Substance Information Document

Menthyl acetate

1. Substance identity

Name	Menthyl acetate
Synonyms	Menthol acetate (isomer unspecified) Menthyl acetate racemic 5-Methyl-2-(1-methylethyl)cyclohexanol acetate 2-Isopropyl-5-methylcyclohexyl acetate 1-Isopropyl-4-methylcyclohex-2-yl acetate p-Menth-3-yl acetate
IUPAC Name	(5-methyl-2-propan-2-ylcyclohexyl) acetate
CAS	16409-45-3

2. Toxicological information

No respiratory, oral and eye irritation/sensitization-specific data were identified for humans. Menthyl acetate produced no irritation on the skin (25 subjects) or only erithema or slight erithema in a closed patch test (4/380 subjects). A RIFM Expert Panel concluded that, based on existing data, the compound does not present a concern for skin sensitisation.

The oral LD_{50} value in the rat was reported as 7.62 mL/kg bw [equivalent to 7030 mg/kg bw] after single doses of menthyl acetate were administered acutely by gavage, indicating a very low degree of acute oral toxicity. Dermal LD_{50} values were >5000 mg/kg bw, indicating a very low order of acute dermal toxicity.

For repeated-dose exposure, a RIFM Expert Panel noted that the compound is likely hydrolysed to menthol, and therefore considered data for this read-across compound to be relevant. The REACH registration dossier reports the NOAEL for rats as >7500 ppm (>375 mg/kg bw/day; the highest dose tested). No human data are available for acute and repeat-dose exposure in humans.

A RIFM Expert Panel concluded that, based on the available data, DL-menthyl acetate “does not present a concern for genotoxic potential, and this can be extended to menthyl acetate.

No substance-specific data were identified for carcinogenicity, however, a RIFM Expert Panel considered the results of 2-year carcinogenicity studies with the read-across substance DL-menthol to be relevant, which showed no tumor forming in rats with about 375 or 750 mg/kg bw/day menthyl acetate. No reproductive and developmental toxicity was detected in the study and no human data are available.

The Joint FAO/WHO Expert Committee on Food Additives concluded that the use of menthyl acetate as a food flavouring is of “no safety concern” at then-current estimated intakes of 420 and 560 µg/person/day in Europe and the US, respectively.

JECFA	927. Introduction (WHO Food Additives Series 42) (inchem.org)

FEMA	MENTHYL ACETATE (ISOMER UNSPECIFIED) | FEMA (femaflavor.org)
EFSA	Scientific Opinion on Flavouring Group Evaluation 9, Revision 6 (FGE.09Rev6): Secondary alicyclic saturated and unsaturated alcohols, ketones and esters containing secondary alicyclic alcohols from chemical group 8 and 30, and an ester of a phenol derivative from chemical group 25 (wiley.com)
ECHA – REACH dossier	Registration Dossier - ECHA (europa.eu)
PUBCHEM	Menthyl acetate | C12H22O2 - PubChem (nih.gov)
CIR	-
OSHA	-

3. Addictiveness and attractiveness

p-menthane-3 esters (which would include menthyl acetate) could have cooling and irritation-masking effects similar to those of menthol. No sedative effect was noted for menthyl acetate in groups of mice exposed to 200-1600 mg/kg bw by intraperitoneal injection. In an investigation into the most common flavouring ingredients added to e-liquids on the Dutch market, menthyl acetate (isomer not specified) was identified in 2% of e-liquid samples. The investigators noted that such flavourings increase e-cigarette attractiveness and use and thereby exposure to potentially toxic ingredients.

SCENIHR	Final Opinion on Additives used in tobacco products (Opinion 1) (europa.eu)
EMA	-
PUBMED	Ambulation-promoting effect of peppermint oil and identification of its active constituents - PubMed (nih.gov)