EXPERT PANEL FOR FRAGRANCE SAFETY MEETING

Minutes

May 19-21, 2026

New York City, New York

EXPERT PANEL MEMBERS	RIFM STAFF	GUESTS
Donald Belsito (Chair) Magnus Bruze Amanda Bryant-Friedrich G. Allen Burton, Jr. (Virtual) Mark Cronin Maria Dagli (Vice-Chair) Wolfgang Dekant Allison Fryer Debra Laskin Daniel Liebler Trevor Penning Aldert Piersma	Anne Marie Api Danielle Botelho Kayla Farrell (5/20) Leah Jones Kaushal Joshi (5/21) Aurelia Lapczynski (Virtual) Isabelle Lee (5/19-20) Gary Sullivan (5/19) Yax Thakkar (5/20) Holger Moustakas Jake Muldoon (5/19-20l, Virtual, 5/21) Gretchen Ritacco (Virtual 5/21) Nikaeta Sadekar (Virtual, 5/20)	Ron Stark (5/20)

1) Discussion of the Meeting Schedule and Agenda Topics

a) Completion/Signing of the Conflict-of-Interest Statement

Dr. Belsito opened the meeting. The Conflict-of-Interest Statement was signed.

2) Minutes

The minutes of the January 2026 meeting were approved with no changes.

3) Follow-Up and Informational Items

a) Follow-Up List

Dr. Api reviewed the follow-up list and provided updates on items and general comments where applicable.

4) Standing Items (For Expert Panel information only; per Panel's request)

a) RIFM Publications

The Panel reviewed the RIFM publication list. This is a standing item on the agenda, which provides a summary of all RIFM's recent publications.

b) RIFM Safety Assessment Publications

The Panel reviewed the RIFM safety assessment publications list. This list is an ongoing list of all the published safety assessments.

5) RIFM Communication

a) Presentation - Update on RIFM

Dr. Api provided an overview of RIFM activities (see Attachment 1).

b) Presentation by Editing/Communications

Mr. Sullivan provided an update on the RIFM communication plans, safety assessment publications, the Expert Panel website, and the Fragrance Resource Center website (see Attachment 2).

6) RIFM Safety Evaluation Process

a) Presentation by D. Botelho, Safety Assessment Update and Metrics

Dr. Botelho provided an update on the RIFM safety assessment program (see Attachment 3).

b) Safety Assessment Overview

i) (**1** Total Safety Assessment, including **1** Total material)

c) General Comments

i) NCS with known components 80-95% with respect to skin sensitization

When an NCS contains an unknown composition of 20% or less, the team will assess that unknown portion using the reactive DST for skin sensitization. If the reactive DST is not applicable, t the NCS will be fractionated into blocks (volatile, non-volatile soluble, and non-volatile non-soluble) and evaluated using an in vitro skin-sensitization test battery.

The RIFM skin sensitization team presented a summary comparing restricted versus non-restricted DST outcomes for the unknown portions assessed to date.

ii) NCS containing ethanol

The Panel approved the following statement to be added to NCS safety assessments containing solvents: “The ethanol statement is "The purpose of this safety assessment is to evaluate the safety of raw fragrance materials that impart odor in a fragrance mixture and not other ingredients."

iii) DST Review Update and Other Dermal Sensitization Updates

The updated DST rules were reviewed and approved by the Expert Panel. A manuscript for publication will be developed.

7) NCS Safety Assessments

i) Total NCS Safety Assessments: 35

Material ID	RIFM ID	Material Name	Tab	Status
1045911	5119-E2.12	Basil oil, chemotype linalool	**Tab 19**	**Insufficient data (environmental)**
1043497	214-F2.12	Cananga oil	**Tab 20**	**Insufficient data (environmental)**
1047974	579-D2.12	Cedarwood oil, Atlas	**Tab 21**	**Insufficient data (environmental; skin sensitization)**
1043548	1211-D2.12	Cedarwood oil, Chinese	**Tab 22**	**Insufficient data (environmental)**

Material ID	RIFM ID	Material Name	Tab	Status
1042198	6667-D2.12	Cedarwood oil, Himalaya	**Tab 23**	**Insufficient data (environmental; skin sensitization)**
1044401	113-D2.12	Cedarwood oil, Virginian	**Tab 24**	**Insufficient data (environmental)**
1043442	442-F2.12	Chamomile flower oil, blue	**Tab 25**	**Insufficient data (environmental)**
1046826	162-E2.12	Fir needle oil, Siberian	**Tab 26**	**Approved with changes**
1045616	7327-E2.12	Lemongrass oil, West Indian	**Tab 27**	**Approved with changes**
1043440	460-E2.12	Marjoram oil, sweet	**Tab 28**	**Approved with changes**
1045380	324-G2.12	Pepper, black, oil	**Tab 29**	**Approved with changes**
1049976	247-E2.12	Ravintsara oil	**Tab 30**	**Insufficient data (skin sensitization)**
1047143	7063-H2.12	Star anise oil	**Tab 31**	**Insufficient data (environmental)**
1044686	1176-E2.12	Tea tree oil	**Tab 32**	**Insufficient data (environmental)**
1048503	537-G2.12	Wine lees oil, white	**Tab 33**	**Insufficient data (phototoxicity)**
1044463	527-E2.12	Armoise vulgaris oil	**Tab 34**	**Insufficient data (genotoxicity)**
1044355	326-H2.12	Caraway seed oil	**Tab 35**	**Approved**
1044357	379-H2.12	Cardamom seed oil	**Tab 36**	**Approved**
1043419	381-H2.12	Celery seed oil	**Tab 37**	**Approved**
1044791	117-E2.12	Citronella oil, Java type	**Tab 38**	**Approved**
1048467	159-K2.12	Copaiba balsam oil	**Tab 39**	**Insufficient data (environmental)**
1046091	159-K2.9	Copaiba oil	**Tab 40**	**Insufficient data (environmental)**
1045680	238-E2.12	Coriander herb oil	**Tab 41**	**Approved**
1044732	238-H2.12	Coriander seed oil	**Tab 42**	**Approved**
1044838	589-K2.12	Elemi oil	**Tab 43**	**Insufficient data (environmental; skin sensitization)**
1044839	216-K2.12	Galbanum oil	**Tab 44**	**Insufficient data (environmental)**
1048426	250-G2.12	Mandarin oil	**Tab 45**	**Approved**
1042814	418-E2.12	Palmarosa oil	**Tab 46**	**Approved**
1048475	193-E2.27	Patchouli CO_2 extract	**Tab 47**	**Insufficient data (environmental; phototoxicity)**

Material ID	RIFM ID	Material Name	Tab	Status
1046093	193-E2.12	Patchouli oil	**Tab 48**	**Insufficient data (environmental)**
1044240	7142-G2.27	Schinus terebenthifolius CO2 extract	**Tab 49**	**Insufficient data (environmental; skin sensitization)**
1048659	7142-G2.12	Schinus terebinthifolius oil	**Tab 50**	**Insufficient data (environmental; skin sensitization; phototoxicity)**
1048341	1383-F2.12	Sunflower oil	**Tab 51**	**Approved**
1042864	1178-F2.1	Tuberose absolute	**Tab 52**	**Approved**
1045552	528-E2.12	Wormwood oil	**Tab 53**	**Insufficient data (phototoxicity)**

*The environmental data will be reviewed under the updated Environmental Framework.

8) Presentation by Ron Stark

Mr. Ron Stark, RIFM Chairman of the Board, joined the Panel for a one-hour presentation. To facilitate communications once a year RIFM's Chair (or his/her designee) updates the Expert Panel as to relevant activities and initiatives undertaken by RIFM.

9) Review Safety Assessments Batch 1

CAS#	Material Name	Tab	Status
62406-73-9	6,10-Dioxaspiro[4.5]decane, 8,8-dimethyl-7-(1-methylethyl)-	**Tab 54**	**Approved (pending AC inform)**

10) Review Safety Assessments Maintenance Batch

CAS#	Material Name	Tab	Status
133-18-6	Phenylethyl anthranilate	**Tab 56**	**Approved**
24295-03-2	2-Acetylthiazole	**Tab 57**	**Approved**
141-79-7	4-Methyl-3-penten-2-one	**Tab 58**	**Approved**
20279-51-0	Hexyl 2-hydroxypropionate	**Tab 59**	**Approved**
4707-47-5	Methyl atrarate	**Tab 60**	**Approved**
536-60-7	p-Isopropylbenzyl alcohol	**Tab 61**	**Approved**
4747-07-3	1-Methoxyhexane	**Tab 62**	**Approved**
65405-72-3	1,2,3,4,4a,7,8,8a-Octahydro-2,4a,5,8a-tetramethyl-1-naphthyl formate	**Tab 63**	**Approved**
69486-14-2	5,8-Methano-2H-1-benzopyran-2-one, 6-ethylideneoctahydro-	**Tab 64**	**Approved**
33704-61-9	6,7-Dihydro-1,1,2,3,3-pentamethyl-4(5H)-indanone	**Tab 65**	**Approved**

CAS#	Material Name	Tab	Status
2396-78-3; 13894-62-7	Methyl 3-hexenoate	**Tab 66**	**Approved**
26553-46-8; 2396-83-0	Ethyl (E)hex-3-enoate	**Tab 67**	**Approved**
41654-15-3	Methyl cis-5-octenoate	**Tab 68**	**Approved**
13481-87-3	Methyl 3-nonenoate	**Tab 69**	**Approved**
108-64-5	Ethyl isovalerate	**Tab 70**	**Approved**
37064-20-3	Propyl 2-methylbutyrate	**Tab 71**	**Approved**
557-00-6	Propyl isovalerate	**Tab 72**	**Approved**
15706-73-7	n-Butyl 2-methylbutyrate	**Tab 73**	**Approved**
2445-72-9	Amyl isobutyrate	**Tab 74**	**Approved**
673-84-7; 3016-19-1	2,6-Dimethylocta-2,4,6-triene	**Tab 75**	**Approved**
110-38-3	Ethyl decanoate	**Tab 76**	**Approved with changes**
106-33-2	Ethyl laurate	**Tab 77**	**Approved with changes**
112-63-0	Methyl linoleate	**Tab 78**	**Approved**
544-35-4	Ethyl linoleate	**Tab 79**	**Approved**
830322-14-0	Cyclohexanol,4-(3-methylbutyl)-	**Tab 80**	**Approved**
13491-79-7; 5448-22-6; 7214-18-8	2-tert-Butylcyclohexanol	**Tab 81**	**Approved**

11) Isoamyl Salicylate (CAS 87-20-7)

Drs. Joshi and Bartlett presented the repeated dose toxicity data on isoamyl salicylate as well as amyl salicylate (see Attachment 4). The Panel agreed that the NOAEL for isoamyl salicylate is 47 mg/kg/day. The material will be resurveyed for updated exposure data, and the MAC values will be recalculated.

12) 1,3-Dioxane, 2-(2,4-dimethyl-3-cyclohexene-1-yl)-5-methyl-5-(1-methylpropyl)—Environmental review

Ms. Lapczynski reported on the data and status of this material. The Panel supported the conclusions from the most recent data (see Attachment 5).

13) Special Issue for RIFM's 60th Anniversary

a) Historical Overview

Dr. Api is developing a historical overview for the special issue for RIFM's 60 anniversary. The Panel will have the opportunity to review the article before it is submitted.

b) Updates to the RIFM Criteria Document for fragrance ingredient evaluation

The Panel reviewed and approved the significant revisions to the criteria document, concluding that the changes markedly strengthened the manuscript. Additional recommendations were made concerning the tables, and these revisions will be addressed before the manuscript is submitted for publication.

c) An overview of RIFM's Current New Approach Methodologies (NAMs) Strategy implemented in all key fragrance safety assessment endpoints

The Panel made suggestions to this manuscript. After the changes are made, the paper will be submitted for publication.

d) An overview of fully in vitro genotoxicity testing strategies

The Panel provided recommendations for this manuscript. Once these revisions have been incorporated, the paper will be submitted for publication.

e) The role of quantitative risk assessment in Next Generation Risk Assessment (NGRA) for dermal sensitization

The Panel had no additional comments to the manuscript. The paper will be submitted for publication.

f) Updates to exposure data in the Creme RIFM Aggregate Exposure Model

The Panel provided recommendations for this manuscript. Once these revisions have been incorporated, the paper will be submitted for publication.

g) AI in Action: Strengthening Fragrance Safety Science at RIFM

The Panel reviewed the manuscript and provided recommendations for improvement. The paper will be submitted for publication after the recommended revisions have been completed.

h) Impact of RIFM Science written by Dr. Frank Gerberick

Dr. Frank Gerberick is developing a manuscript focusing on the impact that RIFM safety assessments and research has had on the scientific community. This paper will be shared with the Panel when it is completed.

i) The Expert Panel for Fragrance Safety Paper

The Panel provided some thoughts and ideas for a manuscript on the history of the Expert Panel for Fragrance Safety.

14) RIFM Research Projects

a) Overview of research programs

Dr. Api noted during the meeting that an overview of the RIFM Research Program would be provided, highlighting its focus on new approach methodologies.

b) Epidemiology

Dr. Bruze reported that there was a new paper on polysensitization from EDEN. They will meet again in April 2027 in Malmo.

c) **Development of a Strategic Framework for Mechanistic Studies to Inform CMR Hazard Classification**

i) **Overview of the Research Initiative – Presentation by Danielle Botelho outlining the project objectives, scope, and scientific rationale**

Dr. Botelho gave an overview presentation on a new research initiative on developing a strategic framework for mechanistic studies to inform CMR hazard classification (see Attachment 6).

ii) **Illustrative Case Study – Presentation by Yax Thakkar showcasing an example of the proposed mechanistic work and its application to CMR hazard assessment**

Dr. Thakkar presented an illustrative case study demonstrating how mechanistic work can be applied to a CMR hazard assessment (see Attachment 7).

d) **Presentation by Gretchen Ritacco on the Creme RIFM Aggregate Exposure and the Persistent Light Reaction Project**

Ms. Ritacco gave a presentation that provided an update on the Creme RIFM Aggregate Exposure Model and the Persistent Light Reaction Project (see Attachment 8).

e) **Presentation by Yax Thakkar on In Vitro Metabolism Research and alpha-Pinene – Wednesday**

Dr. Thakkar updated the Panel on the research project on alpha-pinene (see Attachment 9).

f) **Presentation by Nikaeta Sadekar and Jake Muldoon on Respiratory Sensitizer Chemical Space Research**

Drs. Sadekar and Muldoon presented on the respiratory sensitizer chemical space research project (see Attachment 10). Two draft manuscripts were presented to the Panel – 1) a bifunctional reactivity hypothesis for low molecular weight respiratory sensitization: clinical case characterization and a proposed mechanistic screening framework and 2) details of the odor threshold study conducted with Monell Chemical Senses. The Panel agreed to provide final comments on both papers by June 8.

g) **Presentation by Kayla Farrell**

Dr. Farrell updated the Panel on the RIFM genotoxicity research projects (see Attachment 11).

h) **Presentation by Isabelle Lee**

Dr. Lee updated the Panel on the RIFM skin sensitization research projects (see Attachment 12).

i) **Presentation by Kaushal Joshi**

Dr. Joshi updated the Panel on the new RIFM human relevance research project (see Attachment 13).

j) **Presentation by Holger Moustakas**

Dr. Moustakas updated the Panel on the chemistry research projects (see Attachment 14).

k) New research proposals

The Panel had no additional suggestions for research proposals.

15) Panel Executive Session

The Expert Panel held an Executive Session.

16) Future Meeting Dates

a)	Monday -Wednesday,	September 21-23, 2026	Amsterdam
b)	Monday – Wednesday,	January 25-27, 2027	Miami
c)	Monday – Wednesday,	May 24-26, 2027	NYC
d)	Monday – Wednesday,	September 20-22, 2027	Dublin
e)	Monday – Wednesday,	January 24-26, 2028	TBD
f)	Wednesday - Friday,	May 31 – June 2, 2028	NYC

Respectfully submitted,

Anne Marie Api, Ph.D., Fellow ATS
President

Attachment 1:	Presentation:	Dr. Anne Marie Api
Attachment 2:	Presentation:	Mr. Gary Sullivan
Attachment 3:	Presentation:	Dr. Danielle Botelho
Attachment 4:	Presentation:	Drs. Kaushal Joshi and Arianna Bartlett
Attachment 5:	Presentation:	Ms. Aurelia Lapczynski
Attachment 6:	Presentation:	Dr. Danielle Botelho
Attachment 7:	Presentation:	Dr. Yax Thakkar
Attachment 8:	Presentation:	Ms. Gretchen Ritacco
Attachment 9:	Presentation:	Dr. Yax Thakkar
Attachment 10:	Presentation:	Drs. Nikaeta Sadekar and Jake Muldoon
Attachment 11:	Presentation:	Dr. Kayla Farrell
Attachment 12:	Presentation:	Dr. Isabelle Lee
Attachment 13:	Presentation	Drs. Kaushal Joshi and Arianna Bartlett
Attachment 14:	Presentation:	Dr. Holger Moustakas