

<b>FARNESOL</b>
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**CAS N°:** 4602-84-0

**Empirical formula:** C<sub>15</sub>H<sub>26</sub>O  
 HOCH<sub>2</sub>CH=C(CH<sub>3</sub>)CH<sub>2</sub>CH<sub>2</sub>CH=C(CH<sub>3</sub>)CH<sub>2</sub>CH<sub>2</sub>CH=C(CH<sub>3</sub>)<sub>2</sub>

**Synonyms:** 2,6,10-Dodecatrien-1-ol, 3,7,11-trimethyl-Farnesyl alcohol  
 Trimethyl dodecatrienol  
 3,7,11-Trimethyl-2,6,10-dodecatrien-1-ol

**History:** Initial reviews: October 1979, February 1980, 2002

Current revision date: 2006

**Implementation date:** for new submissions\*: June 11, 2007

for existing fragrance compounds\*: June 11, 2008

**Next review date:** 2011

\* This date applies to the supply of fragrance compounds (formulas) only, not to the finished products in the marketplace.

**STANDARD: RESTRICTED + SPECIFICATION**

**RESTRICTIONS:**

**Limits in the finished product:**

For a description of the categories, refer to the QRA Informational Booklet.

Category 1	0.08 %	Category 7	0.2 %
Category 2	0.11 %	Category 8	2 %
Category 3	0.4 %	Category 9	5.0 %
Category 4	1.2 %	Category 10	2.5 %
Category 5	0.6 %	Category 11	See Note box
Category 6	2%		

**Note box:** Category 11 includes all non-skin contact or incidental skin contact products. Due to negligible skin contact, the concentration of a fragrance ingredient should not exceed the usual concentration of the fragrance compound in the finished product.

For example, hypothetically if the usual concentration of a fragrance compound in the final product, e.g. a candle, is at 5%, then any individual fragrance ingredient (in this case farnesol) must not exceed 5% in the candle.

**This Standard replaces the existing one on farnesol, which only contained the purity criterion as outlined below.**

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

**Contribution from other sources:** See Annex 1

**Critical effect:** Sensitization

**RIFM summaries:**

### Farnesol - Sensitization Potency Estimation Based on Weight of Evidence

LLNA weighted mean EC3 values ( $\mu\text{g}/\text{cm}^2$ ) [no. studies]	Human Data			Potency Classification <sup>2</sup>	WOE NESIL <sup>3</sup> ( $\mu\text{g}/\text{cm}^2$ )
	NOEL – HRIPT (induction) ( $\mu\text{g}/\text{cm}^2$ )	NOEL – MAX (induction) ( $\mu\text{g}/\text{cm}^2$ )	LOEL1 (induction) ( $\mu\text{g}/\text{cm}^2$ )		
1200 [2]	2755	NA	68974	Weak	2700

NOEL = No observed effect level; HRIPT = Human Repeat Insult Patch Test; MAX = Human Maximization Test; LOEL = lowest observed effect level; NA = Not Available

<sup>1</sup>Data derived from HRIPT or Human Max tests

<sup>2</sup>Gerberick *et al.*, 2001

WoE NESIL limited to two significant figures

LOEL from human maximization test, not a human repeated insult patch test.

### Rexpan Rationale / Conclusion:

The RIFM Expert Panel reviewed the critical effect data for Farnesol and based on the weight of evidence established the No Expected Sensitization Induction Level (NESIL) as 2700  $\mu\text{g}/\text{cm}^2$ . They recommend the limits for the 11 different product categories, which are the acceptable use levels of Farnesol in the various product categories. These were derived from the application of the exposure-based quantitative risk assessment approach for fragrance ingredients, which is detailed in the QRA Expert Group\*, Technical Dossier of March 15, 2006.

### References:

QRA Expert Group\* (AM Api, DA Basketter, PA Cadby, M-F Cano, G Ellis, GF Gerberick, P Griem, PM McNamee, CA Ryan and R Safford), Dermal Sensitization Quantitative Risk Assessment (QRA) for Fragrance Ingredients, Technical Dossier, March 15, 2006, <http://www.rifm.org/pub/publications.asp>.

Research Institute for Fragrance Materials, Inc (1976). Human maximization test with Farnesol. RIFM report number 1797, 11b November (RIFM, Woodcliff Lake, NJ USA).

Research Institute for Fragrance Materials, Inc (1977). Human maximization test with Farnesol. RIFM report number 1702, 7 February (RIFM, Woodcliff Lake, NJ USA).

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Research Institute for Fragrance Materials, Inc (2004). Local Lymph Node Assay on Farnesol. Unpublished report from Symrise GmbH & Co., Report number 47136 (RIFM, Woodcliff Lake, NJ USA).

Research Institute for Fragrance Materials, Inc (2004a). Local Lymph Node Assay on Farnesol. Unpublished report from Symrise GmbH & Co., Report number 47137 (RIFM, Woodcliff Lake, NJ USA).

Research Institute for Fragrance Materials, Inc (2004b). Repeated insult patch test of Farnesol in human subjects. Unpublished report from Symrise GmbH & Co., Report number 47190 (RIFM, Woodcliff Lake, NJ USA).

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