

## Farnesol

<b>CAS-No.:</b>	4602-84-0	<b>Molecular formula:</b>	C <sub>15</sub> H <sub>26</sub> O
	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.	<b>Structure:</b>	
<b>Synonyms:</b>	2,6,10-Dodecatrien-1-ol, 3,7,11-trimethyl-Farnesyl alcohol Trimethyl dodecatrienol 3,7,11-Trimethyl-2,6,10-dodecatrien-1-ol		

<b>History:</b>	Publication date:	2020 (Amendment 49)	Previous Publications:	1979 1980 2002 2006
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<b>Implementation dates:</b>	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 / SPECIFICATION

RESTRICTION LIMITS IN THE FINISHED PRODUCT (%):			
Category 1	0.21 %	Category 7A	2.4 %
Category 2	0.062 %	Category 7B	2.4 %
Category 3	1.2 %	Category 8	0.12 %
Category 4	1.2 %	Category 9	2.3 %
Category 5A	0.29 %	Category 10A	8.1 %
Category 5B	0.29 %	Category 10B	8.1 %

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Category 5C	0.29 %	Category 11A	4.5 %
Category 5D	0.29 %	Category 11B	4.5 %
Category 6	0.68 %	Category 12	No Restriction

**FRAGRANCE INGREDIENT SPECIFICATION:**

Farnesol should only be used as a fragrance ingredient if it contains a minimum of 96% of farnesol isomers as determined by GLC.

**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](http://www.iofi.org)). For more details see chapter 1 of the Guidance for the use of IFRA Standards.

**CONTRIBUTIONS FROM OTHER SOURCES:**

**SEE ANNEX I**

**ANNEX I**

**Natural Complex Substances (NCS) containing Farnesol**

Concentration in NCS (%)	CAS number of ingredient	Name of NCS	Botanical name	CAS number of NCS	Essential oil category
5	4602-84-0	Ambrette seed absolute	Hibiscus abelmoschus L.	8015-62-1	H2.1
3	4602-84-0	Ambrette seed oil	Hibiscus abelmoschus L.	8015-62-1	H2.12
0.2	4602-84-0	Ambrette tincture	Hibiscus abelmoschus L.	8015-62-1	H2.31
1.2	4602-84-0	Arnica absolute	Arnica montana L.	8057-65-6	F2.1
5	4602-84-0	Arnica oils, montana	Arnica montana L.	8057-65-6	F2.12
0.1	4602-84-0	Artemisia arborescens extract	Artemisia arborescens L.	92113-09-2	E2.13
0.2	4602-84-0	Baccharis dracunculifolia oil	Baccharis dracunculifolia	68991-21-9	E2.12
0.1	4602-84-0	Cabreuva oil	Myrocarpus frondosus Fr. Allem	68188-03-4	D2.12

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0.5	4602-84-0	Calamus oil	<i>Acorus calamus</i> L.	8015-79-0	A2.12
2	4602-84-0	Cananga oil	<i>Cananga odorata</i> (Lam.) Hook. f. & Thomson (forma <i>macrophylla</i> Steenis)	68606-83-7	F2.12
0.01	4602-84-0	Cinnamon bark oil, Laos	<i>Cinnamomum loureiroi</i> Nees	97659-68-2	C2.12
0.12	4602-84-0	Cinnamon leaf oil	<i>Cinnamomum zeylanicum</i> Blume	8015-91-6	E2.12
0.1	4602-84-0	Gardenia tahitensis oil	<i>Gardenia tahitensis</i> DC.	683748-01-8	F2.13
0.6	4602-84-0	Jasmine sambac absolute	<i>Jasminum sambac</i> (L.) Aiton	103798-23-6	F2.24
8	4602-84-0	Orange blossoms absolute	<i>Citrus aurantium</i> L. spp. <i>Amara</i> Link	8016-38-4	F2.1
1.8	4602-84-0	Orange flower oil, bitter (neroli and neroli bigarade)	<i>Citrus aurantium</i> L. spp. <i>Amara</i> Link	8016-38-4	F2.12
1	4602-84-0	Palmarosa oil	<i>Cymbopogon martinii</i> (Roxb.) Wats	8014-19-5	E2.12
1	4602-84-0	Rose oil	<i>Rosa x damascena</i> Mill.	8007-01-0	F2.12
0.7	4602-84-0	Sandalwood oil	<i>Santalum album</i> L.	8006-87-9	D2.12
11	4602-84-0	Sandalwood oil, Australian	<i>Santalum spicata</i> (R.Br.) A.DC.	8024-35-9	D2.12
0.7	4602-84-0	Sandalwood oil, New Caledonian	<i>Santalum austrocaledonicum</i> Vieill	91845-48-6	D2.12
0.3	4602-84-0	Tuberose absolute	<i>Polianthes tuberosa</i> L.	8024-05-3	F2.1
0.3	4602-84-0	Tuberose concrete	<i>Polianthes tuberosa</i> L.	8024-05-3	F2.7
0.1	4602-84-0	Yarrow oil	<i>Achillea millefolium</i> L.	8022-07-9	E2.12
1.4	4602-84-0	Ylang ylang oil I	<i>Cananga odorata</i> (Lam.) Hook. f. & Thomson oil (forma <i>genuine</i> Steenis)	8006-81-3	F2.12.1
2	4602-84-0	Ylang ylang oil II	<i>Cananga odorata</i> (Lam.) Hook. f. & Thomson oil (forma <i>genuine</i> Steenis)	8006-81-3	F2.12.2
1.5	4602-84-0	Ylang ylang oil III	<i>Cananga odorata</i> (Lam.) Hook. f. & Thomson oil (forma <i>genuine</i> Steenis)	8006-81-3	F2.12.3
1.5	4602-84-0	Ylang, Ylang	<i>Cananga odorata</i>	8006-81-3	F2.12 X

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		oil extra	(Lam.) Hook. f. & Thomson oil (forma genuine Steenis)		
2.5	4602-84-0	Ylang, Ylang oil, terpene-free	Cananga odorata (Lam.) Hook. f. & Thomson oil (forma genuine Steenis)	68952-44-3	F2.29

This is a non-exhaustive indicative list of typical natural presence for Farnesol and is intended to be used in the absence of own analytical data. If analysis has shown that the level of the restricted ingredient in a natural complex substance is different from what is provided in this Annex I, then the analytically determined level should be used in place of the indicative level.

It should further be noted that natural complex substances themselves can be restricted by an IFRA Standard.

For a detailed list of natural contributions, please refer to the Annex I of IFRA Standards, publicly available on the IFRA website ([www.ifrafragrance.org](http://www.ifrafragrance.org)).

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

**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 Farnesol, 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 Farnesol and recommends the limits for the 12 different product categories, which are the acceptable use levels of Farnesol in the various product categories.

In addition, they recommend to use Farnesol according to the specification above mentioned.

**REFERENCES:**

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

- The RIFM Safety Assessment on Farnesol if available at the RIFM Safety Assessment Sheet Database: <http://fragrancematerialsafetyresource.elsevier.com>

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- 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](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>).

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](http://www.ifrafragrance.org).