



MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT CODE N0081
PRODUCT NAME NAT. ISOBUTYRALDEHYDE
SUPPLIER Shanghai M & U International Trade Co., Ltd.
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FOR EMERGENCIES CALL CHEMTREC: 800-424-9300 (24-HOURS)

2. HAZARD IDENTIFICATION:

Emergency Overview

OSHA Hazards

Flammable liquid

Other hazards which do not result in classification

Stench.

GHS Classification

Flammable liquids (Category 2)

Acute toxicity, Oral (Category 5)

Acute toxicity, Inhalation (Category 5)

Acute aquatic toxicity (Category 3)

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H225 Highly flammable liquid and vapor.

H303 H333 May be harmful if swallowed or if inhaled.

H402 Harmful to aquatic life.

Precautionary statement(s)

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

HMIS Classification

Health hazard 2

Flammability 3

Physical hazards 2

NFPA Rating

Health hazard 2

Fire 3

Reactivity Hazard 0

Potential Health Effects

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

3. COMPOSITION AND INFORMATION ON INGREDIENTS:

Synonym	2-Methylpropionaldehyde
Formula	C ₄ H ₈ O
Molecular Weight	72.11 g/mol

CAS-No	EC-No	Index-No.	Concentration
78-84-2	201-149-6		

4. FIRST-AID GUIDE:

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

Flush eyes with water as a precaution.

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 GUIDE:

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 firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE GUIDE:

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 vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

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).

7. HANDLING AND STORAGE:

Precautions for safe handling

Avoid inhalation of vapor or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge.

Conditions for safe storage

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

8. EXPOSURE AND PERSONAL PROTECTION:

Contains no substances with occupational exposure limit values.

Personal protective equipment:

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose 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

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.

Eye 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 and 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.

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 LIQUID
Color COLORLESS TO PALE YELLOW

Safety data

pH no data available
Melting point (°C) -66
Boiling point (°C) 74
Flash point (°F) Closed cup -1
Ignition temperature (°C) 190
Lower explosion limit 1.6 %(V)
Upper explosion limit 11 %(V)
Vapor pressure (mmHg @20 °C) 90
Density @25 °C 0.792
Water solubility SOLUBLE
Partition coefficient:
n-octanol/water log Pow: 0.77
Relative vapor density 2.5
Odor PUNGENT

10. STABILITY AND REACTIVITY:

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. Extremes of temperature and direct sunlight.

Materials to avoid

Oxidizing agents, Strong acids, Strong bases, Strong reducing agents

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

11. TOXICOLOGICAL INFORMATION:

Acute toxicity

Oral LD50

LD50 Oral - rat - > 3,000 mg/kg

Inhalation LC50

LC50 Inhalation - rat - 4 h - > 23,900 mg/m³

Dermal LD50

LD50 Dermal - rabbit - > 5,000 mg/kg

Skin corrosion/irritation

Skin - rabbit - No skin irritation

Serious eye damage/eye irritation

Eyes - rabbit - No eye irritation

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.

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 May cause eye irritation.

Signs and Symptoms of Exposure

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

Additional Information

RTECS: NQ4025000

12. ECOLOGICAL INFORMATION:**Toxicity**

Toxicity to fish LC50 - *Leuciscus idus* (Golden orfe) - 86 mg/l - 48 h

Toxicity to daphnia EC50 - *Daphnia magna* (Water flea) - 277 mg/l - 48 h

and other aquatic invertebrates

Persistence and degradability

Biodegradability

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.

13. DISPOSAL RECOMMENDATIONS:**Product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORTATION INFORMATION:

DOT (US)

UN number: 2045 Class: 3 Packing group: II

Proper shipping name: ISOBUTYRALDEHYDE

IMDG

UN number: 2045 Class: 3 Packing group: II

Proper shipping name: ISOBUTYRALDEHYDE

IATA

UN number: 2045 Class: 3 Packing group: II

Proper shipping name: ISOBUTYRALDEHYDE

15. REGULATORY INFORMATION:

OSHA Hazards

Flammable liquid.

SARA 302 Components

SARA 302: 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.	Revision Date
	78-84-2	1993-04-24

SARA 311/312 Hazards

Fire Hazard

Massachusetts Right To Know Components

Isobutyraldehyde	CAS-No.	Revision Date
	78-84-2	1993-04-24

Pennsylvania Right To Know Components

Isobutyraldehyde	CAS-No.	Revision Date
	78-84-2	1993-04-24

New Jersey Right To Know Components

Isobutyraldehyde	CAS-No.	Revision Date
	78-84-2	1993-04-24

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.

16. OTHER INFORMATION:

The information in this MSDS was obtained from current and reliable sources. However, the data is provided without any warranty, expressed or implied, regarding its correctness or accuracy. Since the conditions for use, handling, storage and disposal of this product are beyond M&U's control, it is the responsibility of the user both to determine safe conditions for use of this product and to assume liability for loss, damage, or expense arising out of the products improper use. No warranty expressed or implied regarding the product described herein will be created by or inferred from any statement or omission in the MSDS. Various federal, state, or provincial agencies may have specific regulations concerning the transportation, handling, storage, use, or disposal of this product which may not be reflected in the MSDS. The user should review these regulations to ensure full compliance.