

# BLUE BOOK 2

Stearyl Heptanoate

CIR EXPERT PANEL MEETING

AUGUST 30-31, 2010

# Cosmetic Ingredient Review

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## Memorandum

To: CIR Expert Panel Members and Liaisons

From: Monice M. Fiume *MMF*  
Scientific Analyst/Writer

Date: July 30, 2010

Subject: Final Amended Report on Stearyl Heptanoate and Related Stearyl Alkanoates (Draft)

In 1994, the Final Report on the Safety Assessment of Stearyl Heptanoate was published with a conclusion of safe as used. At the April 2010 Expert Panel meeting, the Panel was asked whether this ingredient should be rereviewed. There were no new data on Stearyl Heptanoate, and therefore no reason to rereview the safety of Stearyl Heptanoate.

The Panel was then asked whether the existing safety assessment on stearyl heptanoate was sufficient to address the safety of stearyl caprylate, stearyl palmitate, stearyl stearate, stearyl behenate, and stearyl olivate. This review was reopened to include these cosmetic ingredients.

At the June meeting, the Panel issued a Tentative Amended Report on stearyl heptanoate, stearyl caprylate, stearyl palmitate, stearyl stearate, stearyl behenate, and stearyl olivate, with a safe as used conclusion.

Since the tentative amended report was issued, an EU monograph on stearyl olivate became available, and stearyl olivate is approved for use without restrictions in the EU. This information has been added to the report and should be considered an editorial change.

The draft Final Amended Report has been prepared for your approval.

### Reports and Data available Online

<http://www.cir-safety.org/aug10.shtml>

Final Report on the Safety Assessment of Stearyl Heptanoate

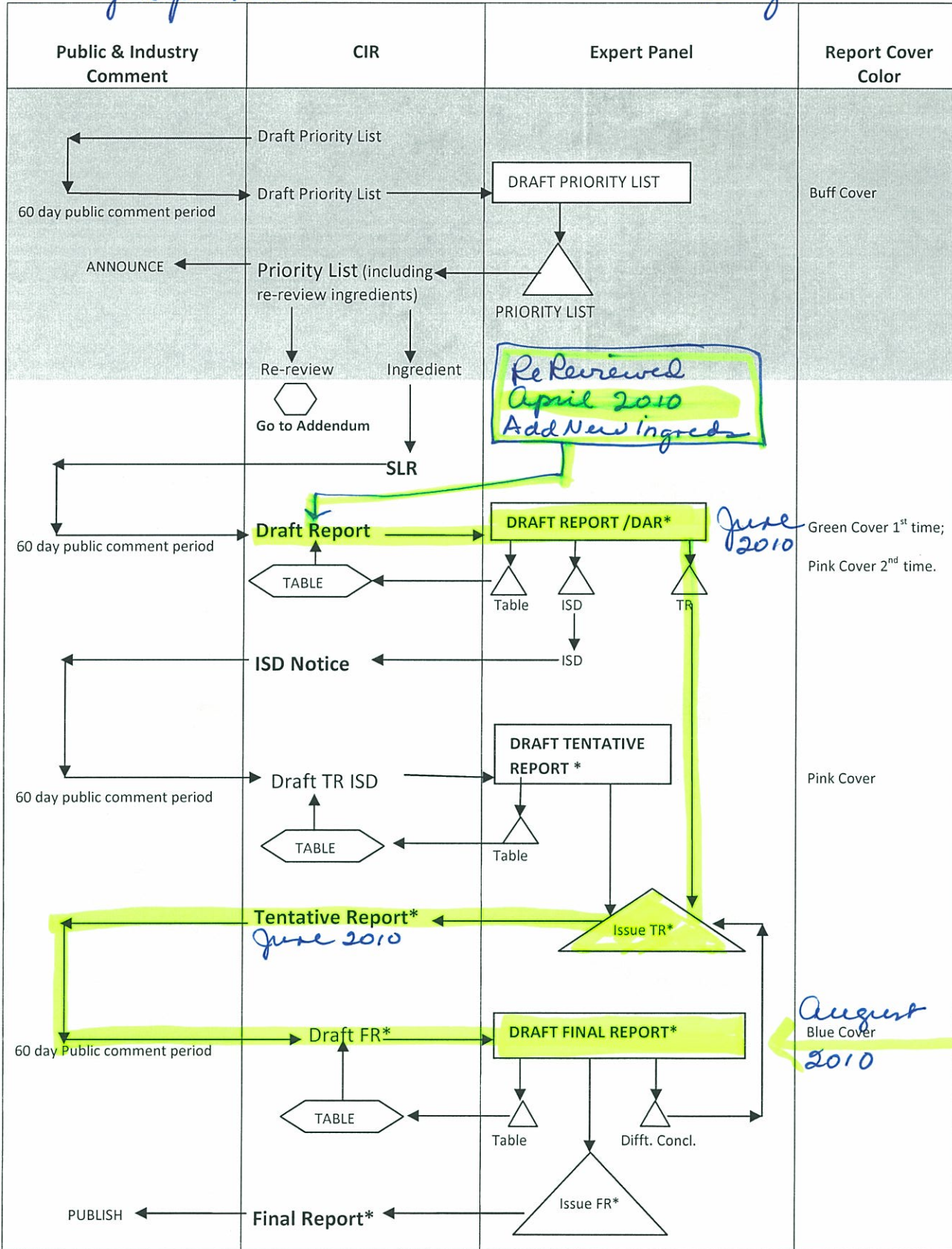
Final Report on the Safety Assessment of Stearyl Alcohol, Oleyl Alcohol, and Octyl Dodecanol

Final Report on the Safety Assessment of Oleic Acid, Lauric Acid, Palmitic Acid, Myristic Acid, and Stearic Acid

# SAFETY ASSESSMENT FLOW CHART

*Stearyl Heptanoate*

*August 2010*



\*

For ingredient groups originating as Re-Reviews, add word "Amended" before Report; (DAR: Draft Amended Report).



Expert Panel Decision



Document for Panel Review

## **CIR Report History for Stearyl Heptanoate**

### **Original Assessment 1995**

The Final Report on the Safety Assessment of Stearyl Heptanoate was published in 1994 with the conclusion that Stearyl Heptanoate is “safe for use as a cosmetic ingredient in the present practice of use.”

### **ReReview: April 4-5, 2010**

The rereview was brought before the Expert Panel. While no new safety data were found, additional esters of stearyl alcohol were identified for possible inclusion in the report. The Panel agreed that the existing safety assessment on stearyl heptanoate was sufficient to address the safety of stearyl caprylate, stearyl palmitate, stearyl stearate, stearyl behenate, and stearyl olivate. This review was reopened to include these cosmetic ingredients.

### **Draft Amended Report: June 28-29, 2010**

The Expert Panel issued a tentative report with the conclusion that stearyl heptanoate, stearyl caprylate, stearyl palmitate, stearyl stearate, stearyl behenate, and stearyl olivate are safe in the present practices of use and concentration

## STEARYL HEPTANOATE REPORT

### Updated Search – July 21, 2010 – Stearyl Heptanoate

TOXNET –limits; citations entered in the last 4 months - 0 hits

EU – retrieved updated info on Stearyl Oliviate

### Updated Search – May 3, 2010 – Stearyl Heptanoate

TOXNET – limits; citations entered in the last 6 months

Search Strategy:

66009-41-4 OR 18312-31-7 OR 2598-99-4 OR 2778-96-3 OR 24271-12-3 OR (STEARYL AND OLIVATE)

No hits

### STN INTERNATIONAL

#### RTECS

66009-41-4 – 0

18312-31-7 – 0

2598-99-4 – 0

2778-96-3 – 0

24271-12-3 – 0

Stearyl Oliviate – 0

#### CAPlus

mostly patents

#### Kosmet

66009-41-4 – 1

18312-31-7 – 0

2598-99-4 – 0

2778-96-3 – 1

24271-12-3 – 0

Stearyl Oliviate – 0

#### Registry

66009-41-4 – 1

18312-31-7 – 1

2598-99-4 – 1

2778-96-3 – 1

24271-12-3 – 1

Stearyl Oliviate – 0

**Merck** – 0 hits

**WHO** – 0 hits

EU – in text

**Food additive info** – in text

# Transcripts/ Minutes

STEARYL HEPTANOATE - JUNE 2010 - BELSITO TEAM

13

DR. BELSITO: Okay. Then -- I don't think we're going to be hitting anything important. So the next chemical we're looking at is stearyl heptanoate and related stearyl alkanates.

14  
15  
16  
17  
18 So, this is another where the report was  
19 reopened to add in some other stearyl esters. And  
20 this report has come back to us and I thought it  
21 was fine and that we could go ahead as safe as  
22 used for this family of ingredients.

160

1 DR. SNYDER: I agree.

2 DR. LIEBLER: Also, I agree.

3 DR. BERGFELD: I agree.

4 DR. BELSITO: It's a small document, but  
5 I don't have any safety concerns and I have a few  
6 grammatical and spelling corrections. But nothing  
7 major. So, safe as used.

8 DR. SNYDER: Yeah, I think this one just  
9 the abstract, again. This one goes into kind of  
10 too much detail regarding the toxicology data and  
11 we just need to say that it was -- the basis for  
12 reopening was only to add new ingredients. There  
13 was no new data, but the previous data supported  
14 the safety of those additional ingredients and  
15 that's all it really needs to say.

16 And then in the intro, just get rid of  
17 the -- some of the language related to the -- what  
18 our thought processes were and just leave the  
19 stand-alone facts. And we get those all indicated  
20 in the document.

21 DR. BELSITO: You made those  
22 corrections?

161

1 DR. SNYDER: Yes.

2 DR. BELSITO: You've made those  
3 corrections, Paul?

4 DR. SNYDER: Yes.

5 DR. BELSITO: Okay. Great. Any other  
6 comments? Okay. Next on the agenda are the  
7 re-reviews.

MARKS TEAM

3

DR. MARKS: 10 to -- oh. So we can go  
4 on to stearyl heptanoate. That's the Green Book  
5 3.

6 In '95, a final report was issued for  
7 stearyl heptanoate. Heptanoate -- tanoate -- or  
8 heptanoate. Which one is it? Is it "eether" or  
9 "ither?"

10 SPEAKER: Heptanoate.

11 DR. MARKS: Heptanoate. Okay. That

12 sounds good to me.

13 At any rate, "safe." Then in April of  
14 this year, this report was reopened to expand to  
15 the stearyl alkanates. And we are at the point  
16 now whether we can issue a tentative amended  
17 report with a conclusion of "safe" for these  
18 additional ingredients along with the original

19 one.

20 Any comments?

21 MS. WEINTRAUB: I had (inaudible), but  
22 it's respecting on the lack of data for the

137

1 additional ingredient.

2 DR. MARKS: Yes, well, now we're into  
3 read-across. How much do you read, and how much  
4 do you go across.

5 So, with that in mind -- again, Ron, Ron  
6 and Tom, was there any concern.

7 DR. SHANK: I didn't have a concern.

8 DR. SLAGA: I didn't, either.

9 DR. HILL: Okay, I've got to get to --  
10 I'm still on PPG, so.

11 MS. WEINTRAUB: Can you just explain why  
12 you didn't have a concern?

13 DR. SHANK: Because we've already done  
14 several very similar compounds, that have similar  
15 functions.

16 MR. BAILEY: (inaudible) provided more  
17 summaries and less of the actual (inaudible)? I  
18 mean, I think that it looks smaller, but I think  
19 that, in fact, the staff, CIR staff, were really  
20 more -- interpretation in summarizing and putting  
21 that in. That's my understanding.

22 MS. WEINTRAUB: But even in the

138

1 discussion, it said there's not published data.  
2 You know, it's not a matter of the form, it's the  
3 lack of data.

4 DR. MARKS: Yes, I think, Rachel, it's  
5 that the second sentence --

6 DR. HILL: Yes, the "lack of data"  
7 refers to the caprylate, palmitate, stearate,  
8 behenate and olivate -- right? Not stearyl  
9 caprylate. It refers to these other ingredients,  
10 right?

11 DR. MARKS: Mm-hmm.

12 DR. HILL: Because stearyl heptanoate  
13 was previously reviewed.

14 DR. MARKS: Mm-hmm.

15 DR. HILL: You know -- and I think  
16 there's just -- I made a note that, whether we had  
17 any CIR safety evaluations on oleic, linoleic or  
18 palmitoleic acid. Because -- and there was just a  
19 note -- to see if either us, or Europe or Japan  
20 had done those reviews.

21 Otherwise, I didn't have any concerns,  
22 because the fatty acids in question are abundant

139

1 in the body. We know how their biohandled and  
2 biotransformed. And there's no real big  
3 extrapolation, in terms of what we might see in  
4 sensitization and so forth.

5 DR. MARKS: Right.

6 DR. HILL: Or any types of concerns I  
7 expressed earlier in the day. There's nothing  
8 here that biologically bugs me.

9 But I did ask about these three, these  
10 other three fatty acids, whether we had reviews we

11 could reference. And that was strictly to ask did  
12 we have reviews that we could reference.

13 I'm sure we could find them in FDA food  
14 base, food studies.

15 DR. MARKS: I think what you're talking  
16 about, John, is if you look on page 13 of the  
17 Panel book, for example, virtually that entire  
18 page is italicized -- which are the summaries of  
19 the data, or the studies --

20 MR. BAILEY: Right.

21 DR. MARKS: -- and the actual details of  
22 the study are not included in here. Which is a

140

1 new way of presenting or writing the report. It  
2 certainly condenses it. And then one could go  
3 back to the referenced study if you wanted more  
4 detail.

5 DR. SLAGA: In the past, though, we had  
6 the summary with some write-up below it. So that  
7 we have further changed it to summarize -- right?

8 MS. EISENMANN: Well, it's my  
9 understanding that for re-reviews, the journal is  
10 not allowing the old one to be republished.

11 DR. SLAGA: Oh, okay.

12 MS. EISENMANN: So this is a re-review.  
13 So they can't republish the old things. They just  
14 have to do a summary and refer to the old --  
15 there's going to be a reference to the report.

16 DR. SLAGA: Okay. (inaudible)

17 DR. MARKS: Yes. And that's an  
18 editorial --

19 MS. EISENMANN: So you almost -- you  
20 almost need the whole, the original report to read  
21 this, too.

22 DR. MARKS: Right, which we had when we

141

1 first looked at this, back in April. We don't  
2 have it today, obviously, as a part of this. We  
3 have what will be the amended tentative report.

4 So, is there any question, concern,  
5 about issuing a tentative amended report that  
6 these ingredients are safe?

7 DR. HILL: Let me just say that I see  
8 Rachel's point of view and, in this case, there is  
9 some extrapolation up farther in the molecular  
10 weight range that would seem to fly in the face of  
11 comments that I made earlier in the day. But yet  
12 there's nothing here that concerns me in that  
13 regard, in this set of structures.

14 I don't --

15 DR. MARKS: Okay.

16 DR. HILL: -- can't, in my wildest  
17 dreams, envision anything popping up that would be  
18 a problem.

19 DR. MARKS: Okay. So -- we'll support a  
20 second -- and I presume, I believe the Belsito  
21 team will feel that they can issue a tentative  
22 amended report "safe."

**PANEL**

22 reports, advancing the stearyl heptanoates, Dr.

66

1 Belsito?

2 DR. BELSITO: This is a review of  
3 stearyl heptanoate and related stearyl  
4 alkanoates. In April we reaffirmed the conclusion  
5 for stearyl heptanoate as safe as used but  
6 agreed to proceed with opening the document to add  
7 five additional stearyl alkanoates, stearyl  
8 caprylate, stearyl palmitate, stearyl stearate,  
9 stearyl behenate and stearyl olivate. We have  
10 included all of those, looked at the data and felt  
11 that the data was sufficient for the stearyl  
12 heptanoate and the add-ons safe as used, and  
13 that's a motion.

14 DR. BERGFELD: Is there a second?

15 DR. MARKS: Second.

16 DR. BERGFELD: Is there any discussion  
17 about this document and these ingredients? Seeing  
18 none I'll call for those in vote. All those in  
19 favor of approval? Thank you. Unanimous.  
20 Re-Reviews. Alkyl PEG ethers. Dr. Marks?

1 PPGs that may be added in the future.

2 DR. BELSITO: Yeah. That's fine.

3 DR. BAILEY: And the conclusion does

4 have the footnote.

5 DR. BELSITO: Yeah. Yeah. And that's

6 fine. Good. Any other comments? Okay. Wow.

7 DR. BRESLAWEK: So your recommendation

8 on this is?

9 DR. BELSITO: Safe as used. It's final.

10 Moving on to tentative final safe as used. Blue

11 book next time.

12 Okay. Another re-review in Buff 2.

13 Stearyl heptanoate. Next to the last tab. Okay.

14 So this safety assessment was published in '95.

15 It was safe as used. There are no new safety

16 data. And search for TOXNET did not find data on

17 any new data. And then search of the dictionary

18 revealed some possible add-ons. Basically stearyl

19 heptanoate is an ester of stearyl alcohol and

20 heptanoic acid. So what other stearyl esters were

21 out there that we haven't reviewed yet? And the

22 answer is there's caprylate, palmitate, stearate,

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1 behenate, and olivate. And again if you searched

2 for those there were no other reports in the

3 literature on them. So the question is if you

4 look at the data that we have, which is when the

5 original report was put in here, do we want to

6 reopen because of new data -- well, there is no

7 new data. Do we want to reopen to add in the

8 other esters? And the question is is there

9 adequate data in the original report to support

10 this?

11 I mean, I thought what we would need and

12 we don't have is the function and the

13 concentration of use for the add-ons. I mean,

14 assuming that the function listed in the

15 dictionary was the same, but then whether we got a

16 concentration of use or not --

17 MS. FIUME: Function is here. On the

18 back of the transmittal.

19 DR. BELSITO: On the back.

20 MS. FIUME: In the very beginning of the

21 very first page of the package. Of the entire

22 report.

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1 DR. BELSITO: Okay.

2 MS. FIUME: Right behind the tab.

3 DR. BELSITO: Ah-ha. Missed it again.

4 MS. FIUME: We're saving paper. A lot

5 of things are backed up.

6 DR. BELSITO: So basically they're skin

7 conditioning agent occlusives and then the

8 concentrations -- updated concentrations of use

9 for stearyl heptanoate are given in the back of

10 the report there. And I thought even though

11 there's very limited data in the report, the

12 original heptanoate report, we could open it for

13 add-ons. We would need the respiratory

14 boilerplate because there would be hairspray.

15 I guess the question -- one question I

16 had is in the -- so the introductory note from

17 Monice. It says the original report for stearyl

18 heptanoate was up to 8 percent, but there's 25

19 percent use in a lip balm in the original report.

20 I thought, unless I was looking at the wrong

21 thing, it says -- it says unpublished data

22 submitted to CIR regarding PCL solid suggests the

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1 mix shall be used in the following concentrations:

2 Lip balms, 5 to 25 percent.

3 MS. FIUME: I was referring to the new

4 information because the 8 percent is the newest

5 information.

6 DR. BELSITO: Oh, okay. I see.

7 MS. FIUME: All went up to 8 percent.

8 DR. BELSITO: Okay. So anyway, that was

9 my open for the add-ons and safe as used, assuming

10 that concentration of use for the add-ons was

11 similar. But any other comments?

12 DR. SNYDER: I agree.

13 DR. LIEBLER: So the main reason to

14 reopen is that there are additional agents that

15 have uses?

16 DR. BELSITO: Yes.

17 DR. LIEBLER: Okay. All right. Because

18 I had said don't reopen because of the apparent

19 lack of additional available data, but I'm

20 learning from you guys still so I'll change my

21 mind.

22 DR. BELSITO: What we're adding on does

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1 have uses, right? I mean, the other ingredients  
2 we're adding on?

3 MS. FIUME: Yes. The only one that did  
4 not have use --

5 DR. BELSITO: The olivate a monograph in  
6 development?

7 MS. FIUME: And stearyl palmitate did  
8 not have any uses according to FDA. Now, the EWG  
9 we looked at to see just -- and that had three.

10 DR. BELSITO: Right.

11 MS. FIUME: So it might be zero, but  
12 everything else did have uses.

13 DR. BELSITO: Okay. So, I mean, add  
14 them on. The number I think we can safely do.  
15 And I think the major question becomes the stearyl  
16 olivate is not currently listed as a cosmetic  
17 ingredient. Is that correct?

18 MS. FIUME: That's correct.

19 DR. BELSITO: But there's a monograph  
20 that's in development to add it as a cosmetic  
21 ingredient?

22 DR. EISENMANN: I haven't looked

1 recently if it's already -- I mean, a lot of these  
2 are done. I mean, they recently updated what's  
3 available online. So we might be able to check  
4 again.

5 MS. FIUME: And now the only other thing  
6 about that -- Bart's not here -- according to his  
7 map, stearyl olivate is actually, I believe, a  
8 mixture of three -- of three long chains.

9 DR. EISENMANN: There's probably more  
10 than three, but those are probably the major  
11 chains.

12 DR. BELSITO: Right. Because it's going  
13 to come from olive oil. Right.

14 DR. LIEBLER: In that Table 1 with the  
15 new structures, the stearyl palmitate structure is  
16 backwards I think. The chain lengths are  
17 reversed.

18 MS. FIUME: Table 1.

19 DR. LIEBLER: I'm sorry, not the table.

20 SPEAKER: The non-table.

21 DR. LIEBLER: The first table, right,  
22 the very first table after your memo.

1 DR. BRESLAWEK: For which one?

2 DR. SNYDER: Right after her memo. On  
3 the back side of her memo.

4 DR. LIEBLER: Right. The one listed as  
5 stearyl palmitate is incorrect. I think the  
6 chains are swapped. Chain lengths are swapped.

7 DR. BELSITO: Yeah.

8 MS. FIUME: So the 17 should be to the  
9 right?

10 DR. BELSITO: Yeah.

11 DR. LIEBLER: Right.

12 DR. KLAASSEN: Well, it's also not the  
13 oxygen there.

14 DR. LIEBLER: Right. It's listed as a  
15 ketone right now. So.

16 MS. FIUME: I see what you're talking  
17 about the 25 percent. I had 10.

18 DR. BELSITO: Okay. So open for  
19 add-ons. Safe as used. And we'll just check on  
20 the stearyl olivate and see what the status is  
21 with that. And then if it's still not yet added  
22 to the dictionary, a little bit in the discussion

1 that it's our assumption that it soon will be  
2 added, that a monograph is in development and  
3 it'll be added and used similar to the other  
4 ingredients in this report.

5 Okay, disperse Blue 1. And this is also  
6 a re-review. So the safety assessment in this was  
7 published in '95 with it a safe up to 1 percent.

8 The basis for the 1 percent limit was not clear.  
9 There's no new data except that it's been  
10 considered by IARC and they now seem to be coming

11 down on the side of possibly carcinogenic in  
12 humans. Certainly, when we looked at this in '95,  
13 we looked at carcinogenicity data very strongly

14 and that's in our discussion. It should be noted  
15 that this is banned in Europe. Is that correct?

16 And banned because of their concerns about  
17 carcinogenicity. We now know that it's not being  
18 used in the United States anymore. Is that  
19 correct?

20 DR. EISENMANN: As far as we're aware  
21 of.

22 DR. BELSITO: So the question is do we

1 DR. MARKS: I'm not sure, as long as  
2 it's safe -- that we're going to resolve -- but  
3 you're exactly right, Ron. When you look at it,  
4 there's a discrepancy between the minutes and the  
5 final report.

6 Okay. Since we won't be able to roll  
7 back time, we'll move on, then, to stearyl  
8 heptanoate. And that's a re-review in Buff 2.  
9 Next tab back.

10 So, in '95, the -- it was concluded that  
11 stearyl heptanoate is safe for use and now there's  
12 no new data and no relevant public literature was  
13 found, but we have five ingredients if you look at  
14 the memo from -- and these five ingredients that  
15 we possibly could add on.

16 So the question is, do we reopen for  
17 these add ons, these fatty esters, and are they  
18 simple? And is it a no-brainer?

19 The two Rons.

20 DR. SHANK: Reopen the document to add  
21 those ingredients.

22 DR. HILL: I agree with that. But I

1 wondered if it was possible to wait on the elevate  
2 -- monograph, since it was being worked on.

3 MS. FIUME: It may be available at this  
4 time. We'll double check tonight. Carol seems to  
5 think it might be. So, we're going to check on  
6 that.

7 DR. HILL: I know tabling is sort of a  
8 last resort option, but I wonder if we know that  
9 monograph is coming and I agree with him,  
10 reopening should be, in this case, a very good  
11 idea.

12 DR. ANDERSEN: Yeah, I think it will  
13 catch up with what we're doing --

14 DR. HILL: Okay.

15 DR. ANDERSEN: -- and the two can hit  
16 you at the same time.

17 DR. MARKS: Okay. So we'll reopen this  
18 and a SLR will be issued, correct?

19 DR. ANDERSEN: No.

20 DR. MARKS: No, we open it with a  
21 tentative --

22 DR. ANDERSEN: We're going to -- what we

1 will present to you at the next meeting is a draft  
2 tentative amended --

3 DR. MARKS: Amended.

4 DR. ANDERSEN: -- safety assessment that  
5 will simply add these, will include the new  
6 monograph for the olivate, and allow you to make  
7 the decision that that all looks good to you and  
8 issue it as a tentative amended.

9 DR. MARKS: So, again and procedurally,  
10 essentially will you be sending out a notice and  
11 will it be actually an SLR, Scientific Literature  
12 Request, or not?

13 DR. ANDERSEN: No, we'll -- industry by  
14 the fact that we're reopening it to add the  
15 ingredients, is on the alert that there is an  
16 opportunity to submit unpublished data. We're not  
17 asking for any particularly, but if there are  
18 unpublished data, now would be the time to submit  
19 them. Those can be incorporated into the draft  
20 that the panel will review ostensibly in June.

21 So, no. We're not going back to square  
22 1. We're going to keep proceeding apace to make

1 no ingredients that were identified as possible  
2 add-ons. There were only two cases in the  
3 literature of allergic contact dermatitis to  
4 quaternium-22. Our team felt that we did not need  
5 to reopen this so we moved not to reopen.

6 DR. BELSITO: Second.

7 DR. BERGFELD: Second. Is there any  
8 further discussion about this particular  
9 ingredient? Seeing none I call for the question,  
10 all those in favor of not reopening? Unanimous.  
11 Thank you.

12 Moving on to the last ingredient that's  
13 in this re-review group is stearyl heptanoate.  
14 Dr. Belsito?

15 DR. BELSITO: This is stearyl  
16 heptanoate, and in 1995 we looked at it, safe as  
17 used. Since that time there has been no  
18 significant new safety data. The types of  
19 products and concentrations of use have remained  
20 relatively stable. However, stearyl heptanoate is  
21 an ester of stearyl alcohol and heptanoic acid and  
22 there are a number of other esters of syearyl

1 alcohol that we might want to include,  
2 particularly stearyl caprylate, palmitate,  
3 stearate, behenate, and olivate, and we felt that  
4 we should go to reopen these to add in those  
5 esters.

6 DR. BERGFELD: That's a motion?

7 DR. BELSITO: That is a motion.

8 DR. BERGFELD: Is there a second?

9 DR. MARKS: Second.

10 DR. BERGFELD: Is there any further

11 discussion about reopening this ingredient?

12 Seeing none I call for the question, all those in

13 favor indicate by raising your hand. Thank you.

14 Unanimous.

15 Now we're on to the re-review summaries

16 and Dr. Andersen is going to discuss these.

17 DR. ANDERSEN: What we're searching for

18 is our ongoing effort to capture in as best a way

19 possible the panel's decisions to not reopen

20 re-reviewed safety assessments. We have two

21 decisions to not reopen from the December meeting

22 and the idea is that we would like your feedback

Quaternium-22

Dr. Bergfeld noted that comments on this ingredient were not received during the 90-day comment period for the Tentative Report. The Panel unanimously approved the issuance of a Final Report on Quaternium-22.

Stearyl Heptanoate

Dr. Bergfeld noted that the Panel now has confirmation of the concentration range for use of this ingredient in cosmetics, and that this information has been added to the discussion section of the report. Frequency of use information on Stearyl Heptanoate has also been updated and incorporated. Additionally, Dr. Bergfeld noted that comments were not received during the 90-day comment period for the Tentative Report.

The Panel unanimously approved the issuance of a Final Report on Stearyl Heptanoate with the editorial changes that were requested.

Glutaral

Dr. Bergfeld noted that the NTP inhalation studies that were completed recently, as well as a few other studies (from Union Carbide), have been added to the report on Glutaral.

Dr. Andersen added that the Panel reviewed the additional data that were received from Union Carbide. The data submission, received as a comment to the Tentative Report on Glutaral, is actually additional confirmatory data of the same type

penetration studies, and suggested that the Draft Report on Nonoxynols-1, -5, and -6 be tabled.

Dr. Carlton asked for documentation that supports Dr. McEwen's earlier statement that Nonoxynols are used only in hair dyes, because data suggesting other cosmetic uses of Nonoxynols are included in the CIR report. He said that the Panel cannot proceed without definitive information.

Dr. Schroeter moved that the Draft Report on Nonoxynols-1, -5, and -6 be tabled, pending skin penetration data and Dr. McEwen's anticipated confirmation that the remaining studies in the informal data request will be performed.

Dr. McEwen said that he would also obtain concentration of use data.

With the exception of one abstention, members of the Panel voted in favor of tabling the Draft report on Nonoxynols-1, -5, and -6 until the May 23-24, 1994 Expert Panel meeting.

Dr. Belsito recalled from the text of the Draft report that Nonoxynols-1, -5, and -6 should not be used in the presence of strong oxidizers. He asked Dr. McEwen to confirm whether or not these ingredients are used in oxidation hair dyes.

Dr. McEwen stated that a response to Dr. Belsito's concern would be presented to the Panel.

#### STEARYL HEPTANOATE

Dr. Belsito noted that his Team determined that the data included in the Tentative Report on Stearyl Heptanoate will be sufficient for determining that this ingredient is "safe as used", once Dragoco Company provides information on the concentration

range for Stearyl Heptanoate in its article of trade, PCL-Solid 2/066220. The Tentative Report contains data from mutagenicity studies on PCL-Solid 2/066220. Dr. Belsito recalled that this information has been received from Dragoco, but cannot be published. However, the Panel now knows that the test material contains a significant amount of Stearyl Heptanoate.

The Panel unanimously concluded that Stearyl Heptanoate is "safe as used".

Dr. Bergfeld noted that the range of Stearyl Heptanoate in the article of trade (PCL-Solid 2/066220) would have to be clarified. She also noted that the report discussion would have to be revised, incorporating this information and taking into consideration that additional data requested by the Panel have been received. Thus, the Tentative Report will have to be submitted to the Panel for a mail review prior to public announcement. Dr. Bergfeld also mentioned that, during the mail review, the Panel would be voting on the Tentative Report and its subsequent public announcement, not on the conclusion. The conclusion "safe as used" has already been determined.

### ETHYL METHACRYLATE

Initially, a presentation on Ethyl Methacrylate was given by Mr. Doug Schoon, consultant to the Nail Manufacturers Council. Excerpts from this presentation are as follows:

Although it is clear that Methyl Methacrylate is a strong sensitizer, it may be that Ethyl Methacrylate is quite a bit lower in sensitization potential. There are no hard data to support this, but the process of accumulating these data is in progress.

## minutes from March 1993

there are 45 reports at various stages of development. The 45 reports are 15 to 105 pages in length. Dr. Elder noted that CIR's progress to date is quite an achievement, and recalled that only six reports had entered the review process when he became Director of CIR approximately 15 years ago. Dr. Elder also noted that, to date, 62 persons have been employed by CIR. This number is inclusive of 21 Expert Panel members, support staff, and a total of 22 Scientific Analysts.

In closing, Dr. Elder thanked the Expert Panel for its accomplishments and Scientific Analysts for having done a fantastic job.

Dr. Bergfeld asked for a round of applause for Dr. Elder. She mentioned that were it not for his direction, CIR would not have achieved the success that has been noted to date.

### STEARYL HEPTANOATE

Dr. Bergfeld noted that there had been no response to the formal Insufficient Data Announcement on Stearyl Heptanoate that was issued on December 4, 1992.

The following data were requested:

- (1) Concentration of use data
- (2) Impurities data
- (3) UV absorption data; if no absorption occurs, phototoxicity data are needed.
- (4) At least two different genotoxicity tests; if positive results are obtained, carcinogenicity data are needed

The Panel voted in favor of issuing a Tentative Final Report with an Insufficient Data Conclusion.

Dr. Noonan pointed out that Dr. Cooper found everyone to be suppressed. He did not find the differences that Dr. Streilein found.

Dr. Bergfeld stated that she would like Dr. Cooper's study included in their information base.

Dr. Carlton asked for a copy of the background data that Dr. Boutwell had referred to earlier.

Dr. Bergfeld scheduled Urocanic Acid final review at the March 1993.

Dr. Bergfeld closed the discussion on Urocanic Acid and thanked everyone that presented data.

HC ORANGE #1 (continued)

Dr. Schroeter began discussion by stating that the Teams had considered the data submission. He said that his Team felt that the document should be tabled until other information from Clairol could be received. He said that they would accept the data as is if the genotoxicity assays are negative. If the assays are positive, then dermal carcinogenicity data (produced by NTP skin painting protocol) will be requested.

Dr. Hoffmann agreed that the document should be tabled until the genotoxicity data are received. The Panel decided that the document should be tabled until the genotoxicity data could be received. If the assays are positive, then dermal carcinogenicity data (produced by NTP skin painting protocol) will be requested.

STEARYL HEPTANOATE

Dr. Hoffmann summarized the data available on Stearyl Heptanoate. He stated that no data were received in response to an informal request, but suggested that the

Panel pare down its request in its Insufficient Data Announcement. Although he felt that the analytical methods and the method of manufacture were important, these items were not imperative for a safety evaluation. He said that the chemical structure of Stearyl Heptanoate indicates that it is probably inert, and that since it is made synthetically, few impurities would probably be present. He asserted that UV absorption and genotoxicity data were still necessary. Dr. Schroeter stated that he believed that all of the data originally requested were necessary. Dr. Belsito asked if the Panel would issue a conclusion of insufficient data if the method of manufacture and analytical methods were not submitted. There was a consensus that these items were not imperative and should be removed from the list of requirements. The Panel agreed that an Insufficient Data Announcement be issued for Stearyl Heptanoate with a request for the following data:

- (1) concentration of use
- (2) impurities data
- (3) UV absorption data; if absorption occurs, phototoxicity data are needed
- (4) at least two different genotoxicity tests; if positive results are obtained, carcinogenicity data are needed.

#### DIOCTYL SODIUM SULFOSUCCINATE

Dr. Schroeter stated that his Team concluded that an Insufficient Data Announcement be issued for Dioctyl Sodium Sulfosuccinate with the following request for data:

- (1) concentration of use
- (2) at least two different genotoxicity tests; if positive results are obtained, carcinogenicity data are needed.

Dr. Hoffmann said that his Team concurred with this decision, with the understanding

# Report

# Draft Amended Final Report

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## Stearyl Heptanoate and Related Stearyl Alkanoates as Used in Cosmetics

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**August 30, 2010**

The 2010 Cosmetic Ingredient Review Expert Panel members are: Chairman, Wilma F. Bergfeld, M.D., F.A.C.P.; Donald V. Belsito, M.D.; Curtis D. Klaassen, Ph.D.; Daniel C. Liebler, Ph.D.; Ronald A Hill, Ph.D. James G. Marks, Jr., M.D.; Ronald C. Shank, Ph.D.; Thomas J. Slaga, Ph.D.; and Paul W. Snyder, D.V.M., Ph.D. The CIR Director is F. Alan Andersen, Ph.D. This report was prepared by Monice Fiume, Scientific Analyst/Writer.

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## TABLE OF CONTENTS

Abstract.....	1
Introduction .....	1
Chemistry.....	1
Definition and Structure .....	1
Use.....	1
Cosmetic.....	1
Non-Cosmetic.....	2
General Biology.....	2
Absorption, Distribution, Metabolism, and Excretion.....	2
Animal Toxicology.....	2
Acute Toxicity.....	2
Short-Term Toxicity.....	2
Subchronic Toxicity .....	2
Dermal Irritation.....	2
Sensitization .....	2
Phototoxicity .....	2
Comedogenicity .....	3
Ocular Irritation.....	3
Genotoxicity .....	3
Carcinogenicity .....	3
Tumor Promotion.....	3
Clinical Assessment of Safety .....	3
Irritation and Sensitization .....	3
Phototoxicity .....	3
Comedogenicity .....	3
Summary.....	3
Discussion.....	4
Conclusion.....	4
References .....	5

## **ABSTRACT**

Stearyl heptanoate is a stearyl alkanooate (the ester of stearyl alcohol and heptanoic acid) that functions in cosmetics as a skin conditioning agent. Stearyl caprylate, stearyl palmitate, stearyl stearate, stearyl behenate, and stearyl olivate are also stearyl alkanooates with similar structures and functions. The safety information included in this review applies to stearyl heptanoate or some of the components of the alkanooate esters, and the available information supports the safety of all of the related stearyl alkanooates. No toxicological concerns were raised by any of this information. The Expert Panel concluded that stearyl heptanoate, stearyl caprylate, stearyl palmitate, stearyl stearate, stearyl behenate, and stearyl olivate are safe in the present practices of use and concentration.

## **INTRODUCTION**

Stearyl heptanoate has previously been reviewed by the Cosmetic Ingredient Review (CIR) Expert Panel. In 1995, the safety assessment was published with the conclusion that stearyl heptanoate is “safe for use as a cosmetic ingredient in the present practice of use.”<sup>1</sup> A search of the currently available published literature found no new studies. (This was not surprising since the data in the original safety assessment was almost exclusively unpublished.)

Although there were no new data available to prompt a rereview of stearyl heptanoate, the Expert Panel did determine that the safety data included in the 1995 assessment of stearyl heptanoate are applicable to the safety of stearyl caprylate, stearyl palmitate, stearyl stearate, stearyl behenate, and stearyl olivate. For that reason only, the safety assessment of stearyl heptanoate was reopened to include these ingredients.

*Brief summaries of information from the original safety assessment are included in italics for the absorption, toxicology and clinical sections.* Since limited data were available for the original assessment on stearyl heptanoate, and because stearyl alkanooates are metabolized by esterases in the body to stearyl alcohol and the related fatty acid,<sup>2-4</sup> relevant data from the report on stearyl alcohol were included in the 1995 review to support safety. As such, *brief summaries of relevant information from the stearyl alcohol report<sup>5</sup> are also included in italics.* (It was concluded that stearyl alcohol was safe as used in cosmetics. Stearyl alcohol was used at concentrations  $\leq 50\%$ .)

A CIR safety assessment is available for palmitic acid and stearic acids,<sup>6</sup> the fatty acid components of stearyl palmitate and stearyl stearate, respectively. *Summaries from the assessment on these components are included in this report, and this information is also in italics.* (It was concluded that palmitic and stearic acid were safe as used in cosmetics. Palmitic acid was used at concentrations  $\leq 25\%$  and stearic acid was used at concentrations  $> 50\%$ .)

## **CHEMISTRY**

### **Definition and Structure**

The definition, synonyms, and function in cosmetics for stearyl heptanoate, stearyl caprylate, stearyl palmitate, stearyl stearate, stearyl behenate,<sup>7</sup> and stearyl olivate<sup>8</sup> are given in Table 1. The structure map of these chemicals is depicted in Figure 1.

### **USE**

#### **Cosmetic**

All of the stearyl alkanooates included in this report function as skin conditioning agents.<sup>7</sup> Some have additional uses (see Table 1). According to information supplied to the Food and Drug Administration (FDA) as part of the Voluntary Cosmetic Registration Program (VCRP) at the time of the original assessment, stearyl heptanoate was used in 121 cosmetic formulations in 1994.<sup>1</sup> Concentrations of use were not reported to the FDA at the time of the original safety assessment, but unpublished data reported use at up to 25%. Since then, frequency as well as concentration of use has decreased. Recent VCRP data indicate that stearyl heptanoate is used in 102 cosmetic formulations,<sup>9</sup> and results of a survey of current use concentrations conducted by the Personal Care Products Council (Council) indicate that stearyl heptanoate is now used at concentrations of 0.07-8%.<sup>10</sup> Current and historical use data are given in Table 2.

According to VCRP data, stearyl caprylate, stearyl stearate, and stearyl olivate are used in cosmetics, and the frequency of use of these ingredients is 20, 22, and 1, respectively.<sup>9</sup> According to the results of a concentration of use survey conducted by the Council, stearyl caprylate is used at concentrations of 0.1-1% and stearyl stearate is used at concentrations of 0.02-4%.<sup>11</sup> No uses were reported for stearyl olivate in response to the survey. Stearyl palmitate and stearyl behenate are not reported within VCRP data.<sup>9</sup> However, according to the survey of use concentrations conducted by the Council, stearyl palmitate and stearyl behenate are used in formulations applied to the area around the eyes at concentration of 3% and 0.02%, respectively.<sup>11</sup> (See Table 2 for use details).

Stearyl stearate is used in products that may be inhaled, and effects on the lungs that may be induced by inhaled products containing these ingredients are of concern.

The aerosol properties that determine deposition in the respiratory system are particle size and density. The parameter most closely associated with deposition is the aerodynamic diameter,  $d_a$ , defined as the diameter of a sphere of unit density possessing the same terminal settling velocity as the particle in question. In humans, particles with an aerodynamic diameter of  $\leq 10\mu\text{m}$  are respirable. Particles with a  $d_a$  from 0.1 -  $10\mu\text{m}$  settle in the upper respiratory tract and particles with a  $d_a < 0.1\ \mu\text{m}$  settle in the lower respiratory tract.<sup>12,13</sup>

Particle diameters of 60-80  $\mu\text{m}$  and  $\geq 80\ \mu\text{m}$  have been reported for anhydrous hair sprays and pump hairsprays, respectively.<sup>14</sup> In practice, aerosols should have at least 99% of their particle diameters in the 10 – 110  $\mu\text{m}$  range and the mean particle diameter in a typical aerosol spray has been reported as  $\sim 38\ \mu\text{m}$ .<sup>15</sup> Therefore, most aerosol particles are deposited in the nasopharyngeal region and are not respirable.

There are no restrictions on the use of stearyl heptanoate, stearyl caprylate, stearyl palmitate, stearyl stearate, stearyl behenate or stearyl olivate in the European Union.<sup>16</sup>

### **Non-Cosmetic**

Stearyl palmitate and stearyl stearate are included on the list of indirect additives used in food contact substances.<sup>17</sup>

## **GENERAL BIOLOGY**

### **Absorption, Distribution, Metabolism, and Excretion**

*Stearyl alcohol is found naturally in various mammalian tissues and is readily converted to stearic acid.<sup>5</sup> Stearyl alcohol is poorly absorbed from the gastrointestinal tract. Fatty acids are absorbed, digested, and transported in animals and humans.<sup>6</sup> Palmitic and stearic acids are primarily transported via the lymphatic system. In digestion studies, stearic acid was the most poorly absorbed of the common fatty acids.*

## **ANIMAL TOXICOLOGY**

### **Acute Toxicity**

*The oral  $LD_{50}$  of stearyl heptanoate, concentration not specified, was  $>16\ \text{ml/kg}$  for albino Sprague-Dawley rats.<sup>1</sup> A cosmetic formulation containing 0.7% stearyl heptanoate, given orally to Sprague-Dawley rats, had an  $LD_{50} >5.0\ \text{g/kg}$ . The  $LD_{50}$  of stearyl alcohol was  $>8\ \text{g/kg}$  when given orally to Holtzman albino rats.<sup>5</sup> The oral  $LD_{50}$  of palmitic acid was  $>10\ \text{g/kg}$  for rats, and  $5\ \text{g/kg}$  of a shaving cream containing 2.2% palmitic acid given orally and dermally was non-toxic.<sup>6</sup> The oral  $LD_{50}$ s of cosmetic formulations containing  $\leq 13\%$  stearic acid were  $>5\ \text{g/kg}$  for rats. Mild erythema and slight induration of skin was observed in an acute study with rabbits and guinea pigs dosed with  $\leq 100\ \text{mM}$  stearic acid.*

### **Short-Term Toxicity**

*No toxic effects were observed when chicks were fed diets containing 50% stearic acid for 4 wks.<sup>6</sup> Application of 18 mmol% palmitic acid to the external ear canal of rabbits for 6 wks caused slight irritation for the first 2 wks. In a 4-wk study, application of a formulation containing 20% stearic acid to abraded and intact skin of rabbits produced slight edema and desquamation, but it did not raise any toxicologic concerns.*

### **Subchronic Toxicity**

*No evidence of systemic toxicity was observed with a formulation containing 8.0% stearyl alcohol in a 3-month percutaneous study using rabbits.<sup>5</sup> In 13-wk dermal toxicity studies, application of formulations containing  $\leq 5\%$  stearic acid to rabbits or rats produced minimal to mild irritant effects.<sup>6</sup>*

### **Dermal Irritation**

*Undiluted stearyl heptanoate was mildly irritating to rabbit skin.<sup>1</sup> Undiluted stearyl alcohol applied under occlusion was minimally to mildly irritating to rabbit skin.<sup>5</sup> Palmitic acid, as supplied and in formulation at  $\leq 74\%$ , and stearic acid, as supplied and in formulation at  $\leq 65\%$ , were at most mildly irritating.<sup>6</sup>*

### **Sensitization**

*A cosmetic formulation containing 1.5% stearyl heptanoate was not a sensitizer using guinea pigs.<sup>1</sup> A deodorant formulation containing 24.0% stearyl alcohol was not a contact sensitizer using guinea pigs.<sup>5</sup> A formulation containing 1% stearic acid was a weak, grade 1, sensitizer using guinea pigs, while in a maximization study, a cosmetic formulation containing 3.5% stearic acid was not a sensitizer using guinea pigs.<sup>6</sup>*

### **Phototoxicity**

*Two cosmetic formulations containing 2.8% stearic acid were not phototoxic or photoallergenic using guinea pigs.<sup>6</sup>*

### **Comedogenicity**

*A cosmetic formulation containing 1.5% stearyl heptanoate produced slight to moderate comedogenicity in rabbit ears.<sup>1</sup> Stearyl alcohol, concentration not known, was not comedogenic when applied to the ear canal of rabbits.<sup>5</sup>*

### **Ocular Irritation**

*Undiluted stearyl heptanoate was classified as a category 3 (not defined) eye irritant using rabbits. Cosmetic formulations containing 0.7 or 1.5% stearyl heptanoate were not primary eye irritants.<sup>1</sup> Undiluted stearyl alcohol was minimally irritating to rabbit eyes.<sup>5</sup> Palmitic acid, as supplied and in formulations at  $\leq 19.4\%$ , produced at most mild irritation, but were generally non-irritating to rabbit eyes.<sup>6</sup> Stearic acid, as supplied and in formulation at  $\leq 65\%$ , produced some initial mild ocular irritation.*

### **GENOTOXICITY**

*A mixture containing  $>50\%$  stearyl heptanoate, at  $\leq 5000$   $\mu\text{g}/\text{plate}$ , did not induce base pair or frameshift mutations with or without metabolic activation.<sup>1</sup> The mixture,  $\leq 5000$   $\text{mg}/\text{kg}$ , did not have a clastogenic effect in an in vivo micronucleus test using mice. Stearyl alcohol, concentration tested not given, was not mutagenic in an Ames assay with or without metabolic activation.<sup>5</sup> Stearic acid, 50  $\mu\text{g}/\text{plate}$ , was not mutagenic in an Ames assay, and  $\leq 500$   $\mu\text{g}/\text{ml}$  did not induce mitotic aneuploidy.*

### **Carcinogenicity**

*Stearic and palmitic acid, 50  $\text{mg}/\text{kg}/\text{day}$  given as a dietary supplement to rats (duration not given), did not produce carcinogenic effects.<sup>6</sup>*

### **Tumor Promotion**

*Stearyl alcohol did not promote tumor formation in female Swiss mice when initiated with 7,12-dimethylbenz[a]anthracene.<sup>5</sup>*

## **CLINICAL ASSESSMENT OF SAFETY**

### **Irritation and Sensitization**

*Stearyl heptanoate, tested at an unspecified concentration and in formulations containing  $\leq 1.5\%$ , was not an irritant or sensitizer, and daily patch testing of formulations containing 8-24% stearyl heptanoate was essentially non- to slightly irritating.<sup>1</sup> Undiluted stearyl alcohol was a mild irritant in a single insult occlusive patch test.<sup>5</sup> Four of 1664 subjects had an allergic reaction to 30% stearyl alcohol in liquid paraffin. Cosmetic formulations containing 2.2% palmitic acid were non-irritating and non-sensitizing.<sup>6</sup> Formulations containing  $\leq 40\%$  stearic acid were generally non-irritating, except for one formulation containing 2.8% stearic acid, which was moderately irritating in a 21-day cumulative irritation assay. In sensitization assays,  $\leq 13\%$  stearic acid in cosmetic formulations produced some irritation at induction, but generally no reaction at challenge.*

### **Phototoxicity**

*A cosmetic formulation containing 2.2% palmitic acid was non-photosensitizing in a study using 52 subjects and cosmetic formulations containing 1-13% stearic acid were not phototoxic, photosensitizing, or photoallergenic in studies using 20-101 subjects.<sup>6</sup>*

### **Comedogenicity**

*A cosmetic formulation containing 1.5% stearyl heptanoate was not comedogenic.<sup>1</sup>*

## **SUMMARY**

Stearyl heptanoate has previously been reviewed by the Cosmetic Ingredient Review (CIR) Expert Panel, and, in 1995, it was concluded that this ingredient was safe as used. A recent search of the literature published since that report was issued did not find any new data. However, the Panel agreed that stearyl caprylate, stearyl palmitate, stearyl stearate, stearyl behenate, and stearyl olivate were similar to stearyl heptanoate, and that the original safety assessment on stearyl heptanoate could address the safety of these stearyl alkanooates as well. Therefore, a rereview was initiated to include these ingredients.

The stearyl alkanooates reviewed in this safety assessment all function as skin conditioning agents; some have a few other functions. In 1994, it was reported to the Food and Drug Administration (FDA) that stearyl heptanoate was used in 121 cosmetic formulations, and, according to unpublished data, it was being used at up to 25%. As of 2010, the frequency of use has decreased to 102, and, according to an industry survey, use concentrations have decreased and are now  $\leq 8\%$ . It has been reported to the FDA that stearyl caprylate, stearyl stearate, and stearyl olivate are used in 20, 22, and 1 cosmetic formulations, respectively. According to an industry survey, stearyl caprylate is used at concentrations of 0.1-1%, stearyl stearate is used at 0.02-4%, and stearyl olivate is not reported to be used. Stearyl palmitate and stearyl behenate are not reported to be in use

according to VCRP data, however, industry data reports that these ingredients are used in eye products at concentrations of 3 and 0.02% respectively.

Since published data were not found for these ingredients, summaries from the original safety assessment on stearyl heptanoate and from previous CIR assessments on some of the components of these stearyl alkanoates, i.e. stearyl alcohol, palmitic acid, and stearic acid, were included in this review. The information from these previous assessments did not raise any toxicological concerns, and there were no concerns of genotoxic effects. Also, these ingredients were at most mildly irritating to the skin, and they did not appear to be sensitizers. Palmitic acid and stearic acid were not phototoxic. Stearyl heptanoate produced slight to moderate comedogenicity in rabbit ears, but was not comedogenic for humans. At most, mild ocular irritation was seen in testing with any of these ingredients.

### **DISCUSSION**

A search of the currently available published literature found no new studies on stearyl heptanoate. However, the Expert Panel did determine that the safety data included in the 1995 assessment of stearyl heptanoate are applicable to the safety of stearyl caprylate, stearyl palmitate, stearyl stearate, stearyl behenate, and stearyl olivate. For that reason only, the safety assessment of stearyl heptanoate was reopened to include these ingredients

In the original safety assessment on stearyl heptanoate, the Panel noted that although animal irritation testing was done at 100%, sensitization testing was performed using a maximum concentration of only 1.5% stearyl heptanoate. The Panel concludes that all the available data suggest that stearyl heptanoate would not be a sensitizer. The same would apply to the stearyl alkanoates now included in this rereview. In the original safety assessment, it was also noted that mild ocular reactions were seen in ocular irritation testing with undiluted stearyl heptanoate. The Panel is still of the opinion that stearyl heptanoate, as used in cosmetic formulations, would not produce significant ocular irritation. The same is true for the related stearyl alkanoates.

Stearyl stearate is used in cosmetic formulations that can be inhaled. The potential adverse effects of inhaled ingredients depend on the specific chemical species, the concentration and the duration of the exposure and their site of deposition within the respiratory system. In practice, aerosols should have at least 99% of their particle diameters in the 10 – 110  $\mu\text{m}$  range and the mean particle diameter in a typical aerosol spray has been reported as  $\sim 38 \mu\text{m}$ . Particles with an aerodynamic diameter of  $\leq 10\mu\text{m}$  are respirable. In the absence of inhalation toxicity data, the panel determined that stearyl stearate can be used safely in products that are inhaled, because the product particle size is not respirable.

### **CONCLUSION**

The CIR Expert Panel concluded that stearyl heptanoate, stearyl caprylate, stearyl palmitate, stearyl stearate, stearyl behenate, and stearyl olivate are safe in the present practices of use and concentration.<sup>1</sup>

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<sup>1</sup> Were ingredients in this group not in current use to be used in the future, the expectation is that they would be used in product categories and at concentrations comparable to others in this group.

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Figure 1. Figure map of stearyl alkanoates.

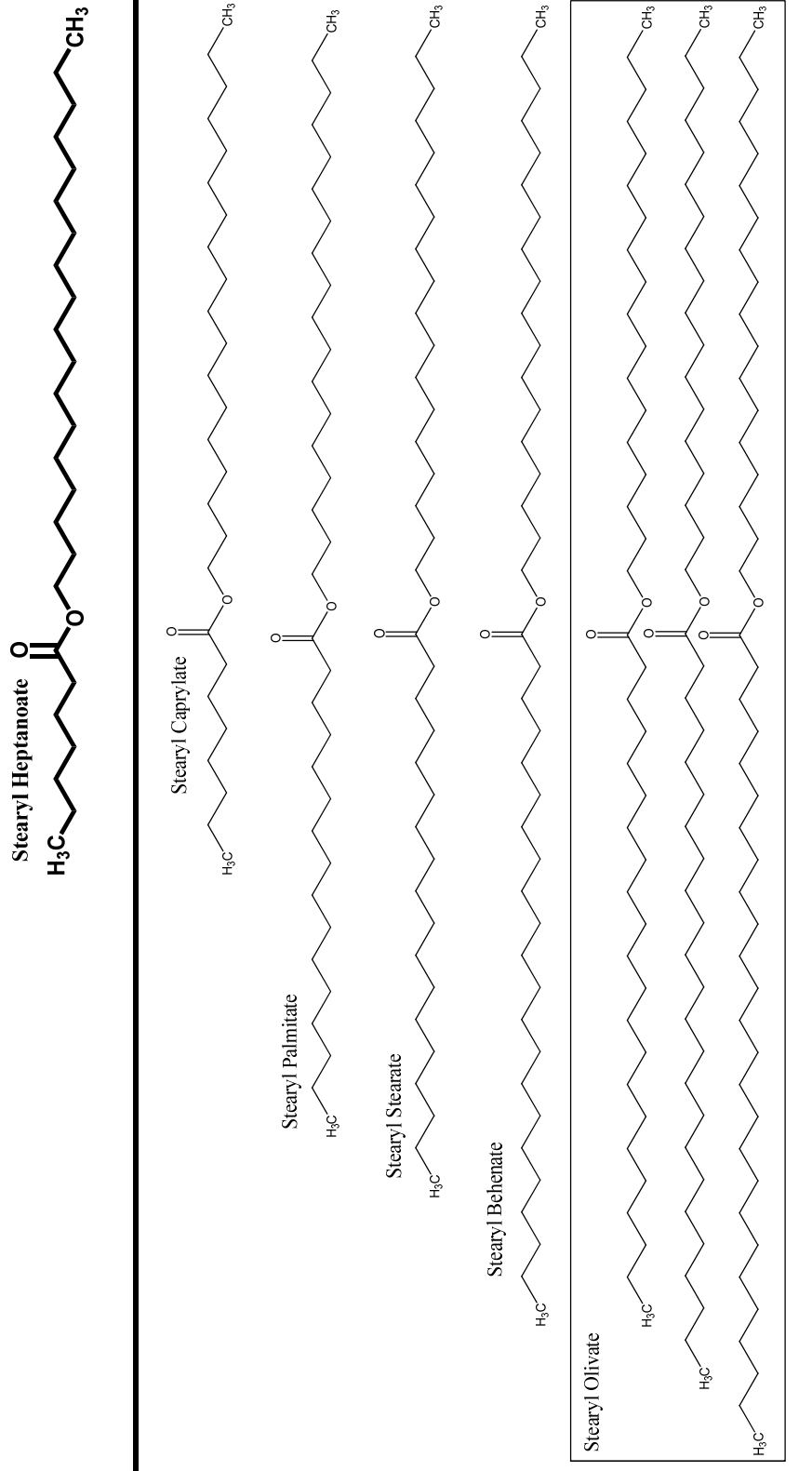


Table 1. Definitions, synonyms, and cosmetic functions.

<b>INGREDIENT (CAS No.)</b>	<b>DEFINITION</b>	<b>SYNONYMS</b>	<b>COSMETIC FUNCTION</b>
Stearyl Heptanoate (66009-41-4)	the ester of stearyl alcohol and heptanoic acid	heptanoic acid, octadecyl ester	skin conditioning agent – occlusive
Stearyl Caprylate (18312-31-7)	the ester of stearyl alcohol and caprylic acid	octanoic acid, octadecyl ester	skin conditioning agent – occlusive
Stearyl Palmitate (2598-99-4)	the ester of stearyl alcohol and palmitic acid (q.v.)	hexadecanoic acid, octadecyl ester	binder; emulsion stabilizer; hair conditioning agent; humectant; opacifying agent; skin conditioning agent - miscellaneous
Stearyl Stearate (2778-96-3)	the ester of stearyl alcohol and stearic acid	octadecanoic acid, octadecyl ester	skin conditioning agent – occlusive; viscosity increasing agent - nonaqueous
Stearyl Behenate (24271-12-3)	the ester of stearyl alcohol (q.v.) and behenic acid (q.v.)	docosanoic acid, octadecyl ester	skin conditioning agent – occlusive
Stearyl Olivinate (no CAS No.)	the ester of stearyl alcohol and the fatty acids derived from Olea europaea (olive) oil (q.v.); olive oil is composed of a number of fatty acids, primarily oleic, linoleic, palmitic, palmitoleic, and stearic acids		skin conditioning agent; emollient; surfactant – emulsifying agent

Table 2. Frequency of use according to duration and exposure.

Stearyl Heptanoate			
	<i>Freq. of Use</i> 1994	<i>Freq. of Use</i> 2010	<i>Conc of Use</i> (%) 1993*
<b>TOTAL</b>	<b>121</b>	<b>102</b>	<b>2-25</b>
<b>Conc of Use (%)</b>	<b>0.07-8</b>		
<i>Duration of Use</i>			
<i>Leave-On</i>	115	99	2-25
<i>Rinse Off</i>	6	3	NR
<b>Exposure Type</b>			
Eye Area	36	17	NR
Possible Ingestion	7	8	5-25
Inhalation	2	1	NR
Dermal Contact	117	100	2-25
Deodorant (underarm)	0	NR	NR
Hair - Non-Coloring	4	2	NR
Hair - Coloring	NR	NR	NR
Nail	NR	NR	NR
Mucous Membrane	NR	2	NR
Bath Products	NR	NR	NR
Baby Products	NR	NR	NR
*data submitted by industry			

Stearyl Caprylate											
	<i>Freq. of Use</i> 2010	<i>Conc. of Use (%)</i>	<i>Freq. of Use</i> 2010	<i>Conc. of Use (%)</i>	<i>Freq. of Use</i> 2010	<i>Conc. of Use (%)</i>	<i>Freq. of Use</i> 2010	<i>Conc. of Use (%)</i>	<i>Freq. of Use</i> 2010	<i>Conc. of Use (%)</i>	<i>Freq. of Use</i> 2010
<b>TOTAL</b>	<b>20</b>	<b>0.1-1</b>	<b>NR</b>	<b>3</b>	<b>NR</b>	<b>0.02-4</b>	<b>22</b>	<b>0.02-4</b>	<b>NR</b>	<b>0.02</b>	<b>1</b>
<b>Conc. of Use (%)</b>											
<i>Duration of Exposure</i>											
<i>Leave-On</i>	19	0.3-1	NR	3	NR	0.02-4	20	0.02-4	NR	0.02	NR
<i>Rinse Off</i>	1	0.1-0.6	NR	NR	NR	2	2	NR	NR	NR	NR
<b>Exposure Type</b>											
Eye Area	2	≤1	NR	3	NR	≤1	5	≤1	NR	0.02	NR
Possible Ingestion	2	NR	NR	NR	NR	≤1	5	≤1	NR	NR	NR
Inhalation	NR	NR	NR	NR	NR	NR	1	NR	NR	NR	NR
Dermal Contact	20	≤1	NR	NR	NR	≥4	16	≥4	NR	NR	1
Deodorant (underarm)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Hair - Non-Coloring	NR	NR	NR	NR	NR	NR	1	3	NR	NR	NR
Hair - Coloring	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nail	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Mucous Membrane	1	NR	NR	NR	NR	2	2	NR	NR	NR	NR
Bath Products	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Baby Products	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

NR - no use reported to the VCRP or by industry for this category

# Data

<b>Ingredient Name</b>	<b>Product Category</b>	<b>Frequency</b>
STEARYL HEPTANOATE	03A - Eyebrow Pencil	1
STEARYL HEPTANOATE	03B - Eyeliner	10
STEARYL HEPTANOATE	03C - Eye Shadow	1
STEARYL HEPTANOATE	03D - Eye Lotion	1
STEARYL HEPTANOATE	03G - Other Eye Makeup Preparations	4
STEARYL HEPTANOATE	05B - Hair Spray (aerosol fixatives)	1
STEARYL HEPTANOATE	05I - Other Hair Preparations	1
STEARYL HEPTANOATE	07C - Foundations	3
STEARYL HEPTANOATE	07E - Lipstick	8
STEARYL HEPTANOATE	07F - Makeup Bases	2
STEARYL HEPTANOATE	07I - Other Makeup Preparations	3
STEARYL HEPTANOATE	10E - Other Personal Cleanliness Products	2
STEARYL HEPTANOATE	12C - Face and Neck (exc shave)	12
STEARYL HEPTANOATE	12D - Body and Hand (exc shave)	32
STEARYL HEPTANOATE	12F - Moisturizing	10
STEARYL HEPTANOATE	12G - Night	6
STEARYL HEPTANOATE	12H - Paste Masks (mud packs)	1
STEARYL HEPTANOATE	12J - Other Skin Care Preps	3
STEARYL HEPTANOATE	13A - Suntan Gels, Creams, and Liquids	1
STEARYL CAPRYLATE	03G - Other Eye Makeup Preparations	2
STEARYL CAPRYLATE	07C - Foundations	2
STEARYL CAPRYLATE	07E - Lipstick	2
STEARYL CAPRYLATE	07I - Other Makeup Preparations	1
STEARYL CAPRYLATE	10E - Other Personal Cleanliness Products	1
STEARYL CAPRYLATE	12C - Face and Neck (exc shave)	3
STEARYL CAPRYLATE	12D - Body and Hand (exc shave)	1
STEARYL CAPRYLATE	12F - Moisturizing	2
STEARYL CAPRYLATE	12G - Night	4
STEARYL CAPRYLATE	12J - Other Skin Care Preps	1
STEARYL CAPRYLATE	13A - Suntan Gels, Creams, and Liquids	1
STEARYL STEARATE	03F - Mascara	5
STEARYL STEARATE	04B - Perfumes	1
STEARYL STEARATE	04E - Other Fragrance Preparation	1
STEARYL STEARATE	05G - Tonics, Dressings, and Other Hair Grooming Aid	1
STEARYL STEARATE	07C - Foundations	1
STEARYL STEARATE	07E - Lipstick	5
STEARYL STEARATE	07I - Other Makeup Preparations	2
STEARYL STEARATE	10A - Bath Soaps and Detergents	1
STEARYL STEARATE	10E - Other Personal Cleanliness Products	1
STEARYL STEARATE	12D - Body and Hand (exc shave)	2
STEARYL STEARATE	12F - Moisturizing	1
STEARYL STEARATE	12J - Other Skin Care Preps	1
STEARYL OLIVATE	12A - Cleansing	1

**Memorandum**

**TO:** F. Alan Andersen, Ph.D.  
Director - COSMETIC INGREDIENT REVIEW (CIR)

**FROM:** John Bailey, Ph.D.  
Industry Liaison to the CIR Expert Panel


**DATE:** June 21, 2010

**SUBJECT:** Comments on the Draft Report on Stearyl Heptanoate and Related Ingredients for the June 28-29, 2010 CIR Expert Panel Meeting

- p.3 - In the summary of the Sensitization section, please include the number and species of animal that was tested.
- p.3 - What species was used in the photo studies of formulations containing 2.8% stearic acid? Was there really more than one formulation, or was the same formulation tested in more than one study?
- p.3 - Was the micronucleus assay of the mixture containing Stearyl Heptanoate *in vivo* or *in vitro*? In what species was it conducted?
- p.4 - What was the dose of stearyl alcohol used in the tumor promotion study?
- p.9, Table 2 - Where did the 0.7% concentration for Stearyl Heptanoate in potential inhalation exposure come from? The only 0.7% value in the Council concentration of use survey was in a shaving cream. According to the use memo provided to the CIR Expert Panel for the June 28-29, 2010 meeting, this category only includes fragrance products, hair sprays, hair color sprays and foot powders and sprays.

**Memorandum**

**TO:** F. Alan Andersen, Ph.D.  
Director - COSMETIC INGREDIENT REVIEW (CIR)

**FROM:** John Bailey, Ph.D.  7/19/10  
Industry Liaison to the CIR Expert Panel

**DATE:** July 19, 2010

**SUBJECT:** Comments on the Tentative Report on Stearyl Heptanoate and Related Stearyl Alkanoates as Used in Cosmetics

- p.1, Abstract - Please change “..could support the safety..” to “..supports the safety...” done
- p.1 - Cosmetic formulations are not applied to the eye itself. In the second last paragraph of this page, please change “applied to the eye at concentrations...” to “applied to the area around the eyes at concentrations...” done
- p.2 - Please delete “Internationally” as the sentence only applies to the European Union. Please look at the European Commission’s Cosing data base again as it has recently been updated and now includes Stearyl Oliviate. done
- p.2 - In what species were the 13-week dermal toxicity studies of formulations containing  $\leq 5\%$  stearic acid completed? rabbits and rats
- p.3 - What concentration of stearyl alcohol was used in the comedogenicity study in rabbits? not in orig.
- p.4 - How many subjects were used in the phototoxicity studies? As this summary includes phototoxcity as well as photosensitization studies, the heading should be changed to the more general term Phototoxicity (or to Phototoxicity and Photosensitization). done
- p.5, reference 13 - The correct spelling is “Oberdörster” - for all three done
- p.2, Table 2 - As the CIR Expert Panel indicated that they agreed with the CIR SSC comments about the new use tables, are they going to be incorporated into the tables in this report? What are the criteria for using a range of concentrations used versus  $\leq$ ? What is meant by  $4\leq$ ? JUST A TYPO