Substance Information Document

Phenethyl acetate

1. Substance identity

Name	Phenethyl acetate
Synonyms	2-Phenethyl acetate; Acetic acid, 2-phenylethyl ester; Acetic acid, phenethyl ester; Phenethyl alcohol, acetate; Phenylethanol acetate
IUPAC Name	2-phenylethyl acetate
CAS	103-45-7

2. Toxicological information

Phenethyl acetate was slightly absorbed into the epithelium and hair follicles of guinea pigs exposed to 50% concentration of phenethyl acetate and no absorption occurred into the corium or subcutis. Phenethyl acetate was administered by inhalation for 1h to female Swiss mice. The air concentration of phenethyl acetate in the cage was calculated to be a dose of 20–50 mg. Samples drawn at 30, 60 and 90 min after dosing showed the phenethyl acetate blood concentration to be 5.35 ng/mL.

The LD_{50} was 3.67 g/kg with a 20–45% solution of phenethyl acetate in sunflower oil administered to rats, mice and guinea pigs. Phenethyl acetate was administered by oral gavage to 10 and the LD_{50} was greater than 5 g/kg. Oral LD_{50} of 5.2 g/kg and 2.4 g/kg were determined in other acute oral studies performed in rats. Dermal toxicity was assessed in rabbits dosed up to 15000 mg/kg bw. The acute dermal LD_{50} was found to be 6210 mg/kg bw. Phenylethyl acetate was found to be systemically toxic at doses higher than the regulatory limit dose but showed no indications of eliciting irritation or causing corrosive effects to dermal tissue. Phenethyl acetate was administered to mice via inhalation to test motility. Motility decreased by 45.04% when compared to control but increased by 12.42% with 0.1% pretreatment of caffeine. After the 60 min exposure, 5.35 ng/mL was detected by GC– MS.

In vivo administration to rabbits revealed that 24-hour exposure to phenylethyl acetate at 6500, 10000 or 15000 mg/kg elicited no more than transient very slight erythema that resolved rapidly. In another group of rabbits treated with phenylethyl acetate for 4 hours under semi-occlusion, marginal or slight erythema and oedema were observed for up to 24 hours after dosing but reactions had reversed within 72 h. In humans, phenethyl acetate did not induce any reactions in 20 adult patients when applied under occlusion for 24h. In a closed patch test on 117 patients, erythema with swelling was seen in four subjects and slight erythema in three subjects. Irritation was evaluated during the induction phase in a human repeated insult patch test (HRIPT). A 0.5 mL aliquot of a 2.5% solution of phenethyl acetate in ethanol was applied under semi-occlusion and primary irritation was not observed. In an *in vivo* study of ocular irritation performed on rabbits, reactions on cornea, iris and conjunctiva were observed. Even if not severe, they did persist to termination and consequently phenylethyl acetate is considered to cause irreversible eye damage.

According to an open epicutaneous test performed in guinea pigs, phenethyl acetate was found to be not sensitizing. Phenylethyl acetate was also found to be non- skin sensitizer in human repeated insult patch tests.

An intraperitoneal dose of 1200 or 6000 mg/kg of phenethyl acetate dissolved in 0.1 mL with tricaprylin was administered to female A/He mice 24 times during a 20-week period. No observed adverse effects were noted at 1200 mg/kg.

Phenethyl acetate was administered by oral gavage to rats at a dose of 73.8 mg/kg/day for 4 months. There were no changes in serum chemistry parameters at either time point. The lowest observed effect was noted for the only dose tested at 73.8 mg/kg/day, based on significant increase in plasma cholinesterase activity when compared to the controls.

Phenethyl acetate was determined to be not mutagenic in Ames tests performed with *S. typhimurium* TA98, TA100, TA102, TA1535, and TA1537 strains, in direct plate incorporation or preincubation assays with or without the use of metabolic activation.

In a mouse pulmonary tumor incidence assay, groups of 20 mice were intraperitoneally injected with 24 doses of phenylethyl acetate in tricaprylin. The dose levels were 1200 mg/kg and 6000 mg/kg. In the surviving animals, there were 1/13 and 0/17 with lung tumors in the low and high dose groups, respectively. However it was considered that there was no evidence of oncogenicity in the study.

No specific studies of reproductive and developmental toxicity are available for phenylethyl acetate.

JECFA	Phenylethyl Alcohol, Aldehyde, Acid and Related Acetals and Esters and Related Substances (JECFA Food Additives Series 50) (inchem.org)
FEMA	PHENETHYL ACETATE | FEMA (femaflavor.org)
EFSA	Flavouring Group Evaluation 53, Revision 1 (FGE.53Rev1): Consideration of phenethyl alcohol, aldehyde, acid and related acetals and esters evaluated by JECFA (59th meeting) and structurally related to phenethyl alcohol, aldehyde, esters and related phenylacetic acid esters evaluated by EFSA in FGE.14Rev1 (2009) and one phenoxyethyl ester evaluated in FGE.23Rev1 (2008) - - 2009 - EFSA Journal - Wiley Online Library
ECHA – REACH dossier	Registration Dossier - ECHA (europa.eu)
PUBCHEM	Phenethyl acetate | C10H12O2 - PubChem (nih.gov)
CIR	
OSHA	-

3. Addictiveness and attractiveness

No substance-specific data available.

SCENIHR	-
EMA	-
PUBMED	-