

Substance Information Document

1,8-Cineole**1. Substance identity**

Name	1,8-cineole
Synonyms	Eucalyptol, 1,8-epoxy-p-menthane
IUPAC Name	1,3,3-trimethyl-2-oxabicyclo[2.2.2]octane
CAS	470-82-6

2. Toxicological information

Expert groups, including EFSA and JECFA have concluded that 1,8-Cineole is not genotoxic. Carcinogenicity data are limited, nevertheless one study reviewed and considered by the CIR expert panel, EFSA, JECFA, and FEMA was “negative and gave no cause for concern”.

1,8-Cineole has produced evidence of respiratory tract irritation in both animals (rabbits sprayed with a 5% solution for up to 9 months) and humans. Respiratory tract sensitization was identified in a single human case (asthma attacks from 1,8-cineole at 0.02% in toothpaste). 1,8-Cineole was not irritating to the skin in humans (48-hour covered contact) and animals (24-hour patch tests in rabbits), however shows evidence of skin sensitization (mouse LLNA).

Studies in laboratory animals suggest that 1,8-cineole is of moderate-low acute oral toxicity and repeated-dose toxicity (LD50 rats 1550-2480 mg/kg bw, LD50 mice 3849 mg/kg bw, NOAEL 30 mg/kg bw/day 28-day). Limited information is available on the acute- and repeated-dose toxicity of 1,8-cineole after inhalation or dermal exposure.

Developmental and reproductive toxicity was assessed by FEMA experts, who concluded on 300 mg/kg bw/day as NOAEL.

Whereas animal studies did not reveal cardiotoxicity, acute exposure in human showed tachycardia with recovery within 24 hours for most patients.

JECFA	ALIPHATIC AND AROMATIC ETHERS (JECFA 52, 2004) (inchem.org)
FEMA	3. GRAS Substances(2001-3124)_0.pdf (femaflavor.org)
EFSA	Scientific Opinion on Flavouring Group Evaluation 23, Revision 4 (FGE.23Rev4): Aliphatic, alicyclic and aromatic ethers including anisole derivatives from chemical groups 15, 16, 22, 26 and 30 - - 2013 - EFSA Journal - Wiley Online Library Scientific Opinion on Flavouring Group Evaluation 75, Revision 1 (FGE.75Rev1): Consideration of tetrahydrofuran derivatives evaluated by JECFA (63rd meeting) structurally related to

	tetrahydrofuran derivatives evaluated by EFSA in FGE.33 (2008) (wiley.com)
ECHA – REACH dossier	Registration Dossier - ECHA (europa.eu)
PUBCHEM	Eucalyptol C10H18O - PubChem (nih.gov)
CIR	Eucalyptus.pdf (cir-safety.org)
OSHA	-

3. Addictiveness and attractiveness

The European Commission’s Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR), in their review of the addictiveness and attractiveness of tobacco additives, noted that “eucalyptol has an effect on the lungs as a bronchodilator”, which has been associated with an increased absorption of inhaled nicotine.

An EMA report notes that 1,8-cineole is considered, by some, as the active ingredient in eucalyptus oil, and that the “increased relaxation feeling, due to 1,8-cineole inhalation, may create a feeling of well-being in patients with coughs and colds”. Another effect “is that cineole causes a sensation of cold and this is accompanied with a facilitated respiration”.

SCENIHR	Addictiveness and Attractiveness of Tobacco Additives (europa.eu)
EMA	Assessment report on Eucalyptus globulus Labill., folium (europa.eu) Terpenic derivatives - Art.31 - AR for publication (europa.eu)
PUBMED	-