

1 UNITED STATES PATENT AND TRADEMARK OFFICE

2
3 BEFORE THE PATENT TRIAL AND APPEAL BOARD

4
5 VANTAGE SPECIALTY CHEMICALS, INC.,

6 Petitioner,

7 v.

8 CARGILL, INC.,

9 Patent Owner.

10
11 IPR2023-00589

12 Patent 11,248,245 B2

13
14 VIDEOTAPED DEPOSITION OF

15 THOMAS M. SCHULTZ, PhD

16
17 DATE: February 15, 2024

18 TIME: 8:56 a.m.

19 PLACE: Fish & Richardson

60 South Sixth Street, Suite 3200

20 Minneapolis, Minnesota

21
22
23
24 Reported By: Christine K. Herman, RPR, CRR

25 Job #6439672

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David Young, Videographer

David A. Rockstraw, PhD, PE (via videoconference)

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P R O C E E D I N G S

THE VIDEOGRAPHER: Good morning. We're going on the record at 8:56 a.m. on February 15th, 2024.

Please note that the microphones are sensitive and may pick up whispering and private conversations.

Please mute your phones at this time.

Audio and video recording will continue to take place unless all parties agree to go off the record.

This is Media Unit 1 of the video-recorded deposition of Dr. Thomas Schultz, taken by counsel for the Petitioners, in the matter of Vantage Specialty Chemicals, Incorporated vs. Cargill, Incorporated, filed in the United States Patent and Trademark Office, before the Patent Trial and Appeal Board, Case No. IPR2023-00589. This deposition is happening in Minneapolis, Minnesota.

My name is Dave Young. I'm the videographer. Our court reporter today is Christine Herman. We are both representing Veritext Legal Solutions.

I am not related to any party in this

1 action, nor am I financially interested in the
2 outcome.

3 If there are any objections to this
4 proceeding, please state them at the time of your
5 appearance.

6 Will counsel now state their appearances
7 and affiliations for the record, beginning with the
8 noticing attorney.

9 MR. LUCAS: Good morning. This is Eric
10 Lucas, from Shearman & Sterling, counsel to the
11 Petitioner, Vantage, in this IPR.

12 MR. KANE: Michael Kane, Fish &
13 Richardson, representing Cargill and Dr. Schultz.
14 With me are Casey Kraning, my colleague, and Cass
15 Dottridge, from Cargill.

16 THE VIDEOGRAPHER: And on the
17 videoconference?

18 MR. KANE: Grace Kim, also from Fish &
19 Richardson, and Ahmed Davis from Fish & Richardson.

20 MR. LUCAS: And it's possible that we
21 might have a few folks from our team on, and those
22 would likely be Abdul Althebaity and potentially
23 Dr. Rockstraw, who is the expert that we retained in
24 this proceeding.

25 THE VIDEOGRAPHER: Thank you.

1 Will the court reporter please swear in
2 the witness, and then we can proceed.
3 Whereupon,

4 THOMAS M. SCHULTZ, PhD,
5 a witness in the above-entitled matter,
6 after having been first duly sworn,
7 deposes and says as follows:

8 EXAMINATION

9 BY MR. LUCAS:

10 Q. Good morning, sir. Eric Lucas.

11 A. Good morning.

12 Q. Thanks for testifying today.

13 A. You're welcome.

14 Q. Please state your full name for the
15 record.

16 A. Thomas M. Schultz.

17 Q. Where do you reside, Mr. Schultz?

18 A. I reside in Delaware.

19 Q. Have you been deposed before?

20 A. Yes, I have.

21 Q. Approximately how many times?

22 A. Approximately 10 times.

23 Q. Were those all patent infringement cases?

24 A. No.

25 Q. In what other types of cases have you

1 offered deposition testimony?

2 A. Product liability. That's it.

3 Q. Any other besides product liability?

4 A. Oh. And then also patent infringement
5 or -- Yes. Those two.

6 Q. Any trade secret misappropriation
7 testimony?

8 A. No.

9 Q. And what other types of cases have you
10 offered an opinion or otherwise provided evidence,
11 setting aside deposition testimony specifically?

12 A. None other.

13 Q. Since you've been deposed about 10 times
14 before, I won't go through the whole spiel. But can
15 we agree to not request a break while there's a
16 question pending?

17 A. Yes.

18 Q. Is there any reason why you wouldn't be
19 able to testify truthfully today, such as medication
20 or anything like that?

21 A. None at all.

22 Q. Do you know why you're here today?

23 A. Yes, I do.

24 Q. What's your understanding of why you're
25 here?

1 A. I am providing as an expert witness to a
2 challenge of the patent.

3 Q. Did you do anything to prepare for today's
4 deposition?

5 A. Yes.

6 Q. What did you do?

7 A. I reviewed literature and information
8 provided by counsel.

9 Q. Did you meet with anyone?

10 A. Yes, I did.

11 Q. With whom did you meet?

12 A. Mr. Kane, Ms. Kraning, and Grace Kim.

13 Q. For how long did you meet with those
14 individuals?

15 A. There were a number of telephone calls,
16 and then yesterday.

17 Q. Yesterday was in person, and then the
18 other meetings were telephonic?

19 A. Yes.

20 Q. Have you ever spoken with Delrika Curry
21 before?

22 A. No.

23 Q. While you were drafting your report, did
24 you receive input from anyone at Cargill, setting
25 aside your lawyers?

1 A. No.

2 Q. What's your hourly rate for this matter?

3 A. I am working with a group who put me in
4 contact with Cargill's attorneys, and my -- I'm not
5 quite clear what their hourly rate is -- mine is.

6 Q. What is your rate?

7 A. My personal rate?

8 Q. Yes, sir.

9 A. \$250.

10 Q. But you don't know if that's what
11 Cargill's lawyers are paying you for this matter?

12 A. I've never discussed it.

13 Q. Do you have any idea how much you've
14 billed Cargill to date?

15 A. Approximately.

16 Q. Could you approximate what that number is?

17 A. I think in the neighborhood of 45-,
18 \$50,000 for all the hours.

19 Q. And approximately how many hours does that
20 amount to?

21 A. Maybe 150. I don't -- I'd have to go back
22 and look at my record.

23 Q. Okay. You've submitted two sworn
24 declarations in this IPR proceeding, right?

25 A. Correct.

1 Q. One in conjunction with patent owner's
2 preliminary response and one in conjunction with
3 patent owner's response, right?

4 A. Yes.

5 Q. In drafting your patent owner's response
6 declaration, you reviewed the '245 patent and the
7 prosecution history of the '245 patent, right?

8 A. Yes.

9 MR. LUCAS: And let's just mark, while
10 we're here, Exhibit 1.

11 (Deposition Exhibit Number 1 marked.)

12 Q (BY MR. LUCAS) What is Exhibit 1, sir?

13 MR. KANE: Counsel, I don't mean to
14 interrupt, but this has already been premarked as
15 Cargill 2009. I think the record's probably going
16 to be cleaner if we use the number that is already
17 in the proceeding.

18 MR. LUCAS: We're going to use the numbers
19 that I say we're going to use, which is Exhibit 1,
20 and that corresponds to Cargill Exhibit 2009.

21 MR. KANE: Okay. It's your record.

22 Q (BY MR. LUCAS) What is this document, sir?

23 A. This is a copy of my declaration.

24 Q. And as Mr. Kane so rightly said, that has
25 been premarked as Cargill Exhibit 2009, right?

1 A. Yes.

2 Q. Dr. Schultz, when were you first contacted
3 by counsel in connection with potentially working on
4 this matter for Cargill?

5 A. I believe it was near the end of April of
6 2023.

7 Q. Prior to your work on this IPR proceeding,
8 did you know anyone at Cargill?

9 A. No.

10 Q. Prior to your work on this IPR proceeding,
11 did you know anyone at International Flora
12 Technologies?

13 A. No.

14 Q. Prior to your work on this IPR, have you
15 ever encountered jojoba esters before?

16 A. In the context of my employment, yes, I
17 have contact -- I have been exposed to jojoba
18 esters.

19 Q. And when was that? When was the first
20 time you were exposed to jojoba esters?

21 A. I don't recall exactly. Fifteen, 20 years
22 ago, maybe.

23 Q. Do you remember at what company you were
24 working when you encountered jojoba esters?

25 A. I can't recall exactly. It's one of many

1 materials that I was introduced to in my career.

2 Q. Was it one of the main materials that you
3 worked with over the course of your career?

4 A. No. It was not one of the main materials.

5 Q. So you don't remember the company that you
6 were working at when you first encountered jojoba
7 esters or the time period.

8 Do you remember what the context was, in
9 terms of how you came across jojoba esters in the
10 course of your work?

11 A. Not exactly, but I worked with many
12 materials over my career.

13 Q. And are you just assuming that jojoba
14 esters are one of them that you worked with?

15 A. No. I do recall that -- in at least one
16 or two instances, I recall the word jojoba wax
17 esters.

18 Q. But you can't tell me anything about those
19 one or two instances that you recall?

20 A. Not exactly. It's a while ago.

21 Q. Okay. Have you ever published a paper
22 describing a lipase-catalyzed reaction?

23 A. No, I have not.

24 Q. You're an inventor on numerous patents,
25 right?

1 A. Yes.

2 Q. Do any of those patents describe a
3 lipase-catalyzed reaction?

4 A. No, they do not.

5 Q. You list a number of technical
6 presentations in your CV, right?

7 A. Yes.

8 Q. Did you talk about lipase-catalyzed
9 reactions during any of those presentations?

10 A. No, I did not.

11 Q. We can turn to paragraph 4 of your
12 declaration, Exhibit 1. So in this paragraph, kind
13 of in the middle of page 11, you state, Optimization
14 of the choice of such oils and waxes involve
15 iterative formula development based on both
16 laboratory bench testing and the inputs of
17 professional cosmetologists' evaluations to modify
18 the formulations per the sensorial information they
19 provided.

20 Do you see that?

21 A. Give me a second. I'm going to -- I just
22 want to read it.

23 Q. Sure.

24 A. Okay.

25 Q. What did you mean by that?

1 A. Exactly what I said. The optimization of
2 the choice of such oils involve the iterative
3 formula development based on laboratory bench
4 testing and inputs from professional cosmetologists'
5 evaluations to modify the formulations per the
6 sensorial information they provided. Exactly that.

7 Q. You said the iterative formula development
8 was based on sensorial information that was
9 provided, right?

10 A. That is what I wrote. Yes.

11 Q. During your work in the industry, have you
12 ever encountered a situation in which a company
13 purchased a competitor's product and then tried to
14 replicate the sensorial qualities of that product?

15 A. I'm sorry. Could you repeat that again?

16 Q. Sure.

17 MR. LUCAS: Would you mind reading it
18 back?

19 (Whereupon, the court reporter read back
20 the requested portion of the record.)

21 A. Not that I directly recall, no.

22 Q. (BY MR. LUCAS) Have you ever personally
23 been involved in such a project?

24 A. When you -- just want to be clear.

25 Q. Sure.

1 A. Are you asking me if I was involved with
2 another company acquiring a company for -- and then
3 looking at that product?

4 Q. No. I'm asking whether you had ever been
5 involved with trying to replicate the sensorial
6 qualities of a competitor's product.

7 A. Okay. Again, I want just clarification.
8 When you say competitor's product, are you
9 speaking to a finished good or a material -- a
10 specific material in a product?

11 Q. How about, first, a finished good or
12 material.

13 A. No.

14 Q. Okay. How about a specific material in a
15 product?

16 A. Yes.

17 Q. Could you describe that situation?

18 MR. KANE: And I'd just caution the
19 witness not to disclose any confidential information
20 you may have been involved in with previous
21 employment activities.

22 THE WITNESS: No, I respect my NDAs,
23 certainly.

24 A. I do recall a -- one -- a chemical that
25 was used in hair combing, and a competitor had come

1 with, they felt, a -- would match what you're using
2 now. And, of course, we did -- made the swap. I
3 recall that once or twice.

4 Q (BY MR. LUCAS) Is that something that's
5 relatively common in the cosmetics industry?

6 MR. KANE: Objection. Lack of foundation.

7 Q (BY MR. LUCAS) You can still answer the
8 question.

9 A. So in the context of what I have done,
10 I've witnessed it. I don't know -- I cannot comment
11 if it's a, broad or general, everybody does it.

12 Q. But you've worked in numerous companies in
13 the industry, right?

14 A. Yes.

15 Q. And you're setting yourself out as an
16 expert in this industry, in fact, right?

17 A. Yes.

18 Q. So are you able to testify as to standard
19 practices in the industry, based on your years of
20 experience?

21 A. I can, for the companies that I've worked
22 with, yes.

23 Q. And so at the companies that you worked
24 with, was it relatively standard procedure to
25 replicate the sensorial qualities of a competitor's

1 product?

2 A. It was not an absolute practice to do so,
3 no.

4 Q. But it happened from time to time, right?

5 A. To the best of my recollection, a few
6 times, from my own personal recollection.

7 Q. Is there anything wrong with doing that?

8 A. That's -- that's a very broad question to
9 ask me, if there's anything wrong with doing that.
10 Could you be more specific?

11 Q. Is there anything wrong with trying to
12 replicate the sensorial qualities of a competitor's
13 product?

14 A. I don't want to say that it was either
15 right or wrong. It is to gain an understanding of
16 your competitors.

17 Q. Does it violate any laws to do that?

18 MR. KANE: Objection. Lack of foundation.

19 A. I'm not a legal expert in that avenue, but
20 not -- I can't answer that. I don't know.

21 Q (BY MR. LUCAS) So you can't answer
22 whether, from an industry standard perspective, it's
23 frowned upon for a company to try to replicate the
24 sensorial qualities of a competitor's product?

25 MR. KANE: Objection. Lack of foundation.

1 A. Could you rephrase that? I'm trying to
2 make sure I -- it was clear to me. Thank you.

3 Q (BY MR. LUCAS) Given all of your years of
4 experience in the industry, would you consider it to
5 be frowned upon for a company to try to replicate
6 the sensorial qualities of a competitor's product?

7 MR. KANE: Objection. Vague. Lack of
8 foundation.

9 A. You use the word frowned upon. That's an
10 opinion, so I'm not going to -- I can't answer to
11 that specifically.

12 But for the most part, understanding how
13 your competitors' products are performing is --
14 is -- is -- has been done.

15 Q (BY MR. LUCAS) And, in fact, you did it,
16 right?

17 A. No. I personally haven't done that.

18 Q. But companies that you worked for did,
19 right?

20 A. The companies that I worked for had a
21 desire to gain some understanding of how their
22 competitors' products compared to their own
23 products.

24 Q. Did you see anything wrong with that at
25 the time?

1 A. In my experience, understanding how your
2 competitors' products perform allowed you to gain
3 knowledge as to what your competition was doing.

4 Q. And my question is, did you see anything
5 wrong with that at the time?

6 A. I don't want to say that I saw anything
7 wrong about that, because in -- in making consumer
8 products, it's necessary to understand your
9 competition.

10 Q. Suffice to say you didn't go to anyone in
11 management and say, You shouldn't be doing this.
12 Right?

13 A. Not to my recollection, no.

14 Q. And that's because, in making competitive
15 products, it's necessary to understand your
16 competition, right?

17 A. In general, yes.

18 Q. If you look at paragraph 7 of the
19 declaration, you refer to your work at L'Oreal USA
20 Company Cosmair, including your responsibilities
21 that included competitive products analysis and
22 evaluations. Right?

23 A. I'm going to just review that paragraph.

24 Q. Please.

25 A. Okay. Could you repeat that, please?

1 Q. Sure.

2 Your responsibilities at Cosmair included
3 competitive products analysis and evaluations,
4 right?

5 A. Yes. Amongst other responsibilities.

6 Q. Can you describe what you meant by
7 competitive products analysis and evaluations.

8 MR. KANE: Again, without revealing any
9 confidential information.

10 A. It is one of the necessities in product
11 development to evaluate your product with a
12 competitor's product in overall performance
13 attributes to assist the other departments in
14 understanding their technical aspects of a product.

15 Q (BY MR. LUCAS) What kinds of other
16 departments do you mean?

17 A. Principally the marketing departments.

18 Q. And why would you want to provide that
19 information to the marketing department?

20 A. Well, very simply, the technical team is
21 responsible for helping develop the product, and the
22 marketing team is responsible for explaining that
23 product to the marketplace.

24 Q. And if the technical team is able to
25 convey to the marketing team that your company's

1 products are similar to a competitor's, the
2 marketing team can then go market the product as
3 competitive, right?

4 A. You used the word similar? A -- what
5 you -- what you really would want to do is explain
6 attributes of what your -- your product against any
7 competitor's. They may or may not be similar.

8 Q. Am I right that the goal would be to
9 portray your product as more desirable than a
10 competitor's product?

11 MR. KANE: Objection. Lack of foundation.

12 A. More desirable is a very broad term. Do
13 you have a -- any more -- anything more specific?

14 Q (BY MR. LUCAS) Well, I'm just trying to
15 figure out, the marketing department's job is to try
16 to get people to buy the company's product, right?

17 A. One of their responsibilities, yes.

18 Q. And if the technical team is able to
19 convey aspects of the product that might be better
20 than a competitor's product, the marketing team
21 would convey that to consumers, and they would buy
22 your company's product, right?

23 A. That's the general aspect of the personal
24 products category, yes.

25 Q. Okay. In the context of your competitive

1 products analysis, did you ever review patent
2 literature?

3 A. I have reviewed patent literature, not
4 just against competitive products, but broadly.
5 It's a responsibility of the technical team quite
6 often.

7 Q. So you have reviewed patent literature in
8 the context of competitive products analysis, right,
9 among other things?

10 A. Again, you're asking me about competitor
11 products. It is a routine practice, amongst many
12 technical teams, to be knowledgeable of the
13 intellectual properties in their categories.

14 Q. So you said previously, I've reviewed
15 patent literature, not just against competitive
16 products but broadly. And then you explained that.

17 And so I just want a simple answer of
18 whether, in the context of your competitive products
19 analysis, you reviewed patent literature.

20 A. To the best of my recollection, on
21 occasion, I may have.

22 Q. Okay. Now, looking back at paragraph 7,
23 on the top of page 14, you reference claims
24 development, including testing and documentation.

25 Do you see that?

1 A. Yes. I see that on the page.

2 Q. Can you provide an explanation of what you
3 meant by claims development, including testing and
4 documentation?

5 A. It -- it's routine, in personal care
6 products, to re- -- to understand how the product
7 performs. And if you find any attribute that is
8 bene- -- it helps the product, you will do testing
9 so that you have data to support any claim of
10 performance.

11 Q. So by claims in that sentence, you're not
12 talking about patent claims?

13 A. Correct.

14 Q. Okay. That makes sense.

15 And that makes more sense, because the
16 next thing that you mention is patent review and
17 inventions development.

18 So those are two distinct things, right?

19 A. Yes.

20 Q. The claims that you're talking about are
21 claims with respect to what the product can do for
22 your skin or hair, right?

23 A. For the most part, yes.

24 Q. Okay. And when you use that phrase,
25 claims development, in paragraph 9, for example, or

1 paragraph 10, you mean the same thing, right, claims
2 with respect to the performance of the product? Not
3 the patent claims, is what I'm trying to get at.

4 A. Reviewing, please. Thank you.

5 When I use the phrase claims development
6 in those two paragraphs, I am referring to the
7 attributes of a product.

8 Q. Paragraph 11 you mention Horizon Partners
9 Ventures, LLC.

10 Did Horizon Partners Ventures, LLC own any
11 patent rights?

12 A. No, they did not.

13 Q. With respect to patents, isn't it true
14 that, if a technique has been used to improve a
15 process and one of skill would recognize the
16 technique as improving similar processes, using the
17 technique is obvious, unless applying the technique
18 is beyond the skill level of the artisan?

19 MR. KANE: Objection. Lack of foundation.
20 Calls for a legal conclusion.

21 A. So I -- I'm not a patent lawyer, so I
22 can't -- I can't give an answer as to that exactly,
23 no.

24 Q (BY MR. LUCAS) Isn't that what your
25 counsel told you in paragraph 25?

1 A. Give me a second.

2 (Witness reviewing document.)

3 Q. I'm sorry. I'm sorry. I directed you to
4 the wrong paragraph.

5 A. Thank you.

6 Q. I can see why you're confused. I meant to
7 say paragraph 29. Apologies.

8 A. Thank you.

9 That's what's stated here. Yes. I recall
10 reading that.

11 Q. And that comports with your understanding,
12 right, as you've been informed by your counsel?

13 A. Yes.

14 Q. Isn't it also true that any need or
15 problem known in the field can provide a reason for
16 combining multiple prior art references?

17 MR. KANE: Objection. Lack of foundation,
18 calls for a legal conclusion.

19 A. Could you direct me to -- Is that in my
20 declaration? Can you direct me to that? I want to
21 reread it, please.

22 Q (BY MR. LUCAS) Sure. Paragraph 35, last
23 sentence.

24 A. Thank you.

25 So I'm sorry. Are you asking me if --

1 if -- if you know that there's a problem or you --
2 there's a need, and you take different elements of
3 a -- other patents and combine them, that that's
4 obvious?

5 Q. Yes.

6 MR. KANE: Objection. Calls for a legal
7 conclusion.

8 A. So it --

9 MR. KANE: Incomplete hypothetical.

10 A. Again, I -- I am -- I'm not knowledgeable
11 of the elements of patent law to that degree, so
12 I -- I can't really agree to that, at least the last
13 sentence.

14 Q (BY MR. LUCAS) Okay. So maybe I'll
15 rephrase.

16 When you applied your understanding of the
17 law, as you were informed by your counsel --

18 A. Yes.

19 Q. -- to the facts of this case, did you
20 apply your understanding that any need or problem
21 known in the field or of endeavor at the time of the
22 invention can provide a reason for combining the
23 elements of multiple prior art references in the
24 claimed manner?

25 A. I used information in the prior art, but

1 not necessarily any patents, other than the cited
2 patent.

3 Q. Maybe I'll -- I'll rephrase and ask again.

4 A. Yeah, please.

5 Q. Your counsel informed you various aspects
6 of patent law, right?

7 A. Yes.

8 Q. And you applied those legal principles to
9 the facts of this IPR to come up with your
10 conclusions, right?

11 A. To the best of my ability, yes.

12 Q. And so I'm asking if one of the legal
13 principles that you applied was that any need or
14 problem known in the field of endeavor at the time
15 of the invention can provide a reason for combining
16 the elements of multiple prior art references in the
17 claimed manner, which is what you wrote in paragraph
18 35.

19 A. Yes. You would -- you could combine other
20 elements of the prior art to direct towards a -- a
21 problem.

22 Q. Would a desire to change a recipe from a
23 less biodegradable ingredient to a more naturally
24 derived ingredient constitute recognizable
25 obviousness rationale, in your mind?

1 MR. KANE: Objection. Incomplete
2 hypothetical.

3 A. Okay. So that's a very general question.
4 It's -- it's possible.

5 Q (BY MR. LUCAS) I think we talked about
6 this earlier, but you submitted a declaration in
7 support of patent owner's preliminary response,
8 right?

9 A. I'm sorry. I'm -- I'm drawing a blank.
10 But I -- I believe it was in response to the
11 original patent owner's response. Yes.

12 Q. Do you mean in response to the petition?
13 And that was patent owner's preliminary response,
14 just so we're on the same page?

15 A. I -- I've read so many documents, but I --
16 I believe that -- Yes.

17 Q. Okay.

18 MR. LUCAS: Let's mark as Exhibit 2
19 Cargill 2021, which is the preliminary response
20 declaration.

21 (Deposition Exhibit Number 2 marked.)

22 Q (BY MR. LUCAS) I know you've read a lot of
23 documents, but does that one look familiar?

24 A. I -- I believe I've -- Yes. This looks
25 somewhat familiar, yes.

1 Q. I mean, that's your signature on the front
2 of it, right?

3 A. Yes, it is.

4 Q. Okay. Did that declaration include an
5 opinion that, prior to the filing date of the '245
6 patent, lipases were known to be specific to
7 triglycerides?

8 A. Give me one moment.

9 Q. Sure.

10 A. I need to look through this, please.
11 Thank you.

12 Could you direct me in here to what you're
13 referring to?

14 Q. Well, I can look at the table of contents.
15 Maybe that might help.

16 I didn't see that opinion in there, not to
17 hide the ball.

18 A. Could you repeat that question, please?

19 Q. Sure.

20 Did that preliminary response declaration
21 include an opinion that, prior to the filing date of
22 the '245, lipases were known to be specific to
23 triglycerides?

24 A. I don't recall if I included that in this
25 declaration, no.

1 Q. You didn't include it in the declaration,
2 right? Did not.

3 A. I don't -- I don't recall if I did. I --
4 I don't see it here in this document.

5 Q. So the answer's no, right; you didn't
6 include it in the declaration?

7 A. I'd have -- you know, you're going to have
8 to give me a couple more minutes --

9 Q. That's fine.

10 A. -- because I'm going to look through this.

11 Q. Go ahead.

12 MR. KANE: The witness can take as much
13 time as necessary to answer the question.

14 A. Okay. Sorry. If you could ask that
15 question one more time.

16 Q (BY MR. LUCAS) Of course.

17 Did your preliminary response declaration
18 include an opinion that, prior to the filing date of
19 the '245 patent, lipases were known to be specific
20 to triglycerides?

21 A. Yes, I did.

22 Q. Where did you include that opinion?

23 A. In paragraph 58 here.

24 Q. What does it say?

25 A. That the petition also relies on Xu and

1 trans isomers 2 as allegedly disclosing use of
2 lipases and enzymes in the transesterification
3 process. And then, also --

4 Q. Well, you didn't say in that paragraph
5 that --

6 MR. KANE: Let him answer. He's answering
7 the question, Counsel.

8 A. And then at paragraph 56, Xu describes
9 developments in lipid technologies including
10 esterification of triacylglycerides, and Xu does not
11 mention wax esters and focuses on
12 transesterification of triglycerides.

13 Q (BY MR. LUCAS) So I'll ask you again.

14 Did that preliminary response declaration
15 include an opinion that, prior to the filing date of
16 the '245 patent, lipases were known to be specific
17 to triglycerides?

18 MR. KANE: Objection. Asked and answered.

19 A. Yes. In at least those two paragraphs, 56
20 and 58, with reference to Xu.

21 Q (BY MR. LUCAS) You say that Xu does not
22 mention jojoba wax esters and focuses on
23 transesterification of triglycerides, but you don't
24 say that, prior to the filing date of the '245
25 patent, lipases were known to be specific to

1 triglycerides. Right?

2 A. I use the word focuses on. I do not use
3 the word specific.

4 Q. So you don't include the opinion that,
5 prior to the filing of the '245 patent, lipases were
6 known to be specific to triglycerides. That opinion
7 does not appear in your preliminary response
8 declaration, does it?

9 A. That is correct.

10 Q. At the time you submitted that preliminary
11 response declaration, did you hold the opinion that,
12 prior to the filing date of the '245 patent, lipases
13 were known to be specific to triglycerides?

14 A. My opinion was that there was no -- that
15 the known art of lipases was for reaction with
16 triglycerides. And my opinion was that, all of the
17 art were focused only upon that reaction type prior
18 to the critical date.

19 Q. So at the time you submitted this
20 declaration, your opinion was that, prior to the
21 filing date of the '245 patent, lipases were known
22 to be specific to triglycerides, right?

23 A. I'm not going to agree with the phrase
24 specific.

25 The art -- all the prior art that I

1 reviewed only mentioned lipases and triglycerides.

2 Could there have been something else out
3 there? Not in my review.

4 Q. And you held that opinion back when you
5 submitted that preliminary response declaration,
6 right?

7 A. To the best of my recollection, while
8 writing this, I -- I -- I sorta recall that I used
9 the word focused on, because specific was very
10 limiting.

11 Q. I'm asking a different question, which is,
12 the opinion that you just told me, that all the art
13 you reviewed only mentioned lipases and
14 triglycerides, did you hold that opinion at the time
15 that you submitted that preliminary response
16 declaration, or is that an opinion that you derived
17 after you submitted that declaration?

18 A. No. To the best of my recollection, that
19 was my opinion.

20 Q. That's been your opinion all along?

21 A. Yes.

22 Q. How did you come to form that opinion?

23 A. From reading the prior art that was
24 available to me and my own research.

25 Q. Would you agree that, in your preliminary

1 response declaration, you did not include the
2 argument that claim limitation regarding the use of
3 lipases to catalyze reaction was not disclosed in
4 the petition?

5 A. Okay. I need you to repeat that.

6 And I'd like to see the claims, please.

7 Q. Sure.

8 So if you look at your Exhibit 1 --

9 A. Yes.

10 Q. -- you reproduced the claims on page 64.

11 A. Give me a second. Thank you.

12 Q. And my question is, in your preliminary
13 response declaration, you do not include an argument
14 with respect to limitation 1(b), with respect to the
15 lipase being used to catalyze the reaction, right?

16 A. I'd have to look.

17 But could I ask you again to please -- I
18 want to make sure I heard you correctly.

19 Q. Sure.

20 So a big focus of your declaration,
21 Exhibit 1, Exhibit 2009, has to do with the idea
22 that -- what we just talked about with respect to
23 lipases, that, in all the art you reviewed, you saw
24 them being related to triglycerides.

25 You did not include that opinion in your

1 preliminary response declaration. Right?

2 A. Okay. I'm sorry. Are you -- Could you
3 repeat that again?

4 Q. Sure.

5 Maybe it'll help to look at the table of
6 contents in your preliminary response declaration,
7 as compared to your patent owner's response
8 declaration.

9 A. Okay.

10 Q. In your preliminary response declaration,
11 Exhibit 2, you did not include an argument that
12 claim limitation 1(b) wasn't met. Right?

13 A. Correct.

14 Q. Why didn't you include that opinion?

15 MR. KANE: Counsel, I'm going to inject an
16 objection here.

17 You cannot reveal any -- you should -- if
18 you can answer that question without revealing any
19 discussions with counsel, you can. If it involves
20 substantive discussions with counsel, I'd instruct
21 you not to answer.

22 THE WITNESS: Okay. Thank you.

23 A. If I recall correctly, Exhibit 2 was
24 following some responses by Vantage, if I recall
25 correctly -- and I'd have to go back and look at

1 my -- my notes -- wherein the discussion was
2 predominantly on the subject matter that is listed
3 in my table of contents in Exhibit 2.

4 My focus, at that time, was different than
5 the focus and understanding in Exhibit 1.

6 Q (BY MR. LUCAS) Why the differing in that
7 focus?

8 MR. KANE: Again, instruct the witness not
9 to discuss any discussions with counsel. If you
10 can't answer without doing that, you should not
11 answer.

12 A. I -- I really can't answer that.

13 Q (BY MR. LUCAS) But just to be clear, you
14 held this opinion back when you submitted that
15 preliminary response declaration, right?

16 A. Again, what was the opinion you're asking
17 me about?

18 Q. The opinion that claim limitation 1(b) is
19 not disclosed in the prior art.

20 A. Where was the claims again? Oh, here.
21 Here we go.

22 My opinion was, at the time, that claim
23 1(b) was not known in the prior art.

24 Q. Do you think that's a strong argument?

25 A. I do, in the opinion of a subject matter

1 expert in chemistry.

2 Q. But you chose not to include that argument
3 in your preliminary response declaration, right?

4 MR. KANE: Objection. Misstates the
5 testimony. Misstates the facts.

6 Again, you can't -- you should not answer
7 the question if you can't without revealing
8 discussions with counsel.

9 A. No. I can respond generally.

10 Q (BY MR. LUCAS) Please.

11 A. It was already in my Exhibit 1. My
12 opinions held forward into Exhibit 2.

13 Q. You told me twice already that you didn't
14 include the opinion that lipases were specific to
15 triglycerides in your preliminary response
16 declaration.

17 MR. KANE: Objection. Misstates the
18 testimony.

19 Q (BY MR. LUCAS) Are you going back on that
20 testimony?

21 A. No.

22 Q. All right. So you didn't include that
23 argument in your preliminary response declaration,
24 even though you think it's a strong argument.
25 Right?

1 A. I do believe it's a strong argument.

2 Q. And you didn't include it, right?

3 A. I did not include it. No.

4 Q. Did you point out to counsel your opinion
5 that lipases were known to be specific to
6 triglycerides, or was that something counsel brought
7 to your attention?

8 MR. KANE: Objection. Instruct the
9 witness not to answer.

10 Q (BY MR. LUCAS) Are you going to follow
11 your counsel's instruction?

12 MR. KANE: I've instructed you not to
13 answer.

14 Q (BY MR. LUCAS) And I'm asking whether
15 you're going to follow the instruction.

16 A. Yes, I am.

17 Q. Okay. Slightly different question.

18 At the time you submitted that preliminary
19 response declaration, did you hold the opinion that,
20 prior to the filing date of the '245 patent, no one
21 had ever used a lipase to transesterify jojoba oil?

22 A. I'm going to ask you to restate that
23 question, please.

24 Q. At the time you submitted your preliminary
25 response declaration, did you hold the opinion that,

1 prior to the filing date of the '245 patent, no one
2 had ever used a lipase to transesterify jojoba oil?

3 MR. KANE: Objection. Vague.

4 A. At the time of that filing, my opinion was
5 that it was unknown, to the extent that I could find
6 in the literature, that lipase was not used in that
7 manner.

8 Q (BY MR. LUCAS) I'm asking just a slightly
9 different question. I think your answer's going to
10 hold, but I want to make sure.

11 At that time, did you hold the opinion
12 that, prior to the critical date, no one had ever
13 used a lipase, in practice, to transesterify jojoba
14 oil?

15 A. My opinion is that, in my review of the
16 prior art, I did not see a reference for lipase used
17 in that manner, very -- very succinctly.

18 Q. Do you currently hold the opinion that,
19 prior to the filing date of the '245 patent, no one
20 had ever used a lipase to transesterify jojoba oil?

21 MR. KANE: Objection. Vague.

22 A. I held that opinion because my review of
23 the prior art did not reveal to me any prior use of
24 the lipase in that manner.

25 Q (BY MR. LUCAS) Do you still hold that

1 opinion?

2 A. Yes, I do.

3 Q. In your opinion, no one had ever used a
4 lipase to transesterify jojoba oil prior to Mr. Addy
5 and the folks at FloraTech, right?

6 A. You're making a very general assumption.

7 I can only respond, from the art that I've
8 reviewed, I have not seen lipase used in that manner
9 prior to the critical date of filing.

10 Q. I'm not making any assumptions.

11 I'm asking you whether it's your opinion
12 that Mr. Addy and the folks at FloraTech were the
13 first people to transesterify jojoba oil, in the
14 world, using a lipase.

15 MR. KANE: Objection. Asked and answered.

16 A. In my opinion, the patent application by
17 Mr. Addy demonstrates that he or they were the first
18 people to make that claim. I don't know if anyone
19 else might have done it prior to that. I did not
20 find that in the literature.

21 Q (BY MR. LUCAS) So your opinion is that
22 Mr. Addy and the folks at FloraTech were the first
23 people to transesterify jojoba oil using a lipase.
24 Is that right?

25 MR. KANE: Objection. Asked and answered.

1 A. I disagree.

2 My opinion is that Mr. Addy and his
3 co-inventors were the first to document it and put
4 it into the art, in the literature.

5 Q (BY MR. LUCAS) So you don't know for sure,
6 one way or the other, whether someone had done it
7 prior to Mr. Addy?

8 A. It's difficult to say, because the prior
9 art makes no record of it, and I can only go by the
10 prior art.

11 Q. So you don't know, one way or the other,
12 whether, prior to Mr. Addy and FloraTech filing the
13 '245 patent, someone had transesterified jojoba oil
14 using a lipase?

15 MR. KANE: Objection. Asked and answered.

16 A. You can't know, because it's not in the
17 prior art.

18 Q (BY MR. LUCAS) So you don't know, one way
19 or the other, right?

20 A. No. I can't know.

21 Q. Someone could have, or they could not
22 have, right?

23 A. Of course.

24 Q. Dr. Schultz, have any of your expert
25 opinions ever been excluded before?

1 A. Not that I'm aware of.

2 Q. Are you sure?

3 A. To my best -- my recollection, yes.

4 MR. LUCAS: Exhibit 3.

5 (Deposition Exhibit Number 3 marked.)

6 Q (BY MR. LUCAS) Does this refresh your
7 recollection as to whether your testimony has been
8 excluded before?

9 A. I've never seen this document before.

10 Q. Were you retained as an expert in the
11 matter Liqwd, Inc. and Olaplex LLC versus L'Oreal
12 USA, Inc., et al.?

13 A. Yes, I was.

14 Q. What party retained you in that matter?

15 A. Counsel representing L'Oreal.

16 Q. What law firm was that?

17 A. I believe it was Paul Hastings group.

18 Q. Have they retained you since?

19 A. No, they have not.

20 Q. When Fish & Richardson was interviewing
21 you as a potential expert in connection with this
22 matter, did you tell them that your opinions had
23 been excluded in the past?

24 A. I did not. I was not aware.

25 Q. What were the opinions that you offered in

1 this matter on behalf of L'Oreal?

2 A. I cannot answer, for reasons of
3 nondisclosure.

4 Q. Okay. Looking at the first page, there
5 are a bunch of motions to exclude that the Court
6 decided, right?

7 A. Excuse me. Let me look at this. This is
8 the first time I've ever seen this document.

9 Q. Okay. You can read it, if you want.

10 A. I would like to. Thank you.

11 Q. The section that relates to your testimony
12 being excluded starts on page 11, if that's helpful.

13 A. Okay. I've read -- the first time I've
14 ever seen this document, and it's -- first time.

15 Q. So the lawyers at Paul Hastings didn't
16 even tell you that your testimony got excluded?

17 A. They did not. No.

18 Q. This case went to trial, didn't it?

19 A. I recall it did. Yes.

20 Q. Did you testify at that trial?

21 A. I did not.

22 Q. Why not?

23 MR. KANE: Do not reveal any confidential
24 communications.

25 A. I -- I don't know. I was just told I did

1 not need to testify at trial.

2 Q (BY MR. LUCAS) Now that you know that
3 several of your opinions were excluded, do you think
4 that that could be a reason why they didn't ask you
5 to testify at trial?

6 MR. KANE: Objection. Lack of foundation.

7 A. Again, I'm not a lawyer. I -- I don't
8 know what -- I don't know why.

9 Q (BY MR. LUCAS) Isn't it true that you
10 offered an opinion that Olaplex did not provide its
11 unpublished patent application to L'Oreal?

12 A. That is what's written here. I do not
13 recall that specifically.

14 Q. And the Court excluded that opinion,
15 right?

16 A. That is what's written here. Yes.

17 Q. Isn't it true that you offered an opinion
18 regarding the existence of Olaplex's trade secret?

19 MR. KANE: Objection. Misstates the
20 document.

21 A. Could you repeat that, please?

22 Q (BY MR. LUCAS) Sure.

23 Isn't it true that you offered an opinion
24 regarding the existence of Olaplex's trade secret?

25 MR. KANE: Objection. Misstates the

1 document.

2 A. I do not agree with that.

3 Q (BY MR. LUCAS) Why not?

4 A. I recall I was retained to offer an
5 opinion on the patent application only.

6 Q. What about the patent application?

7 A. I was asked to review the content and
8 whether or not prior art may have excluded their
9 application.

10 Q. So you weren't asked to testify whether
11 the patent application included trade secret
12 information, right? Is that what you're saying?

13 A. To the best of my recollection, yes.

14 Q. Then you have no idea why, on page 11, the
15 plaintiff asked the Court to exclude the opinion
16 regarding the existence of Olaplex's trade secret.

17 A. I have no basis of understanding why they
18 made that statement.

19 Q. Okay. Isn't it true that you offered
20 opinions regarding witnesses's state of mind?

21 A. Is that a legal term?

22 Q. Not really. What someone's thinking.

23 A. To the best of my recollection, that was
24 not in my declaration, no.

25 Q. So then you have no idea why, on page 11,

1 it says, quote, The Court will not permit
2 Mr. Schultz to testify as to the state of mind of
3 multiple witnesses and parties, end quote?

4 A. Again, it's the first time I've seen this.
5 I can't make a comment on that or offer an opinion.

6 Q. And going to the next page, page 12, and
7 back to the question that I just asked, you have no
8 idea why it says, quote, Likewise, Mr. Schultz will
9 not be permitted to testify as to whether an
10 unpublished patent application is also a trade
11 secret, end quote?

12 A. Excuse me a second.
13 Could you ask that again, please?

14 Q. Sure.
15 You have no idea why the Court said,
16 quote, Likewise, Mr. Schultz will not be permitted
17 to testify as to whether an unpublished patent
18 application is also a trade secret, end quote?

19 A. I can only refer to what's written here.
20 I -- First time, again, I've ever seen this.

21 Q. And reading that doesn't refresh your
22 recollection as to the opinions you offered that got
23 excluded regarding trade secrets, right?

24 A. To the best of my recollection, my
25 declaration did not discuss trade secrets, nor did I

1 make that -- I don't recall if I -- what that
2 declaration had in its totality. It was five years
3 ago.

4 Q. So you have no idea why the Court excluded
5 your opinion as to whether an unpublished patent
6 application is a trade secret?

7 A. Upon reading this, it's a legal decision.
8 I'm not a lawyer. I -- I cannot offer an opinion on
9 this.

10 Q. So you have no idea why they included
11 that?

12 A. Again, no.

13 Q. Okay. Do you have any other instances
14 that you'd like to tell us about where your opinions
15 have been excluded?

16 A. Not to my recollection. No.

17 MR. LUCAS: Okay. Let's take a break.

18 THE VIDEOGRAPHER: We are going off the
19 record. The time now is 10:15.

20 (Whereupon, a recess was taken.)

21 THE VIDEOGRAPHER: We are back on the
22 record. This is the start to Media Number 2. The
23 time is 10:30.

24 Q (BY MR. LUCAS) Dr. Schultz, is jojoba oil
25 a triglyceride?

1 A. It is not.

2 Q. Same with jojoba esters, right?

3 A. That is correct.

4 Q. Is ferulic acid a triglyceride?

5 A. I'd have to look at the structure of that
6 to let you know. But I don't believe so.

7 Q. Is sinapic acid a triglyceride?

8 A. Again, I'd have to see the structure, but
9 I -- I don't recall.

10 Q. Is caffeic acid a triglyceride?

11 A. I'd have to refer to the chemical
12 structure, again, but I -- I don't believe so.

13 Q. Is anthranilic acid a triglyceride?

14 A. I -- I don't believe so, no.

15 Q. Is quinic acid a triglyceride?

16 A. I'd like to see a chemical structure, but
17 to the best of my recollection, no.

18 Q. Is glucuronic acid a triglyceride?

19 A. Excuse me.

20 Again, to the best of my recollection, no.

21 Q. Is kojic acid a triglyceride?

22 A. I believe it is not.

23 Q. How about sterols?

24 A. Sterols refer to a general class of
25 materials, but to my recollection, no.

1 Q. How about flavonoids?

2 A. Again, flavonoids refer, again, to a very
3 general class of chemicals. I don't -- I don't
4 recall them being triglycerides, no.

5 Q. How about lutein?

6 A. I'd have to see a chemical structure. I
7 do not know.

8 Q. Is ascorbic acid a triglyceride?

9 A. To my recollection, no, it is not.

10 Q. Is glucose a triglyceride?

11 A. To my recollection, again, no.

12 Q. Is citronellol a triglyceride?

13 A. I'd have to see the structure to remind
14 myself, but my recollection is, no.

15 Q. How about pyridoxine?

16 A. To the best of my recollection, no, it is
17 not a triglyceride.

18 Q. Are terpene esters triglycerides?

19 A. To my recollection, a terpene ester is a
20 class of materials. I'd have to see to what you've
21 referring to.

22 Q. So you don't know, one way or the other,
23 without looking at something else, right?

24 A. It -- it -- I'm responding that way
25 because you'd want to see what it's esterified to.

1 Q. Would that same answer be true with
2 respect to sterol esters?

3 A. You would need to see, in any ester, where
4 the esterification is occurring.

5 Q. Same with flavonoid esters?

6 A. Again, the generic response is, any ester,
7 you need to see what it's esterified to.

8 Q. Okay. Is oleic acid a triglyceride?

9 A. Oleic acid is not a triglyceride.

10 Q. Is cetyl alcohol a triglyceride?

11 A. Cetyl alcohol is not a triglyceride, no.

12 Q. Is cetyl oleate a triglyceride?

13 A. Well, to my recollection, no.

14 Q. Are fatty acid alkyl esters triglycerides?

15 A. A fatty acid alkyl ester could be a
16 triglyceride. You'd have to see what it's
17 esterified with.

18 Q. They don't have to be, though, right?

19 A. Your question was, could they be. And the
20 answer is, they could be.

21 Q. But they don't have to be, right?

22 A. No. No ester has to be bound to any
23 specific entity. You have to define that.

24 Q. Are you familiar with ethyl acetate?

25 A. Yes, I am.

1 Q. Am I right that ethyl acetate is an ester
2 of ethanol and acetic acid?

3 A. Yes.

4 Q. You can set aside Exhibits 2 and 3.

5 We're going to look at Exhibit 1, which is
6 Cargill Exhibit 2009. And if you would go to
7 paragraph 47 of your declaration.

8 In that paragraph you say, Most of the
9 prior art references relied on -- in the grounds
10 deal with the transesterification of triglycerides.

11 Do you see that?

12 A. I see that as written. Yes.

13 Q. To the best of your recollection, does
14 Cummings deal with the transesterification of
15 triglycerides?

16 A. To the best of my recollection, no.

17 Q. To the best of your recollection, does
18 trans isomers 2 deal with the transesterification of
19 triglycerides?

20 A. No. To the best of my recollection, that
21 document does not.

22 But I'd like to take a quick look at it to
23 refresh my memory. Is that possible?

24 Q. No. That is not possible right now.

25 Are there any naturally derived oils that

1 are not triglycerides?

2 A. Naturally derived oils is a very broad
3 category. I'd have to respond that, most are
4 triglycerides. But because it's such a large field,
5 I would like -- I cannot say all.

6 Q. Can you name any naturally derived oils
7 that are not triglycerides?

8 MR. KANE: Objection. Vague.

9 A. Just thinking through the -- my
10 recollections here. At this moment, I can't give
11 you a definitive answer if there are any, because,
12 again, there are so many oils. And naturally
13 derived is -- could come from any number of sources,
14 so I have to -- I'd have to think about that.

15 Q (BY MR. LUCAS) Well, we know for sure of
16 at least one, right?

17 A. Could you be more clear about that,
18 please?

19 Q. Well, you told me earlier that jojoba oil
20 is not a triglyceride.

21 A. That is correct. Yes.

22 Q. But you can't tell me whether there are
23 any other naturally derived oils from plants or
24 animals that are not triglycerides. Is that your
25 testimony?

1 A. Not at this -- not at this moment, no.

2 Q. What would you have to look at to
3 determine a list of other naturally derived oils
4 that are not triglycerides?

5 A. I would refer to one of the handbooks on
6 naturally derived oils, which I would expect to be
7 in the literature.

8 Q. Would you expect there to be any other
9 naturally derived oils that are not triglycerides?

10 A. It is possible that there are others,
11 since jojoba oil is one example.

12 Q. Are you aware of any other materials that
13 have a similar chemical structure to jojoba?

14 MR. KANE: Objection. Vague.

15 A. Immediately, I am -- I am -- I would say
16 that there are probably, but they're not coming to
17 mind as I sit here.

18 Q (BY MR. LUCAS) Jojoba oil is a wax ester,
19 right?

20 A. It is one term for jojoba oil, yes.

21 Q. What are some other wax esters?

22 A. I'm -- at this moment, I -- I'm not
23 recalling immediately others.

24 Q. You can't name me a single other wax
25 ester?

1 A. At this moment, I'm not recollecting. I'm
2 sure they're out there, but I'm not recollecting.

3 Q. You've worked with wax esters in the
4 course of your career, right?

5 A. Yes, I have.

6 Q. And you can't recall any other wax ester
7 besides jojoba?

8 A. I can recall some manmade wax esters.

9 Q. Do those have a similar structure to
10 jojoba?

11 MR. KANE: Objection. Vague.

12 A. In a very general sense, that they are
13 linear in structure. But, again, they're synthetic,
14 and --

15 Q (BY MR. LUCAS) What are the manmade wax
16 esters that you recall right now, sitting here
17 today?

18 A. There's a class called silicone esters.

19 Q. Any others?

20 A. There are some paraffin wax esters.

21 Q. Can you recall any other manmade wax
22 esters beside silicone wax esters and paraffin wax
23 esters?

24 A. I'd have to think about it. But from
25 using in my career, those would be the top-most in

1 my recollection.

2 Q. And just, again, you can't think of any
3 naturally derived wax esters?

4 A. No. Not at this point, no. If I had more
5 time to reflect, maybe, but not at this point.

6 And when you say wax esters, you -- again,
7 similar in structure to jojoba oil?

8 Q. Right.

9 A. Okay. Yes.

10 Q. If you look at paragraph 52, you say that
11 jojoba wax esters are not technically oils at all,
12 but are instead composed of almost 98 percent pure
13 waxes, primarily wax esters, with the other
14 2 percent containing sterols and vitamins. Right?

15 A. I see that it's on this document. Yes.

16 Q. What are the vitamins that are in that
17 2 percent?

18 A. I'd have to go back and review. They may
19 have been referring to, like, vita- -- tocopherol
20 vitamin.

21 Q. So there are tocopherols in jojoba wax
22 esters, right?

23 A. There are naturally occurring tocopherols,
24 yes.

25 Q. Just going back to the silicone esters and

1 the paraffin wax esters that you mentioned, you --
2 how are those created? Take silicone esters first.

3 MR. KANE: Objection. Lack of foundation.

4 A. Not -- I'm not knowledgeable in their
5 chemical synthesis route commercially, but they're
6 available, and I've never really pursued how they
7 were made.

8 Q (BY MR. LUCAS) So you don't know if
9 they're made through transesterification?

10 A. Again, I'm not -- I'm not knowledgeable of
11 their commercial manufacturing process.

12 Q. Are you familiar with the reaction called
13 ammonolysis?

14 A. Could you spell that, please?

15 Q. Yeah. I may have mispronounced it.
16 A-m-m-o-n-o-l-y-s-i-s.

17 A. I am vaguely familiar with that.

18 Q. Is it ammonolysis?

19 A. It's fine the way you pronounced it, I
20 think.

21 Q. Okay. Thanks.

22 Could you provide a high-level description
23 of an ammonolysis reaction?

24 A. At a very, very -- you know, I'll try my
25 best. At a very high level, the word a-m-m-o refers

1 to a nitrogen species. And olysis means attaching
2 it to a fatty acid. But that's just very high
3 level, very general.

4 Q. Is it a reaction, at a high level, in
5 which esters and ammonia react to form amides and
6 alcohols?

7 A. At a very high level, it might be. I'm
8 not -- I'm not overly knowledgeable about that
9 process.

10 Q. Is ammonolysis similar, in certain
11 respects, to hydrolysis?

12 A. You're asking a very general chemical
13 question. They're very different chemistries.

14 Q. Can you explain that a little bit, the
15 differences?

16 A. Hydrolysis involves using water. The
17 chemistry -- I think you said to make an amide and
18 an acid? Was that what you had said?

19 Q. Alcohol.

20 A. Alcohol?

21 May or may not involve water, at a very
22 high level.

23 Q. Are there any similarities between the two
24 reactions?

25 MR. KANE: Lack of foundation. Vague.

1 A. The only similarity, very, very generally,
2 is that you are causing bonds to be made and broken.

3 Q (BY MR. LUCAS) Prior to the critical date,
4 would one of ordinary skill have been expected to be
5 able to successfully catalyze the ammonolysis of
6 jojoba wax esters using a lipase?

7 A. From the review of the literature, I do
8 not recall that, nor was that part of my review.

9 Q. So you don't know, one way or the other,
10 right?

11 A. I cannot comment on it. It did not -- it
12 wasn't part of my review.

13 Q. So you don't know, one way or the other,
14 right?

15 A. Again, I can't make a comment, one way or
16 the other, without having had a chance to be more --
17 do some research.

18 Q. Is it your opinion that lipases can only
19 be used to catalyze transesterification reactions of
20 triglycerides?

21 A. By the definition of the enzyme class of
22 lipase, they are specific to reaction with
23 triacylglycerols.

24 Q. So is it your opinion that lipases can
25 only be used to catalyze transesterification

1 reactions with triglycerides?

2 MR. KANE: Objection. Lack of foundation,
3 vague.

4 A. My opinion is that, prior to the '245
5 patent filing, that was the state -- the
6 understanding of the art.

7 Q (BY MR. LUCAS) I'm asking a slightly
8 different question, which is, is it your opinion
9 that lipases can only be used to catalyze
10 transesterification reactions of triglycerides?

11 MR. KANE: Objection. Vague.

12 A. My answer is no, at this moment.

13 Q (BY MR. LUCAS) Why not?

14 A. Until the art of '245 patent, which
15 demonstrated other chemistry, that was what my
16 opinion was.

17 Q. So lipases can, in fact, be used to
18 catalyze transesterification reactions of
19 nontriglycerides, right?

20 A. Could you ask that again, please?

21 Q. Sure.

22 Lipases can, in fact, be used to catalyze
23 transesterification reactions of nontriglycerides,
24 right?

25 A. In the context of the research that I did,

1 wherein it was demonstrated in the '245 patent using
2 jojoba oil, is -- is the only example that I had
3 come across.

4 Q. This is a simple yes or no question.

5 Is it true that lipases can, in fact, be
6 used to catalyze transesterification reactions of
7 nontriglycerides?

8 A. Yes, as demonstrated by the patent.

9 Q. You don't know of any other examples
10 besides that demonstrated in the '245 patent, right?

11 A. Up until the art that I reviewed, up to
12 2014, the answer would be yes.

13 Q. Sitting here today, do you know of any
14 other examples of a lipase-catalyzed
15 transesterification reaction of nontriglycerides?

16 A. I don't -- I -- I don't recall. I don't
17 know, 'cause I haven't really pursued that
18 literature.

19 Q. So you don't know, one way or the other,
20 whether lipases can be used to catalyze
21 transesterification reactions of wax esters, do you?

22 A. I disagree with that statement in general,
23 because I am aware of jojoba wax esters reacting
24 with lipase.

25 Q. Did you look for any other examples in

1 your literature review?

2 A. Yes, I did.

3 Q. Was that limited to prior to the critical
4 date, or did you expand the search to be after the
5 critical date?

6 A. It was up to the critical date.

7 Q. So there could be articles past the
8 critical date that show lipase-catalyzed
9 transesterification reaction of other
10 nontriglycerides, right?

11 MR. KANE: Objection. Lack of foundation.

12 A. There could be. I don't know.

13 Q (BY MR. LUCAS) Okay. So it was possible,
14 prior to December 19th, 2014, for lipases to be used
15 to catalyze transesterification reactions of
16 nontriglycerides, right?

17 A. I don't know. I did not see it in my
18 literature review.

19 Q. Sorry. I'm just asking whether it was
20 possible, physically possible, prior to
21 December 19th, 2014, for lipases to be used to
22 catalyze transesterification reactions of
23 nontriglycerides.

24 MR. KANE: Objection. Vague, lack of
25 foundation.

1 A. Of course it could be possible, but hadn't
2 found any reference to it.

3 Q (BY MR. LUCAS) It was always possible for
4 lipases to catalyze transesterification reactions of
5 nontriglycerides, right?

6 MR. KANE: Objection. Vague.

7 A. I cannot agree to that, because lipase
8 chemistry was very specific to triacylglycerols.
9 To -- and we just don't know if it would work with
10 other chemistry, other materials.

11 Q (BY MR. LUCAS) I'm talking about the
12 physical possibility. Nothing's changed with
13 respect to the physical possibility of lipases to be
14 able to catalyze transesterification reactions of
15 nontriglycerides, right?

16 MR. KANE: Objection. Lack of foundation.

17 A. You're asking me again -- sorry,
18 Counsel -- a very general question. Is it possible
19 that a lipase could react with something else?

20 In the general field of chemistry -- and
21 the beauty of chemistry is that new things are being
22 discovered all the time -- you don't know. As an
23 expert in chemistry, I would say I don't know.

24 Q (BY MR. LUCAS) You don't know if something
25 changed with respect to the physical characteristics

1 of lipases before the critical date and after. Is
2 that what you're saying?

3 A. No. I'm not saying that.

4 Q. Well, I'm asking whether it was always
5 possible, in the sphere of chemistry, for lipases to
6 catalyze transesterification reactions of
7 nontriglycerides.

8 MR. KANE: Objection. Vague, lack of
9 foundation.

10 A. I will say that, prior to the critical
11 date, my opinion would be, no. The known art was
12 triglycerides.

13 Q (BY MR. LUCAS) I'm not talking about the
14 known art right now. I'm talking about the physical
15 possibility and whether something has changed
16 magically with respect to chemistry.

17 MR. KANE: Objection, Counsel. Don't be
18 argumentative, please.

19 Q (BY MR. LUCAS) It was always possible for
20 lipases to catalyze transesterification reactions of
21 jojoba oil, right?

22 A. I disagree. It was unknown.

23 Q. It was physically possible, though, right?

24 A. I cannot agree to that. It was unknown in
25 the lipase chemistry.

1 Q. The ability of lipases to catalyze
2 transesterification reactions hasn't changed over
3 time, has it?

4 MR. KANE: Objection. Vague, lack of
5 foundation.

6 A. I agree that lipase chemistry, to the best
7 of my knowledge -- and the reaction of lipase --
8 and, again, there are many types of lipases, many
9 types -- has -- may -- most probably hasn't changed.

10 Q (BY MR. LUCAS) Lipases have always had
11 that capability, right?

12 MR. KANE: Objection. Vague.

13 A. I think capability being used as within
14 your question is very vague.

15 Q (BY MR. LUCAS) Okay. What if I said
16 physical capability? Would that make it more
17 specific?

18 A. No.

19 Q. Or chemical capability?

20 A. Chemical capability is that the lipase
21 chemistry is very specific to triglycerides.

22 Q. But lipases have always had the chemical
23 ability to catalyze a transesterification reaction
24 of jojoba oil, right?

25 A. I don't know. Until it was introduced in

1 the patent, it was not known that they would react
2 in that manner.

3 Q. Okay. But you told me a couple minutes
4 ago that you don't think that it's changed over
5 time, the chemical capability. Right?

6 A. That is correct.

7 Q. Okay. So I'm just saying it a different
8 way, which is, lipases have always had the chemical
9 capability of catalyzing transesterification
10 reaction of jojoba oil?

11 MR. KANE: Objection. Vague, lack of
12 foundation.

13 A. You're extrapolating the known art of the
14 lipase chemistry to triglyceride and asking, could
15 it go to another material?

16 It wasn't known.

17 Q (BY MR. LUCAS) I'm not talking about what
18 was known versus not known. I'm talking about
19 chemistry and the physical capability of lipases and
20 whether that's changed over time.

21 And I think you told me that, to your
22 knowledge, it hasn't.

23 MR. KANE: Objection.

24 Q (BY MR. LUCAS) Is that right or wrong?

25 MR. KANE: Objection. Misstates the

1 testimony, vague.

2 THE WITNESS: Thank you.

3 A. I'm trying to understand your question
4 better, because I -- in my declaration, I -- I -- I
5 know I have stated that lipases were limited because
6 of how they can react with different materials.

7 And I'm trying to understand your question
8 better.

9 Q (BY MR. LUCAS) So I asked you whether the
10 ability of lipases to catalyze transesterification
11 reactions hasn't changed over time.

12 And I thought you said, I agree that
13 lipase chemistry, to the best of my knowledge -- and
14 you caveated that there are many types of lipases --
15 most probably hasn't changed.

16 Do you stick to that opinion?

17 MR. KANE: Objection. Misstates the
18 testimony.

19 A. I stick to that opinion in the context of
20 triglyceride chemistry, lipases with triglycerides,
21 no other materials that are reacting with.

22 Q (BY MR. LUCAS) So you think it's possible
23 that, if someone had tried a lipase with jojoba oil
24 prior to the critical date, it wouldn't have worked
25 to catalyze a transesterification reaction?

1 MR. KANE: Objection. Lack of foundation,
2 vague, incomplete hypothetical.

3 A. You're asking me if my opinion remains
4 that, prior to the critical date, jojoba oil would
5 not have reacted with lipase. That was my opinion,
6 that the chemistry was indicative of it not reacting
7 with jojoba oil.

8 Q (BY MR. LUCAS) So what changed when
9 Mr. Addy did it?

10 A. In which context are you asking me about
11 Mr. Addy, please?

12 Q. Are you saying that something from a
13 physical perspective changed when Mr. Addy tried to
14 do the experiment the first time with lipases and
15 jojoba oil?

16 A. I am not inferring that at all.

17 Q. Right. So my question is, if someone
18 tried, before Mr. Addy, to catalyze a
19 transesterification reaction using a lipase and a
20 jojoba oil, would it have worked -- setting aside
21 whether it was documented, would it have worked?

22 MR. KANE: Objection. Incomplete
23 hypothetical.

24 A. You're asking me to guess, if someone else
25 tried the same chemistry, would it have worked.

1 Because Mr. Addy showed that it did, maybe. It
2 might be possible.

3 Q (BY MR. LUCAS) It still works today,
4 right, the chemistry?

5 A. Yes.

6 Q. So would you have expected the chemistry
7 to have changed prior to the first time that
8 Mr. Addy did it?

9 MR. KANE: Objection. Incomplete
10 hypothetical.

11 A. My opinion would be, no.

12 Q (BY MR. LUCAS) So all the structural
13 differences between triglycerides and jojoba wax
14 esters that you set forth in your report don't
15 physically prevent lipases from catalyzing
16 transesterification of jojoba wax esters, do they?

17 MR. KANE: Objection. Lack of foundation.
18 Vague.

19 A. Could you ask that again, please?

20 Q (BY MR. LUCAS) All the structural
21 differences between triglycerides and jojoba wax
22 esters that you set forth in your report don't
23 actually prevent lipases from, in fact, catalyzing
24 transesterification of jojoba wax esters, do they?

25 A. That's what was so surprising. Apparently

1 not.

2 Q. So the answer's no, right?

3 MR. KANE: He gave an answer.

4 A. That's my answer. It was surprising. The
5 understanding that I -- that was in the prior art
6 indicated it -- it was not a reaction that should --
7 that would have occurred.

8 Q (BY MR. LUCAS) But those structural
9 differences don't prevent the reaction from
10 occurring, do they?

11 A. I think the example in the patent
12 demonstrates that.

13 Q. So the answer's, no, the structural
14 differences do not prevent jojoba wax esters from
15 being transesterified by a lipase. Right?

16 A. In hindsight, that is correct.

17 Q. Well, currently, today, right?

18 A. And that persists to today, yes.

19 Q. Your opinions about the prior art and what
20 one of skill would understand are based on the
21 period of time before the date on which the '245
22 patent was filed, right?

23 A. Yes.

24 Q. Before its critical date?

25 A. Before the critical date of application,

1 yes.

2 Q. Can I direct your attention to paragraph
3 18 of your declaration?

4 And I just want you to confirm or
5 elaborate as to whether this is the paragraph in
6 which you set forth that opinion, regarding the
7 critical date.

8 A. Okay. I've read that. Yes.

9 Q. Okay. So the critical date is
10 December 19th, 2014?

11 A. Yes.

12 Q. Okay. If you turn now to paragraph 76,
13 please. Kind of in the middle of that paragraph,
14 there's a sentence that begins, As detailed below.
15 It says, As detailed below, after a thorough
16 literature review, I have found that, prior to 2014,
17 scientists had only utilized lipases to
18 transesterify triglycerides and not jojoba wax
19 esters. As described above, jojoba wax esters are
20 not triglycerides. I have found no publications or
21 patents prior to 2014 that show using lipases to
22 transesterify jojoba wax esters.

23 Did I read that correctly?

24 A. I'm just going to reread it myself. Thank
25 you.

1 Q. Sure.

2 MR. KANE: I'll object. Misstates the
3 document.

4 MR. LUCAS: Did I misread something,
5 Counsel?

6 MR. KANE: You left off a phrase -- or
7 clause, Counsel, on the last sentence.

8 MR. LUCAS: Did I read the excerpt
9 correctly that I read?

10 MR. KANE: The words you read you read
11 correctly. Yes.

12 MR. LUCAS: Okay. Great.

13 Q (BY MR. LUCAS) Have you had time to read?

14 A. Yes. I did.

15 Now, could I -- can you repeat the
16 question, please?

17 Q. Sure.

18 The question is, you said that
19 December 19th, 2014 was the critical date. Right?

20 A. Yes.

21 Q. But in this paragraph, discussing your
22 literature review, you cut the date back from
23 December 19th, 2014 to January 1st of 2014. Right?

24 MR. KANE: Objection. Misstates the
25 document.

1 A. No. I do not say that.

2 Q (BY MR. LUCAS) You use the phrase, prior
3 to 2014. How should we read that?

4 A. When I wrote this document, I was
5 including all of 2014, up to the critical date.

6 Q. So should this have said, prior to the
7 critical date, scientists had only used lipases to
8 transesterify triglycerides and not jojoba wax
9 esters?

10 A. It could. My -- you know -- it could.

11 Q. Should it, though?

12 A. You know, I would have to go back and see
13 if I had any other references that ended as of the
14 1st of January 2014. I'd have to go back and look.

15 Q. So you're not sure whether you found a
16 reference in 2014 that was slightly after the
17 critical date?

18 A. I'd have to go back and look. I know I've
19 cited references that I looked at in my declaration.
20 I'd like to just take a review of those --

21 Q. Okay.

22 A. -- and see when they were published.
23 Some of these don't have the dates.

24 I -- To the best of my recollection, prior
25 to 2014, I saw only reference of lipase with

1 triglycerides.

2 Q. Well, what did you find in 2014?

3 A. I don't recall.

4 I just know, prior to all the literature,
5 my -- my -- my summary was that there was only
6 triglycerides reacting with lipase.

7 Q. I'm trying to understand, though, why it
8 says prior to 2014 and not prior to the critical
9 date.

10 A. I don't recall why I wrote that exactly.
11 No.

12 Q. Should we understand them to be the same
13 thing?

14 A. No. I don't think so.

15 Q. So you wouldn't like to change that from
16 prior to 2014 to prior to the critical date?

17 A. No. I'm going to -- 2004 [sic]. I'll
18 leave it as it stands.

19 Q. Do you understand why this is important?

20 There's a period of time between
21 January 1st, 2014 and December 19th, 2014 that
22 you're not excluding in the sentence. Right?

23 A. I understand that. Yes.

24 Q. So you're saying here that there's
25 something that you found between January 1st, 2014

1 and December 19th, 2014 that indicates that
2 scientists had, in fact, utilized lipases to
3 transesterify triglycerides?

4 MR. KANE: Objection. Misstates the
5 document.

6 A. No. That is not what I'm saying.

7 Q (BY MR. LUCAS) Then why won't you change
8 this to prior to the critical date?

9 A. I -- I don't recall finding any
10 documentation in that time period that would change
11 my opinion.

12 Q. But you understand that there's a period
13 of time that makes this ambiguous, right --
14 January 1st, 2014 to December 19th, 2014 -- where
15 scientists could have utilized lipases to
16 transesterify triglycerides. Right?

17 A. Could you say that again, please?
18 Something wasn't clear to me --

19 Q. Sure.

20 A. -- in your last sen- -- in your last
21 comment.

22 Q. Do you agree that saying prior to 2014 is
23 different from saying prior to the critical date?

24 A. Yes. I agree to that. Yes.

25 Q. And the reason you agree, right, is

1 because there's a period of time between
2 January 1st, 2014 and December 19th, 2014, right?

3 A. In the context that you're explaining
4 it -- again, I'm going to come back to my previous
5 statement. I didn't exclude that period of time.
6 It was the way -- the way -- the way I wrote it.

7 Q. But then why don't you want to change it
8 to be more clear?

9 A. Principally because, very simply, I don't
10 recall seeing any documents during that period of
11 time that would change my opinion.

12 Q. So there could be documents between
13 January 1st, 2014 and December 19th, 2014 that
14 change your opinion, right?

15 A. It's possible, but I have not seen any. I
16 don't recall seeing anything, unless, Counsel, you
17 have something you can point me to.

18 Q. So I'm just trying to understand what your
19 opinion is here. Because you say, I found that,
20 prior to 2014, scientists had only utilized lipases
21 to transesterify triglycerides and not jojoba wax
22 esters.

23 And I want to know if scientists, in the
24 time period between January 1st, 2014 and
25 December 19th, 2014 had, in fact, utilized lipases

1 to transesterify jojoba wax esters.

2 MR. KANE: Objection. Vague, lack of
3 foundation.

4 A. I think, Counsel, if I include
5 December 19th -- and that would include the patent
6 application, which would then say that it's possible
7 to use a lipase with jojoba oil -- that might have
8 been my logic. I don't recall.

9 Q (BY MR. LUCAS) Setting aside the
10 applicants themselves, you don't know, one way or
11 the other, whether scientists had utilized lipases
12 to transesterify jojoba wax esters in the time
13 period between January 1st, 2014 and December 19th,
14 2014, right?

15 MR. KANE: Objection. Lack of foundation.

16 A. In the -- in the published prior art, I do
17 not recall seeing, during that time period, any
18 references to jojoba oil and lipase
19 transesterification. And that's why I -- if I
20 recall, that is probably why I said, prior to 2014.

21 Q (BY MR. LUCAS) But then why wouldn't you
22 be willing now to change that to the critical date?

23 A. I -- I --

24 MR. KANE: Objection. Asked and answered.

25 A. I -- I don't feel it's necessary from the

1 review of the literature that I've done.

2 Q (BY MR. LUCAS) This is very confusing to
3 me and to the board, because there's a period of
4 time between January 1st, 2014 --

5 MR. KANE: Objection. Counsel, please
6 don't speak for the board.

7 Q (BY MR. LUCAS) -- and 20 -- December 19th,
8 2014 that you're not accounting for here.

9 A. No, I'm not. In your opinion, I'm not. I
10 don't recall if I -- if I -- I was including
11 information or not there.

12 Q. And yet you're reluctant to change this
13 from prior to 2014 to prior to the critical date?

14 A. I'm not reluctant. I'm just choosing
15 not -- I don't see the necessity of it.

16 Q. Well, the necessity is that there's a
17 window of time that's unaccounted for.

18 A. If that's your interpretation, I -- I
19 accept that.

20 Q. Are you willing to correct that sentence
21 right now?

22 MR. KANE: Object. Asked and answered.

23 Q (BY MR. LUCAS) I'm giving you the
24 opportunity, with this red pen, to cross out 2014
25 and write the critical date.

1 A. No.

2 Q. You won't do it?

3 A. No.

4 Q. Okay. Is your opinion that, prior to
5 December 19th, 2014, lipases had only been ever used
6 to transesterify triglycerides, setting aside the
7 patent applicants themselves?

8 MR. KANE: Objection. Lack of foundation.

9 A. Could you repeat the question, please?

10 Q (BY MR. LUCAS) Sure.

11 Is your opinion that, prior to
12 December 19th, 2014, lipases had only ever been used
13 to transesterify triglycerides, setting aside the
14 patent applicants themselves?

15 MR. KANE: Same objection.

16 A. Yes.

17 Q (BY MR. LUCAS) So prior to December 19th,
18 2014, no one had ever used a lipase to transesterify
19 something that's not a triglyceride?

20 Do I have that right?

21 A. No. You do not.

22 Q. Why not? Setting aside the patent
23 applicants themselves, of course.

24 A. Because you're being very general with
25 "anybody." I'm only referring to the prior art

1 literature that I was capable to review.

2 Q. Okay. Can I direct your attention to
3 paragraph 38, please. That's on page 27.

4 Are you there?

5 A. Yes, I am.

6 Q. Okay. This paragraph says, The prior art
7 references relied on in grounds 1 through 4 do not
8 render obvious the claimed invention, and at least
9 because none of the references teach or suggest the
10 use of a lipase to catalyze an ester-ester exchange
11 in jojoba wax esters. And a person of ordinary
12 skill in the art would not have understood that
13 lipases, which to date had only ever been used to
14 transesterify triglycerides, could work on jojoba
15 wax esters, given the unique structural differences
16 between jojoba wax esters and triglycerides, period,
17 end quote.

18 So is it your opinion that, prior to the
19 critical date, no one had ever used a lipase to
20 transesterify something that's not a triglyceride,
21 setting aside the patent applicants themselves?

22 MR. KANE: Objection. Misstates the
23 document.

24 A. It is my opinion that, based on the
25 literature that was known in the art, that is

1 correct.

2 Q (BY MR. LUCAS) Well, you say here, a
3 person of ordinary skill in the art would not have
4 understood that lipases, which to date had only been
5 ever used to transesterify triglycerides, could work
6 on jojoba wax esters, given the unique structural
7 differences between jojoba wax esters and
8 triglycerides.

9 A. That is -- Sorry.

10 MR. KANE: Objection. Mis- -- misstates
11 the document.

12 A. That excerpt you read is correct.

13 Q (BY MR. LUCAS) So then I'm asking if I
14 should understand that to mean that, prior to
15 December 19, 2014, no one had ever used a lipase to
16 transesterify something that's not a triglyceride,
17 setting aside the patent applicants themselves.

18 A. That is my understanding from the
19 literature that I was able to review. Yes.

20 Q. If you were wrong about that, how would
21 that change your overall opinions in this
22 declaration?

23 MR. KANE: Objection. Lack of foundation.

24 A. From the literature I reviewed, I don't
25 believe I'm wrong.

1 Q (BY MR. LUCAS) I'm asking a hypothetical.
2 If you were wrong, how would it change
3 your opinion?

4 MR. KANE: Incomplete hypothetical, lack
5 of foundation, calls for speculation.

6 A. Could -- could you expand on what being
7 wrong means?

8 Q (BY MR. LUCAS) Sure.

9 Well, you say that a person of ordinary
10 skill in the art would not have understood that
11 lipases, which to date had only been ever used to
12 transesterify triglycerides, could work on jojoba
13 wax esters, et cetera.

14 What if someone had, prior to the critical
15 date, used lipases to transesterify jojoba wax
16 esters? How would that change your opinion?

17 MR. KANE: Objection. Incomplete
18 hypothetical.

19 A. I think you're asking a very obvious
20 question. If I had seen that in the literature, I
21 would not have been able to make that statement.

22 Q (BY MR. LUCAS) Okay. And that applies to
23 other similar statements that you made in here with
24 respect to triglycerides, right?

25 A. It depends on the specific statements.

1 Yes.

2 Q. Okay. Prior to the critical date, if
3 someone would have gone to an enzyme manufacturer
4 and said, I'd like you to recommend me a lipase to
5 catalyze an interesterification reaction of jojoba
6 oil, they would have told me that lipases won't
7 work, right?

8 MR. KANE: Objection. Calls for
9 speculation. Lack of foundation.

10 A. Yeah. That's a hypothetical? I'm not
11 sure what someone in that industry would suggest.

12 Q (BY MR. LUCAS) So they might have, in
13 fact, suggested a lipase that I could try, right?

14 A. Hypothetically, that's possible.

15 Q. Because there are a lot of lipases out
16 there, aren't there?

17 A. There are many. Yes.

18 Q. And so a manufacturer of lipases might
19 have said, Try this one to transesterify jojoba oil,
20 right?

21 MR. KANE: Objection. Lack of foundation.
22 Calls for speculation.

23 A. In my opinion, a manufacturer of a lipase
24 enzyme would focus on knowing what their product
25 would be successful with in order to sell that

1 product.

2 Q (BY MR. LUCAS) So in your opinion, the
3 lipase manufacturer would know that lipases
4 wouldn't, in fact, work to transesterify jojoba oil,
5 right?

6 MR. KANE: Objection. Lack of foundation.

7 A. I don't know.

8 Q (BY MR. LUCAS) They might have recommended
9 one prior to the critical date, right?

10 MR. KANE: Objection. Calls for
11 speculation, lack of foundation, incomplete
12 hypothetical.

13 A. I don't -- I don't know what they would
14 do.

15 Q (BY MR. LUCAS) Okay. Did you find any
16 prior art that disclosed lipases being used to
17 transesterify nontriglycerides?

18 A. During my literature search, prior to both
19 the critical date and even 2014, I did not see
20 lipases catalyzing reactions in that manner.

21 Q. Did you look for any?

22 A. Yes. During my broad survey of
23 understanding lipase chemistry and science, I looked
24 at all information that was available on lipases
25 that pertained to transesterification.

1 Q. Would you agree that, prior to the
2 critical date, it was generally known that lipases
3 could be used to catalyze transesterification
4 reactions?

5 A. Yes. In the general sense of
6 transesterifications, yes.

7 Q. Same answer with respect to
8 interesterification?

9 A. I'd have to agree, because those terms are
10 used interchangeably in the literature.

11 Q. Would you agree that, prior to the
12 critical date, it was known that lipase-catalyzed
13 transesterification reactions had certain benefits
14 over chemically catalyzed transesterification
15 reactions?

16 MR. KANE: Objection. Vague.

17 A. I'm going to ask you to please say that
18 again.

19 Q (BY MR. LUCAS) Would you agree that, prior
20 to the critical date, it was known that
21 lipase-catalyzed transesterification reactions had
22 certain benefits over chemically catalyzed
23 transesterification reactions?

24 MR. KANE: Objection. Vague.

25 A. No.

1 Q (BY MR. LUCAS) No benefits at all?

2 A. I think you asked me if I knew of any
3 specific benefits.

4 Q. No. I asked, would you agree that, prior
5 to the critical date, it was known that
6 lipase-catalyzed transesterification reactions had
7 certain benefits over chemically catalyzed
8 transesterification reactions?

9 MR. KANE: Objection. Vague.

10 A. I learned in my literature review, I think
11 from reference of Xu, that he spoke to that -- those
12 typical benefits. And that was prior to the
13 critical date.

14 Q (BY MR. LUCAS) So then is the answer to my
15 question yes?

16 A. Yes.

17 Q. Is one potential benefit the elimination
18 of potentially harmful chemical byproducts that are
19 used in chemically catalyzed transesterification
20 reactions?

21 A. I'm going to ask you to clarify harmful.

22 Q. Are you familiar with sodium methoxide?

23 A. Yes.

24 Q. Is that a dangerous chemical?

25 A. It is a strong alkali that can cause burns

1 on skin, yes.

2 Q. Does it have to be disposed of in a
3 special manner?

4 MR. KANE: Objection. Lack of foundation.

5 A. In a general chemical sense, yes.

6 Q (BY MR. LUCAS) So if you substitute a
7 lipase-catalyzed reaction for a reaction that's
8 catalyzed by sodium methoxide, isn't one of the
9 benefits that you don't have to deal with that
10 potentially harmful chemical?

11 A. Hypothetically, yes.

12 Q. What's more environmentally friendly,
13 lipases or sodium methoxide?

14 MR. KANE: Objection. Lack of foundation.

15 A. I can't offer an opinion on that.

16 Q (BY MR. LUCAS) Did you ever deal with
17 sodium methoxide in your years of experience in the
18 industry?

19 A. Not in industry. But I have.

20 Q. And you know that it can cause burns on
21 the skin, right?

22 A. If I recall correctly, it's one of the
23 advisories about the material.

24 Q. And you know that it has to be disposed of
25 in a special way, right?

1 A. When you're saying special way, are you --
2 in what manner are you referring?

3 Q. Well, can you just pour it down the drain
4 after you're done with the reaction?

5 MR. KANE: Objection. Vague, lack of
6 foundation.

7 A. Generally, no.

8 Q (BY MR. LUCAS) How would one dispose of it
9 in the correct manner?

10 MR. KANE: Objection. Lack of foundation.

11 A. Well, based on chemistry, if you wanted to
12 what is known as neutralize -- it's a base -- you
13 would treat it with something to bring it to neutral
14 pH. Alternatively, high dilution with water.

15 But I'm not an expert in that, so you're
16 asking -- I can only respond at a very high level on
17 chemistry.

18 Q (BY MR. LUCAS) After it's been neutralized
19 or diluted, then what happens to it?

20 MR. KANE: Objection. Lack of foundation.

21 A. I'm not sure. I don't know how it's
22 disposed of.

23 Q (BY MR. LUCAS) Okay.

24 MR. KANE: Do you want to take a short
25 break now? Is this a good time?

1 MR. LUCAS: I have got like one or two
2 more questions on this, and then we can.

3 MR. KANE: Okay.

4 Q (BY MR. LUCAS) Given that sodium methoxide
5 can produce burns on the skin and that you have to
6 either neutralize it or dilute it, which is more
7 environmentally friendly, sodium methoxide or
8 lipases?

9 A. I don't know.

10 Q. Do you know whether or not there are any
11 marketing benefits associated with using lipase
12 versus sodium methoxides?

13 MR. KANE: Objection. Vague, lack of
14 foundation.

15 A. No.

16 Q (BY MR. LUCAS) You don't know, one way or
17 the other?

18 A. No.

19 Q. Okay. Would you agree that one of skill
20 would have known that, prior to the critical date,
21 enzymatic catalysis and transesterification
22 reactions have fewer processing steps than chemical
23 catalysis, for example, using sodium methoxide?

24 MR. KANE: Objection. Lack of foundation.
25 Vague.

1 A. Generally, again, the Vantage reference of
2 Xu discusses that.

3 Q (BY MR. LUCAS) Do you agree with that?
4 You don't have to neutralize lipases, for example,
5 right?

6 A. Counsel, you asked me two questions. One
7 was, do I agree with that, and then the second was
8 about lipase.

9 I don't agree with that, because I've
10 learned subsequently that, from reading the patent,
11 there are different advantages to a lipase. And
12 I'm -- I'm not familiar with lipase management,
13 disposal, et cetera.

14 Q. But you do know that you have to
15 neutralize or dilute sodium methoxide, right?

16 MR. KANE: Objection. Lack of foundation.

17 A. As a chemical species, my recollection is,
18 it needs to be managed prior to disposal.

19 Q (BY MR. LUCAS) So the answer's yes, right?

20 A. As a chemical species, yes.

21 Q. Okay.

22 MR. LUCAS: Let's take a break.

23 THE VIDEOGRAPHER: We are going off the
24 record. The time now is 11:43.

25 (Whereupon, a recess was taken.)

1 THE VIDEOGRAPHER: We are back on the
2 record. This is the start to Media Number 3. The
3 time is 11:57.

4 Q (BY MR. LUCAS) In conducting your analysis
5 that's reflected in Exhibit 1, which is Cargill
6 Exhibit 2009, did you apply the '245 patent's
7 definition of lipase?

8 A. I believe I did. I'd have to -- I know
9 there were several parts of discussion of lipase in
10 the patent, and I think I focused mainly on those
11 definitions.

12 MR. LUCAS: Okay. Let's take a look at
13 the '245 patent, which will be Schultz Deposition
14 Exhibit 4, and was previously marked Vantage
15 Exhibit 1001.

16 (Deposition Exhibit Number 4 marked.)

17 Q (BY MR. LUCAS) You recognize this as the
18 '245 patent, right?

19 A. Yes.

20 Q. Okay. If you look at column 4, lines 63
21 to 65, do you see where it says, As used herein,
22 "lipase" means any enzyme or protein capable of
23 being used in a transesterification reaction of a
24 wax ester?

25 Is that the definition that you used in

1 conducting your analysis?

2 A. I don't believe so.

3 Q. Why not?

4 A. That's a general definition of a -- lipase
5 is in quotes, so I take lipase as -- I took it as
6 the -- its face value of -- of how it's been used in
7 the art.

8 Q. So you ignored the patent's definition of
9 lipase in your analysis, right?

10 MR. KANE: Objection. Calls for a legal
11 conclusion.

12 A. I did not ignore that, because the
13 preceding sentence adds more definition.

14 Q (BY MR. LUCAS) So let me ask a different
15 question.

16 Do you agree that the '245 patent provides
17 a definition of the word lipase?

18 MR. KANE: Objection. Calls for a legal
19 conclusion.

20 A. It does provide a definition.

21 Q (BY MR. LUCAS) Is it the wrong definition?

22 A. It's not a wrong definition. It's a more
23 general definition of lipase as an enzyme.

24 Q. And just to be clear, the definition that
25 the '245 patent provides is that lipase means any

1 enzyme or protein capable of being used in a
2 transesterification reaction of a wax ester. Right?

3 MR. KANE: Objection. Calls for a legal
4 conclusion.

5 A. No. I don't agree that that is the only
6 definition of lipase in this patent -- the patent.

7 Q (BY MR. LUCAS) You don't believe that the
8 words "as used herein" indicate it's providing a
9 definition of the word lipase?

10 MR. KANE: Objection. Calls for a legal
11 conclusion.

12 A. So I'm not a patent attorney. And the
13 language here might be -- is specific to the
14 language used in the legal means. The prior part of
15 the paragraph provides a more -- slightly more
16 detailed -- a more specific definition.

17 Q (BY MR. LUCAS) So when you were conducting
18 your literature review, did you consider any
19 articles that had to do with other enzymes or
20 proteins, besides lipases, that were capable of
21 being used in a transesterification reaction of a
22 wax ester?

23 A. I did not consider other enzymes, although
24 the literature indicates there are many, many, many
25 types of -- many enzymes that are involved in

1 hydrolysis reactions.

2 Q. So I know that you're not a patent
3 attorney, and your counsel's going to object that
4 this calls for a legal conclusion.

5 If the board finds that this sentence is a
6 definition that should be applied of the word
7 lipase, that wasn't what you applied in your
8 literature review. Right?

9 MR. KANE: Objection. Calls for a legal
10 conclusion. Misstates the testimony.

11 A. In your hypothetical question, I would not
12 use lipase as any enzyme. I would use it as defined
13 in the literature and in this document in the
14 preceding sentences.

15 Q (BY MR. LUCAS) So you would use the
16 narrower definition of lipases in the previous
17 sentence and not the broader definition in the
18 sentence that begins, As used herein, lipase means
19 any enzyme or protein capable of being used in a
20 transesterification reaction of a wax ester?

21 MR. KANE: Objection. Misstates the
22 testimony.

23 A. No, I wouldn't. I would not.

24 Q (BY MR. LUCAS) Well, two minutes ago you
25 said, I did not consider other enzymes, although the

1 literature indicates there are many, many, many
2 types of -- many types of enzymes that are involved
3 in hydrolysis reactions.

4 So didn't you apply, in your literature
5 review, a narrower definition of lipases than that
6 being used in this sentence of the '245 patent?

7 A. No, I did not.

8 Q. You said you didn't include in your review
9 other enzymes besides lipases.

10 Do I have that right?

11 A. Yes.

12 Q. So you applied a definition for lipase
13 that's narrower than, any enzyme or protein capable
14 of being used in a transesterification reaction of a
15 wax ester. Right?

16 MR. KANE: Objection. Misstates the
17 testimony.

18 A. This statement says, any enzyme, which, a
19 lipase is an enzyme. This infers you could use any
20 enzyme. I did not consider any enzyme. I only
21 considered lipases, as defined in their enzyme
22 class.

23 Q (BY MR. LUCAS) Similarly, you didn't
24 consider any other proteins that are capable of
25 being used in a transesterification reaction of a

1 wax ester, right?

2 A. It's unfortunate that that sentence is so
3 broad. Proteins -- enzymes are made up of proteins.
4 And in my literature review, I did not see any
5 mention of a protein, just a protein, capable of
6 transesterification.

7 Q. When you did your literature search, did
8 you look for proteins that were capable of
9 transesterifying wax esters?

10 A. I don't recall. I may have, but I don't
11 recall.

12 Q. In paragraph 83 of your declaration,
13 Schultz Exhibit 1 and Cargill Exhibit 2009, you say,
14 The structural differences would have been expected
15 to negatively impact a lipase's ability to bind to a
16 jojoba wax ester. The paragraph continues.

17 Do you see that?

18 A. Yes, I do.

19 Q. Would one of skill have expected a lipase
20 to be able to bind to a jojoba wax ester at all?

21 A. You're asking at all. A lipase has
22 different structural components. In this paragraph,
23 I'm referring to a specific aspect or part of the
24 structure.

25 So, again, the phrase "at all" is totally

1 exclusive. I -- it would be highly unlikely that
2 there would be binding to a lipase.

3 Q. There could be, right?

4 MR. KANE: Objection. Calls for
5 speculation and a hypothetical.

6 A. Prior to 2014, it would be high- -- again,
7 highly unlikely. I would be extrapolating without
8 good basis to say yes.

9 Q (BY MR. LUCAS) Okay. You say, highly
10 unlikely. But you can't say with certainty, right?

11 A. There are so many lipases, you -- I --
12 I -- you don't know.

13 Q. Right. So you can't say with certainty,
14 can you?

15 A. No. I'm -- I would say exactly what I say
16 in my paragraph. Continuing on, it -- it would
17 be -- it would be -- a person skilled in the art
18 would -- would believe that jojoba wax esters are
19 unsuitable candidate for lipase-catalyzed
20 transesterification.

21 Q. Well, that's your conclusion. But what
22 I'm asking is whether one of skill would have
23 expected a lipase to be able to bind to a jojoba wax
24 ester at all.

25 A. I'd have to main- -- I maintain that, from

1 the literature up and to that point, it would be
2 highly unpredictable that that would occur, to one
3 skilled in the art.

4 Q. But, again, you can't say with certainty?

5 A. Okay. So up until the filing of this
6 patent, my certain -- my uncertainty would be very
7 high. But I could not say absolute, because, again,
8 there are many types of lipases. I couldn't predict
9 and exclude.

10 Q. What did you mean by "negatively impact"
11 in the sentence?

12 MR. KANE: Just for point of
13 clarification, can you identify which sentence?
14 They both kind of have a "negatively impact"
15 language in them.

16 MR. LUCAS: Oh, yes. Thank you.

17 MR. KANE: Sorry.

18 Q (BY MR. LUCAS) The first sentence uses,
19 negatively impact, which is what I said. The second
20 sentence says, negative impacts. So I'm asking
21 about the first sentence.

22 What did you mean in the first sentence,
23 where you say, these structural differences would
24 have been expected to negatively impact a lipase's
25 ability to bind a jojoba wax ester?

1 A. The -- I was referring to the chemical
2 structure of the lipase must fit onto and into a
3 lipase. And being structurally different, it would
4 have a very -- my opinion was, it would be very
5 difficult for those interactions to occur, and that
6 is -- so negatively impact is the unlikely event
7 that it would occur.

8 Q. But it doesn't prevent it from occurring
9 in actual fact, right?

10 A. You don't know.

11 Q. No. You do know, right? With respect to
12 jojoba, you know.

13 A. Only in hindsight, at the filing of the --

14 Q. And --

15 A. -- '245 patent.

16 Q. Sorry. I didn't mean to interrupt.

17 And today, it's true, right, that jojoba
18 wax esters can, in fact, be transesterified using
19 lipases?

20 A. Yes. That persists from the discovery
21 of -- in 2014.

22 Q. In paragraph 84 you explain that -- I'm
23 looking at the last sentence here -- It would not be
24 expected that a jojoba wax ester could fit within
25 the restricted space of the enzyme's reaction site,

1 due to the steric hinderance resulting from its
2 large alcohol chain and its acid chain extending in
3 the opposite direction from the ester group.

4 Do you see that?

5 A. I'm just going to start from the
6 beginning.

7 Q. Sure.

8 A. Okay. I've read -- I've read that
9 statement.

10 Q. Can a jojoba wax ester, in fact, fit
11 within the enzyme's reaction site?

12 MR. KANE: Objection. Lack of foundation.

13 A. I don't know.

14 Q (BY MR. LUCAS) Could it be -- could jojoba
15 wax esters be transesterified using a lipase if they
16 couldn't fit within the enzyme's reaction site?

17 MR. KANE: Objection. Lack of foundation.

18 A. You can't tell. You don't know.

19 Q (BY MR. LUCAS) Can jojoba wax esters be
20 transesterified using a lipase?

21 A. Yes.

22 Q. Okay.

23 A. They can.

24 Q. Could that occur without the jojoba wax
25 esters fitting within the enzyme's reaction site?

1 MR. KANE: Objection. Lack of foundation.

2 A. You don't know. You just don't know.

3 Q (BY MR. LUCAS) Why don't you know?

4 A. I haven't seen any explanation of the
5 mechanism of how the lipase works with jojoba oil.

6 Q. So you think it's possible that jojoba wax
7 ester could not fit within the enzyme's reaction
8 site and yet still be catalyzed in a
9 transesterification reaction by a lipase?

10 MR. KANE: Objection. Lack of foundation.

11 A. You -- you -- you're not certain whether
12 it, to use your phrase, fits into the reaction site
13 or there's some other mechanism or association
14 occurring near that reaction site. It has not been
15 elucidated, so I would not -- I cannot agree with
16 that.

17 Q (BY MR. LUCAS) In paragraph 85 of your
18 declaration -- I'm paraphrasing here, so correct me
19 if I'm wrong -- you discuss the regioselectivity of
20 lipases, and you mention that jojoba wax esters do
21 not contain glycerol backbones.

22 Is that generally the substance of
23 paragraph 85? And if not, please correct.

24 A. I'm sorry. I lost your question.

25 Q. I was asking whether, at a high level,

1 paragraph 85 discusses regioselectivity of lipases
2 and that jojoba wax esters do not contain glycerol
3 backbones.

4 MR. KANE: Go ahead.

5 A. There are two parts to that question.
6 One, lipases were known to require the
7 triacylglycerol, the glycerol backbone. Your second
8 question is, jojoba wax esters do not have that
9 structure.

10 Q (BY MR. LUCAS) Okay. So jojoba wax esters
11 do not contain glycerol backbones, right?

12 A. That is correct.

13 Q. Given that jojoba wax esters do not
14 contain glycerol backbones, how do sn-1,3 lipases
15 and non-specific lipases work on jojoba wax esters?

16 A. I don't know.

17 Q. Have you tried to figure it out?

18 A. I have not tried to figure it out, 'cause,
19 again, the mechanism of even how lipases work on
20 glycerol backbones is poorly understood and not
21 definitive. So I wouldn't try to extrapolate to
22 jojoba wax esters.

23 Q. Do you see, in the second sentence, where
24 it says, preferential action?

25 A. I do see that. Yes.

1 Q. What do you mean by preferential action in
2 that sentence?

3 A. That is referring to the specificity of
4 the lipase. Lipases are defined with different
5 specificities of action.

6 Q. Does specificity have to do with the rate
7 at which the reaction is occurring?

8 A. No.

9 Q. What does specificity have to do with in
10 terms of the reaction?

11 A. The position of reaction on the glycerol
12 backbone.

13 Q. So it doesn't have to do with the rate at
14 which S1 or S3 is reacting?

15 A. No. By definition, specificity is -- is
16 based on position of reaction.

17 Q. Given that jojoba wax esters do not
18 contain -- Strike that.

19 In paragraph 86 of your declaration you
20 state -- this is kind of in the middle of the
21 paragraph -- This would mean that a jojoba wax ester
22 with only the single point of contact with a
23 catalytic triad, instead of three, as in a
24 triglyceride, would result in the jojoba wax ester
25 being less capable of coordinating the oxyanion

1 hole.

2 But then you opine that a person of
3 ordinary skill in the art would have expected that
4 having less stability within the catalytic site
5 would render the jojoba wax ester incapable of being
6 transesterified with the lipase.

7 Do you see that?

8 A. I do. But I'm going to read the entire
9 paragraph.

10 Q. Sure. Let me know when you're done.

11 A. Okay. I've finished. Thank you.

12 Your question again, please?

13 Q. Does the fact that there's only a single
14 point of contact with the catalytic triad, instead
15 of three, as in a triglyceride, prevent jojoba wax
16 esters from coordinating with the oxyanion hole?

17 A. You don't know.

18 Q. Well, you have to at least admit that the
19 structural difference doesn't make it impossible for
20 the transesterification reaction of jojoba wax
21 esters with a lipase to occur, right?

22 A. No. I can't agree.

23 Q. Well, you know that it's possible for
24 jojoba wax esters to be transesterified by a lipase,
25 right?

1 A. That was demonstrated by the patent. Yes.

2 Q. Right.

3 And so you have to admit that the
4 structural difference that you're talking about in
5 this paragraph doesn't make it impossible for the
6 transesterification of jojoba wax esters being
7 catalyzed with a lipase.

8 A. In hindsight, it does not make it
9 impossible. But prior to 2014, knowing at least
10 some structural aspects of lipase, it was highly
11 unlikely a person skilled in the art would predict
12 that it would react.

13 Q. And even now the structural difference
14 doesn't make it impossible for the reaction to
15 occur, right?

16 A. That is correct, in context of the patent,
17 yes.

18 Q. Okay. If you'd turn to paragraph 132 of
19 your declaration. You write, in the middle of that
20 paragraph, It is unknown based on the references
21 what the oxidative stability would be of a feedstock
22 containing 20 to 50 percent of fully hydrogenated
23 wax esters, let alone whether transesterification
24 would increase it even further.

25 Do you see that?

1 A. I do.

2 Let me get the full context, please.

3 Thank you.

4 Okay.

5 Q. You're referring there to mixtures of
6 jojoba wax esters and fully hydrogenated jojoba wax
7 esters, right?

8 A. Yes, I am.

9 Q. Does the '245 patent itself report what
10 the oxidative stability would be of a feedstock
11 containing jojoba wax esters and 20 to 50 percent of
12 fully hydrogenated jojoba wax esters?

13 A. No, it does not.

14 Q. Does the '245 patent itself report the OSI
15 of a transesterified product formed from such a
16 feedstock?

17 A. Do you mind if I --

18 Q. Sure.

19 A. Thank you.

20 No, it does not.

21 Q. Would one of skill in the art, reading the
22 '245 patent specification alone, expect the
23 transesterified product created from the feedstock
24 comprising jojoba wax esters and 20 to 50 percent by
25 weight fully hydrogenated jojoba wax esters to have

1 an OSI greater than that of the feedstock?

2 MR. KANE: Objection, Counsel. Outside
3 the scope of the deposition and his report.

4 A. I don't know, because the OSI of any of
5 those mixtures are not -- are not indicated. That
6 is the feedstock. No. I don't know.

7 Q (BY MR. LUCAS) Okay. If you'd turn back
8 to paragraph 91. And the concluding sentence of
9 that paragraph says, I note that this surprising
10 result was repeated in a second experiment that used
11 a continuous flow reactor rather than a batch
12 reactor.

13 Do you see that?

14 A. Okay. Let me get caught up here.

15 Okay. Yes.

16 Q. The second experiment that you're talking
17 about was, again, not performed using the claimed
18 feedstock comprised of jojoba wax esters and 20 to
19 50 percent hydrogenated jojoba wax esters, right?

20 A. I'm just going to confirm on the patent.
21 Thank you.

22 It's column 11? You asked me if it was
23 the 20 -- a blend of -- or just the refined jojoba
24 oil?

25 Q. (Nods head.)

1 A. It says it's just the refined jojoba oil,
2 yes.

3 Q. If you move ahead to paragraph 120 of your
4 declaration. I'll read the sentence I'd like you to
5 focus on, and then take your time to read the whole
6 thing if you want.

7 A. Sure. Thank you.

8 Q. You say, in the middle of that paragraph,
9 Unlike jojoba wax esters, the triglycerides' alcohol
10 moiety is significantly smaller and has three
11 separate OH groups that can each be involved in an
12 ester-ester exchange.

13 A. Okay.

14 Q. And the question, after you're done
15 reading, will be, how many groups do jojoba wax
16 esters have that can be involved in an ester-ester
17 exchange?

18 A. I'm going to have to ask you to repeat the
19 question again. Thank you.

20 Q. How many groups do jojoba wax esters have
21 that can be involved in an ester-ester exchange?

22 A. A single jojoba wax ester has one site
23 that can be involved in the exchange.

24 Q. So then you conclude this paragraph by
25 saying, Such structural differences would have been

1 understood by a POSITA to hinder the jojoba wax
2 ester's ability to move or position themselves to
3 bind with the catalytic domain of the lipase binding
4 sites. A POSITA simply would not have expected a
5 lipase to be able to bind to a jojoba wax ester's
6 single ester bond.

7 Do you see that?

8 A. Yes, I do.

9 Q. Isn't it true that the structural
10 differences that you point to in your declaration
11 might make lipase transesterification of jojoba
12 esters less likely to succeed, less efficient than
13 lipase transesterification of triglycerides, but not
14 impossible?

15 MR. KANE: Objection. Unclear. Vague and
16 compound question.

17 A. I would hate to use the word impossible,
18 only because, in the field of chemistry, especially
19 with enzymes, it is very difficult to predict an
20 absolute like that.

21 And I want to, please, add to that. I was
22 very surprised, as I was doing my research, to find
23 that this chemistry occurred. I didn't expect it,
24 as an expert in this category.

25 Q (BY MR. LUCAS) And yet, nonetheless, it

1 happens?

2 A. I have no explanation why.

3 Q. Is it your belief that a lipase has
4 absolute specificity towards a triglyceride?

5 A. You used the word absolute?

6 Q. Yep.

7 A. Until the '245 patent and the information
8 presented in it, I would have more strongly believed
9 that than I do after my literature work.

10 Q. So a lipase does not have absolute
11 specificity towards a triglyceride. Right?

12 MR. KANE: Objection. Lack of foundation.
13 Vague.

14 A. Wait, wait. I was processing that. I'm
15 going to ask to you say that again, please. I want
16 to make sure I understood it clearly.

17 Q (BY MR. LUCAS) Lipases do not have
18 absolute specificity towards triglycerides. Right?

19 MR. KANE: Objection. Vague, lacks
20 foundation.

21 A. I don't know.

22 Q (BY MR. LUCAS) Again, you do know that it
23 works with jojoba, right?

24 A. I agree to that. Yes.

25 Q. And jojoba is not a triglyceride, right?

1 A. I agree to that, too.

2 Q. So why can't you agree that a lipase does
3 not have absolute specificity towards a
4 triglyceride?

5 MR. KANE: Objection. Vague, lack of
6 foundation.

7 A. I -- I cannot agree because of the example
8 that was given in the patent. It was unexpected
9 that -- and unpredictable that it would have
10 happened.

11 Q (BY MR. LUCAS) In paragraph 72 of your
12 declaration -- this is under the heading Overview of
13 Lipases -- you say, Lipases target triacylglycerols
14 (i.e. triglycerides) and require its substrate to be
15 a triester based on a 1,2,3-triol backbone (i.e.
16 glycerol) to match up with the reaction site.

17 Right?

18 A. That is what I wrote. Yes.

19 Q. Do you maintain that opinion?

20 A. Yes, I do.

21 Q. Is jojoba a triester based on a
22 1,2,3-triol backbone?

23 A. It is not.

24 Q. So then isn't your opinion incorrect?

25 A. No. I disagree. It is not incorrect.

1 Q. Why not?

2 A. By definition, lipases are categorized as
3 enzymes that are specific to glycerides. That is
4 by -- it's -- it is chemical definition.

5 Q. You say that, lipases require the
6 substrate to be a triester based on 1,2,3-triol
7 backbone (i.e. glycerol) to match up with the
8 reaction site.

9 Right?

10 A. This is what the literature and art define
11 lipases as. Yes.

12 Q. Jojoba wax esters don't have that
13 structure, right?

14 A. That is correct.

15 Q. So then how can you say lipases require
16 that structure, when lipases can, in fact, be used
17 to transesterify jojoba wax esters?

18 MR. KANE: Objection. Misstates the
19 document.

20 A. Based -- based on the literature and based
21 what was understood prior to 2014, that was the
22 definition of lipases structural requirement.
23 Jojoba wax ester was discovered to react with a
24 lipase. I don't know how and why it does it.

25 Q (BY MR. LUCAS) So don't you need to

1 correct this sentence to say, Prior to the critical
2 date, it was known that lipases require its
3 substrate to be a triester based on a 1,2,3-triol
4 backbone (i.e. glycerol) to match up with the
5 reaction site?

6 A. No, I don't.

7 Q. So I just gave you a counterexample of
8 lipases reacting with something that doesn't have a
9 1,2,3-triol backbone, and yet you say in this
10 paragraph that that's required.

11 MR. KANE: Objection. Misstates the
12 document.

13 A. In this document, in this section, I'm
14 discussing an overview of lipases in general as
15 understood at the time, prior to the patent filing.

16 Q (BY MR. LUCAS) Okay. So the way that I
17 characterized your sentence, then, was correct,
18 which is, prior to the critical date, it would have
19 been understood that lipases target triacylglycerols
20 (triglycerides) and require its substrate to be a
21 triester based on a 1,2,3-triol backbone (i.e.
22 glycerol) to match up with the reaction site?

23 A. I don't agree.

24 Q. Okay. I thought you said you were
25 providing an overview of lipases as of the critical

1 date in this section. Is that right or wrong?

2 A. I believe I said, prior to the patent.

3 Q. After the patent, it's known that lipases
4 can react with jojoba wax esters, at least, that
5 don't have the triester structure that you're
6 talking about in this sentence?

7 A. That was discovered, however. And forgive
8 me, but this is just an overview, defining lipases
9 as they were known at that time.

10 Q. Is this statement true of all lipases?

11 A. I don't know.

12 Q. Can you give me a ballpark of how many
13 different varieties of lipases have been isolated?

14 A. No. I cannot.

15 Q. Is it in the hundreds?

16 A. I don't know.

17 Q. You don't know whether it's one or a
18 thousand?

19 MR. KANE: Objection. Lack of foundation.
20 Asked and answered.

21 A. Again, I don't know. There are many
22 lipases, and I have not studied the literature on
23 how many there are.

24 MR. LUCAS: Exhibit 5.

25 (Deposition Exhibit Number 5 marked.)

1 THE WITNESS: Thank you.

2 Q (BY MR. LUCAS) This has been marked in the
3 proceeding as Cargill 2028.

4 So on page 5, doesn't it say that several
5 hundreds of lipase sequences are listed in
6 databases?

7 A. Yes, it does.

8 Q. So do you have any reason to doubt that
9 there are several hundreds of lipases?

10 MR. KANE: Objection. Misstates the
11 document.

12 A. I have no doubt there are several hundred.
13 There may be more.

14 Q (BY MR. LUCAS) Do your opinions regarding
15 the understanding of one of skill in the art
16 regarding the expected efficacy of lipase catalysts
17 hold true with respect to each of these several
18 hundred lipase sequences?

19 A. Excuse me. Are you asking me that if
20 someone who was skilled in the art would have an
21 intimate or detailed knowledge of the hundreds of
22 lipases that are indicated in this paragraph?

23 Q. No. I'm asking more so whether you can be
24 sure that your opinions with respect to lipases only
25 being known to catalyze triglycerides holds true

1 with respect to each one of these several hundred
2 lipases -- lipase sequences.

3 MR. KANE: Objection. Misstates the
4 testimony and the opinion.

5 A. I cannot comment on your statement as
6 being absolute as being applied to these lipases
7 listed.

8 My comments about lipase reaction is based
9 on the classification of the enzyme.

10 Q (BY MR. LUCAS) In your report you discuss
11 site-specific and non-specific lipases, right?

12 A. Yes, I do.

13 Q. With respect to site-specific lipases,
14 would you agree that specificity is a comparative
15 difference in the rates of catalysis of certain
16 reactions?

17 A. No, I would not.

18 Q. Would you agree that site specificity does
19 not mean that a lipase exclusively promotes the
20 reaction in that particular site?

21 MR. KANE: Objection. Incomplete
22 hypothetical.

23 A. Could you repeat that? I wanted to catch
24 the last part of that again. Thank you.

25 Q (BY MR. LUCAS) Would you agree that site

1 specificity does not mean that a lipase exclusively
2 promotes the reaction in that particular site?

3 MR. KANE: Objection. Vague, incomplete
4 hypothetical.

5 A. I'm -- Site specificity in a lipase enzyme
6 is specific to the position on the glycerol upon it
7 reacts, by definition.

8 Q (BY MR. LUCAS) Have you heard of the
9 concept of catalytic promiscuity as it relates to
10 lipases?

11 A. Yes. I've seen it in literature. Yes.

12 Q. Can you provide a high-level description
13 of what that refers to?

14 A. My understanding is that an enzyme will
15 react on the different sites, sometimes -- sometimes
16 in unpredictable fashion. That's my only
17 understanding.

18 Q. Prior to the critical date, would one of
19 skill have been aware of that concept?

20 A. I don't recall from the literature I
21 reviewed. I've seen so many documents, I don't
22 recall all the dates. But I do recall that
23 statement.

24 Q. Is that something that a person of
25 ordinary skill in the art would have been aware of?

1 MR. KANE: Objection. Vague.

2 A. When you ask were they aware of, are you
3 asking of the phrase "enzyme promiscuity" or just
4 aware that they would have known it prior to the
5 patent application?

6 Q (BY MR. LUCAS) I'm asking whether, prior
7 to the critical date, one of skill in the art would
8 have known that lipases react on different sites,
9 sometimes in an unpredictable fashion.

10 MR. KANE: Objection. Vague.

11 A. I -- I don't know if I can agree that's an
12 absolute statement, no.

13 Q (BY MR. LUCAS) Okay. Would you agree
14 that, prior to the critical date, lipases were known
15 to catalyze a wide range of reactions?

16 MR. KANE: Objection. Vague.

17 A. No. I would not agree.

18 Q (BY MR. LUCAS) Would you agree that, prior
19 to the critical date, it was known that lipases
20 naturally catalyze the hydrolysis of the ester bond
21 of tri-, di-, and monoglycerides into fatty acids
22 and glycerol?

23 A. Yes. I would.

24 Q. In paragraph 122 of your declaration,
25 again, I'll read the sentence that I want you to

1 focus on, and then feel free to read the whole
2 thing.

3 A. Sure. Thank you.

4 Q. You say, I understand this to mean that,
5 for over 30 years, no one knew that lipases could
6 transesterify jojoba wax esters until the inventors
7 of the '245 patent showed it.

8 And the question, after you have a chance
9 to read it, is, what do you mean by, I understand
10 this to mean?

11 A. Okay. I recall my understanding was that
12 all of the literature focused on lipases and
13 triacylglycerols or glycerides only.

14 Q. Is this your opinion, or did someone tell
15 you that?

16 A. That was my opinion.

17 Q. Okay.

18 MR. LUCAS: Can we take a lunch break?

19 MR. KANE: Sure.

20 THE VIDEOGRAPHER: We are going off the
21 record. The time now is 12:56.

22 (Whereupon, a lunch recess was taken.)

23 THE VIDEOGRAPHER: We are back on the
24 record. This is the start to Media Number 4. The
25 time is 1:33.

1 MR. LUCAS: Let's mark Schultz Exhibit 6.
2 (Deposition Exhibit Number 6 marked.)

3 Q. (BY MR. LUCAS) Have you ever seen this
4 article before, Dr. Schultz?

5 A. I don't recall.

6 Q. So you don't know whether or not it came
7 up in your literature review?

8 A. I -- I -- I think I recall this might have
9 been a reference somewhere. I'm trying to recall
10 where. I don't recall if I read this article or
11 not.

12 Q. Do you think you might have seen this
13 article before?

14 A. I may have. I sort of recognize the name
15 of one of the authors, but I don't recall.

16 Q. Do you know whether FloraTech had this
17 article in its files during the prosecution of the
18 '245 patent?

19 MR. KANE: Objection. Lack of foundation.

20 A. I just want to look at the patent for a
21 second, if you don't mind.

22 I recall seeing this author and this
23 reference in the patent application. I don't know
24 if it's the same article or not.

25 Q (BY MR. LUCAS) If you're looking at the

1 first page of the '245 patent --

2 A. Yes.

3 Q. -- you can see, in the right-hand column,
4 kind of in the middle of the page, a reference to
5 this article, right?

6 A. Yes, I do. Thank you.

7 Q. What's the date listed by the article?

8 A. The date is December 22nd, 2014, in the --
9 in the reference here. And on the article itself,
10 it is -- it says 2015. September 15th -- No. It
11 says it was published in 2015.

12 Q. And you don't know, one way or the other,
13 whether you reviewed this article during your
14 literature review, right?

15 A. I don't believe I included this in my --
16 my cited articles, no.

17 Q. Well, I'm asking a little bit of a
18 different question; not whether you included it or
19 not, but whether you reviewed it in connection with
20 your literature review.

21 A. I can't be certain. Sorry. I read so
22 many articles.

23 Q. Suffice it to say you didn't mention this
24 article in your declaration, right?

25 A. I think that is correct.

1 Q. Would you mind reading the title of the
2 article into the record?

3 A. It says it is a research article.
4 Functional monoesters of jojoba oil can be produced
5 by enzymatic interesterification: Reaction analysis
6 and structural characterization.

7 Q. And do you see, kind of in the middle of
8 the first page, there's a bolded section that says,
9 Keywords?

10 A. I do.

11 Q. What are the keywords associated with this
12 research article?

13 A. It says, interesterification/jojoba
14 oil/lipase/long-chain monounsaturated fatty acid
15 ethyl esters/long-chain monounsaturated fatty
16 alcohol acetate.

17 Q. And underneath that, there's the word
18 Received, colon, right?

19 A. Yes.

20 Q. What are the dates listed next to the word
21 Received?

22 A. September 15th, 2014. October 29 -- then
23 it says, revised October 29th, 2014. And then it
24 says, /accepted October 31, 2014.

25 Q. Those dates are all between January 1st,

1 2014 and December 19th, 2014, right?

2 A. That is correct. Yes.

3 Q. On the first page, right underneath where
4 it says, Division of Chemistry and Biological
5 Chemistry School of Physical and Mathematical
6 Sciences, Nanyang Technological University
7 Singapore, there's a sentence -- the second sentence
8 that says, In this study.

9 Would you mind reading that into the
10 record?

11 A. In this study, jojoba oil was
12 interesterified with ethyl acetate for the combined
13 production of LMFAEE and LMFAA.

14 Q. Now, jojoba oil, we established, is not a
15 triglyceride, right?

16 A. Correct.

17 Q. And I think you testified that neither is
18 ethyl acetate. Right?

19 A. Yes.

20 Q. What do the researchers use as the
21 catalyst for this interstratification?

22 A. You're going to have to give me a minute
23 to read this over.

24 Q. I think it's the next sentence, if that
25 helps.

1 A. Okay. It says, Lipozyme RM IM and
2 Novozyme 435 were employed as the biocatalyst and
3 their efficiencies compared.

4 Q. Is lipozyme RM IM site-specific or
5 non-specific?

6 A. I do not know.

7 Q. Is Novozyme 435 site-specific or
8 non-specific?

9 A. I do not know. I'd have to look at the
10 experimental section for definition.

11 Q. If you could direct your attention to the
12 second page, there's a figure in the bottom left
13 column.

14 Do you see that?

15 A. I do.

16 Q. Does Figure 1 depict the ester-ester
17 exchange transesterification of jojoba wax esters
18 and ethyl acetate?

19 A. The figure, as drawn, indicates a reaction
20 of jojoba oil with ethyl acetate.

21 Q. Does Figure 1 depict the ester-ester
22 transesterification of jojoba wax esters and ethyl
23 acetate?

24 A. You know, I don't recall reading this --
25 having reviewed and reading this article.

1 Q. So you can't tell from that figure whether
2 Figure 1 depicts the ester-ester transesterification
3 of jojoba wax esters and ethyl acetate?

4 A. It indicates a chemistry has occurred.
5 And the information in detail in Figure 1 says it's
6 an interesterification.

7 Q. And you understand interesterification to
8 be an ester-ester exchange-type transesterification,
9 right?

10 A. It is. Yes. Interesterification is used
11 interchangeably with transesterification for an
12 ester-ester exchange.

13 Q. So the only difference between this
14 reaction as shown in Figure 1 and the claimed
15 reaction in the '245 patent is the feedstock, right?

16 MR. KANE: Objection. Lack of foundation.

17 A. Again, I'd have to -- I'd have to review
18 the article to -- to say that, you know, with
19 confidence.

20 Q (BY MR. LUCAS) Well, can you tell that
21 jojoba oil and ethyl acetate are the feedstock in
22 this reaction, from Figure 1?

23 A. I don't know if it is the feedstock. I
24 would -- I can only say that the figure indicates
25 these materials and then a subsequent product set

1 below it.

2 Q. So if the feedstock of this reaction is
3 jojoba oil and ethyl acetate, the only difference
4 between what's shown in Figure 1 and what's
5 described in the '245 patent is the fact that the
6 claimed feedstock of the '245 patent is jojoba oil
7 and between 20 and 50 percent hydrogenated jojoba
8 wax esters, right?

9 MR. KANE: Objection. Lack of foundation.

10 A. The feedstock, as I recall in the patent,
11 is also defined jojoba oil only.

12 Q (BY MR. LUCAS) Sorry. The claimed
13 feedstock.

14 A. It -- Can you repeat the question?

15 Q. Sure.

16 If the feedstock of the reaction shown in
17 Schultz Exhibit 6 is jojoba oil and ethyl acetate,
18 then the only difference between what's shown in
19 Figure 1 of Schultz Exhibit 6 and what's described
20 in the claims of the '245 patent is the fact that
21 the claimed feedstock of the '245 patent is jojoba
22 wax esters and between 20 to 50 percent hydrogenated
23 jojoba wax esters, right?

24 MR. KANE: Objection. Calls for a legal
25 conclusion and misstates the document.

1 A. The document has the words written, a
2 feedstock comprising jojoba wax esters and
3 hydrogenated jojoba wax esters.

4 Q (BY MR. LUCAS) So is the only difference
5 between that claimed feedstock and what's shown in
6 Figure 1 is that, instead of ethyl acetate, the
7 patent discloses 20 to 50 percent hydrogenated
8 jojoba wax esters?

9 MR. KANE: Objection. Lack of foundation.
10 Calls for a legal conclusion.

11 A. Okay. So I'm not -- I'm not an attorney,
12 a patent lawyer. I see that is written on this
13 document. But I see this document appeared in the
14 literature in 2015, after the patent application.

15 Q (BY MR. LUCAS) Okay. So for that reason,
16 are you saying that you think that this article is
17 irrelevant?

18 MR. KANE: Objection. Calls for a legal
19 conclusion.

20 A. I'm only stating that, as I'm reviewing
21 this article, and it's one -- if I recall, it's one
22 of the first times I've had an opportunity to see it
23 in more -- in detail like this, that it was
24 published in 2015, when it would have been in the
25 art, after the application was submitted.

1 Q (BY MR. LUCAS) Sorry. So you have seen
2 this article before, haven't you?

3 A. I am not certain that I have seen this
4 article.

5 Q. Well, you just said, it's one of the first
6 times I've had the opportunity to see it in more
7 detail. So that implies that you've seen it before,
8 right?

9 A. What I am stating is, I recall it being
10 listed in other app- -- app- -- in the other
11 publications of the patent. I do not recall if I
12 reviewed this article.

13 Q. Okay. So my question is, is the only
14 difference between the claimed feedstock of the '245
15 patent and the feedstock shown in Figure 1 of
16 Schultz Exhibit 6 that, instead of ethyl acetate,
17 the patent discloses 20 to 50 percent hydrogenated
18 jojoba wax esters?

19 MR. KANE: Again, lack of foundation.

20 A. The only thing I can agree to is that this
21 figure shows -- or illustrates a reaction between a
22 jojoba oil and ethyl acetate. It does not show
23 hydrogenated jojoba oil in that diagram.

24 MR. LUCAS: Okay. Can you mark this sheet
25 of paper as Schultz Exhibit 7, please.

1 (Deposition Exhibit Number 7 marked.)

2 Q (BY MR. LUCAS) Sir, I'm handing you a
3 blank piece of paper. Would you please draw for us
4 what the claimed reaction of the '245 patent looks
5 like.

6 A. I can. For simplicity, I'm not going to
7 draw every carbon, okay? I'm just going to
8 abbreviate.

9 Q. Okay. You can use Novozyme 435 as the
10 lipase, if you want, given that's disclosed in the
11 '245 patent.

12 A. I could keep going, but I'm just going to
13 write down the simple part of this.

14 Q. Okay. What is represented in the top row?

15 A. The top row is jojoba oil.

16 Q. And then there's a plus sign. And what's
17 represented in the second row?

18 A. Saturated jojoba oil.

19 Q. And those are the two things that comprise
20 the feedstock of the '245 patent claim 1, right?

21 A. And that is what's stated in the patent,
22 written in the claim.

23 Q. And then there are two arrows. What have
24 you indicated next to the arrows?

25 A. I just put -- I indicated lipase.

1 Q. So that's a catalyst, right?

2 A. It is.

3 Q. And then what did you write below that?

4 A. I wrote two structures, one with 1 degree
5 of hydrog- -- one -- one aliphatic chain is
6 hydrogenated on one side, and then on the other, and
7 then there are two other that could be fully
8 hydrogenated or fully unhydrogenated.

9 Q. Okay. Thank you.

10 So going back to Schultz Exhibit 6, this
11 article would have taught one of skill in the art
12 that a lipase can be used to catalyze an
13 interesterification reaction of jojoba oil, right?

14 MR. KANE: Objection. Vague.

15 A. Again, since I've not had an opportunity
16 to read and understand the full context of this, and
17 only referring to that diagram, in the context of
18 that diagram, it demonstrates, with a short chain
19 aliphatic ester, a reaction to give a mixed ester.

20 Q (BY MR. LUCAS) Doesn't this article teach
21 one of skill in the art that a lipase can be used to
22 catalyze an interesterification reaction of jojoba
23 oil and ethyl acetate?

24 MR. KANE: Objection. Vague.

25 A. I'm going to take a moment and read this

1 article before I make a definitive statement.

2 Q (BY MR. LUCAS) I mean, the abstract says,
3 In this study, jojoba oil was interesterified with
4 ethyl acetate for the combined production of
5 long-chain monounsaturated fatty acid ethyl esters
6 and fatty alcohol acetates, right?

7 A. Excuse me. I'm just -- I'm still reading.
8 Okay. I've had a chance to quickly go
9 through this document from 2015. Of course, I
10 haven't had a chance to confirm any references or --
11 or other aspects of the quality of the citations.
12 So I'll answer everything in context of doing this
13 quick review.

14 Q. At least as of that date, this article
15 would have taught one of skill in the art that a
16 lipase can be used to catalyze an
17 interesterification reaction of jojoba oil and ethyl
18 acetate, right?

19 A. This article discusses that and teaches
20 that there is a possibility of interesterification
21 with jojoba oil with those materials.

22 Q. So if you look back at your declaration in
23 paragraph 76 -- Let me know when you're there.

24 A. Okay.

25 Q. Is this article, written by Lei and Li,

1 Schultz Exhibit 6, the reason why you wrote, prior
2 to 2014, and not, prior to December 19th, 2014?

3 A. No.

4 Q. Okay.

5 A. This article was written in 2- -- was
6 published and made available in the art in 2015.

7 Q. Well, actually, if you look at the '245
8 patent, you read to me earlier the date on which at
9 least a copy of this article was published, right,
10 December 22nd, 2014?

11 A. That's what's written there. Yes.

12 Q. Right.

13 A. But that is three days after this was
14 filed -- this patent was filed.

15 Q. Okay.

16 A. So I would not have had a chance -- I
17 mean, I don't -- I don't -- I don't understand what
18 you're asking me.

19 Q. If you look at paragraph 122 of your
20 declaration --

21 A. Okay.

22 Q. -- you say, kinda towards the end of the
23 first sentence, The only scientific data I had seen
24 anywhere in the record or in my independent review
25 of the literature showing the actual results of

1 lipase-catalyzed transesterification of jojoba wax
2 esters is in the specification and prosecution
3 history of the '245 patent.

4 Now that you've seen Lei, Schultz
5 Exhibit 6, is there anything about paragraph 122
6 that you'd like to change?

7 A. No.

8 Q. Okay. Which term is broader,
9 transesterification or interesterification?

10 A. They are used interchangeably in the
11 literature, so --

12 Q. Well, don't you say in paragraph 58 of
13 your declaration that you endeavor to refer to
14 transesterification as the broader term and
15 interesterification as the narrower term?

16 A. I do say that. Yes.

17 Q. Do the claims in the '245 patent say
18 interesterifying or transesterifying?

19 A. The -- as I read -- as I read the patent,
20 column 19, transesterify.

21 Q. And your opinion, when we're talking about
22 interesterification, is -- you understand that to
23 mean an ester-ester exchange, right?

24 A. Yes, I do.

25 Q. By the way, have you ever tried to carry

1 out the process as set forth in claim 1 of the '245
2 patent?

3 A. No, I have not.

4 Q. Over the course of your career, you've
5 performed bench tests involving chemical reactions,
6 right?

7 A. Yes.

8 Q. Have you ever seen students conducting
9 tests involving chemical reactions?

10 A. Yes, I have.

11 Q. Have you ever performed an
12 interesterification reaction?

13 A. I might have when I was in school.

14 Q. Can you recall that specifically?

15 A. I -- No. I can't. But possibly when I
16 was studying organic chemistry.

17 Q. When recording the results of a test
18 you've conducted, for example, on a bench, what
19 would you consider to be the best practice in terms
20 of how many runs you should do in order to be
21 comfortable that you're getting a consistent result?

22 A. Could you repeat that, please?

23 Q. Sure.

24 When one is recording the results of a
25 test, what would you consider to be the best

1 practice in terms of how many runs you should do in
2 order to be comfortable that you're getting a
3 consistent result?

4 MR. KANE: Objection. Incomplete
5 hypothetical, lack of foundation.

6 A. I -- I don't know. It's -- it's -- it's a
7 very general question.

8 Q (BY MR. LUCAS) Could one run ever be
9 sufficient?

10 MR. KANE: Objection. Incomplete
11 hypothetical, lack of foundation.

12 A. It -- it depends on your objectives.

13 Q (BY MR. LUCAS) Would you consider one test
14 run to be best practice?

15 MR. KANE: Objection. Incomplete
16 hypothetical, lack of foundation.

17 A. Best practice is a -- is a very open term.
18 You would have to provide me with more specifics as
19 to your concern.

20 Q (BY MR. LUCAS) You reviewed the '245
21 patent prosecution history, right?

22 A. Yes, I did.

23 Q. Did any of the prior art that formed the
24 basis for the examiner's rejections involve an
25 ester-ester exchange-type transesterification

1 reaction?

2 A. I'd have to review in my declaration. I
3 believe I have -- I have cited that in one or two
4 places.

5 Q. How about paragraph 105?

6 A. Paragraph 105 speaks to alcoholysis, not
7 ester-ester exchange.

8 Q. And the first sentence says that, Most of
9 the prior art that formed the basis of the
10 examiner's rejections used in alcoholysis
11 transesterification rather than the ester-ester
12 exchange required by the claims. Right?

13 A. That is what's written. Yes.

14 Q. In paragraph 106 you discuss Mr. Addy's
15 experimentation following Steinke's protocol, right?

16 A. Give me one second.

17 Yes.

18 Q. And you note that crambe and jojoba oil
19 have similar products, right?

20 A. What I note is that crambe oil and jojoba
21 oil were stated to have similar iodine values.

22 Q. Well, you say, similar qualitative
23 properties, right, including iodine values,
24 et cetera?

25 A. I do say -- I qualify the qualitative

1 properties as being identified as iodine values.

2 Q. And peroxide value?

3 A. Uh-huh.

4 Q. And anisidine value, too, right?

5 A. Yes.

6 Q. Don't crambe and jojoba oil have very
7 different starting OSI values?

8 A. Yes, they do.

9 Q. In paragraph 107 of your declaration, you
10 discuss Mr. Addy's test results that were recorded
11 after he carried out Steinke's alcoholysis method,
12 right?

13 A. Yes.

14 Q. And you reproduced a table that Mr. Addy
15 included in his declaration. And that's in the file
16 history of the '245 patent, right?

17 A. Yes, it is.

18 Q. Okay. And isn't it true that Mr. Addy
19 performed three trial runs with jojoba and crambe
20 feedstocks?

21 A. The data table indicates the recording of
22 three experiments.

23 Q. In the first trial run with crambe,
24 Mr. Addy recorded a 213 percent increase in OSI,
25 right?

1 A. Yes.

2 Q. In the second trial run with crambe,
3 Mr. Addy recorded a 176 percent increase in OSI,
4 right?

5 A. Yes.

6 Q. In the third trial run with crambe,
7 Mr. Addy recorded a 149 percent increase in OSI,
8 right?

9 A. That is what's written. Yes.

10 Q. So the average increase in OSI for the
11 crambe oil experiments was 175 percent increase,
12 right?

13 A. That is what's written. Yes.

14 Q. Do you see the final column that's
15 reproduced in paragraph 107 in this table?

16 A. Are you indicating the one that has the
17 plus/minus above it?

18 Q. Yes.

19 A. Yes.

20 Q. What does that represent?

21 A. I -- I took that to represent the change,
22 the overall change from starting to end.

23 Q. You didn't take that to be the margin of
24 error?

25 MR. KANE: Objection. Lack of foundation.

1 A. I don't recall whether Addy indicated that
2 as a standard deviation, a margin of error. I don't
3 recall what that -- that variance was indicating.

4 Q (BY MR. LUCAS) What would one of ordinary
5 skill in the art, looking at a column like this,
6 that has a plus or minus for those values, have
7 understood it to mean?

8 MR. KANE: Objection. Lack of foundation.

9 A. With -- without a definition by the person
10 conducting the experiment, a POSITA would just --
11 might possibly say it showed some variation that was
12 acceptable in the change.

13 Q (BY MR. LUCAS) So given that acceptable
14 variation, is there a statistically significant
15 increase in crambe from pre-reaction to
16 post-reaction?

17 MR. KANE: Objection. Lack of foundation.

18 A. I don't know.

19 Q (BY MR. LUCAS) Well, can't you do the
20 math? Subtract the -- to get the worst-case
21 scenario, and then figure out what the percent is?

22 A. That would be making an assumption. You
23 don't know the capability instruments that he would
24 use to record. You do not know its ranges that were
25 acceptable within limits. So you can't make any

1 assumption as to if it's really, to your comment,
2 statistically significant. I'd have to see more
3 information.

4 Q. So even if you took the worst-case
5 scenario here, it would still be over a hundred
6 percent change from crambe pre-reaction to crambe
7 post-reaction OSI, right?

8 MR. KANE: Objection. Lack of foundation.

9 Q (BY MR. LUCAS) Meaning you can do the math
10 in run 3, subtract the variance from that, and see
11 what it comes out to, right?

12 A. Again, I don't know what the -- the error
13 range within the instrumentation and what exactly
14 those numbers would mean. I wouldn't make that
15 assumption.

16 Q. Given that column header, plus/minus after
17 three runs and an average and experiments, one of
18 ordinary skill in the art would not have understood
19 that to be the variance, the plus or minus column?

20 MR. KANE: Objection. Lack of foundation.
21 Incomplete hypothetical.

22 Q (BY MR. LUCAS) Is that your testimony?

23 A. Could you repeat that?

24 Q. Sure.

25 Given the column header, plus/minus after

1 three runs and an average, one of ordinary skill in
2 the art would not have understood the plus or minus
3 column to be the variance of the experiment. Is
4 that your testimony?

5 A. No.

6 MR. KANE: Objection. Objection. Lack of
7 foundation, incomplete hypothetical.

8 A. Again, I -- I don't know.

9 Q (BY MR. LUCAS) Okay. You say, in
10 paragraph 107, that Mr. Addy surprisingly found a
11 different result between jojoba oil and crambe oil,
12 that jojoba oil had over a threefold increase in
13 OSI. Right?

14 A. Yes. I have written that. Yes.

15 Q. Then you say, Crambe's increase of one
16 hour was, quote, within the margin of testing error,
17 quote. Right?

18 MR. KANE: Misstates the document.

19 A. I say here, Addy explained to the examiner
20 that that was his statement and interpretation.

21 I must take that at face value.

22 Q (BY MR. LUCAS) Is the one-hour difference
23 within the margin of testing error for the crambe
24 experiment runs?

25 MR. KANE: Objection. Lack of foundation.

1 A. I do not know.

2 Q (BY MR. LUCAS) He gave you the variance:
3 .349 and .348.

4 MR. KANE: Do you have a question?

5 Q (BY MR. LUCAS) Is it your opinion that the
6 one-hour difference shown in the crambe reactions is
7 within the margin of testing error?

8 MR. KANE: Objection. Lack of foundation.
9 And outside the scope of the declaration as well.

10 A. My only comment is that this is what Addy
11 had written and stated in his -- in the file
12 history.

13 Q (BY MR. LUCAS) Do you agree with
14 Mr. Addy's explanation?

15 MR. KANE: Objection. Lack of foundation.

16 A. I don't know.

17 MR. KANE: Outside the scope.

18 Q (BY MR. LUCAS) You don't know whether you
19 agree or disagree?

20 MR. KANE: Same objection.

21 A. I cannot make a comment on Mr. Addy's
22 statement, whether it is correct or incorrect.

23 Q (BY MR. LUCAS) You just took it at face
24 value, right?

25 A. I took it to mean what it says, that he

1 explained to the examiner that a one-hour difference
2 in OSI is within the margin of testing error, and
3 would have been considered meaningful -- not been
4 considered meaningful under Steinke.

5 Q. And so you don't have an opinion, one way
6 or the other, whether you agree with that or not,
7 right?

8 A. I have no opinion, other than what I have
9 just stated.

10 Q. So you took Addy's explanation at face
11 value, right --

12 MR. KANE: Objection. Asked and answered.

13 Q (BY MR. LUCAS) -- and reproduced it in
14 your report?

15 MR. KANE: Objection. Asked and answered.

16 A. Again, I -- I took what Mr. Addy explained
17 to the examiner as his testimony and -- and accepted
18 that that was his testimony.

19 Q (BY MR. LUCAS) So what's the difference
20 between that and me saying you took it at face
21 value?

22 A. You asked --

23 MR. KANE: Objection. Vague.

24 Q (BY MR. LUCAS) Aren't we saying the same
25 thing?

1 MR. KANE: Objection. Vague.

2 A. It's -- it's -- it's a very vague -- it is
3 a very vague comment.

4 Face value can mean that I accept it, I
5 don't accept it. It's just giving an opinion.

6 Q (BY MR. LUCAS) You took what Mr. Addy
7 explained to the examiner as his testimony and
8 accepted that was his testimony, right?

9 A. Correct.

10 Q. Okay. Let's take a look at the
11 prosecution history, which we'll mark as Schultz
12 Exhibit 8. And this was previously marked as
13 Vantage Exhibit 1002.

14 (Deposition Exhibit Number 8 marked.)

15 Q. Okay. And if you'd go to tab 2. That's
16 the start of part 2 of this monstrous exhibit. Near
17 the end of that, please navigate to page 466. And
18 the pages I'm referring to are in the bottom right
19 corner.

20 A. Okay.

21 Q. Okay. Do you recognize this as the Addy
22 declaration about which you are opining in your
23 report?

24 A. I'm going to need a minute or so to look
25 through this.

1 Q. Sure. It should be pages 466 to 471.

2 My question right now is just, do you
3 recognize this as the Addy declaration about which
4 you opine in your report?

5 A. It looks -- it looks to be.

6 Q. And if you look at paragraph 8 on page 468
7 of this exhibit, do you recognize the experimental
8 results that you included in your declaration?

9 A. Yes, I do.

10 Q. Now, if you'll turn the page to 469, let
11 me direct your attention to the section under the
12 header Analysis/Observations, paragraph 10.

13 Would you mind reading that into the
14 record?

15 A. Excuse me a second.

16 While both the jojoba- and crambe-derived
17 ester products saw an increase in oxidative
18 stability over the OSI of the original feedstock,
19 the jojoba-derived esters increased by an average of
20 384 percent, compared to 175 percent for the crambe
21 derivative. This is surprising, because both
22 materials have iodine values between 65 and 67 and
23 showed similar oxidative parameters in PV and ANV
24 prior to the reaction. It is also important to note
25 that, while the OSI of the crambe ester products

1 increased an average of 175 percent, this increase
2 was merely one hour. An increase of one hour under
3 the OSI evaluation is not actually significant.

4 The OSI valuation for the jojoba
5 derivative had a plus/minus of 1.45 to 1.95 hours on
6 its own, which is of the same order of magnitude as
7 the observed increase in OSI of the crambe products
8 themselves.

9 Because of this, it is difficult to
10 conclusively argue that the OSI of the crambe
11 products is really higher than the OSI of the
12 original feedstock materials due to
13 transesterification reaction.

14 Q. Thank you.

15 Isn't Mr. Addy pointing, in this
16 paragraph, to the plus/minus with respect to the
17 jojoba oil, as opposed to the crambe oil?

18 A. Could you be more clear about that
19 question, please?

20 Q. Well, plus or minus only appears one time
21 in this paragraph, right?

22 A. Yes.

23 Q. And the plus or minus that Mr. Addy is
24 referring to is the plus or minus with respect to
25 the jojoba oil, not the crambe oil, right?

1 A. That is correct.

2 Q. Shouldn't the conclusion of whether there
3 was an increase in the crambe feedstock and OSI have
4 been based on the variance or the plus or minus of
5 the crambe experiment runs?

6 MR. KANE: Objection. Lack of foundation,
7 outside the scope.

8 A. I'm going to have to ask you to ask me
9 again. I'm trying -- I'm trying to piece this
10 together.

11 Q (BY MR. LUCAS) Sure. Shouldn't the
12 conclusion of whether there was an increase in OSI
13 in the crambe feedstock have been based on the plus
14 or minus of the crambe experiment runs?

15 MR. KANE: Objection. Same objections.
16 Outside the scope, lack of foundation, misstates the
17 document.

18 A. Yeah. I don't know if -- I don't know.

19 Q (BY MR. LUCAS) You think it's okay to
20 compare the plus or minus of a different trial run,
21 rather than the one that's associated with the
22 crambe?

23 MR. KANE: Outside the scope. Vague,
24 misstates the document.

25 A. You asked the different one, and then you

1 mentioned crambe reaction.

2 Could you clarify, please?

3 Q (BY MR. LUCAS) Yeah.

4 There are two runs here, right? There are
5 crambe reaction runs, and there are jojoba reaction
6 runs, right?

7 A. Correct.

8 Q. And so shouldn't the conclusion of whether
9 there was an increase in the crambe feedstock OSI
10 have been based on the plus or minus of the crambe
11 experiment runs and not the jojoba experiment runs?

12 MR. KANE: Objection. Outside the scope,
13 lack of foundation, misstates the document.

14 A. No. I disagree.

15 Q (BY MR. LUCAS) Why is that?

16 A. Mr. Addy, in paragraph 10, says, an
17 increase of one hour under the OSI evaluation is not
18 actually significant, so he -- he's saying that --
19 my interpretation is, then, that the plus/minus
20 value in the crambe experiment is not significant,
21 either.

22 Q. So why didn't he include the plus/minus of
23 the crambe runs, if it's meaningless?

24 MR. KANE: Objection. Lack of foundation,
25 calls for speculation.

1 A. I do not know why he inputted that, no.

2 Q (BY MR. LUCAS) It doesn't make any sense
3 to include that and then rely on the plus/minus of
4 the jojoba runs, right?

5 MR. KANE: Objection. Lack of foundation,
6 outside the scope, calls for speculation.

7 A. I don't agree. I -- I cannot give an
8 opinion on why Mr. Addy included them.

9 Q (BY MR. LUCAS) You just accepted what he
10 said, right?

11 A. I accepted that his statement that the
12 increase of one hour under the OSI evaluation is not
13 actually significant. I accept that. He conducted
14 the experiments. He understands his machines.

15 Q. Do you agree with it?

16 MR. KANE: Objection. Lack of foundation,
17 outside the scope, asked and answered.

18 A. I -- I don't know.

19 Q (BY MR. LUCAS) All right. You took it the
20 a face value, right?

21 MR. KANE: Asked and answered.

22 A. (No response.)

23 Q (BY MR. LUCAS) In paragraph 109 of your
24 declaration, you discuss another one of Mr. Addy's
25 experiments, right?

1 A. Yes, I do.

2 Q. This experiment compared the results of a
3 chemically catalyzed ester-ester exchange with a
4 lipase-catalyzed ester-ester exchange with a
5 feedstock containing 20 percent hydrogenated jojoba
6 wax esters and 80 percent unsaturated jojoba wax
7 esters, right?

8 A. Yes. That's correct.

9 Q. In this experiment, Mr. Addy recorded an
10 OSI of 33.8 for a feedstock containing 20 percent
11 hydrogenated jojoba wax esters and 80 percent
12 unsaturated jojoba wax esters, right?

13 A. Say that again, please? I'm sorry.

14 Q. In this experiment, Mr. Addy recorded an
15 OSI of 33.8 for a feedstock containing 20 percent
16 hydrogenated jojoba wax esters and 80 percent
17 unsaturated jojoba wax esters, right?

18 A. That is correct.

19 Q. And in Mr. Addy's experiment, the OSI
20 increased from 33.8 to 38 when Mr. Addy used
21 chemical catalysis, right?

22 A. That is correct.

23 Q. What percent increase in OSI is that,
24 approximately?

25 MR. KANE: Objection. Lack of foundation.

1 Outside the scope.

2 A. It -- it -- I don't know. It -- it
3 appears to be less than 10 percent.

4 Q (BY MR. LUCAS) And you say that that's a
5 statistically insignificant increase, right?

6 MR. KANE: Objection. Misstates the
7 document.

8 A. I -- I -- I think Mr. Addy actually stated
9 that.

10 Q (BY MR. LUCAS) Is it your opinion that
11 this is a statistically insignificant increase, or
12 are you just parroting Mr. Addy's opinion?

13 A. I recall that I was using the state- --
14 the statement in Mr. Addy's declaration and his
15 opinion that it was statistically insignificant.

16 Q. What do you mean by statistically
17 insignificant in this context?

18 MR. KANE: Objection. Lack of foundation,
19 misstates the document, outside the scope.

20 A. I was using Mr. Addy's statement, I
21 believe -- as I recall, in his declaration. That
22 is -- to the -- to that statement of statistically
23 insignificant.

24 Q (BY MR. LUCAS) So those are Mr. Addy's
25 words and not yours, right?

1 A. Yes.

2 Q. A comparison of two increases cannot
3 reliably be done with only one test. Isn't that
4 true?

5 A. I do not agree.

6 Q. Why not?

7 A. It depends on the experiment and the
8 expertise of the individual carrying them --
9 carrying out the experiment.

10 Q. So the comparison of two increases can
11 reliably be done with only one test?

12 MR. KANE: Objection. Incomplete
13 hypothetical, lack of foundation.

14 A. What do you mean by reliably, please?

15 Q (BY MR. LUCAS) To the point where it gives
16 you a level of confidence that it's correct, within
17 a margin of error.

18 MR. KANE: Same objections.

19 A. The level of confidence is the opinion of
20 the individual who had carried out the experiment.
21 Cannot make a statement as to your comment of margin
22 of error.

23 MR. LUCAS: Is now a good time for a short
24 break?

25 MR. KANE: Sure.

1 THE VIDEOGRAPHER: We are going off the
2 record. The time now is 2:39.

3 (Whereupon, a recess was taken.)

4 THE VIDEOGRAPHER: We are back on the
5 record. This is the start to Media Number 5. The
6 time is 2:54.

7 Q (BY MR. LUCAS) Dr. Schultz, if you'd pick
8 up your declaration in support of patent owner's
9 preliminary response, which we marked, I think, as
10 Exhibit 2 to your deposition.

11 A. Okay.

12 Q. If you'd turn to paragraph 79. You opine
13 in paragraph 79 that Dr. Rockstraw's back-calculated
14 estimate is neither clear nor accurate for
15 determining a weight percentage of a reactant,
16 right?

17 A. Yes.

18 Q. What did you mean when you said it wasn't
19 clear?

20 A. If -- if -- if I recall, I believe I meant
21 that it wasn't clear how he obtained his estimates.

22 Q. Do you really believe that the estimates
23 that resulted from his back-calculations are not
24 accurate?

25 A. If I recall correctly, I recall that I

1 tried to input using his calculation, and I found
2 different numbers. If I recall correctly, he had a
3 formula in there.

4 Q. Well, you said that you came up with
5 negative numbers, right?

6 A. Yes.

7 Q. Were the values different or the same?

8 A. I don't recall.

9 Q. In paragraph 86 of this declaration, you
10 talk about a factor or a constant that's specific to
11 a known fatty acid or triglyceride.

12 Do you see that?

13 A. Yes, I do.

14 Q. What's that factor used for?

15 A. If I recall, the factor was a -- a -- a
16 constant that you apply to the calculation of -- of
17 the iodine value, based on the structure of the
18 unsaturated fatty acid you were using.

19 Q. So the factor is for use in calculating an
20 iodine value, right?

21 A. It was used in one part of calculating the
22 iodine value. I'd have to go back and look at the
23 formula again.

24 Q. Why would a factor be necessary when the
25 iodine values were already known?

1 A. When you say, already known, could you
2 clarify that, please?

3 Q. Sure.

4 You have experimental results in a table
5 listing the iodine values. So you're not trying to
6 calculate them. You already have them from
7 experiments.

8 So my question is, is it necessary to use
9 the factor that you reference in paragraph 86 if you
10 have measured iodine values?

11 A. I'm going to -- I'm going to reread
12 paragraph 86. This was written a while ago.

13 I'm actually --

14 MR. KANE: I was going to say, you can
15 read as much of the document as necessary.

16 THE WITNESS: Thank you. I was going
17 to -- I need to read from the beginning of the
18 back-calculation.

19 A. Could you ask me the question again,
20 please?

21 Q. (BY MR. LUCAS) Why would the factor be
22 necessary when the iodine values were already known,
23 based off of measurements?

24 A. When you say, the iodine values were
25 already known, what are you referring to?

1 Q. There are iodine values listed in the
2 references that Dr. Rockstraw cited that were
3 experimentally measured. He used experimental
4 measurements for those iodine values.

5 So I'm asking, is it necessary to use the
6 factor that you're referencing here in paragraph 86
7 if you already have measured iodine values?

8 A. As I recall, the iodine values
9 Dr. Rockstraw was using were those from one of the
10 reference documents. It might have been one of
11 those from Brown. And he was using those values in
12 his equation.

13 To accurately determine whether the iodine
14 value is correct, it is stated in that reference
15 that you need to apply an adjustment or a constant
16 to account for the molecular weight and other
17 factors of the fatty acid.

18 And those are the factors to which I refer
19 in this document.

20 Q. So you can't get an accurate iodine value
21 from measuring -- from measurements, right? Is that
22 what you're saying?

23 MR. KANE: Objection. Vague, misstates
24 the testimony.

25 A. You can get an iodine value. And to make

1 it accurate, you have to account to the species that
2 you're measuring. And each specie that you're
3 measuring, that is the specie that may or may not
4 have a oxidation site or an iodine reactive site,
5 has an -- a factor or a constant that's associated
6 with it. And that has to be included. And I did
7 not see that in Dr. Rockstraw's calculation or his
8 formula.

9 Q (BY MR. LUCAS) Do you know whether the
10 iodine values that were reproduced in Brown based
11 off of measurements already had that factor applied
12 or not?

13 MR. KANE: Objection. Lack of foundation.

14 A. I do not know.

15 Q (BY MR. LUCAS) If it had already been
16 applied, you wouldn't need to do it again, right?

17 MR. KANE: Objection. Lack of foundation,
18 incomplete hypothetical.

19 A. I would have to -- I would have to know
20 the experimental conditions that those numbers were
21 derived from and how they did their calculations.

22 Q (BY MR. LUCAS) So you might have to use
23 the factor two times, not just once?

24 MR. KANE: Objection. Misstates the
25 testimony.

1 A. I'm not saying that at all. I'm saying I
2 do not -- I do not have the information on how
3 those -- how iodine values in the cited literature
4 were actually derived.

5 Q (BY MR. LUCAS) Do you have any reason to
6 doubt that the numbers that were based off of
7 Dr. Rockstraw's back-calculation are inaccurate?

8 A. Could you ask me that again? I didn't
9 catch the beginning accurately.

10 Q. Do you have any reason to doubt that the
11 numbers that were based off of Dr. Rockstraw's
12 calculation are inaccurate for the OSI values of the
13 feedstocks?

14 MR. KANE: Go ahead.

15 A. The -- the only aspect that I have to your
16 question is, when I took Dr. Rockstraw's formula
17 that he claims can teach the weight percent of
18 saturated jojoba oil needed, and then used the
19 iodine values that he referred to, at least in one
20 instance I got a negative number. I had to -- I had
21 to question if that number was accurate anymore.

22 Q (BY MR. LUCAS) Are you aware of any
23 evidence or record as to what the OSI value of a
24 feedstock comprised of 20 percent hydrogenated
25 jojoba wax esters and 80 percent jojoba wax esters

1 would be?

2 MR. KANE: Objection. Incomplete
3 hypothetical, lack of foundation.

4 A. I don't re- -- I don't recall exactly if
5 I've seen anything. But I -- I don't recall.

6 Q (BY MR. LUCAS) Would it surprise you if,
7 when somebody actually measured the OSI of a
8 feedstock comprised of 20 percent hydrogenated
9 jojoba wax esters and 80 percent jojoba wax esters,
10 the OSI would be approximately 35?

11 A. It could.

12 Q. It wouldn't surprise you?

13 A. It -- it might be surprising. There are
14 other factors associated with that.

15 Q. So you have no idea whether the OSI of a
16 feedstock comprised of 20 percent hydrogenated
17 jojoba wax esters and 80 percent jojoba wax esters
18 is approximately 35 or approximately 150?

19 MR. KANE: Objection. Misstates the
20 testimony, and incomplete hypothetical.

21 A. I'd have to review some of the documents,
22 only because, as you're aware, there are thousands
23 of pages here, and there -- there may be, somewhere,
24 that information.

25 If you have something -- if you could

1 point me in a direction, I'd -- I'd like to review
2 it.

3 Q (BY MR. LUCAS) If there was an
4 experimental result that was approximately 35 for
5 that type of feedstock, would it confirm that
6 Dr. Rockstraw's calculations were accurate?

7 MR. KANE: Objection. Incomplete
8 hypothetical, calls for speculation.

9 A. No. I don't agree with that.

10 Q (BY MR. LUCAS) Why not?

11 A. Number one, it's one data point. And
12 Dr. Rockstraw lists several calculations. And my
13 confidence in the calculation, from just testing,
14 raises some doubt whether or not there's -- they are
15 accurate.

16 Q. And in your years of experience in this
17 field, would it surprise you if the actual value of
18 an 80/20 feedstock was approximately 35?

19 MR. KANE: Objection. Lack of foundation.

20 Q (BY MR. LUCAS) The OSI value, that is.

21 MR. KANE: Objection. Lack of foundation.

22 A. You're asking me to extrapolate from data
23 that -- that I'm not fully aware of. Again, I'd
24 have to see more information around and context of
25 what you're asking me.

1 Q (BY MR. LUCAS) Okay. If you look at
2 Exhibit 1, the declaration. That's Cargill 2009.
3 If you look at page 7 of the declaration.

4 A. Page 7.

5 Q. There's an Exhibit 2034 there that says,
6 Reserved, right?

7 A. Yes.

8 Q. Isn't it true that Exhibit 2034 was
9 included in drafts and then removed before the final
10 submission?

11 A. I do not recall.

12 MR. LUCAS: Schultz Exhibit 9 is the
13 patent owner's response.

14 (Deposition Exhibit Number 9 marked.)

15 Q. If you look at page 2 of the patent
16 owner's response --

17 A. Okay.

18 Q. -- there's a sentence -- second sentence
19 in the first paragraph that says, Lipases or enzymes
20 that, prior to the '245 patent --

21 A. Wait, wait, wait. I'm sorry. The second
22 page. I apologize.

23 Okay. Excuse me?

24 Q. The second sentence says, Lipases or
25 enzymes that, prior to the '245 patent, were known

1 to be specific to triglycerides.

2 There's a cite to your declaration,
3 Exhibit 2009, paragraph 64; there's a cite to
4 Exhibit 2033, page 1; a cite to Exhibit 2034, page
5 6; and a cite to Exhibit 2035, page 10.

6 See that?

7 A. I do.

8 Q. But you don't know what Exhibit 2034 is,
9 right?

10 A. I do not recall.

11 Q. Okay. If you look at the previous page in
12 your declaration -- I mean page 6 of your
13 declaration.

14 A. Is that Exhibit 1?

15 Q. Yes.

16 A. What page again, please?

17 Q. Page 6.

18 Exhibit 2022 also says, Reserved.

19 Do you see that?

20 A. I do.

21 Q. Was that included in drafts and removed?

22 A. I do not recall.

23 Q. Is Exhibit 2034 the Lei reference that we
24 looked at today?

25 A. I do not recall.

1 Q. Is Exhibit 2022 the Lei reference that we
2 looked at today?

3 A. I cannot recall.

4 Q. Okay. If you go to page 4 in your list of
5 exhibits.

6 A. Okay.

7 Q. You looked at all of these, right?

8 A. In -- Yes. In varying degrees of detail,
9 yes.

10 Q. Can you read what it says next to
11 Exhibit 2012?

12 A. It says, Confidential. Cargill
13 Certificate of Analysis, floraesters 15,
14 February 26, 2004.

15 Q. And then if you go to the next page, can
16 you read what's next to Exhibit 2013?

17 A. Confidential. Cargill Certificate of
18 Analysis, floraesters 20, September 1, 2004.

19 Q. If you go to page -- or paragraph 140 of
20 your declaration. It spans page 89 to 90. And like
21 we've done today, I'm going to point you to the
22 sentence that I care about, and then you can take
23 your time to read the rest of it.

24 Is that okay?

25 A. Thank you.

1 Q. Indeed, I understand that FloraTech's
2 former technical director gave a 1998 presentation
3 to the Society of Cosmetic Chemists, titled Effects
4 of Additives on the Oxidative Stability of Botanical
5 Emollients, showing that FloraTech's Jojoba Esters
6 15 and Jojoba Esters 60 products referenced in
7 Cummings and trans isomers 2 had added tocopherol.

8 Were you at that presentation, sir?

9 A. Hold on one -- hold on one second, please.

10 Q. Sure.

11 A. I'm -- No. I was not at that
12 presentation.

13 Q. Do you know who FloraTech's former
14 technical director is?

15 A. Excuse me. I'm trying to recall that
16 document. I'm not certain of -- of who that person
17 was. Probably on the first page, but I was more
18 interested in the substance of this matter.

19 Q. And you didn't speak with him about this
20 presentation, right?

21 A. Oh, no.

22 Q. Do you know how he performed the test that
23 gave the OSI values that you list here?

24 A. I do not recall if -- if there was a
25 reference to the test methodology or not. No.

1 Q. Do you know whether the presentation was
2 about comparing how various additives affects the
3 oxidative stability?

4 A. To the best of my recollection, I seem to
5 recall at least two materials that were added to the
6 floraester -- at least one or two of the floraester
7 products.

8 Q. And the purpose was to see how those
9 materials affected the OSI values, right?

10 A. If I recall -- again, recalling the -- the
11 presentation, it was -- it was more of a marketing
12 presentation to show that they had some natural oils
13 and combinations that had better stability than was
14 previously known. It was something along those
15 lines.

16 Q. Okay. Dr. Schultz, during our breaks
17 today, did you speak with your counsel about the
18 substance of your testimony?

19 A. Oh, no.

20 MR. LUCAS: With that, I will pass the
21 witness.

22 MR. KANE: Okay. Can you give us just
23 five minutes?

24 MR. LUCAS: Sure.

25 MR. KANE: I might have a couple

1 questions.

2 THE VIDEOGRAPHER: We are going off the
3 record. The time now is 3:20.

4 (Whereupon, a recess was taken.)

5 THE VIDEOGRAPHER: We are back on the
6 record. The time now is 3:28.

7 EXAMINATION

8 BY MR. KANE:

9 Q. I have just a few questions here,
10 Dr. Schultz. If you could pull up the '245 patent,
11 which is Exhibit 1001. Do you have that?

12 A. Yes, I do.

13 Q. And let's turn to column 4, the paragraph
14 that starts at line 57.

15 A. Okay. Yes.

16 Q. And do you recall that paragraph, and you
17 were questioned about this earlier this morning?

18 A. Right. Yes.

19 Q. About the little -- the description of
20 lipases in that -- in that reference -- or in that
21 paragraph?

22 MR. LUCAS: Objection. Mischaracterizes
23 testimony.

24 A. Yes. I recall that.

25 Q. (BY MR. KANE) Okay. And you had some

1 discussion with counsel about searching that you had
2 done looking for prior art. Do you recall that?

3 A. Yes. I do.

4 Q. Okay. And in conducting your searches,
5 did you see any enzymes in the prior art capable of
6 being used in a transesterification reaction of a
7 wax ester?

8 MR. LUCAS: Objection to form.

9 A. I don't recall. I don't think so, no.

10 Q (BY MR. KANE) Okay. Did you -- Are you
11 familiar with esterases?

12 A. Yes, I am.

13 Q. Are those enzymes?

14 MR. LUCAS: Objection. Outside the scope
15 of the testimony.

16 A. It's -- Yes. They are a large class of
17 enzymes.

18 Q. (BY MR. KANE) Did you see any esterases
19 capable of transesterification reaction of a wax
20 ester?

21 MR. LUCAS: Objection. Outside the scope.

22 A. No, I did not.

23 Q (BY MR. KANE) Okay. And besides lipases
24 or esterases, did you see any other enzyme in the
25 prior art capable of transesterification reactions

1 of wax ester?

2 MR. LUCAS: Objection to form.

3 A. No, I did not.

4 Q (BY MR. KANE) Okay. You recall counsel
5 also asked you with respect to the claim -- if you
6 could look at claim 1.

7 A. Go ahead. Yes, I do.

8 Q. And he asked you about -- pointed out the
9 fact that the claim language includes a statement
10 that, wherein the amount of hydrogenated jojoba wax
11 esters is 20 to 50 percent by weight of the
12 feedstock. Correct?

13 A. Yes. I recall that.

14 Q. And then do you recall he asked you
15 whether a person of skill, reading the patent, would
16 understand whether or not the OSI of a reaction with
17 that type of feedstock would be increased?

18 MR. LUCAS: Object to form.

19 A. I do recall that. Yes.

20 Q (BY MR. KANE) Okay. In this -- in this
21 matter, were you asked to perform that type of
22 analysis?

23 A. No, I was not.

24 Q. Did you offer that opinion anywhere in
25 your declaration?

1 A. I -- I don't recall I did. No.

2 Q. Okay.

3 MR. KANE: No further questions.

4 MR. LUCAS: I may have one. Give me one
5 second to review my notes.

6 MR. KANE: Okay.

7 MR. LUCAS: Let's go off the record for
8 just two minutes. We can all sit here, unless
9 somebody wants to depart.

10 THE VIDEOGRAPHER: We are going off the
11 record. The time now is 3:32.

12 (Whereupon, a short recess was taken.)

13 THE VIDEOGRAPHER: We are back on the
14 record. The time now is 3:34.

15 MR. LUCAS: I have nothing further.

16 MR. KANE: Thank you.

17 The witness will read and sign.

18 THE VIDEOGRAPHER: This concludes today's
19 deposition. The time now is 3:34 p.m.

20 (Whereupon, at 3:34 p.m., Thursday,
21 February 15, 2024, the taking of the Deposition of
22 THOMAS M. SCHULTZ, PhD was adjourned.)

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STATE OF MINNESOTA:)
) ss. CERTIFICATE
COUNTY OF ANOKA:)

Be it known that I took the deposition of
THOMAS M. SCHULTZ, PhD on the 15th day of February,
2024;

That I was then and there a Notary Public
in and for the County of Anoka, State of
Minnesota, and that by virtue thereof, I was duly
authorized to administer an oath;

That the witness, before testifying, was
by me first duly sworn to testify the whole truth
and nothing but the truth relative to said cause;

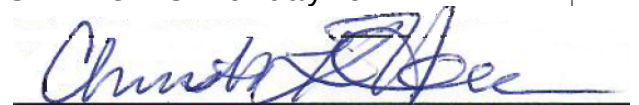
That the testimony of said witness was
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typewriting under my direction;

That the cost of the original transcript
has been charged to the party noticing the
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and that copies have been made available to all
parties at the same cost, unless otherwise agreed
upon by Counsel;

That I am not related to any of the parties
hereto nor interested in the outcome of the action;

That the reading and signing of the
deposition by the witness and the Notice of Filing
were reserved.

WITNESS MY HAND AND SEAL this 19 day of
February, 2024.



Christine K. Herman, RPR, CRR

ERRATA SHEET

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1 I, THOMAS M. SCHULTZ, PhD, have read this deposition
2 transcript and acknowledge herein its accuracy, except
3 as noted.
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9 Signature

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1 Michael Kane, Esquire

2 kane@fr.com

3 February 19, 2024

4 RE: Cargill Incorporated Et Al v. Vantage Specialty Chemicals Inc
5 2/15/2024, Dr. Thomas Schultz , PhD (#6439672)

6 The above-referenced transcript is available for
7 review.

8 Within the applicable timeframe, the witness should
9 read the testimony to verify its accuracy. If there are
10 any changes, the witness should note those with the
11 reason, on the attached Errata Sheet.

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14 Copies should be sent to all counsel, and to Veritext at
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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS

COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

Veritext Legal Solutions is committed to maintaining the confidentiality of client and witness information, in accordance with the regulations promulgated under the Health Insurance Portability and Accountability Act (HIPAA), as amended with respect to protected health information and the Gramm-Leach-Bliley Act, as amended, with respect to Personally Identifiable Information (PII). Physical transcripts and exhibits are managed under strict facility and personnel access controls. Electronic files of documents are stored in encrypted form and are transmitted in an encrypted

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