

## SAFETY DATA SHEET

Preparation Date: 5/12/2017

Revision Date: Not Applicable

Revision Number: Not Applicable

### 1. IDENTIFICATION

**Product identifier**

**Product code:** I2199  
**Product Name:** ISOBUTYRONITRILE

**Other means of identification**

**Synonyms:** 2-Cyanopropane  
 Dimethylacetoneitrile  
 Isopropyl cyanide  
 Isopropyl nitrile  
 alpha-Methylpropanenitrile  
 2-Methylpropanenitrile  
 2-Methylpropionitrile

**CAS #:** 78-82-0  
**RTECS #** TZ4900000  
**CI#:** Not available

**Recommended use of the chemical and restrictions on use**

**Recommended use:** In organic synthesis. Catalyst.  
**Uses advised against** No information available

**Supplier:** Spectrum Chemical Mfg. Corp  
 14422 South San Pedro St.  
 Gardena, CA 90248  
 (310) 516-8000.

**Order Online At:** <https://www.spectrumchemical.com>

**Emergency telephone number** Chemtrec 1-800-424-9300

**Contact Person:** Martin LaBenz (West Coast)

**Contact Person:** Ibad Tirmiz (East Coast)

### 2. HAZARDS IDENTIFICATION

**Classification**

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

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Acute toxicity - Oral	Category 2
Acute toxicity - Dermal	Category 2
Acute toxicity - Inhalation (Vapors)	Category 3
Serious eye damage/eye irritation	Category 2A
Specific target organ toxicity (single exposure)	Category 3
Flammable liquids	Category 2

**Label elements**

**Danger**

**Hazard statements**

Fatal if swallowed  
Fatal in contact with skin  
Toxic if inhaled  
Causes serious eye irritation  
May cause respiratory irritation  
Highly flammable liquid and vapor

**Hazards not otherwise classified (HNOC)**

Not Applicable

**Other hazards**

Not available

**Precautionary Statements - Prevention**

Wash face, hands and any exposed skin thoroughly after handling  
Do not eat, drink or smoke when using this product  
Do not get in eyes, on skin, or on clothing  
Wear protective gloves/protective clothing/eye protection/face protection  
Avoid breathing dust/fume/gas/mist/vapors/spray  
Use only outdoors or in a well-ventilated area  
Keep away from heat/sparks/open flames/hot surfaces. — No smoking  
Keep container tightly closed  
Ground/bond container and receiving equipment  
Use explosion-proof electrical/ventilating/lighting/.../equipment  
Use only non-sparking tools  
Take precautionary measures against static discharge  
Keep cool

**Precautionary Statements - Response**

In case of fire: Use CO<sub>2</sub>, dry chemical, or foam to extinguish.  
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.  
Immediately call a POISON CENTER or doctor/physician  
Wash contaminated clothing before reuse  
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician.  
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician  
Rinse mouth

**Precautionary Statements - Storage**

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

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Components	CAS-No.	Weight %
Isobutyronitrile	78-82-0	100

#### 4. FIRST AID MEASURES

##### First aid measures

<b>General Advice:</b>	National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. First aider needs to protect himself.
<b>Skin Contact:</b>	Fatal in contact with skin. Wash off immediately with soap and plenty of water removing all contaminated clothing and shoes. Get medical attention.
<b>Eye Contact:</b>	Flush eyes with water for 15 minutes. Get medical attention.
<b>Inhalation:</b>	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. <b>WARNING!</b> It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention.
<b>Ingestion:</b>	Fatal if swallowed. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Immediate medical attention is required. Call a physician immediately. Call a physician or Poison Control Center immediately.

##### Most important symptoms and effects, both acute and delayed

<b>Symptoms</b>	Moderate eye irritation. Vomiting. Central nervous system effects. Dizziness. Headache. Convulsions. Weakness. Somnolence. Tremors. May affect the liver. Irritating to respiratory system. Dyspnea (Shortness of breath and difficulty breathing). Coughing. May cause pulmonary edema. May cause bronchitis.
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##### Indication of any immediate medical attention and special treatment needed

<b>Notes to Physician:</b>	Treat symptomatically.
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##### Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

#### 5. FIRE-FIGHTING MEASURES

##### Extinguishing Media

<b>Suitable Extinguishing Media:</b>	Carbon dioxide (CO <sub>2</sub> ). Dry chemical. Alcohol-resistant foam. Water spray. Water may be ineffective.
<b>Unsuitable Extinguishing Media:</b>	Do not use a solid (straight) water stream as it may scatter and spread fire.

##### Specific hazards arising from the chemical

<b>Hazardous Combustion Products:</b>	Carbon Dioxide, Carbon Monoxide. Nitrogen Oxides. cyanides.
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**Specific hazards:** Highly flammable. May be ignited by heat, sparks or flames. Vapor may travel considerable distance to source of ignition and flash back. Vapors may form explosive mixtures with air. Most vapors are heavier than air. They will spread along the ground and collect in low or confined areas (sewers, basements, tanks). Container explosion may occur under fire conditions or when heated. Fire may produce irritating, corrosive and/or toxic gases.

### **Special Protective Actions for Firefighters**

**Specific Methods:** Water mist may be used to cool closed containers. For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out. Dike fire-control water for later disposal; do not scatter the material.

**Special Protective Equipment for Firefighters:** As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

## **6. ACCIDENTAL RELEASE MEASURES**

### **Personal precautions, protective equipment and emergency procedures**

**Personal Precautions:** Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Remove all sources of ignition. Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use spark-proof tools and explosion-proof equipment. In case of large spill, water spray or vapor suppressing foam may be used to reduce vapors, but may not prevent ignition in closed spaces.

**Environmental precautions** Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas.

### **Methods and material for containment and cleaning up**

**Methods for containment** Stop leak if you can do it without risk. Absorb spill with inert material (e.g. vermiculite, dry sand or earth). In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.

**Methods for cleaning up** Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Use only non-sparking tools. Clean contaminated surface thoroughly.

## **7. HANDLING AND STORAGE**

### **Precautions for safe handling**

#### **Technical Measures/Precautions:**

Provide sufficient air exchange and/or exhaust in work rooms. Remove all sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from incompatible materials.

#### **Safe Handling Advice**

Wear personal protective equipment. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Do not breathe vapors or spray mist. Do not ingest. When using do not smoke. Handle in accordance with good industrial hygiene and safety practice.

### **Conditions for safe storage, including any incompatibilities**

**Technical Measures/Storage Conditions:**

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Keep away from heat and sources of ignition. Store in a segregated and approved area. Store away from incompatible materials.

**Incompatible Materials:**

Oxidizing agents  
 Reducing agents  
 Strong bases  
 Strong acids

<b>8. EXPOSURE CONTROLS/PERSONAL PROTECTION</b>
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**Control parameters****National occupational exposure limits****United States**

Components	CAS-No.	OSHA	NIOSH	ACGIH	AIHA WHEEL
Isobutyronitrile	78-82-0	None	= 22 mg/m <sup>3</sup> TWA = 8 ppm TWA	None	None

**Canada**

Components	CAS-No.	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
Isobutyronitrile	78-82-0	None	None	None	None

**Australia and Mexico**

Components	CAS-No.	Australia	Mexico
Isobutyronitrile	78-82-0	None	None

**Appropriate engineering controls****Engineering measures to reduce exposure:**

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

**Individual protection measures, such as personal protective equipment****Personal Protective Equipment**

**Eye protection:** Goggles

**Skin and body protection:** Chemical resistant apron  
 Long sleeved clothing  
 Gloves

**Respiratory protection:** Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

**Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

<b>9. PHYSICAL AND CHEMICAL PROPERTIES</b>
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<b>Physical state:</b> Liquid	<b>Appearance:</b> No information available.	<b>Color:</b> Colorless.
<b>Odor:</b> Almond-like.	<b>Taste</b> No information available.	<b>Formula:</b> C4H7N
<b>Molecular/Formula weight:</b> 69.11	<b>Flammability:</b> highly flammable	<b>Flashpoint (°C/°F):</b> 8 (°C)/46.4 (°F)
<b>Flash Point Tested according to:</b> Closed cup	<b>Autoignition Temperature (°C/°F):</b> 482 (°C)/900 (°F)	<b>Lower Explosion Limit (%):</b> No information available
<b>Upper Explosion Limit (%):</b> No information available	<b>Melting point/range(°C/°F):</b> -71.5 (°C)/-96.7 (°F)	<b>Decomposition temperature(°C/°F):</b> No information available
<b>Boiling point/range(°C/°F):</b> 103.9 (°C)/219.2 (°F)	<b>Bulk density:</b> No information available	<b>Density (g/cm3):</b> No information available
<b>Specific gravity:</b> 0.7704-0.773	<b>pH:</b> No information available	<b>Vapor pressure @ 20°C (kPa):</b> No information available
<b>Evaporation rate:</b> No information available	<b>Vapor density:</b> 2.38	<b>VOC content (g/L):</b> No information available
<b>Odor threshold (ppm):</b> No information available	<b>Partition coefficient (n-octanol/water):</b> log Kow = 0.46	<b>Viscosity:</b> No information available
<b>Miscibility:</b> No information available	<b>Solubility:</b> Soluble in Acetone Slightly soluble in water Very soluble in Ether Very soluble in alcohol	

## 10. STABILITY AND REACTIVITY

### Reactivity

Reactive with oxidizing agents  
 Reacts with reducing agents  
 Reactive with acids  
 Reacts with strong bases

### Chemical stability

**Stability:** Stable under recommended storage conditions.

**Possibility of Hazardous Reactions:** Hazardous polymerization does not occur

**Conditions to avoid:** Heat. Ignition sources. Incompatible materials.

**Incompatible Materials:** Oxidizing agents  
 Reducing agents  
 Strong bases  
 Strong acids

**Hazardous decomposition products:** Carbon monoxide. Carbon dioxide.

### Other Information

**Corrosivity:** No information available

**Special Remarks on Corrosivity:** No information available

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

**Principal Routes of Exposure:**

Ingestion. Skin. Eyes. Inhalation.

### Acute Toxicity

#### Component Information

Isobutyronitrile	
CAS-No.	78-82-0

**LD50/oral/rat** = 50-77 mg/kg

**LD50/oral/mouse** = No information available

**LD50/dermal/rabbit** = 200-310 mg/kg

**LD50/dermal/rat** = No information available

**LC50/inhalation/rat** = 5500 ppm 1 hr.

>3.4 mg/l 1 hr.

**LC50/inhalation/mouse** = No information available

**Other LD50 or LC50 information** = No information available

#### Product Information

**LD50/oral/rat** =

**VALUE- Acute Tox Oral** = 50

**LD50/oral/mouse** =

**Value - Acute Tox Oral** = 25 mg/kg

**LD50/dermal/rabbit**

**VALUE-Acute Tox Dermal** = 200 mg/kg

**LD50/dermal/rat**

**VALUE -Acute Tox Dermal** = No information available

**LC50/inhalation/rat**

**VALUE-Vapor** = No information available

**VALUE-Gas** = No information available

**VALUE-Dust/Mist** = No information available

**LC50/Inhalation/mouse**

**VALUE-Vapor** = No information available

**VALUE - Gas** = No information available

**VALUE - Dust/Mist** = No information available

### Symptoms

**Skin Contact:** May cause skin irritation. Fatal if absorbed through skin.

**Eye Contact:** Causes serious eye irritation. Moderately irritating to the eyes.

**Inhalation** Toxic by inhalation. Irritating to respiratory system. May cause dizziness and headache. May affect behavior/central nervous system (confusion). May cause vomiting. It may cause pulmonary edema. Symptoms may include coughing and

shortness of breath. May cause dyspnea (difficulty breathing or shortness of breath). May cause muscle weakness.

**Ingestion** May affect liver. May affect behavior/central nervous system (muscle weakness, convulsions). May affect behavior/central nervous system (somnolence, tremor).

**Aspiration hazard** No information available.

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

**Chronic Toxicity** Prolonged or repeated ingestion may affect the liver. Repeated exposure may cause bronchitis to develop with cough, phlegm, and /or shortness of breath.

**Sensitization:** No information available.

**Mutagenic Effects:** May affect genetic material  
Sex Chromosome Loss and Nondisjunction in *Saccharomyces cerevisiae* (yeast)  
Cytogenetic analysis (Hamster fibroblast)

**Carcinogenic effects:** Not classifiable as a human carcinogen.

Components	CAS-No.	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Isobutyronitrile	78-82-0	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

*ACGIH (American Conference of Governmental Industrial Hygienists)*

*IARC (International Agency for Research on Cancer)*

*NTP (National Toxicology Program)*

*OSHA (Occupational Safety and Health Administration of the US Department of Labor)*

**Reproductive toxicity** No data is available

**Reproductive Effects:** No information available

**Developmental Effects:** No information available

**Teratogenic Effects:** No information available

**Specific Target Organ Toxicity**

**STOT - single exposure** Respiratory system.

**STOT - repeated exposure** No information available.

**Target Organs:** No information available.

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Ecotoxicity effects:** No data available.

**Persistence and degradability:** No information available

**Bioaccumulative potential:** No information available.

**Mobility:** No information available.



### 13. DISPOSAL CONSIDERATIONS

#### Disposal Methods

##### Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

##### Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Components	CAS-No.	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Isobutyronitrile	78-82-0	None	None	None	None

### 14. TRANSPORT INFORMATION

#### DOT

**UN-No:** UN2284  
**Proper Shipping Name:** Isobutyronitrile  
**Hazard Class:** 3  
**Subsidiary Class:** 6.1  
**Packing group:** II  
**Emergency Response Guide Number:** 131  
**Marine Pollutant:** No data available  
**DOT RQ (lbs):** No information available  
**Special Provisions:** IB2, T7, TP2, TP13  
**Symbol(s):** No information available  
**Description:** UN2284, Isobutyronitrile, 3 (6.1), II

#### TDG (Canada)

**UN-No:** UN2284  
**Proper Shipping Name:** Isobutyronitrile  
**Hazard Class:** 3  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**Marine Pollutant:** No Information available  
**Description:** UN2284, Isobutyronitrile, 3 (6.1), II

#### ADR

**UN-No:** UN2284  
**Proper Shipping Name:** Isobutyronitrile  
**Hazard Class:** 3  
**Packing Group:** II  
**Subsidiary Risk:** No information available  
**Description:** UN2284, Isobutyronitrile, 3 (6.1), II

#### IMO / IMDG

**UN-No:** UN2284  
**Proper Shipping Name:** Isobutyronitrile  
**Hazard Class:** 3  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**Marine Pollutant:** No information available  
**EMS:** F-E  
**Description:** UN2284, Isobutyronitrile, 3 (6.1), II

#### RID

**UN-No:** UN2284  
**Proper Shipping Name:** Isobutyronitrile  
**Hazard Class:** 3  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**Description:** UN2284, Isobutyronitrile, 3 (6.1), II

**ICAO**

**UN-No:** UN2284  
**Proper Shipping Name:** Isobutyronitrile  
**Hazard Class:** 3  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**Description:** UN2284, Isobutyronitrile, 3 (6.1), II

**IATA**

**UN-No:** UN2284  
**Proper Shipping Name:** Isobutyronitrile  
**Hazard Class:** 3  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**ERG Code:** 3P  
**Special Provisions** No information available  
**Description:** UN2284, Isobutyronitrile, 3 (6.1), II

**15. REGULATORY INFORMATION**

**International Inventories**

Components	CAS-No.	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
<i>Isobutyronitrile</i>	78-82-0	Present	Present KE-24871	Present	Present (2)-1510	Present	Present	Present 201-147-5

**U.S. Regulations**

*Isobutyronitrile*

- Massachusetts RTK: Present
- New Jersey RTK Hazardous Substance List: 1054
- New Jersey (EHS) List: 1054 500 lb TPQ
- New Jersey - Discharge Prevention - List of Hazardous Substances: Present
- New Jersey TCPA - EHS: ≈20000lbTQ
- Pennsylvania RTK: Environmental hazard
- Pennsylvania RTK - Environmental Hazard List Present
- Pennsylvania RTK - Special Hazardous Substances Present
- Minnesota - Hazardous Substance List: Present
- New York Release Reporting - List of Hazardous Substances:  
= 1 lb RQ

**California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.**

**Chemicals Known to the State of California to Cause Cancer:**

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

**Chemicals Known to the State of California to Cause Reproductive Toxicity:**

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	CAS-No.	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
<i>Isobutyronitrile</i>	78-82-0	Not Listed	Not Listed	Not Listed	Not Listed

## CERCLA/SARA

Components	CAS-No.	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis
Isobutyronitrile	78-82-0	None	1000 lb TPQ 1000	None	None	None

## U.S. TSCA

Components	CAS-No.	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Isobutyronitrile	78-82-0	Not Applicable	Not Applicable

## Canada

### WHMIS 2015 - GHS Classifications

WHMIS 2015 Hazard Classification Information: The WHMIS 2015 classification of this product has not been validated or reviewed yet.

**Canada Hazardous Products Regulation** This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

### WHMIS 1988 Hazard Class

The classification of this product has not been validated yet

### Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

## Inventory

Components	CAS-No.	Canada (DSL)	Canada (NDSL)
Isobutyronitrile	78-82-0	Not Listed	Present

Components	CAS-No.	CEPA Schedule I - Toxic Substances
Isobutyronitrile	78-82-0	Not listed
Components	CAS-No.	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Isobutyronitrile	78-82-0	Not listed

## EU Classification

### EU GHS - SV - CLP 172/2008

Components	CAS-No.	EU GHS - SV - CLP (172/2008)
Isobutyronitrile	78-82-0	No information

### EU - CLP (1272/2008)

### R-phrase(s)

Not determined

### S -phrase(s)

not determined

Components	CAS-No.	Classification	Concentration Limits:	Safety Phrases
Isobutyronitrile	78-82-0		No information	

The product is classified in accordance with Annex VI to Directive 67/548/EEC

**Indication of danger:**

T+ - Very toxic.

F - Highly flammable.

## 16. OTHER INFORMATION

**Preparation Date:** 5/12/2017  
**Revision Date:** Not Applicable  
**Prepared by:** Sonia Owen

**Disclaimer:**

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

**End of Safety Data Sheet**