

cis-and trans-Asarone

CAS-No.:	494-40-6 2883-98-9 5273-86-9	Molecular formula:	C ₁₂ H ₁₆ O ₃
	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 these fragrance ingredients should be considered in scope as well.	Structure:	
Synonyms:	<p>494-40-6: Benzene, 1,2,4-trimethoxy-5-(1-propen-1-yl)- (unspecified isomer) (E)-and (Z)-2,4,5-Trimethoxypropen-1-yl benzene</p> <p>2883-98-9: α-Asarone trans-Asarone Benzene, 1,2,4-trimethoxy-5-(1-propenyl)-, (E)-trans-Isoasarone</p> <p>5273-86-9: β-Asarone cis-β-Asarone Benzene, 1,2,4-trimethoxy-5-(1-propenyl)-, (Z)-cis-Isoasarone</p>		

History:	Publication date:	2006 (Amendment 40)	Previous Publications:	1991
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Implementation dates:	For new submissions*:	Not applicable.
	For existing fragrance compounds*:	December 1991
*These dates apply to the supply of fragrance mixtures (formulas) only, not to the finished consumer products in the marketplace.		

RECOMMENDATION:	PROHIBITION / RESTRICTION
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FRAGRANCE INGREDIENT PROHIBITION:	cis- and trans-Asarone as such should not be used as fragrance ingredients.
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The natural extracts containing cis- and trans-Asarone should not be used as substitutes for this substance.

RESTRICTION LIMITS IN THE FINISHED PRODUCT (%):

Category 1	See notebook	Category 7A	See notebook
Category 2	See notebook	Category 7B	See notebook
Category 3	See notebook	Category 8	See notebook
Category 4	See notebook	Category 9	See notebook
Category 5A	See notebook	Category 10A	See notebook
Category 5B	See notebook	Category 10B	See notebook
Category 5C	See notebook	Category 11A	See notebook
Category 5D	See notebook	Category 11B	See notebook
Category 6	See notebook	Category 12	See notebook

Fragrance ingredient restriction - Note box

On the basis of established maximum concentration levels of this substance in commercially available natural sources (like essential oils, extracts and absolutes), exposure to this substance from the use of these oils and extracts (e.g. Calamus oils) is regarded acceptable as long as the level of cis- and trans-Asarone in the finished consumer product does not exceed 100ppm (0.01 %).

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 I

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ANNEX I					
Natural Complex Substances (NCS) containing cis-and trans-Asarone					
Concentration in NCS (%)	CAS number of ingredient	Name of NCS	Botanical name	CAS number of NCS	Essential oil category
0.7	2883-98-9	Calamus oil	Acorus calamus L.	8015-79-0	A2.12
70	5273-86-9	Calamus oil	Acorus calamus L.	8015-79-0	A2.12
3.7	2883-98-9	Cubeb oil	Piper cubeba L. f.	8007-87-2	G2.12
0.1	2883-98-9	Verbena absolute	Lippia citriodora (L.) Kunth	8024-12-2	E2.1
0.01	5273-86-9	Verbena absolute	Lippia citriodora (L.) Kunth	8024-12-2	E2.1
70.7	494-40-6	Calamus oil	Acorus calamus L.	8015-79-0	A2.12

The natural contribution of cis-and trans-Asarone is determined by the sum of the natural contributions of each of its isomers.

This is a non-exhaustive indicative list of typical natural presence for cis-and trans-Asarone 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.ifragrance.org).

INTRINSIC PROPERTY DRIVING RISK MANAGEMENT:	CARCINOGENICITY
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EXPERT PANEL FOR FRAGRANCE SAFETY RATIONALE / CONCLUSION:

The Expert Panel for Fragrance Safety reviewed all the available data for cis-and trans-Asarone and recommends not to use cis-and trans-Asarone as or in fragrance ingredients in any finished product application.

However, the presence of cis-and trans-Asarone in natural extracts used as ingredients in finished consumer products is tolerated only according to the upper concentration level mentioned in the Notebox if the natural extracts are not being used to provide an alternative, indirect source of the banned substance.

REFERENCES:

The IFRA Standard on cis-and trans-Asarone is based on at least one of the following publications:

- The RIFM Safety Assessment on cis-and trans-Asarone 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.,

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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>).

- R.W. Wiseman, E.C. Miller et al. (1987), *Cancer Res.* 47,2275-2283.

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.