Substance Information Document

3-Methylbutyraldehyde

1. Substance identity

Name	3-Methylbutyraldehyde
Synonyms	Isovaleraldehyde 3-Methylbutanal 3-Methylbutylaldehyde Isopentaldehyde beta-Methylbutyraldehyde Isoamyl aldehyde
IUPAC Name	3-methylbutanal
CAS	590-86-3

2. Toxicological information

A 50% reduction in respiratory rate was reported in mice exposed to about 3000 mg/m3 3-methylbutyraldehyde vapour for 10 minutes. The OECD concluded that the NOAEC for respiratory tract irritation is >51 ppm, based on read-across from a rat LOAEC of 125 ppm for n-butyraldehyde. Skin and eye irritation were seen in laboratory animal studies using the neat material. The OECD concluded that skin sensitisation was of no concern, based on read-across data. No skin sensitisation reactions were seen in a human maximization test at a concentration of 1%. No respiratory tract sensitisation data were identified.

3-Methylbutyraldehyde is of (very) low acute systemic toxicity in laboratory animals by the inhalation, oral and dermal routes of exposure. No substance-specific repeated-dose toxicity data were identified. Nevertheless, BAuA experts suggested that 3-methylbutyraldehyde, when inhaled, is unlikely to have systemic effects below the level causing irritation to the mucous membranes. The OECD concluded that the systemic inhalation NOAEC for 3-methylbutyraldehyde is >150 ppm, based on a rat LOAEC of 750 ppm for propionaldehyde. The systemic oral NOAEL was said by the OECD to be 300 mg/kg bw/day, based on “effects on blood at >600 mg/kg bw”/day with n-butyraldehyde in rats.

OECD experts consider 3-methylbutyraldehyde to lack genotoxic potential, primarily based on the absence of mutagenicity in bacteria (Ames test) and of clastogenicity in mice (in vivo micronucleus test).

No substance-specific carcinogenicity, reproductive, or developmental toxicity data were identified, but the OECD concluded that these endpoints were of no concern, based on read-across data.

JECFA	907. Saturated aliphatic acyclic branched-chain primary alcohols, aldehydes/acids (WHO Food Additives Series 40) (inchem.org)
FEMA	0320 FEMA GRAS 29 (femaflavor.org)
EFSA	-

ECHA – REACH dossier	Registration Dossier - ECHA (europa.eu)
PUBCHEM	3-Methylbutanal | C5H10O - PubChem (nih.gov)
CIR	-
OSHA	590-86-3.doc (oecd.org)

3. Addictiveness and attractiveness

No substance-specific data were identified.

SCENIHR	-
EMA	-
PUBMED	-