

Section 1. Product and Company Identification

**Product Name** Isobutyraldehyde  
**CAS Number** 78-84-2

**Parchem - fine & specialty chemicals**  
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CHEMTEL  
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Collect Calls Accepted

Section 2. Hazards Identification

**Classification of the substance or mixture**

**GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Flammable liquids (Category 2), H225  
Eye irritation (Category 2A), H319  
Acute aquatic toxicity (Category 3), H402

**GHS Label Elements**

**Pictograms:**



**Signal word:** DANGER

**Hazard and precautionary statements**

**Hazard statement(s)**

H225 Highly flammable liquid and vapor.  
H319 Causes serious eye irritation.  
H402 Harmful to aquatic life.

**Precautionary statement(s)**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P233 Keep container tightly closed.  
P240 Ground/bond container and receiving equipment.  
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.  
P264 Wash skin thoroughly after handling.  
P273 Avoid release to the environment.

P280 Wear protective gloves/ eye protection/ face protection.  
 P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P337 + P313 If eye irritation persists: Get medical advice/ attention.  
 P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.  
 P403 + P235 Store in a well-ventilated place. Keep cool.  
 P501 Dispose of contents/ container to an approved waste disposal plant.

**Hazards not otherwise classified (HNOC) or not covered by GHS:** Stench.

### Section 3. Composition / Information on Ingredients

**Common Name** Isobutyraldehyde  
**Synonym(s)** 2-Methylpropionaldehyde  
**Formula** C<sub>4</sub>H<sub>8</sub>O  
**CAS Number** 78-84-2

COMPONENT	CAS NUMBER	CONCENTRATION
Isobutyraldehyde	78-84-2	≤ 100%

### Section 4. First Aid Measures

#### Description of first aid measures

**General advice:** Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**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.

**Most important symptoms and effects, both acute and delayed:** The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

**Indication of any immediate medical attention and special treatment needed:** No data available

### Section 5. Firefighting Measures

#### Extinguishing media

**Suitable extinguishing media:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.



**Special hazards arising from the substance or mixture:** Carbon oxides  
**Advice for firefighters:** Wear self-contained breathing apparatus for firefighting if necessary.  
**Further information:** Use water spray to cool unopened containers.

Section 6. Accidental Release Measures

**Personal precautions, protective equipment and emergency procedures:** 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 vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. For personal protection see section 8.  
**Environmental precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.  
**Methods and materials for containment and cleaning up:** Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).  
**Reference to other sections:** For disposal see section 13.

Section 7. Handling and Storage

**Precautions for safe handling:** Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge. For precautions see section 2.  
**Conditions for safe storage, including any incompatibilities:** 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 Stench. Air sensitive. Store under inert gas. Storage class (TRGS 510): Flammable liquids

Section 8. Exposure Controls / Personal Protection

**Control parameters**  
**Components with workplace control parameters**

Component	CAS-No.	Value	Control parameters	Basis
Isobutyraldehyde	78-84-2	TWA	25.000000 ppm	USA. Workplace Environmental Exposure Levels (WEEL)

**Exposure controls**  
**Appropriate engineering controls:** Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**Personal protective equipment**  
**Eye/face protection:** Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).  
**Skin protection:** Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product.



Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Body Protection:** Impervious clothing, Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection:** Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type AXBEK (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).

**Control of environmental exposure:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

#### Section 9. Physical and Chemical Properties

##### Information on basic physical and chemical properties

**Form:** clear, liquid

**Color:** Colorless

**Odor** unpleasant

**Melting point/range:** -65°C (-85°F) - lit.

**Initial boiling point and boiling range:** 63°C (145°F) - lit.

**Flash point** -18.99°C (-2.18°F) - closed cup

**Upper explosion limit:** 11% (V)

**Lower explosion limit:** 1.6% (V)

**Vapor pressure:** 88 hPa (66 mmHg) at 4.4°C (39.9°F)

**Vapor density:** 2.49 - (Air = 1.0)

**Relative density:** 0.79 g/cm<sup>3</sup> at 25°C (77°F)

**Water solubility:** 60 g/l at 25°C (77°F)

**Partition coefficient: n-octanol/water: log Pow:** 0.77

**Auto-ignition temperature:** 180 °C (356 °F) at 1,013.25 hPa (760.00 mmHg)

##### Other safety information

**Relative vapor density:** 2.49 - (Air = 1.0)

#### Section 10. Stability and Reactivity

**Reactivity:** No data available

**Chemical stability:** Stable under recommended storage conditions.

**Possibility of hazardous reactions:** Vapors may form explosive mixture with air.

**Conditions to avoid:** Heat, flames and sparks.

**Incompatible materials:** Oxidizing agents, Strong acids, Strong bases, Strong reducing agents

**Hazardous decomposition products:** In the event of fire: see section 5

Section 11. Toxicological Information

**Information on toxicological effects**

**Acute toxicity**

LD50 Oral - Rat - female - 3,730 mg/kg  
LC50 Inhalation - Rat - male - 4 h - > 23.9 mg/l  
LD50 Dermal - Rabbit - male - 5,630 mg/kg  
No data available

**Skin corrosion/irritation**

Skin - Rabbit  
Result: No skin irritation - 4 h  
(OECD Test Guideline 404)

**Serious eye damage/eye irritation**

Eyes - Rabbit  
Result: Irritating to eyes. - 24 h  
(OECD Test Guideline 405)

**Respiratory or skin sensitization**

in vivo assay - Mouse  
Result: Does not cause skin sensitization.

**Germ cell mutagenicity**

Ames test  
S. typhimurium  
Result: negative  
Mouse - male  
Result: negative

**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.  
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.  
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.  
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**

Reproductive toxicity - Rat - Inhalation  
Maternal Effects: Other effects.  
Developmental Toxicity - Rat - Inhalation  
No adverse effect has been observed in chronic toxicity tests.

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available



**Aspiration hazard**

No data available

**Additional Information**

Repeated dose toxicity - Rat - male and female - inhalation (vapor)

**RTECS:** NQ4025000

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

Section 12. Ecological Information

**Toxicity**

Toxicity to fish static test LC50 - Pimephales promelas (fathead minnow) - 23 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates static test EC50 - Daphnia magna (Water flea) - 277 mg/l - 48 h

Toxicity to algae static test EC50 - Desmodesmus subspicatus (Scenedesmus subspicatus) - 83.7 mg/l - 72 h

Toxicity to bacteria Growth inhibition EC50 - Pseudomonas putida - 468 mg/l - 17 h

**Persistence and degradability**

Biodegradability aerobic - Exposure time 14 d

Result: 80 - 90 % - Readily biodegradable

(OECD Test Guideline 301C)

**Bioaccumulative potential**

No data available

**12.4 Mobility in soil**

No data available

**Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life.

Section 13. Disposal Considerations

**Waste Treatment Methods:** Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.



Section 14. Transport Information

**DOT (US)**

**UN number:** 2045

**Class:** 3

**Packing group:** II

**Proper shipping name:** Isobutyl aldehyde

**Reportable Quantity (RQ):**

**Poison Inhalation Hazard:** No

**IMDG**

**UN number:** 2045

**Class:** 3

**Packing group:** II

**EMS-No:** F-E, S-D

**Proper shipping name:** ISOBUTYL ALDEHYDE

**IATA**

**UN number:** 2045

**Class:** 3

**Packing group:** II

**Proper shipping name:** Isobutyl aldehyde

Section 15. Regulatory Information

**SARA 302 Components**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

The following components are subject to reporting levels established by SARA Title III, Section 313:

Isobutyraldehyde

CAS-No. 78-84-2

Revision Date 2007-07-01

**SARA 311/312 Hazards**

Fire Hazard, Acute Health Hazard

**Massachusetts Right To Know Components**

Isobutyraldehyde

CAS-No. 78-84-2

Revision Date 2007-07-01

**Pennsylvania Right To Know Components**

Isobutyraldehyde

CAS-No. 78-84-2

Revision Date 2007-07-01



**New Jersey Right To Know Components**

Isobutyraldehyde

CAS-No. 78-84-2

Revision Date 2007-07-01

**California Prop. 65 Components:** This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

**HMIS Rating**

**Health hazard:** 2

**Chronic Health Hazard:**

**Flammability:** 3

**Physical Hazard** 0

**NFPA Rating**

**Health hazard:** 2

**Fire Hazard:** 3

**Reactivity Hazard:** 0

Section 16. Other Information

**Disclaimer:** The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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