24 105:9 127:9,11 131:9	referenced 161:19	remnants 26:4
quickly 176:6	real 111:19 143:21 144:12 175:4,5	references 57:18 59:8 60:3,9 134:25 135:3 136:14 162:6,8 164:12 176:12	remove 22:15 40:17 105:15
quote-unquote 47:13	reality 109:16	referencing 72:5 175:23	removed 22:18 70:14 143:22 160:1
<hr/> R <hr/>	Realtime 5:7	referred 62:5,14,17 118:4,7,8	removing 180:10
rate 8:22 10:9 37:21,22 38:10 39:3 42:23 48:10 92:7 97:23 98:11 99:3 146:13 155:19 179:7,19 180:8	reason 80:2 107:24 123:23 124:10 140:10 144:22 147:14 153:1 157:13 164:8 190:20	referring 16:14 36:3,18 37:1,24 67:12 69:23 99:16 115:14,15,16,20 123:1 129:25 134:14,15 176:8 179:7	repeat 17:16 170:12
rates 80:16 168:20,23	reasons 80:2,14 123:2 178:25	refers 34:23	repeating 120:6
ratio 69:2,4 81:11 85:15 89:22 90:9 91:11,18,20 92:10, 11 93:6 107:12,14,18 108:1,14,19 110:16 111:3,4,8	recall 31:5,7 33:23 49:21 50:5	reflect 38:7 86:3	report 143:13 170:23,25
ratios 83:11 108:10 188:17	recess 47:25 99:9 138:15 164:18 175:12	refrigerator 157:20	reported 35:5
re-cross 185:24	recollection 62:8,10	regard 147:5	reporter 5:5,6,7,14 31:1 37:6 105:2 129:24 131:8 137:22 157:22 178:17 185:11
reaction 135:8	record 5:20 14:18 32:1 40:24 48:2 74:5 83:19 88:6 99:8 102:15 119:25 120:10 137:16 149:15 151:19 163:9 164:17,25 175:10 180:19,21	Registered 5:5	reporting 143:7 164:4
reactions 159:16,17	recorded 171:23	rel- 39:7	reports 142:11
reactive 124:4	records 25:14 28:24 30:10	related 149:18 178:24 179:20	represent 34:18 75:3 133:23
reactivity 122:17 124:5	redirect 175:9,16 190:4	relates 108:8 185:20	representing 8:1,2
read 16:5 17:19 30:21 40:3 62:12 63:22 89:23 105:3 115:4 127:6 130:22 143:9 154:17	reduced 145:24	relating 120:7	represents 136:8
reader 124:11	reference 31:3 57:6,11 58:20 59:12 103:11 110:12 126:6,10	relationship 77:23	requirement 10:11,21
reading 9:21 31:5,7 40:23 48:13 70:8 73:6 126:12 131:16		relevance 38:25	research 10:25
		relevant 11:5 39:6,9 48:6,7,14 75:15	reserve 191:7
			reserved 5:9 191:11
			residue 19:25 143:23 180:1

182:3	109:11,15 111:21,22,24	sand	sees
residues	rim	118:3	109:17
140:20 141:5,17	20:17,18,19	scale	send
resin	rock	53:24 184:19 185:15,18	9:10
66:11 68:14 72:25 74:25	8:19 9:3 27:25 28:16,17,	scenario	sense
103:25 104:2 125:12	19,20,23	25:21	61:3,4
127:14,22 128:3,6,19	roll	schedule	sentence
129:13 180:23,25 181:1,	7:24	10:9	17:18 152:9 178:14,18
15,25 182:3,4,18 183:4	room	school	separate
resolution	7:2 86:9	7:18	10:1 15:7 28:13 125:24
175:6	rough	science	126:23 187:10
respect	190:11	49:9 77:10,11 124:2,6	separated
12:22 13:11 44:15 48:18	rougher	176:18	93:12 150:15
77:24 103:12 160:18	108:4,6	scientific	separations
167:15	rubbed	61:3	151:9
responding	160:24	scientist	Sepha-
5:13	ruler	39:6 74:18 75:10 95:24	116:5
responsible	84:3,4	102:1 103:8 174:22	Sephadex
24:13	rules	scientists	30:11 31:4,17,19,24
result	138:11	61:10	32:1,9 33:3,7,18,19,21
102:3 166:18	run	scintillation	34:20 35:4 39:21 40:1,4,
resulting	35:18,23 38:4 97:21,24	64:20 78:11 91:22	5,9,13,21,25 41:17
70:1,15	98:25 99:1 134:8 140:22	181:10,21 183:4,11	42:10,25 43:24,25 44:4,
Retain	180:19	185:7	5,7,10,11,23 45:8,14
60:16	running	scope	50:7,8,11,13,16,17,20,25
retained	91:11 135:19	38:3,9,22 39:13 59:24	51:3 53:21 54:7,19,23
43:24 44:11		61:6,13 74:16 75:8 91:7,	55:3,5,7 56:6 60:13
retaining		19 102:20 107:19 108:22	87:20 113:16 114:12
44:17 45:10,12	S	110:5,19 111:9 112:6,16,	115:8,11,15,16 116:2,10,
retains	safe	20,22 121:9,21 122:6	20 125:15,24 126:14
45:14	6:17	123:4,9,17 126:1 127:5	151:12,16 152:14 153:8,
reveals	safety	142:16 147:20 150:11	19 155:3 157:6,13,25
142:25	119:22 120:14 121:13	151:3 153:3 163:10	158:15,16,20 159:10
reverse	salt	166:13,24 170:10 173:5,	160:5,12,19 161:11,22
6:4 7:4,13,15	40:17	19	162:4 163:20 164:5,13
review	sample	scratched	168:24 169:4,5 170:18
136:13 165:10 191:7	64:23 78:9,10 82:15	177:13,22	171:1,7,12 189:10,22
reviewed	83:8,12 85:3 86:18,19,	seal	190:6
33:25 34:11 48:25 148:1,	20,22,24,25 89:11,12	22:16	series
4 162:21 165:9,13	90:14,21 91:16 92:22	sealed	75:5 166:6
reviewing	94:10,25 95:11 96:20	22:19,20,21 23:12	set
108:18	151:8 182:2 186:11	sealing	84:20 104:12
rid	samples	22:24	settle
46:7 159:11 187:7	79:3,12 80:11,24 81:9	seals	183:24
ridiculous	83:3,10 96:6 98:17 108:9	20:6 23:4	shape
	184:21	section	27:18
		10:14 48:3 140:2	shaped
			89:3 109:24 167:9

shapes 87:21 sheet 95:23 100:2,9 107:3 119:22 120:14 121:13 shell 120:21 shell-activated 122:17 Sherma 31:4 33:23 34:19 Sherwin-williams 101:9 shift 174:14 175:2,5 shims 6:25 short 138:13 164:17 shorthand 5:4,6 84:16 shot 168:10 show 7:8 16:14 17:16 34:2,4, 15 36:3,9,14 38:15 62:1 69:2 96:12,23,25 100:15 102:5 107:12 126:3,16 145:22 159:5 181:3,16 182:15 183:6 184:18 185:17,18 188:25 show- 102:15 showed 53:1 76:11 149:7 showing 64:16 68:13,15,16 99:16 187:17 shown 85:9 96:19 97:12 98:23, 24 104:8,13 147:7 160:9 161:14 177:16 187:10,12 shows 97:4,7 107:18 111:7 144:15 145:4,6,24 171:20 186:12	shrink 40:19 shrunk 40:20 shuts 6:22 shuttle 6:11 sic 148:24 side 108:3,4,5,6,7,8 125:17, 22 167:20 190:8,10,13, 20,21 side's 190:17 sides 22:9 sieve 87:19,24 166:18 167:5, 13,14,19 168:20 171:7, 13 sieve-like 150:17 sieves 167:1 171:10 sign 191:8 signature 5:8 10:13 191:11 significance 118:20 124:22 significant 112:14 124:23 silica 11:19 15:15 25:15,17,18 30:7 41:24 45:4,9,23 46:6,15,16 47:2,6,12 117:25 118:2,4,7,8 155:3,12,15 similar 42:23 88:22 100:24 113:20 188:6,14 similarly 168:24 179:13	Simon 6:9 simply 81:24 114:7 123:23 174:14 184:12 187:6,8 single 22:2 52:18 84:11 86:5 89:18 94:17 96:5 97:5,8 128:24 single-layer 88:8 96:2,6 sink 77:6 184:10 188:2 sinking 187:17 sinks 76:9 77:7 182:18 183:2 186:4 sir 5:19 8:13 15:2 17:6 33:4 34:18 42:7,15 44:9 48:1 67:5 71:11,25 75:3,11,15 76:11 95:21 96:12 98:1, 15,17,20 99:5,10,15,23 100:4,8 101:14 103:11 104:7 105:17,20 106:2,9 107:4 110:15 111:5 114:18 120:12,13 121:6, 12 122:25 125:2 127:9, 21 128:5 129:3 130:6,11 131:9 133:1,4,17 134:3 138:21 141:22 142:6 143:24 144:13,15 153:13,18 155:2 157:5 160:18 161:2,10,21 162:18 163:16 170:16 171:15 176:13 186:3 187:1,6 188:18 189:3,16 190:5 sites 154:5,10 sitting 66:22 size 15:8 27:18 81:13 90:10 91:2,9 109:10 110:3 142:24,25 150:16 158:1 167:6 168:22 sized 109:25	sizes 152:16 166:19 skeletal 174:15 skill 33:6 40:4 64:8 65:8 135:12 178:22 slight 182:13 slow 105:4 slurry 188:4 small 64:17 136:5 168:1,17 169:3,14 smaller 142:25 167:16 168:18 smooth 125:6,13 179:14,24 190:9,14,18,20 smoother 108:4,8 smoothness 125:3 190:2,5 SMTL 48:25 162:7 sodium 36:21 78:19 180:2 soldiers 87:21 88:20 89:17 109:19 solely 130:14 132:13 133:10,14 solid 13:22,24 14:1 17:10 25:6,13 54:16,20,22 55:23 65:4 71:17 73:1,3 75:2 77:5,6 168:6 172:5 183:24 solidified 64:22 solids 131:22 132:2,7 solubility 176:19
--	--	---	--

solution 14:3 64:22 66:17 67:11 68:4,10 71:6,9,12,13,22 72:1 89:16 104:23,24,25 105:6,7,13,23 106:3,7, 13,14,24 163:23	spectrometer 60:7	28:5 79:20 114:8 123:8 141:15,23 160:6	stuck 169:2,12
solutions 40:14 67:23 105:1,8 152:5	speculation 20:23 37:13 38:22 39:13 41:3,12 112:23 135:18	stationary 150:7,23 151:2,5,6,7,12	studied 12:20,21 13:1,12 101:3,4 166:3,15 171:4 172:1
Sorption 169:19	spent 108:17	stay 31:22 167:20	studies 170:18 171:1
sort 45:5 60:25 117:10	sphere 52:10,12,13	step 28:13	study 156:1 168:13
sounded 14:23	sponge 41:14 154:6,7	Stephen 5:3,11,21	studying 12:14 173:7,10
space 6:11	square 142:12	steps 75:5	stuff 68:20 169:2,3,14
spaces 160:11	squeeze 154:7	Steve 8:4 78:6 84:7 129:23	submarines 6:11
spacing 172:8	St 6:1 8:5	stick 31:22 160:19 167:16,18 173:2,3 190:17	submicron 53:15
spaghetti 51:15,19,21	standard 79:7,15	sticking 125:20 154:13	submitted 8:10,15 9:2 30:22 34:16 139:1 170:2,3 176:14
spaghetti-like 52:4,14	standing 20:17,19 120:7 138:17 149:18 163:12 170:12	sticks 180:24	substance 26:8 29:2,3,12,13,19 70:14
speak 157:10 190:3	start 51:17 117:5	STIPULATED 5:1	substances 17:10 105:15 159:4,18
speaking 57:8	starting 7:17 178:2,22	store 101:9	substantially 125:13
special 64:4	starts 63:24 139:17 170:22 189:1	straight 84:4,5	substitute 189:21
specialize 6:3,16 10:24 11:2	state 5:19 27:23 56:13 68:2 69:9 109:7 114:18 142:22 150:6,15,23 152:4,13,21 153:19 163:19,23 164:13 165:21 166:5,17 174:13	straightforward 83:8	substrate 69:11 70:2,5,15,22 105:14,18,24 106:5,8,10, 13,14,19,22,25 107:6
specific 13:16	stated 33:23,25 72:9,10	straw 161:17	suck 154:8
specifically 13:12 34:17 62:5 77:11 116:12 142:4 156:15	statement 27:21 29:7 33:11 35:4 150:10 153:2,7 161:11	stress 7:9	sucked 40:21
specification 27:3,9 75:13,15,17 92:9 93:25 94:1 96:19 98:23 100:16 104:12,13	states 29:1 67:23 139:2 151:21 161:22 163:22 165:18 178:15	stretch 114:19	sucking 43:3 154:25
specimen 103:23	stating	stretching 114:20	sucks 157:13,16 158:16,17 160:14 161:17,23
specks 87:16 88:4		structure 12:5 22:16 104:8,13 150:17 166:5 168:2,4,10 169:2	suction 40:20
			suggest

124:11 177:2	suspended 68:3 87:6	147:24	tension 23:23 24:8 43:2,5,14,20
suggested 113:21 125:24 126:13 190:6	suspension 67:9 68:9	talking 19:21 27:14,15 29:17 45:12 47:7,10 52:16,19, 20 62:2 93:17 110:11 115:1,21,25 116:2 121:23,24 126:3,17 130:23 137:20 150:13 159:5 162:1,3 170:19	terephthalate 105:1
suggesting 126:21	sweaty 161:20		term 41:5 44:6 60:1,10 61:8 103:7 113:7 123:20 143:24 159:10
Summary 57:5 177:12	swell 32:8 40:13 114:19 115:8, 9 152:23 163:24	talks 58:10 98:20	term- 22:4
sunk 182:12	swelling 40:9,15 43:3 113:24 114:14 115:10 171:7	tantamount 188:3	terms 7:6,13 14:6 22:6 23:13 36:5 43:23 56:15 61:10 83:5 190:1,5
sunscreen 12:8,20	swells 33:9 40:6,7 43:3 52:12	tarathylate 105:8	test 7:8 35:17 39:16 98:17 134:12 135:8,20 140:22 167:13,14
super 113:22 130:3,8 153:8,12 154:24 155:18 181:14	swollen 40:16	teach 124:25	testified 175:17
supplier 24:15	sworn 5:12	teaches 78:18 124:8,19 125:5 146:15 179:4,12,13,17, 24 180:6 189:6	testimony 120:2
support 147:5	synonymous 177:10	teaching 179:21	testing 5:25 6:12 8:4 48:20 79:12,19 184:20
surface 17:24,25 18:1,3,15 19:4, 14,16,23 20:11 21:7,11, 18 23:1,10,23 24:8 29:20,22,23 30:4 31:14 43:2,5,14,20 50:8,20,22, 25 51:1,9,10,13,21 52:1, 4,5,7 54:6,13,23,24 55:3, 4,5,15,18,21,25 56:3,10 59:19 62:23 66:23 75:1 77:9,15 78:12,18,20 85:13 125:6,13 130:4 136:3 139:11,12 140:7, 15,20 142:12,14,18,19 153:16 159:17,19,22 163:25 164:6,14 166:8 172:5,6 173:2 179:14,15, 17,22,24 180:2,7,11 181:7,9 184:1 188:22	system 146:19 182:16 184:11	teachings 178:15,19 179:2	tests 35:22 81:23 134:8
	<hr/> T <hr/>	technique 129:22	text 13:6,14 35:3 60:12 128:12
	table 34:17,25 55:25 56:1,2,11 68:20 86:21 94:5 97:1,4, 12 136:2 143:12,15 144:15,19,23 145:4,10, 12,21,22,25 146:3,5,10, 11,22 147:8,9,10,12,13, 15 160:23 171:16 188:9	Techniques 148:11	textbook 154:14,17
	tables 94:2 146:9,10	technology 79:17 119:2 147:6	textbooks 13:7
	tailoring 139:11	telescope 6:11	that'd 34:5
surfaces 78:15	takes 44:16 45:4 72:25	telling 73:14 74:18 75:9 150:12	theorizing 174:23,24
surfactant 87:11,12	taking 74:24 153:11	tells 97:3	thereof 17:11
surfynol 48:8,16,19 82:13,17	talc 117:23	temperature 28:1,18 37:23 39:4	thermal 20:7
surprise 13:18	talk- 121:23	temperatures 28:10 158:3 171:23	thermally 15:17 22:22
suspend 109:19	talked	tend 189:8	thick 70:7 72:6,8 79:7,22
		tender 141:22	

80:11,20 81:7,25 82:8 83:9 84:7 85:7 88:8 90:14,21 91:16 92:22 93:5,14	54:1 114:2,14	total 82:7 92:8 143:10 166:7	tremendous 142:23
thicker 84:8 189:8	thousands 54:5 184:20	touch 160:25	true 27:21 44:15 53:21 190:15
thickness 63:13,14 64:2,5,9 66:5 67:4 69:5,13 70:2,16,25 71:2,5 72:24 73:1,4 74:23 75:25 76:3,5,7 77:1 78:11 79:8,13 81:12,16 82:7,24,25 83:1,10 85:1,9 86:4,6 89:24,25 90:2,11,12 91:1,9,14,20,21,22,24 92:5,8 93:20,21,22 94:20,22,23 95:1,13,17 96:7,13 97:17 98:6,7,12, 18,21 99:3,17,20,22 100:5,8,12 103:2,3,12, 14,18 104:1 108:1 109:9, 21 110:3,8,13,14 111:3, 4,13,15 112:11 113:8 124:13 178:24 179:4,6, 11 180:14,15 181:11,12 182:25 183:7,10,14,18, 19,21 184:17 186:19 188:1,5	three-dimensional 165:23 167:10	touching 117:2	turn 176:22 177:25
thickens 80:18 108:10	threshold 81:15 82:24 90:9,12,17 93:6 110:8,14,18,24 111:3	training 11:4	turning 48:23 78:23 122:15 142:6
thin 124:8,19	time 8:8 45:13 83:6 127:7 135:23 144:10 157:16 164:15 169:6 186:17 191:10	transcribed 5:7	two-layer 97:12 98:2,3 107:18 108:20 111:7 127:13,24 129:4 182:15 184:11 187:7,22 188:12
thing 52:18 59:16 92:15 101:13 103:9 118:6 146:21 154:17 161:7 169:10 177:21 180:3 182:15	times 58:21,24 59:7 83:3 89:25 114:1,2,14 116:23 173:1, 3	transcript 8:8 148:2 191:8	two-layered 184:12
things 7:4 61:1 109:18 118:23 144:9 165:18	tin 53:1	transmission 48:9 80:16 88:11 90:25 91:12 92:7 97:21,22 98:11 99:1,3 146:13 179:6,18 180:8	two-sided 108:2
thinner 189:23	tinting 101:10 118:24	transparent 183:5 184:6	type 27:19 45:24 113:20
thinness 124:23	titanium 14:7 118:11,16,17,23 119:1,3 123:1	transport 6:10 45:19 132:15 147:7	types 15:5 16:9 47:2
thought 65:20 80:22 145:1 147:16	titled 165:6	transporting 130:14 132:13 133:9,14	typewriting 5:8
thousand	titration 35:21	transports 119:10	typically 6:7
	today 52:17 149:23 170:14 175:17 178:8 180:21 182:11	trap 60:13,15 159:7,17,21 161:6 163:24 164:13	typo 59:14 61:17
	today's 9:24	trapped 160:11 164:5	typos 56:21 57:15 61:1,15,17, 18,20,25 62:9
	toilet 161:1	trapping 159:10	
	told 29:9	traps 17:9 157:6,12,14,24 158:17,18,20,22,25 159:2,4 160:14 166:19	U
	top 22:10 60:4 72:15 76:16 77:18 85:19 91:22,24 97:14 126:14,23 127:15 129:20 177:9 184:8 186:18,20,22 187:15 188:20	treated 15:16,17,22 16:2 19:18, 23 20:1 28:1 35:7 39:14, 17,18	U.S. 132:5
		treatment 20:3,4 39:16 134:7 157:17 158:15	Uh-huh 66:24 151:18
		trees 51:15	unactivated 115:13
			uncover 78:16
			uncured 64:23 65:17 66:13,16 74:24 128:22 129:19,20

181:24,25 182:2,3,7,9,25	156:9	violate 77:4	22:6,7,8 23:14 24:5 25:6, 7,13 31:5 33:9,24 34:21 35:5,13,16,17 40:7,14,17 41:18,20 42:8 43:4,19, 22,23 44:3,9,10,16,17 45:4,6,10,13,14,17 46:7, 10 55:9,10,14 56:7,9 60:13,19,21,23 63:6 80:16 88:10 90:25 91:12 92:7 97:21,22 98:10 99:1,3 116:15 117:5
underneath 180:1	van 23:23,24	violating 130:5	119:10 130:14 132:13,15 133:9,14 134:5 135:2 140:8 141:8,14,24 152:5, 10,11,22 153:9,10,19,22 154:5,7,8,13,20,25 155:21,24 157:6,12,24 158:18,20,22 159:1,2,3, 7,10,12,21,25 163:24 164:5,13 169:5,6,10,18 170:17,25 172:2,3,4,6,8, 15,20 173:1,3,4 174:16, 25 176:19 177:19 179:6, 18,23 180:8
unders- 112:9	vapor 22:7,8 23:14 25:7 48:9 80:16 88:11 90:25 91:12 92:7 97:21,22 98:10 99:1,3 117:5 146:13 147:6 170:18 171:1 176:19 177:19 179:6,18 180:8	Virgin 122:17	water-loving 62:24 63:9
understand 31:9 33:7 36:18 40:5 54:9,11 58:4 63:14 64:9, 15 69:14 73:5,8,9 75:11 80:12 83:7 89:8 93:3,9, 18 95:8 99:8,15 101:14 102:14 104:16 110:1,7 112:3,10,12 115:6 120:25 121:7 122:21,23 124:7,16 139:19 160:18 166:11 168:6 187:14 189:5	vary 27:18	Virgin-activated 121:14 122:12	water-proof 66:3
understanding 13:4 29:17 36:7,11,15,17 69:22 74:14 75:16 113:2, 3 150:19 151:1 165:11 168:16	vehicles 6:10	viscosity 182:11	water-sensitive 71:24
understands 65:8	veracity 29:6 153:1,7	viscus 65:1	water-water 172:12,17
unencapsulate 181:8	verbally 180:20	visualize 83:17	waterproof 72:22 73:17 74:21 76:23 177:19 182:23 183:8
unfamiliar 120:18	versions 96:7 97:17 98:4,6 188:14	visually 85:9	ways 37:17,19 71:19 122:1
uniformly 128:8,20 176:21	versus 35:17 37:22 58:6 74:15 99:4 102:7 144:16 147:9 161:20 181:16 187:12	voids 89:2	weak 24:1,2
unique 130:14 132:13 133:9,13 165:23	VF 8:1 105:5 136:19 138:23 148:20 165:3 169:24	volcanic 27:24 28:16,17,19,20,23	wear 7:10 161:4
unprotected 105:12	VF's 40:11	volume 113:25 116:24 141:1 142:23,25 143:14,16,25 144:3,6	wearing 161:3
untreated 16:13	vial 64:20 78:11 83:11 91:23 180:14 181:10 183:4,11, 15 184:5 187:10,11,23	W	weighed 186:7
UV 118:25	vials 181:21 182:7 185:7 186:3	Waals 23:23,24	weight 19:24 31:13 114:2,15 116:23
V	vibrational 174:14	wait 80:22 105:20	wetted
vacant 115:12,21	view 15:10 74:20 95:13 100:23 114:6 129:7 140:25	wall 24:4,23	
vague 190:12	viewpoint 139:11,17	Walmart 185:6	
validity		Wang 136:14,18,21 138:22 142:7	
		wanted 14:24	
		washed 40:16	
		watching 8:7	
		water	

52:11	184:20 185:19	
whatever's 103:2 167:25	yesterday 10:6	
wholly 125:16	<hr/> Z <hr/>	
wick 161:5	zeolite 165:6,17,19,21 166:1,18 168:4,9	
wicks 35:13 161:4	zeolites 11:21 15:15,24 16:1 25:19 28:19,21,22 30:8 41:24 155:4,23 166:23 167:15 171:9	
witness' 120:2	Zinc 11:25	
word 44:16 65:13 75:19 86:3, 18 109:10	ZOLTEK 24:14 26:3	
words 75:18 141:24		
work 6:6 7:19 110:16 158:11 166:23 167:1 168:24 169:4		
working 8:17 12:22		
works 23:22 150:20 185:10,12		
world 29:9 136:1		
wound 157:17 158:15 160:6,10, 13,19 161:8,15,18 162:1, 5,7		
woven 70:6,23 71:9,16 72:9		
writes 17:8		
written 76:21,23 174:5 177:13 183:20,22		
wrong 7:7,16 59:13 111:12,16 112:15,17 113:12,14 153:21		
<hr/> Y <hr/>		
years 7:3,4 69:7 109:7 181:18		

ERRATA SHEET

DEPONENT'S CHANGES OR CORECTIONS

Deposition of: STEPHEN J. CALLAN

Case Title: VF Outdoor, LLC v. Cocona, Inc.

Date of Deposition: December 14, 2018

I, STEPHEN J. CALLAN, have the following changes or corrections to make to my deposition:

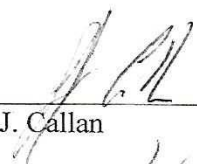
Page:Line	Changes or Corrections	Reasons for Changes or Corrections
5:21	Correction. Jeffrey should be changed to Jeffery	Incorrect spelling of name
6:9	Correction. Simon should be changed to Slammer	Deponent said "Slammer Missile," not "Simon Missile"
6:20-23	Correction. Original: General Motors, Ford, and Chrysler. Failures I brought in when an entire factory shuts down to figure out why and prescribe corrective action to get it going again. Corrected: General Motors, Ford and Chrysler failures. I was brought in when an entire factory shuts down to figure out why and prescribe corrective action to get it going again.	Corrected answer reflects what deponent said and intended answer
7:3-4	Correction. Original: I've had my own after 30 years. Corrected: I've had my own lab for 30 years.	Corrected answer reflects what deponent said and intended answer
7:15-17	Correction.	Corrected answer reflects what deponent said and intended answer

	<p>Original: I can reverse polymeric materials down to propylene and tell you where they bought the wrong materials</p> <p>Corrected: I can reverse engineer polymeric materials down to parts per million and tell you where they bought the raw materials</p>	
10:25	<p>Correction.</p> <p>Original: development polymers</p> <p>Corrected: development of polymers</p>	Corrected answer reflects what deponent said and intended answer
33:6-10	<p>Correction.</p> <p>Original: A person of ordinary skill in the art would understand that Sephadex is an absorptive particle. This falls dramatically and absorbs 24 grams per gram of water as it swells.</p> <p>Corrected: A person of ordinary skill in the art would understand that Sephadex is an absorptive particle that swells dramatically, and absorbs 24 grams per gram of water as it swells.</p>	Corrected answer reflects what deponent said and intended answer
35:7	<p>Correction. Absorb should be changed to adsorb</p>	Deponent said adsorb, not absorb; corrected answer reflects what deponent said and intended answer
40:5	<p>Correction. Adsorptive should be changed to absorptive</p>	Deponent said absorptive, not adsorptive; corrected answer reflects what deponent said and intended answer
44:9-11	<p>Clarification.</p> <p>Mr. Gergely says he stated:</p> <p>“Sir, when – when water is taken in by Sephadex, and you say – you say adsorb, is that water retained in Sephadex until it’s dehydrated.”</p>	Clarification of deponent’s answer; the clarification reflects what deponent intended answer to be based on question posed

	<p>I responded "Some of it, yes" I heard "absorbed water" not "adsorbed water". That response was to absorbed water to Sephadex, not adsorbed water. I have not agreed that Sephadex adsorbs water and Mr. Gergely's question implies that I did. Mr. Gergely says on Line 21 of page 44 "I meant A-D". That is not what I heard.</p>	
45:1-2	<p>Correction.</p> <p>Original: You don't need to do that to activate a carbon</p> <p>Corrected: You don't need to do that to activated carbon</p>	Corrected answer reflects what deponent said and intended answer
56:16	<p>Correction. Adsorbed should be changed to absorbed</p>	Deponent said absorbed, not adsorbed; corrected answer reflects what deponent said and intended answer
101:10	<p>Correction.</p> <p>Original: bring it to the tinting agent</p> <p>Corrected: Bring it to add tinting agent</p>	Corrected answer reflects what deponent said and intended answer
135:8-9	<p>Correction.</p> <p>Original: But that test itself is a reaction with hydrochloric acid boiling do change the carbon black</p> <p>Corrected: But that test itself is a reaction with boiling hydrochloric acid to change the carbon black</p>	Corrected answer reflects what deponent said and intended answer
141:4-5	<p>Correction.</p> <p>Original: My position is that carbon blacks, the pores are filled with organic residues</p> <p>Corrected: My position is that in carbon blacks, the pores are filled with organic residues</p>	Corrected answer reflects what deponent said and intended answer

146:12-14	<p>Correction.</p> <p>Original: When you add the dots, the moisture vapor transmission rate does down dramatically</p> <p>Corrected: When you add the dots, the moisture vapor transmission rate goes down dramatically</p>	Corrected answer reflects what deponent said and intended answer
153:11	Correction. Absorption should be changed to adsorption	Corrected answer reflects what deponent said and intended answer
181:19	Correction. Electromicroscope should be changed to Electron Microscope	Corrected answer reflects what deponent said and intended answer
184:20	Correction. Electromicroscope should be changed to Electron Microscope	Corrected answer reflects what deponent said and intended answer
185:20	Correction. Electromicroscope should be changed to Electron Microscope	Corrected answer reflects what deponent said and intended answer

DEPONENT'S SIGNATURE:



 Stephen J. Callan
 DATE: 1/8/19