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).	**Molecular formula:**	$C_{13}H_{18}O$ $C_{13}H_{20}O$
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		

Rose ketones

	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) 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

Rose ketones

	2-Buten-1-one, 1-(2,2-dimethyl-6-methylenecyclohexyl)- Damascone γ- γ-Damascone (commercial name) 39872-57-6 (C13H20O): 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 submissions*:	February 10, 2021
	For existing fragrance compounds*:	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**

Rose ketones

RESTRICTION LIMITS 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 %
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 (SEE ALSO THE SECTION ON CONTRIBUTIONS FROM OTHER SOURCES IN CHAPTER 1 OF THE GUIDANCE FOR THE USE OF IFRA STANDARDS)**

Rose ketones

INTRINSIC PROPERTY DRIVING RISK MANAGEMENT:	DERMAL SENSITIZATION

RIFM SUMMARIES:

Recommended concentration levels 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 recommended concentration levels for each product category is derived from comparing maximum permitted level per endpoint consideration (dermal sensitization and/or systemic toxicity). Such recommended concentration levels 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 Safety Assessment Sheet Database: http://fragrancematerialsafetyresource.elsevier.com/.

EXPERT PANEL FOR FRAGRANCE SAFETY RATIONALE / CONCLUSION:

The Expert Panel for Fragrance Safety reviewed all the available data for Rose ketones and recommends the limits for the 12 different product categories, which are the acceptable use levels 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 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 (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

Rose ketones

(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.