MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT CODE	A0420
PRODUCT NAME	ISOBUTYRIC ACID
SUPPLIER	Shanghai M & U International Trade Co., Ltd. Rm 1717, No 598 North NuJiang Road 200333 Shanghai, China +86-21-32515501 32515502 sales@mu-intel.com

FOR EMERGENCIES CALL CHEMTREC: 800-424-9300 (24-HOURS)

2. HAZARD IDENTIFICATION:

Emergency Overview
OSHA Hazards
Combustible Liquid, Toxic by ingestion, Toxic by skin absorption
Other hazards which do not result in classification
Stench.
GHS Classification
Flammable liquids (Category 3)
Acute toxicity, Oral (Category 3)
Acute toxicity, Dermal (Category 3)
Acute aquatic toxicity (Category 3)
GHS Label elements, including precautionary statements
Pictogram
Signal word Danger
Hazard statement(s)

H226	Flammable liquid and vapor.
H301 H311	Toxic if swallowed or in contact with skin
H402	Harmful to aquatic life.

Precautionary statement(s)

P280	Wear protective gloves/ protective clothing.
P301 P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P312	Call a POISON CENTER or doctor/ physician if you feel unwell.

HMIS Classification

Health hazard	2
Flammability	2
Physical hazards	2

NFPA Rating

Health hazard	2
Fire	2
Reactivity Hazard	0

Potential Health Effects

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

3. COMPOSITION AND INFORMATION ON INGREDIENTS:

Synonym	2-Methylpropionic acid
Formula	C4 H8 O2
Molecular Weight	88.10 g/mol

CAS-No	EC-No	Index-No.	Concentration
79-31-2	201-195-7	607-063-00-9	

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:

Conditions of flammability
Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide..
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
Wear respiratory protection. 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 contact with skin and eyes. 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.
Handle and store under inert gas. Air and moisture sensitive. Stench.

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
Complete suit protecting against chemicals, 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
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES:

Appearance

Form	LIQUID
Color	COLORLESS TO PALE YELLOW

Safety data

pH	no data available
Melting point (°C)	-47
Boiling point (°C)	155
Flash point (°F) Closed cup	132
Ignition temperature (°C)	440
Lower explosion limit	2 %(V)
Upper explosion limit	10 %(V)
Vapor pressure (mmHg @20 °C)	2
Density @25 °C	0.945
Water solubility	SOLUBLE
Partition coefficient:	
n-octanol/water	log Pow: 0.604
Relative vapor density	3.04
Odor	REPULSIVE, BUTTER-LIKE

10. STABILITY AND REACTIVITY:

Chemical stability
Stable under recommended storage conditions.
Conditions to avoid
Heat, flames and sparks.
Materials to avoid
Strong oxidizing agents
Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

11. TOXICOLOGICAL INFORMATION:

Acute toxicity
Oral LD50
LD50 Oral - rat - 266 mg/kg
Dermal LD50
LD50 Dermal - rabbit - 475 mg/kg
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.

Potential health effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion	Toxic if swallowed.
Skin	Toxic 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: NQ4375000

12. ECOLOGICAL INFORMATION:

Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 286 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 1,000 mg/l - 24 h
Toxicity to algae	EC50 - Desmodesmus subspicatus (green algae) - 45 mg/l - 72 h

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: 2529 Class: 3(8) Packing group: III
Proper shipping name: ISOBUTYRIC ACID

IMDG

UN number: 2529 Class: 3(8) Packing group: III
Proper shipping name: ISOBUTYRIC ACID

IATA

UN number: 2529 Class: 3(8) Packing group: III
Proper shipping name: ISOBUTYRIC ACID

15. REGULATORY INFORMATION:

OSHA Hazards

Combustible Liquid, Toxic by ingestion, Toxic by skin absorption

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

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

Isobutyric acid	CAS-No.	Revision Date
	79-31-2	1993-04-24

Pennsylvania Right To Know Components

Isobutyric acid	CAS-No.	Revision Date
	79-31-2	1993-04-24

New Jersey Right To Know Components

Isobutyric acid	CAS-No.	Revision Date
	79-31-2	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.