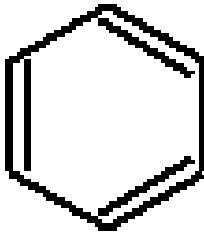


Benzene

CAS-No.:	71-43-2 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.	Molecular formula:	C ₆ H ₆
		Structure:	
Synonyms:	Benzol		

History:	Publication date:	2004 (Amendment 38)	Previous Publications:	1988
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Implementation dates:	For new submissions*:	Not applicable.
	For existing fragrance compounds*:	Not applicable.
	*These dates apply to the supply of fragrance mixtures (formulas) only, not to the finished consumer products in the marketplace.	

RECOMMENDATION:

PROHIBITION / SPECIFICATION

FRAGRANCE INGREDIENT PROHIBITION:

Benzene should not be used as a fragrance ingredient.

FRAGRANCE INGREDIENT SPECIFICATION:

The level of Benzene has to be kept as low as practicable and should never exceed 1 ppm in the fragrance compound/mixture or fragrance oil.
Since the introduction of the original Restriction on the use of Benzene by IFRA in 1988, there have been significant changes in

Benzene

	manufacturing practices that permit the reduction of the maximum permitted level of this substance. These include use of technological improvements allowing replacement of this solvent for the extraction of fragrance materials and in eliminating its presence as an impurity in alternative extraction solvents.
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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)
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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 Benzene and recommends not to use Benzene as or in fragrance ingredients in any finished product application other than described in the above fragrance ingredient specification.

REFERENCES:

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

- The RIFM Safety Assessment on Benzene 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:

Benzene

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>).
- IARC (International Agency for Research on Cancer) Monographs Vol 7, p. 203 (1974); Vol 29, p. 93 and 391 (1982); Suppl. 7, p. 120 (1987).
- CSTEE (Scientific Committee on Toxicity, Ecotoxicity and the Environment), Opinion on the results of the Risk Assessment of Benzene carried out in the framework of Council Regulation (EEC) 793/93 as adopted on Feb., 6, 2003.

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.