

Substance Information Document

Phenylcarbinol

1. Substance identity

Name	Phenylcarbinol
Synonyms	Benzyl alcohol
IUPAC Name	phenylmethanol
CAS	100-51-6

2. Toxicological information

Phenylcarbinol has a low skin irritation potential; and a moderate eye irritation concluded from a reliable guideline test on rabbits. The No Expected Sensitization Induction Level (NESIL) of 5900 µg/cm² has been reported based on sensitisation reactions observed in exposed humans.

Repeated-dose inhalation studies (rats exposed to highest tested concentration for 6 hours/day, 5 days/week, for 4 weeks) suggested a NOAEC of 1072 mg/m³. Oral studies gave a NOAELs of 200 and 400 mg/kg bw/day (the highest tested doses) following chronic exposure of rats and mice, respectively.

Available inhalation health-based guidance values of 0.4 and 4 mg/m³ was proposed from the German Working Group on Indoor Air Guidelines, and a “lowest concentration of interest” of 0.1 mg/m³ from a study supported by the Danish EPA. JECFA has recently updated its oral ADI to an equivalent of 17.7 mg/kg bw, while EFSA recommends an ADI of 4 mg/kg bw and the US EPA has derived a provisional chronic RfD of 0.1 mg/kg bw/day.

Expert groups including EFSA did not consider that phenylcarbinol present a significant genotoxicity concern. It was not carcinogenic in reliable 2-year oral studies on rats and mice. The limited number of studies on the fertility effects of phenylcarbinol did not identify any concerns. Developmental toxicity was not observed in limited screening assays on mice.

JECFA	BENZYL DERIVATIVES (JECFA Food Additives Series 48) (inchem.org) Benzoic acid- its salts Tox and dietary exposure information 18june2021-summary-and-conclusions.pdf (who.int)
FEMA	3. GRAS Substances(2001-3124)_0.pdf (femaflavor.org)
EFSA	Scientific Opinion on the safety and efficacy of benzyl alcohols, aldehydes, acids, esters and acetals (chemical group 23) when used as flavourings for all animal species (wiley.com) Re-evaluation of benzyl alcohol (E 1519) as food additive - - 2019 - EFSA Journal - Wiley Online Library
ECHA – REACH dossier	Registration Dossier - ECHA (europa.eu)

PUBCHEM	Benzyl Alcohol C6H5CH2OH - PubChem (nih.gov)
CIR	Safety Assessment of Benzyl Alcohol, Benzoic Acid and its Salts, and Benzyl Benzoate (personalcarecouncil.org)
OSHA	BENZOATES.doc (oecd.org)

3. Addictiveness and attractiveness

The European Commission's Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR, 2016) and the European Medicines Agency (EMA, 2017a) both note that phenylcarbinol is a local anaesthetic.

Addictiveness potential of phenylcarbinol, is currently unclear based on limited studies. 1-hour inhalation exposure to an unspecified concentration of phenylcarbinol had sedative effects on exposed mice. Certain evidence of neurotoxicity (including staggering, dizziness and lethargy) has been reported, which may be relevant to addictiveness.

Investigations into common flavouring ingredients added to e-liquids on the Dutch market, noted that phenylcarbinol (reportedly providing a "faint, sweet, almond fruity, somewhat chemical" flavour) increase e-cigarette attractiveness and use.

SCENIHR	Addictiveness and Attractiveness of Tobacco Additives (europa.eu)
EMA	Benzyl alcohol and benzoic acid group used as excipients (europa.eu) Information for the package leaflet for fragrances containing allergens used as excipients in medicinal products for human use (europa.eu)
PUBMED	Comprehensive overview of common e-liquid ingredients and how they can be used to predict an e-liquid's flavour category - PubMed (nih.gov) Benzyl alcohol increases voluntary ethanol drinking in rats - PubMed (nih.gov)