

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product name : Isovaleraldehyde

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

According to Regulation (EC) No1272/2008  
Flammable liquids (Category 2)  
Eye irritation (Category 2)

According to European Directive 67/548/EEC as amended.  
Highly flammable. Irritating to eyes.

Label elements

Pictogram	
Signal word	Danger
Hazard statement(s) H225 H319	Highly flammable liquid and vapour. Causes serious eye irritation.
Precautionary statement(s) P210 P305 + P351 + P338	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Hazard symbol(s) F Xi	Highly flammable Irritant
R-phrases(s) R11 R36	Highly flammable. Irritating to eyes.
S-phrases(s) S7 S16 S26	Keep container tightly closed. Keep away from sources of ignition - No smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36	Wear suitable protective clothing.

Other hazards

Stench.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : 3-Methylbutyraldehyde

Formula : C5H10O

Molecular Weight : 86,13 g/mol

CAS-No.	EC-No.	Classification	Concentration
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**Isovaleraldehyd e**  
590-86-3 209-691-5 - Flam. Liq. 2; Eye Irrit. 2; H225, H319 F, Xi, R11 - R36

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing give artificial respiration Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature: 2 - 8 °C

Handle and store under inert gas. Air and light sensitive.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Handle with gloves.

Eye protection

Face shield and safety glasses

Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	clear, liquid
Colour	colourless
Odour	unpleasant

Safety data

pH	no data available
Melting point	no data available
Boiling point	90 °C - lit.
Flash point	-5 °C - closed cup
Ignition temperature	240 °C
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	40 hPa at 20 °C
Density	0,803 g/cm3 at 25 °C
Water solubility	slightly soluble
Relative vapour density	2,97 - (Air = 1.0)

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Conditions to avoid

Air  
Heat, flames and sparks.

Materials to avoid

Oxidizing agents, Strong bases, Strong reducing agents

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50 Oral - rat - 5.600 mg/kg  
Remarks: Behavioral:Somnolence (general depressed activity).

LC50 Inhalation - rat - 4 h - 42.700 mg/m3  
Remarks: Behavioral:Altered sleep time (including change in righting reflex). Gastrointestinal:Changes in structure or function of salivary glands.

LD50 Dermal - rabbit - 2.534 mg/kg  
Remarks: Liver:Other changes. Prolonged skin contact may cause skin irritation and/or dermatitis.

Skin corrosion/irritation

Skin - rabbit - Mild skin irritation - 24 h

Serious eye damage/eye irritation

Eyes - rabbit - Moderate eye irritation - 24 h

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure

no data available

Specific target organ toxicity - repeated exposure

no data available

Aspiration hazard

no data available

Potential health effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion	May be harmful if swallowed.
Skin	May be harmful if absorbed through skin. May cause skin irritation.

Eyes Causes eye irritation.

Signs and Symptoms of Exposure

Nausea, Headache, Vomiting. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information

RTECS: ES3450000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 3,25 mg/l - 96 h
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Persistence and degradability

Bioaccumulative potential

Does not bioaccumulate.

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly inflammable. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

ADR/RID

UN-Number: 1989 Class: 3 Packing group: II  
Proper shipping name: ALDEHYDES, N.O.S. (Isovaleraldehyde)

IMDG

UN-Number: 1989 Class: 3 Packing group: II EMS-No: F-E, S-D  
Proper shipping name: ALDEHYDES, N.O.S. (Isovaleraldehyde)  
Marine pollutant: No

IATA

UN-Number: 1989 Class: 3 Packing group: II  
Proper shipping name: Aldehydes, n.o.s. (Isovaleraldehyde)

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

16. OTHER INFORMATION

Text of H-code(s) and R-phrases(s) mentioned in Section 3

Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
F	Highly flammable

Xi	Irritant
R11	Highly flammable.
R36	Irritating to eyes.

Further information

For R&D use only. Not for drug, household or other uses.