

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

1.1. Product Identifier

Product Form: Substance

Product Name: Isobutyronitrile

CAS No: 78-82-0

Product Code: VOLO10019

Standard InChI: InChI=1S/C4H7N/c1-4(2)3-5/h4H,1-2H3

1.2. Intended Use of the Product

Use of the substance/mixture: For laboratory research purposes.

1.3. Name, Address, and Telephone of the Responsible Party

Manufacturer

Volochem, Inc.

2600 Hilltop Dr.

Bldg B #C211

Richmond, CA 94806

T 510.748.0159

www.volochem.com

1.4. Emergency Telephone Number

Emergency Number : 510-748-0159 (9a-5p M-F)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

Classification (GHS-US)

Flammable liquids (Category 2)

Acute toxicity, Oral (Category 2)

Acute toxicity, Inhalation (Category 4)

Acute toxicity, Dermal (Category 3)

Skin irritation (Category 2)

Eye irritation (Category 2A)

Specific target organ toxicity - single exposure (Category 3)

2.2. Label Elements

GHS-US Labeling

Pictogram(s): GHS02, GHS06



Signal word: Danger

Hazard statement(s)

H225	Highly flammable liquid and vapor.
H300	Fatal if swallowed.
H332	Harmful if inhaled.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

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Precautionary statement(s)

P210	Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303+P361+P353	IF ON SKIN: Take off immediately all contaminated clothing. Rinse skin with water or shower.
P364	Wash contaminated clothing before reuse.
P312	Call a POISON CENTER/ doctor if you feel unwell.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P301+P330+P310	IF SWALLOWED: Rinse mouth. Immediately call a POISON CENTER/doctor.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a POISON CENTER/ doctor if you feel unwell.
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.
P321	Specific treatment: Always have on hand a cyanide first-aid kit, together with proper instructions.
P370+P378	In case of fire: Use alcohol-resistant foam, dry chemical, or carbon dioxide to extinguish.
P403+P233+P235	Store in a well-ventilated place. Keep container tightly closed. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3. Hazards not otherwise classified (HNOC) or not covered by GHS

No additional information is available.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Name	Synonym(s)	Product Identifiers
Isobutyronitrile	2-Methylpropanenitrile; 2-Methylpropionitrile; Isopropyl cyanide	VOLO10019 CAS No. 78-82-0

SECTION 4: FIRST AID MEASURES

4.1. 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. Take victim immediately to hospital. 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.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/Injuries After Inhalation: May be harmful if inhaled. Material is extremely destructive to the tissue of the

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	mucous membranes and upper respiratory tract.
Symptoms/Injuries After Skin Contact:	Harmful if absorbed through skin. Causes skin irritation.
Symptoms/Injuries After Eye Contact:	Causes eye burns.
Symptoms/Injuries After Ingestion:	Harmful if swallowed.
Chronic Symptoms:	The chronic effects of this substance are unknown.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

May cause cyanosis. Always have on hand a cyanide first-aid kit, together with proper instructions. Nausea, headache, vomiting, burning sensation, cough, labored breathing, shortness of breath, sore throat, redness, pain, abdominal pain, burning sensation, shock.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: For small (incipient) fires, use media such as alcohol-resistant 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.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Product is combustible.

Explosion Hazard: Product is not explosive.

Hazardous combustion products: Carbon oxides, nitrogen oxides (NO_x)

5.3. Advice for Firefighters

Firefighting Instructions: Exercise caution when fighting any chemical fire.

Protection During Firefighting: Wear self contained breathing apparatus for fire fighting if necessary. Do not enter fire area without proper protective equipment, including respiratory protection.

5.4. NFPA Rating

Health Hazard:	4
Flammability:	3
Reactivity Hazard:	0

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

6.1.1. For Non-emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Responders

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Ventilate area. Avoid breathing vapors, mist or gas. Remove all sources of ignition. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

6.2. Environmental Precautions

Prevent entry to sewers and public waters.

6.3. Methods and Material for Containment and Cleaning Up

For Containment: Contain and collect as any solid.

Methods for Cleaning Up: Collect spillage. Avoid generation of dust during clean-up of spills. Clear up spills immediately and dispose of waste safely.

6.4. Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection.

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SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Avoid contact with skin and eyes. Avoid inhalation of vapors or mist. Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

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. Moisture sensitive. Store under inert gas.

7.3. Specific End Use(s)

For laboratory research purposes

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

Components	CAS-No.	Value	Control Parameters	Basis
Isobutyronitrile	78-82-0	TWA	8 ppm 22 mg/m ³	USA. NIOSH Recommended Exposure Limits

8.2. Exposure Controls

Appropriate Engineering Controls:

Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Avoid high vapor concentration. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment:



Gloves. Protective goggles. Insufficient ventilation: wear respiratory protection.

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)

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).

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.

This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State:

Liquid

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Appearance:	Colorless
Odor:	No data available
Odor Threshold:	No data available
pH:	No data available
Relative Evaporation Rate (butylacetate=1):	No data available
Melting Point:	Melting point/range: -72 °C (-98 °F) - lit.
Boiling Point:	107 - 108 °C (225 - 226 °F) - lit
Flash Point:	8 °C (46 °F) - closed cup
Auto-ignition Temperature:	482 °C (900 °F)
Decomposition Temperature:	No data available
Flammability (solid, gas):	No data available
Vapor Pressure:	No data available
Relative Vapor Density at 20 °C:	2.39 - (Air = 1.0)
Relative Density:	0.77 g/cm ³ at 20 °C (68 °F)
Specific Gravity:	No data available
Solubility:	No data available
Log Pow:	No data available
Log Kow:	No data available
Viscosity, Kinematic:	No data available
Viscosity, Dynamic:	No data available
Explosive Properties:	No data available
Oxidizing Properties:	No data available
Explosive Limits:	Not applicable

9.2. Other Information No additional information available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity:	Hazardous reactions will not occur under normal conditions.
10.2. Chemical Stability:	Product is stable under recommended storage conditions.
10.3. Possibility of Hazardous Reactions:	Vapors may form explosive mixture with air.
10.4. Conditions to Avoid:	Heat, flames and sparks. Extremes of temperatures and direct sunlight.
10.5. Incompatible Materials:	Strong acids, strong bases, strong oxidizing agents, strong reducing agents
10.6. Hazardous Decomposition Products:	Carbon oxides (CO, CO ₂) and nitrogen oxides

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information On Toxicological Effects

Acute Toxicity:	ORAL LD50 LD50 Oral - rat - 50 mg/kg Remarks: Behavioral: Convulsions or effect on seizure threshold. Behavioral: Muscle weakness. Vascular: Regional or general arteriolar or venous dilation.
	Inhalation LC50 LC50 Inhalation - rat - male - 1 h - 5500 ppm
	Dermal LD50 No data available
	Other information on acute toxicity No data available
Skin Corrosion/Irritation:	No data available
Serious Eye Damage/Irritation:	No data available
Respiratory or Skin Sensitization:	No data available

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Germ Cell Mutagenicity:	No data available
Carcinogenicity:	Not classified
Reproductive Toxicity:	No data available
Specific Target Organ Toxicity (Single Exposure):	Inhalation – May cause respiratory irritation.
Specific Target Organ Toxicity (Repeated Exposure):	No data available
Aspiration Hazard:	No data available
Symptoms/Injuries After Inhalation:	May be harmful if inhaled. Causes respiratory tract irritation.
Symptoms/Injuries After Skin Contact:	May be fatal if absorbed through skin. Causes skin irritation.
Symptoms/Injuries After Eye Contact:	Causes eye irritation.
Symptoms/Injuries After Ingestion:	May be fatal if swallowed.
Chronic Symptoms:	The chronic effects of this substance are unknown.
Other	May cause cyanosis., Always have on hand a cyanide first aid kit, together with proper instructions.
RTECS	TZ4900000

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

No data available

12.2. Persistence and Degradability

No data available

12.3. Bioaccumulative Potential

Does not bioaccumulate.

12.4. Mobility in Soil

No data available

12.5. Other Adverse Effects

No data available

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste Treatment Methods

Waste Disposal Recommendations: Contact a licensed professional waste disposal service to dispose of this material. Dispose of waste material in accordance with all local, regional, national, and international regulations.

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SECTION 14: TRANSPORT INFORMATION

In Accordance With ICAO/IATA/IMDG/DOT

14.1.	UN Number:	2284
14.2.	UN Proper Shipping Name:	Isobutyronitrile
14.3.	Transport Hazard Class(es):	3 (6.1)
14.4.	Packing Group:	II
14.5.1.	Marine Pollutant:	No
14.5.2.	Reportable Quantity:	No
14.6.1.	Toxic Inhalation Hazard:	No
14.6.2.	Mode Specific Comments:	See below
14.6.2.1.	Ground Transportation - DOT (US):	No comments
14.6.2.2.	Marine Transportation – IMDG:	EMS-No: F-E, S-D
14.6.2.3.	Air Transportation - IATA/ICAO:	No comments

SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

EPA TSCA Inventory

Listed

SARA 302 Components

SARA 302. The component Isobutyronitrile (CAS No. 78-82-0) in this material is subject to reporting levels established by 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 reporting levels established by SARA Title III, Section 313.

SARA 311/312 Components

Fire Hazard, Acute Health Hazard

15.2. US State Regulations

California Proposition 65 List 2014

Not listed

Maine Chemicals of High Concern List 2012

Not listed

Massachusetts Right to Know Hazardous Substance List 2014

Listed

New Jersey Right to Know Hazardous Substance List 2010

Listed

Pennsylvania Right to Know Hazardous Substance List 2010

Listed

SECTION 16: OTHER INFORMATION

16.1. Other Classifications

HMIS

Health Hazard: 4

Flammability: 3

Physical hazards: 0

Revision date : 1/3/2015

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Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

Volochem chemicals are for research purposes only and are NOT intended for use as drugs, food additives, household goods, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its affiliates or subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. Our SDS are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated SDS for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, face mask, fume hood). For proper handling and disposal, always comply with federal, state and local regulations.

SDS US (GHS HazCom) - US Only