

Substance Information Document

alpha-Pinene

1. Substance identity

Name	alpha-Pinene
Synonyms	α -pinene; 2,6,6-trimethylbicyclo[3.1.1]hept-2-ene; 2-Pinene; Acintene A
IUPAC Name	2,6,6-trimethylbicyclo[3.1.1]hept-2-ene
CAS	80-56-8

2. Toxicological information

Alpha-Pinene was assessed in the BlueScreen assay and found negative for both cytotoxicity and genotoxicity, with and without metabolic activation. Alpha-pinene was not mutagenic in Ames test and was considered non-clastogenic in an *in vitro* micronucleus test. Based on those studies, EFSA, ECHA and RIFM experts considered that α -pinene does not present a concern for genotoxic potential.

Carcinogenicity data were not available.

Alpha-Pinene has produced evidence of skin irritation in humans (in vitro with human epidermis). Limited studies were available for assessing its skin sensitization potential. Based on the existing data (Local lymph node assay LLNA) and read-across analog β -pinene (CAS # 127-91-3), the RIFM expert panel considered α -pinene as a sensitizer with a NESIL of 7000 $\mu\text{g}/\text{cm}^2$.

Studies in laboratory animals suggest that alpha-Pinene is of moderate-low acute oral toxicity and repeated-dose toxicity (LD50 rats 500 mg/kg bw, NOAEL 788 mg/kg bw/day 21-day).

Repeated-dose toxicity studies by inhalation indicates the moderate-low repeated dose toxicity of alpha-pinene by inhalation (NOAEC > 500mg/m³ 90-days in rats, NOAEC > 280mg/m³ 90-days in mice). Limited information is available on the acute- and repeated-dose toxicity of alpha-Pinene after dermal exposure (Dermal LD50 rats >2000 mg/kg bw).

Developmental and reproductive toxicity was assessed by RIFM and ECHA experts, who concluded on 358 mg/kg bw/day as NOAEL for developmental toxicity and a NOAEL of 118 for fertility.

JECFA	v54je01.pdf (inchem.org)
FEMA	The FEMA GRAS assessment of aliphatic and aromatic terpene hydrocarbons used as flavor ingredients (femaflavor.org)
EFSA	Scientific opinion on Flavouring Group Evaluation 25, Revision 3 (FGE.25Rev3): Aliphatic hydrocarbons from chemical group 31 - - 2015 - EFSA Journal - Wiley Online Library Scientific Opinion on Flavouring Group Evaluation 78, Revision 1 (FGE.78Rev1): Consideration of aliphatic and alicyclic and aromatic

	hydrocarbons evaluated by JECFA (63rd meeting) structurally related to aliphatic and aromatic hydrocarbons evaluated by EFSA in FGE.25Rev2 - - 2011 - EFSA Journal - Wiley Online Library Scientific Opinion on Flavouring Group Evaluation 78, Revision 2 (FGE.78Rev2): Consideration of aliphatic and alicyclic and aromatic hydrocarbons evaluated by JECFA (63rd meeting) structurally related to aliphatic hydrocarbons evaluated by EFSA in FGE.25Rev3 - - 2015 - EFSA Journal - Wiley Online Library
ECHA – REACH dossier	Registration Dossier - ECHA (europa.eu)
PUBCHEM	alpha-Pinene C10H16 - PubChem (nih.gov)
CIR	-
OSHA	-

3. Addictiveness and attractiveness

No substance-specific data were identified.

SCENIHR	-
EMA	-
PUBMED	Toxicological Responses of α-Pinene-Derived Secondary Organic Aerosol and Its Molecular Tracers in Human Lung Cell Lines - PubMed (nih.gov) RIFM fragrance ingredient safety assessment, α-pinene, CAS Registry Number 80-56-8 - PubMed (nih.gov)