Substance Information Document

Isobornyl acetate

1. Substance identity

Name	Isobornyl acetate
Synonyms	D,L-Isobornyl acetate; Isobornyl ethanoate; Pichtosin; Pichtosine; Acetic acid, isobornyl ester; Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acetate
IUPAC Name	[(1S,2S,4S)-1,7,7-trimethyl-2-bicyclo[2.2.1]heptanyl] acetate
CAS	125-12-2

2. Toxicological information

No substance-specific data were identified for respiratory tract irritation and eye irritation. Undiluted isobornyl acetate was applied to rabbits under semi-occlusion. Erythema and oedema were observed in all animals up to the 72-hour observation point. In all animals, none of the observed effects had cleared by 7 days. Desquamation was also seen in five of the seven animals. In another study, irritation was seen after undiluted isobornyl acetate was applied to the intact or abraded skin of rabbits for 24 hours under occlusion.

According to an unpublished industrial report, no cases of respiratory sensitization to isobornyl acetate were reported in a processing plant where inhalation exposure could have occurred. Isobornyl acetate was assigned to skin sensitization potency category 5 (very weak sensitizer) based on a no-observed-effect level (NOEL) of 6496 µg/cm^2 from a human repeated-insult patch test (HRIPT) and a NOEL of 6900 µg/cm^2 from a human maximization test. There were no signs of skin sensitization in a modified HMT in which 10% isobornyl acetate was tested in 25 volunteers. Similarly, no sensitization reactions were reported following patch testing of 107 consecutive dermatological patients with 1 or 5% isobornyl acetate. In guinea pig sensitization studies and in a murine local lymph node assay, no skin sensitization was observed with isobornyl acetate.

An oral LD_{50} > 10,000 mg/kg bw in rats and a dermal LD_{50} > 20,000 mg/kg bw in rabbits were reported, both indicating a low order of acute toxicity in these species.

In an OECD TG 408-compliant study, CFE rats were administered isobornyl acetate via gavage at 0, 15, 90 or 270 mg/kg bw/day for 13 weeks. The no-observed-adverse-effect level (NOAEL) was reported to be 15 mg/kg bw/day, based on nephrotoxicity. Gavage administration of isobornyl acetate to groups of 20 pregnant Wistar rats at 0, 270, 500 or 1000 mg/kg bw/day had no adverse effects on body weight or the weights or macroscopic appearance of the major organs (heart, liver, kidneys and spleen), giving a maternal NOAEL of 1000 mg/kg bw/day.

No evidence of mutagenic activity was seen in an Ames assay in which *Salmonella typhimurium* strains TA98, TA100, TA1535, TA1537 and TA1538 were treated with isobornyl acetate (in DMSO) at concentrations of up to 5 mg/plate, in the presence or absence of S9. In a non-standard study,

isobornyl acetate at non-cytotoxic concentrations of 1.38-249.8 µM (in DMSO) produced no markers of aneugenicity (without S9) or clastogenicity (with and without S9) in human p53-competent TK6 lymphoblastoid cells. There was no evidence of genotoxicity in a bone marrow micronucleus assay performed in accordance with OECD TG 474 and to GLP, in which NMRI mice were given a single oral gavage administration of isobornyl acetate at 2000 mg/kg bw.

No substance-specific data were identified for carcinogenicity.

According to an OECD TG 415-compliant reproduction toxicity study where rats were gavaged with isobornyl acetate, a NOAEL for reproductive and developmental toxicity of 300 mg/kg bw/day was determined. In an OECD TG 414 compliant reproduction toxicity study where rats were gavaged with isobornyl acetate, there were no embryonic/fetal toxic or teratogenic effects, resulting in a NOAEL for developmental toxicity of 1000 mg/kg bw/day.

JECFA	JECFA. (2004). Evaluation of certain food additives and contaminants: sixty-third report of the Joint FAO/WHO Expert Committee on Food Additives
FEMA	ISOBORNYL ACETATE | FEMA (femaflavor.org)
EFSA	Scientific Opinion on Flavouring Group Evaluation 87, Revision 2 (FGE.87Rev2): Consideration of bicyclic secondary alcohols, ketones and related esters evaluated by JECFA (63rd meeting) structurally related to bicyclic secondary alcohols, ketones and related esters evaluated by EFSA in FGE.47Rev1 (2008)
ECHA – REACH dossier	Registration Dossier - ECHA (europa.eu)
PUBCHEM	Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acetate | C12H20O2 - PubChem (nih.gov)
CIR	-
OSHA	-

3. Addictiveness and attractiveness

A 1-hour inhalation exposure to an unspecified concentration of isobornyl acetate decreased the motility of female outbred Swiss mice with caffeine-induced overagitation significantly (by 22.35%), suggesting a potential sedative effect. However, isobornyl acetate induced a mild motility-activating effect (+3.16%) in mice under standard (caffeine-free) conditions when compared to control (untreated) animals.

SCENIHR	
EMA	-
PUBMED	Fragrance compounds and essential oils with sedative effects upon inhalation - PubMed (nih.gov)