

**SAFETY DATA SHEET**

Creation Date 09-Jun-2010

Revision Date 14-Feb-2020

Revision Number 2

**1. Identification**

**Product Name** Isobutyraldehyde

**Cat No. :** A12106

**CAS-No** 78-84-2  
**Synonyms** 2-Methylpropanal; 2-Methylpropionaldehyde

**Recommended Use** Laboratory chemicals.  
**Uses advised against** Food, drug, pesticide or biocidal product use.  
**Details of the supplier of the safety data sheet**

**Company**

Alfa Aesar  
Thermo Fisher Scientific Chemicals, Inc.  
30 Bond Street  
Ward Hill, MA 01835-8099  
Tel: 800-343-0660  
Fax: 800-322-4757  
**Email:** tech@alfa.com  
www.alfa.com

**Emergency Telephone Number**

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660.  
After normal business hours, call Carechem 24 at (866) 928-0789.

**2. Hazard(s) identification****Classification**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Acute oral toxicity	Category 4
Serious Eye Damage/Eye Irritation	Category 2
Germ Cell Mutagenicity	Category 2

**Label Elements****Signal Word**

Danger

**Hazard Statements**

Highly flammable liquid and vapor  
Harmful if swallowed  
Causes serious eye irritation  
Suspected of causing genetic defects

**Precautionary Statements****Prevention**

Obtain special instructions before use  
Do not handle until all safety precautions have been read and understood  
Wear protective gloves/protective clothing/eye protection/face protection  
Wash face, hands and any exposed skin thoroughly after handling  
Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
Keep container tightly closed  
Ground/bond container and receiving equipment  
Take precautionary measures against static discharge  
Do not eat, drink or smoke when using this product

**Response**

IF exposed or concerned: Get medical attention/advice

**Eyes**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
If eye irritation persists: Get medical advice/attention

**Ingestion**

Rinse mouth

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

**Fire**

Explosion risk in case of fire  
Fight fire with normal precautions from a reasonable distance  
Evacuate area

**Storage**

Store in a well-ventilated place. Keep cool  
Store in a closed container  
Store locked up

**Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

None identified

### 3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Isobutyraldehyde	78-84-2	>95

### 4. First-aid measures

**Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

**Skin Contact**

Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.

**Inhalation**

Remove to fresh air. Get medical attention immediately if symptoms occur. If not breathing, give artificial respiration.

<b>Ingestion</b>	Do NOT induce vomiting. Get medical attention.
<b>Most important symptoms and effects</b>	Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
<b>Notes to Physician</b>	Treat symptomatically

## 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	Water spray, carbon dioxide (CO <sub>2</sub> ), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.
<b>Unsuitable Extinguishing Media</b>	No information available
<b>Flash Point</b>	-24 °C / -11.2 °F
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	190 °C / 374 °F
<b>Explosion Limits</b>	
<b>Upper</b>	10.6 vol %
<b>Lower</b>	1.6 vol %
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	No information available

### Specific Hazards Arising from the Chemical

Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

### Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

### NFPA

<b>Health</b>	<b>Flammability</b>	<b>Instability</b>	<b>Physical hazards</b>
2	3	0	N/A

## 6. Accidental release measures

<b>Personal Precautions</b>	Use personal protective equipment as required. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
<b>Environmental Precautions</b>	Should not be released into the environment. See Section 12 for additional Ecological Information. Do not flush into surface water or sanitary sewer system.
<b>Methods for Containment and Clean Up</b>	Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

## 7. Handling and storage

<b>Handling</b>	Ensure adequate ventilation. Wear personal protective equipment/face protection. Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges. Ground/Bond container and receiving equipment. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.
<b>Storage</b>	Flammables area. Keep away from heat, sparks and flame. Keep container tightly closed in a dry and well-ventilated place. Keep refrigerated.

## 8. Exposure controls / personal protection

### Exposure Guidelines

This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

### Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment.

### Personal Protective Equipment

#### **Eye/face Protection**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

#### **Skin and body protection**

Wear appropriate protective gloves and clothing to prevent skin exposure.

#### **Respiratory Protection**

No protective equipment is needed under normal use conditions.

#### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	No information available
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-65 °C / -85 °F
Boiling Point/Range	63 °C / 145.4 °F @ 760 mmHg
Flash Point	-24 °C / -11.2 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	10.6 vol %
Lower	1.6 vol %
Vapor Pressure	189 mbar @ 20 °C
Vapor Density	2.5 (Air = 1.0)
Specific Gravity	0.790
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	190 °C / 374 °F
Decomposition Temperature	No information available
Viscosity	0.45 mPa.s at 20 °C
Molecular Formula	C4 H8 O
Molecular Weight	72.11

## 10. Stability and reactivity

### **Reactive Hazard**

None known, based on information available

### **Stability**

Air sensitive.

### **Conditions to Avoid**

Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition. Exposure to air.

### **Incompatible Materials**

Strong oxidizing agents

**Hazardous Decomposition Products** Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>)

**Hazardous Polymerization** Hazardous polymerization does not occur.

**Hazardous Reactions** None under normal processing.

## 11. Toxicological information

### Acute Toxicity

**Product Information** No acute toxicity information is available for this product

### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Isobutyraldehyde	3730 mg/kg ( Rat )	LD50 = 5630 mg/kg ( Rabbit )	Not listed

**Toxicologically Synergistic Products** No information available

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Irritation** Irritating to eyes

**Sensitization** No information available

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Isobutyraldehyde	78-84-2	Not listed	Not listed	Not listed	Not listed	Not listed

**Mutagenic Effects** Animal experiments showed mutagenic and teratogenic effects

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** None known

**STOT - repeated exposure** None known

**Aspiration hazard** No information available

**Symptoms / effects, both acute and delayed** Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

### Ecotoxicity

Do not empty into drains. Contains a substance which is: Harmful to aquatic organisms. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Isobutyraldehyde	EC50: = 84 mg/L, 72h (Desmodesmus subspicatus)	LC50: 86 mg/L/48h (Leuciscus idus)	EC50 = 468 mg/L 17 h	EC50: = 277 mg/L, 48h (Daphnia magna Straus)

**Persistence and Degradability** Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** Will likely be mobile in the environment due to its volatility.

Component	log Pow
Isobutyraldehyde	0.77

### 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

### 14. Transport information

#### DOT

UN-No UN2045  
 Proper Shipping Name ISOBUTYRALDEHYDE  
 Hazard Class 3  
 Packing Group II

#### TDG

UN-No UN2045  
 Proper Shipping Name ISOBUTYRALDEHYDE  
 Hazard Class 3  
 Packing Group II

#### IATA

UN-No UN2045  
 Proper Shipping Name ISOBUTYRALDEHYDE  
 Hazard Class 3  
 Packing Group II

#### IMDG/IMO

UN-No UN2045  
 Proper Shipping Name ISOBUTYRALDEHYDE  
 Hazard Class 3  
 Packing Group II

### 15. Regulatory information

#### United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Isobutyraldehyde	78-84-2	X	ACTIVE	-

#### **Legend:**

**TSCA** - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

**TSCA 12(b)** - Notices of Export Not applicable

#### International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
Isobutyraldehyde	78-84-2	X	-	201-149-6	X	X	X	X	KE-24862

#### U.S. Federal Regulations

#### **SARA 313**

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
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Isobutyraldehyde	78-84-2	>95	1.0
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**SARA 311/312 Hazard Categories** See section 2 for more information

**CWA (Clean Water Act)** Not applicable

**Clean Air Act** Not applicable

**OSHA - Occupational Safety and Health Administration** Not applicable

**CERCLA** Not applicable

**California Proposition 65** This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Isobutyraldehyde	X	X	X	-	X

**U.S. Department of Transportation**

Reportable Quantity (RQ): N

DOT Marine Pollutant N

DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security** This product does not contain any DHS chemicals.

**Other International Regulations**

**Mexico - Grade** No information available

## 16. Other information

**Prepared By** Health, Safety and Environmental Department  
Email: tech@alfa.com  
www.alfa.com

**Creation Date** 09-Jun-2010

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**Revision Summary** SDS authoring systems update, replaces ChemGes SDS No. 78-84-2/2.

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**