BEDOUKIAN RESEARCH

6 Commerce Drive • Danbury, CT 06810 • ph (203) 830-4000 • fax (203) 830-4010

September 21st, 2023

Re: #410 APRITONE

This product contains beta-damascone (a rose ketone). The rose ketones have an IFRA standard associated with them. The amount of beta-damascone is as follows: up to 0.05%.

There are restriction limits for rose ketones in finished products.

This product may also contain up to 50 ppm Linalool and 60 ppm Geraniol.

There are restriction limits for Geraniol in finished products and a specification requirement for Linalool.

A copy of the IFRA standards is attached to this letter for your convenience.

I hope this statement is satisfactory. If you need additional information, please do not hesitate to contact me.

Kind Regards,

Joseph Bania
Regulatory Affairs Manager
(203) 830-4000
jbania@bedoukian.com

Rose ketones

CAS-No.:	23696-85-7 23726-93-4 59739-63-8 43052-87-5 24720-09-0 23726-94-5 23726-92-3 23726-91-2 35044-68-9 57378-68-4 71048-82-3 35087-49-1 39872-57-6 70266-48-7 33673-71-1 87064-19-5 The scope of the Standard covers but is not limited to the list of CAS numbers enumerated above (including all their geometric isomers).
Synonyms:	23696-85-7 (C13H18O): 1-(2,6,6-Trimethylcyclohexa-1,3-dienyl)-2-buten-1-one 2-Buten-1-one, 1-(2,6,6-trimethyl-1,3-cyclohexadien-1-yl) Damascenone (commercial name) Floriffone (commercial name) Doricenone (commercial name) 23726-93-4 (C13H18O): (E)-1-(2,6,6-Trimethyl-1,3-cyclohexadien-1-yl)-2-buten-1-one trans-1-(2,6,6-Trimethyl-1,3-cyclohexadien-1-yl)-2-buten-1-one 2-Buten-1-one, 1-(2,6,6-trimethyl-1,3-cyclohexadien-1-yl)- (2E)- β-Damascenone 59739-63-8 (C13H18O): (2Z)-1-(2,6,6-trimethyl-1,3-cyclohexadien-1-yl)-2-Buten-1-one (Z)-β-Damascenone cis-Damascenone 2-Buten-1-one, 1-(2,6,6-trimethyl-1,3-cyclohexadien-1-y1)-, (Z)- 43052-87-5 (C13H20O): α-1-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-2-buten-1-one 2-Buten-1-one, 1-(2,6,6-trimethyl-2-cyclohexen-1-yl)- α-Damascone (commercial name) Dihydrofloriffone α (commercial name) 24720-09-0 (C13H20O): (E)-1-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-2-buten-1-one trans-1-(2,6,6-Trimethyl-2-cyclohexen-1-yl)but-2-en-1-one 2-Buten-1-one, 1-(2,6,6-trimethyl-2-cyclohexen-1-yl)-, (2E)- trans-α-Damascone Damascone alpha (commercial name) Dorinone (commercial name)

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23726-94-5 (C13H20O):
(Z)-1-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-2-buten-1-one
cis-1-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-2-buten-1-one
2-Buten-1-one, 1-(2,6,6-trimethyl-2-cyclohexen-1-yl)-, (Z)-
1-(2,6,6-Trimethylcyclohex-2-en-1-yl)but-2-en-1-one
cis-α-Damascone

23726-92-3 (C13H20O):
1-(2,6,6-Trimethylcyclohex-1-en-1-yl)but-2-en-1-one
(Z)-β-1-(2,6,6-Trimethyl-1-cyclohexen-1-yl)-2-buten-1-one
(Z)-1-(2,6,6-Trimethyl-1-cyclohexen-1-yl)-2-buten-1-one
2-Buten-1-one, 1-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, (2Z)-
cis-β-Damascone (commercial name)
Damasione (commercial name)

23726-91-2 (C13H20O):
(2E)-1-(2,6,6-Trimethyl-1-cyclohexen-1-yl)-2-buten-1-one
(E)-1-(2,6,6-Trimethyl-1-cyclohexen-1-yl)-2-buten-1-one
1-(2,6,6-Trimethylcyclohex-1-en-1-yl)but-2-en-1-one
trans-β-Damascone,
Dihydrofloriffone β (commercial name)
Dorinone beta (commercial name)

35044-68-9 (C13H20O):
2-Buten-1-one, 1-(2,6,6-trimethyl-1-cyclohexen-1-yl)-
2,6,6-Trimethyl-1-(2-butenoyl)-1-cyclohexene
2,6,6-Trimethyl-1-crotonoyl-1-cyclohexene
1-(2,6,6-Trimethylcyclohexenyl)-2-buten-1-one
1-(2,6,6-Trimethyl-1-cyclohexen-1-yl)-2-buten-1-one
Damascone β-
β-Damascone

57378-68-4 (C13H20O):
δ-1-(2,6,6-Trimethyl-3-cyclohexen-1-yl)-2-buten-1-one
2-Buten-1-one, 1-(2,6,6-trimethyl-3-cyclohexen-1-yl)-
1-(2,6,6-Trimethyl-3-cyclohexen-1-yl)-2-buten-1-one
δ-Damascone (commercial name)
Dihydrofloriffone TD (commercial name)

71048-82-3 (C13H20O):
[1α(E),2β]-1-(2,6,6-Trimethyl-3-cyclohexen-1-yl)-2-buten-1-one
[1α(E),2β]-1-(2,6,6-Trimethylcyclohex-3-en-1-yl)but-2-en-1-one
trans,trans-δ-Damascone
trans δ Damascone (commercial name)

35087-49-1 (C13H20O):
1-(2,2-Dimethyl-6-methylenecyclohexyl)but-2-en-1-one
2-Buten-1-one, 1-(2,2-dimethyl-6-methylenecyclohexyl)-
Damascone γ-
γ-Damascone (commercial name)

39872-57-6 (C13H20O):

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	1-(2,4,4-Trimethyl-2-cyclohexen-1-yl)-2-buten-1-one (E)-1-(2,4,4-Trimethyl-2-cyclohexen-1-yl)-2-buten-1-one 2-Buten-1-one, 1-(2,4,4-trimethyl-2-cyclohexen-1-yl)-, (2E)- 2-Buten-1-one, 1-(2,4,4-trimethyl-2-cyclohexen-1-yl)-, (E)- (E)-α-Isodamascone Isodamascone (high α) (commercial name) 70266-48-7 (C13H20O): 1-(2,4,4-Trimethyl-1-cyclohexen-1-yl)-2-buten-1-one 2-Buten-1-one, 1-(2,4,4-trimethyl-1-cyclohexene-1-yl) Generic β-Isodamascone Isodamascone (standard quality) (commercial name) 33673-71-1 (C13H20O): 1-(2,4,4-Trimethylcyclohex-2-en-1-yl)but-2-en-1-one 1-(2,4,4-Trimethyl-2-cyclohexen-1-yl)-2-buten-1-one 2-Buten-1-one, 1-(2,4,4-trimethyl-2-cyclohexen-1-yl)- Isodamascone (isomer unspecified) Generic δ-Isodamascone 87064-19-5 (C13H20O): 2-Buten-1-one, 1-(2,4,4-trimethyl-2-cyclohexen-1-yl)-, (Z)- cis-Isodamascone (including all geometric isomers).

History:	Publication date:	2020 (Amendment 49)	Previous Publications:	1991 1995 2007 2008 2009

Implementation dates:	For new creation*:	February 10, 2021
	For existing creation*:	February 10, 2022
	*These dates apply to the supply of fragrance mixtures (formulas) only, not to the finished consumer products in the marketplace.	

RECOMMENDATION:	**RESTRICTION**

MAXIMUM ACCEPTABLE CONCENTRATIONS IN THE FINISHED PRODUCT (%):			
Category 1	0.0077 %	Category 7A	0.088 %
Category 2	0.0023 %	Category 7B	0.088 %
Category 3	0.046 %	Category 8	0.0045 %

Rose ketones

Category 4	0.043 %	Category 9	0.084 %
Category 5A	0.011 %	Category 10A	0.30 %
Category 5B	0.011 %	Category 10B	0.30 %
Category 5C	0.011 %	Category 11A	0.17 %
Category 5D	0.011 %	Category 11B	0.17 %
Category 6	0.025 %	Category 12	No Restriction

Fragrance ingredient restriction - Note box

The above limits apply to Rose Ketones used individually or in combination. The sum of concentrations of Rose ketones isomers should not exceed the maximum concentration levels established by this Standard.

FLAVOR REQUIREMENTS:	Due to the possible ingestion of small amounts of fragrance ingredients from their use in products in Categories 1 and 6, materials must not only comply with IFRA Standards but must also be recognized as safe as a flavoring ingredient as defined by the IOFI Code of Practice (www.iofi.org). For more details see chapter 1 of the Guidance for the use of IFRA Standards.
CONTRIBUTIONS FROM OTHER SOURCES:	**NONE TO CONSIDER BEYOND TRACES (SEE ALSO THE SECTION ON CONTRIBUTIONS FROM OTHER SOURCES IN CHAPTER 1 OF THE GUIDANCE FOR THE USE OF IFRA STANDARDS)**
INTRINSIC PROPERTY DRIVING RISK MANAGEMENT:	**DERMAL SENSITIZATION**

RIFM SUMMARIES:

Maximum acceptable concentrations are based on a comprehensive safety assessment, considering various endpoints. Depending on the outcome of the safety assessment, it might be one or more endpoint(s) that will drive the derivation of the concentration levels. If more than one endpoint is of relevance, the maximum acceptable concentrations for each product category are derived from comparing maximum permitted level per endpoint consideration (e.g. dermal sensitization and/or systemic toxicity). Such maximum acceptable concentrations correspond to the lowest level obtained per category.

Additional information is available in the RIFM safety assessment for Rose ketones, which can be downloaded from the RIFM Fragrance Material Safety Assessment Center: http://fragrancematerialsafetyresource.elsevier.com/.

Rose ketones

EXPERT PANEL FOR FRAGRANCE SAFETY RATIONALE / CONCLUSION:

The Expert Panel for Fragrance Safety reviewed all the available data for Rose ketones and recommends the concentrations for the 12 different product categories, which are the maximum acceptable concentrations of Rose ketones in the various product categories.

REFERENCES:

The IFRA Standard on Rose ketones is based on at least one of the following publications:

• The RIFM Safety Assessment on Rose ketones if available at the RIFM Fragrance Material Safety Assessment Center: http://fragrancematerialsafetyresource.elsevier.com

• Api A.M., Belsito D., Bruze M., Cadby P., Calow P., Dagli M. L., Dekant W., Dent M., Ellis G., Fryer A. D., Fukayama M., Griem P., Hickey C., Kromidas L., Lalko J., Liebler D.C., Miyachi Y., Politano V.T., Renskers K., Ritacco G., Salvito D., Schultz T.W., Sipes I. G., Smith B., Vitale D., Wilcox D.K. (2015). Criteria for the Research Institute for Fragrance Materials, Inc. (RIFM) safety evaluation process for fragrance ingredients. Food Chem Toxicol. 2015 Aug;82 Suppl:S1-S19 (http://fragrancematerialsafetyresource.elsevier.com/sites/default/files/Criteria_Document_Final.pdf).

• Salvito D.T., Senna R. J., Federle T.W. (2002). A framework for prioritizing fragrance materials for aquatic risk assessment. Environ Toxicol Chem. 2002;21:1301-1308 (https://www.ncbi.nlm.nih.gov/pubmed/12069318).

Additional information on the application of IFRA Standards is available in the Guidance for the use of IFRA Standards, publicly available at www.ifrafragrance.org.

Geraniol

CAS-No.:	106-24-1 The scope of this Standard includes, but is not limited to the CAS number(s) indicated above; any other CAS number(s) used to identify this fragrance ingredient should be considered in scope as well.
Synonyms:	Geraniol 3,7-Dimethylocta-2,6-dien-1-ol 2,6-Octadien-1-ol, 3,7-dimethyl-, (e)- 2,6-Dimethyl-2,6-octadien-8-ol trans-3,7-Dimethyl-2,6-octadien-1-ol Geraniol 60 (commercial name) Geraniol Coeur (commercial name) Geraniol extra (commercial name) Geraniol SP (commercial name) Geraniol Supra (commercial name) Meranol (commercial name) Rhodinol pure (commercial name)

History:	Publication date:	2023 (Amendment 51)	Previous Publications:	2007 2020

Implementation dates:	For new creation*:	March 30, 2024
	For existing creation*:	October 30, 2025
	*These dates apply to the supply of fragrance mixtures (formulas) only, not to the finished consumer products in the marketplace.	

RECOMMENDATION:	**RESTRICTION**

MAXIMUM ACCEPTABLE CONCENTRATIONS IN THE FINISHED PRODUCT (%):			
Category 1	0.78 %	Category 7A	0.78 %
Category 2	0.25 %	Category 7B	0.78 %
Category 3	1.1 %	Category 8	0.26 %
Category 4	4.7 %	Category 9	2.8 %
Category 5A	1.2 %	Category 10A	1.1 %
Category 5B	0.78 %	Category 10B	5.3 %

Geraniol

Category 5C	0.94 %	Category 11A	0.26 %
Category 5D	0.26 %	Category 11B	0.26 %
Category 6	0.16 %	Category 12	No restriction

FLAVOR REQUIREMENTS:	Due to the possible ingestion of small amounts of fragrance ingredients from their use in products in Categories 1 and 6, materials must not only comply with IFRA Standards but must also be recognized as safe as a flavoring ingredient as defined by the IOFI Code of Practice (www.iofi.org). For more details see chapter 1 of the Guidance for the use of IFRA Standards.
CONTRIBUTIONS FROM OTHER SOURCES:	**SEE ANNEX ON CONTRIBUTIONS FROM OTHER SOURCES**
INTRINSIC PROPERTY DRIVING RISK MANAGEMENT:	**DERMAL SENSITIZATION AND SYSTEMIC TOXICITY**

RIFM SUMMARIES:

Maximum acceptable concentrations are based on a comprehensive safety assessment, considering various endpoints. Depending on the outcome of the safety assessment, it might be one or more endpoint(s) that will drive the derivation of the concentration levels. If more than one endpoint is of relevance, the maximum acceptable concentrations for each product category are derived from comparing maximum permitted level per endpoint consideration (e.g. dermal sensitization and/or systemic toxicity). Such maximum acceptable concentrations correspond to the lowest level obtained per category.

Additional information is available in the RIFM safety assessment for Geraniol, which can be downloaded from the RIFM Fragrance Material Safety Assessment Center: http://fragrancematerialsafetyresource.elsevier.com/.

EXPERT PANEL FOR FRAGRANCE SAFETY RATIONALE / CONCLUSION:

The Expert Panel for Fragrance Safety reviewed all the available data for Geraniol and recommends the concentrations for the 12 different product categories, which are the maximum acceptable concentrations of Geraniol in the various product categories.

REFERENCES:

The IFRA Standard on Geraniol is based on at least one of the following publications:

• The RIFM Safety Assessment on Geraniol if available at the RIFM Fragrance Material Safety Assessment Center: http://fragrancematerialsafetyresource.elsevier.com

• Api A.M., Belsito D., Bruze M., Cadby P., Calow P., Dagli M. L., Dekant W., Dent M., Ellis G., Fryer A. D.,

Geraniol

Fukayama M., Griem P., Hickey C., Kromidas L., Lalko J., Liebler D.C., Miyachi Y., Politano V.T., Renskers K., Ritacco G., Salvito D., Schultz T.W., Sipes I. G., Smith B., Vitale D., Wilcox D.K. (2015). Criteria for the Research Institute for Fragrance Materials, Inc. (RIFM) safety evaluation process for fragrance ingredients. Food Chem Toxicol. 2015 Aug;82 Suppl:S1-S19 (http://fragrancematerialsafetyresource.elsevier.com/sites/default/files/Criteria_Document_Final.pdf).

• Salvito D.T., Senna R. J., Federle T.W. (2002). A framework for prioritizing fragrance materials for aquatic risk assessment. Environ Toxicol Chem. 2002;21:1301-1308 (https://www.ncbi.nlm.nih.gov/pubmed/12069318).

Additional information on the application of IFRA Standards is available in the Guidance for the use of IFRA Standards, publicly available at www.ifrafragrance.org.

Linalool

CAS-No.:	78-70-6 126-90-9 126-91-0 The scope of this Standard includes, but is not limited to the CAS number(s) indicated above; any other CAS number(s) used to identify this fragrance ingredient should be considered in scope as well.
Synonyms:	78-70-6 (Linalool): 1,6-Octadien-3-ol, 3,7-dimethyl- 2,6-Dimethyl-2,7-octadien-6-ol 2,7-Octadien-6-ol, 2,6-dimethyl- 3,7-Dimethyl-1,6-octadien-3-ol 3,7-Dimethylocta-1,6-dien-3-ol Coriandrol Licareol Linalyl alcohol 126-90-9 (d-Linalool): (S)-3,7-Dimethyl-1,6-octadien-3-ol 1,6-Octadien-3-ol, 3,7-dimethyl-, (S)- 126-91-0 (l-Linalool): (R)-3,7-Dimethyl-1,6-octadien-3-ol 1,6-Octadien-3-ol, 3,7-dimethyl-, (R)-

History:	Publication date:	2004 (Amendment 38)	Previous Publications:	Not applicable.

Implementation dates:	For new creation*:	May 6, 2004
	For existing creation*:	May 6, 2005
	*These dates apply to the supply of fragrance mixtures (formulas) only, not to the finished consumer products in the marketplace.	

RECOMMENDATION:	**SPECIFICATION**

FRAGRANCE INGREDIENT SPECIFICATION:	Oxidation products of Linalool, especially hydroperoxides, have been demonstrated to be potent sensitizers. d-, l- and dl-Linalool and natural products containing substantial amounts of it, should only be used when the level of (hydro)peroxides is kept to the lowest practical level, for instance by adding antioxidants at the time of production. The addition of 0.1% BHT or α-Tocopherol for example has shown great efficiency. Such products should have a peroxide value of less than 20 millimoles per liter,

Linalool

	determined according to the IFRA analytical method for the determination of the peroxide value, which can be downloaded from the IFRA website (www.ifrafragrance.org).

FLAVOR REQUIREMENTS:	Due to the possible ingestion of small amounts of fragrance ingredients from their use in products in Categories 1 and 6, materials must not only comply with IFRA Standards but must also be recognized as safe as a flavoring ingredient as defined by the IOFI Code of Practice (www.iofi.org). For more details see chapter 1 of the Guidance for the use of IFRA Standards.

CONTRIBUTIONS FROM OTHER SOURCES:	**SEE FRAGRANCE MATERIAL SPECIFICATION**

Natural products known to be rich in Linalool include bois de rose, coriander or ho wood oil.

INTRINSIC PROPERTY DRIVING RISK MANAGEMENT:	**DERMAL SENSITIZATION**

EXPERT PANEL FOR FRAGRANCE SAFETY RATIONALE / CONCLUSION:

The Expert Panel for Fragrance Safety reviewed all the available data for Linalool. Based on their expert judgement, they recommend to use the fragrance ingredient according to its specification mentioned above.

REFERENCES:

The IFRA Standard on Linalool is based on at least one of the following publications:

• The RIFM Safety Assessment on Linalool is available at the RIFM Safety Assessment Sheet Database: http://fragrancematerialsafetyresource.elsevier.com/.

• Api A.M., Belsito D., Bruze M., Cadby P., Calow P., Dagli M. L., Dekant W., Dent M., Ellis G., Fryer A. D., Fukayama M., Griem P., Hickey C., Kromidas L., Lalko J., Liebler D.C., Miyachi Y., Politano V.T., Renskers K., Ritacco G., Salvito D., Schultz T.W., Sipes I. G., Smith B., Vitale D., Wilcox D.K. (2015). Criteria for the Research Institute for Fragrance Materials, Inc. (RIFM) safety evaluation process for fragrance ingredients. Food Chem Toxicol. 2015 Aug;82 Suppl:S1-S19 (doi: 10.1016/j.fct.2014.11.014). (http://fragrancematerialsafetyresource.elsevier.com/sites/default/files/Criteria_Document_Final.pdf).

• IDEA project (International Dialogue for the Evaluation of Allergens) Final Report on the QRA2: Skin Sensitisation Quantitative Risk Assessment for Fragrance Ingredients, September 30, 2016 (http://www.ideaproject.info/uploads/Modules/Documents/qra2-dossier-final--september-2016.pdf).

• Salvito D.T., Senna R. J., Federle T.W. (2002). A framework for prioritizing fragrance materials for aquatic risk assessment. Environ Toxicol Chem. 2002;21:1301-1308. (https://www.ncbi.nlm.nih.gov/pubmed/12069318).

• M.Skold, A.Borje, M.Matura and A.-T.Karlberg., 2002. Studies on the autoxidation and sensitizing capacity of the fragrance chemical linalool, identifying a linalool hyperperoxide. Contact Dermatitis, 46(5), 267-272.

Linalool

• M.Skold, A.Borje, M.Matura and A.-T.Karlberg., 2002. Sensitization studies on the fragrance chemical linalool, with respect to auto-oxidation. Contact Dermatitis, 46 (Suppl. 4), 20.

Additional information on the application of IFRA Standards is available in the Guidance for the use of IFRA Standards, publicly available at www.ifrafragrance.org.