1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Benzonitrile
Product Number: 294098
Brand: Sigma-Aldrich
Company: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052
Emergency Phone #: (314) 776-6555

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Combustible Liquid, Target Organ Effect, Harmful by ingestion., Harmful by skin absorption., Irritant

Target Organs
Liver, Blood, Kidney, Heart, Central nervous system

Other hazards which do not result in classification
Vesicant.

GHS Label elements, including precautionary statements

Pictogram

Signal word: Warning

Hazard statement(s)
H227  Combustible liquid
H302 + H312 Harmful if swallowed or in contact with skin.
H315  Causes skin irritation.
H332  Harmful if inhaled.
H402  Harmful to aquatic life.

Precautionary statement(s)
P210  Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P261  Avoid breathing dust/fume/gas/mist/vapours/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.
P273  Avoid release to the environment.
P280  Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312  Call a POISON CENTER or doctor/physician if you feel unwell.
P332  Specific measures (see supplemental first aid instructions on this label).
P333  Rinse mouth.
P332 + P313 If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash before reuse.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
Store in a well-ventilated place. Keep cool.
Dispose of contents/container to an approved waste disposal plant.

HMIS Classification
- Health hazard: 2
- Chronic Health Hazard: *
- Flammability: 2
- Physical hazards: 0

NFPA Rating
- Health hazard: 2
- Fire: 2
- Reactivity Hazard: 0

Potential Health Effects
- Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
- Skin: Harmful if absorbed through skin. Causes skin irritation.
- Eyes: Causes eye irritation.
- Ingestion: Harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Phenyl cyanide

Formula: C₇H₅N
Molecular Weight: 103.12 g/mol

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<tr>
<th>CAS-No.</th>
<th>EC-No.</th>
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<th>Concentration</th>
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<tr>
<td>Benzonitrile</td>
<td>100-47-0</td>
<td>202-855-7</td>
<td>608-012-00-3</td>
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4. 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. 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
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters
Wear self-contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

Environmental precautions
Do not let product enter drains.
Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Hygroscopic. Handle and store under inert gas.

8. EXPOSURE CONTROLS/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 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).

Hand protection
Handle with gloves.

Eye protection
Face shield and safety glasses

Skin and body protection
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

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
Colour colourless

Safety data
pH no data available
Melting point -13 °C (9 °F) - lit.
Boiling point 191 °C (376 °F) - lit.
Flash point 70 °C (158 °F) - closed cup
Ignition temperature 550 °C (1,022 °F)
Lower explosion limit 1.4 % (V)
Upper explosion limit 7.2 % (V)
Vapour pressure 1 hPa (1 mmHg) at 20 °C (68 °F)
Density 1.000 g/cm3
Water solubility ca.10 g/l
Partition coefficient: n-octanol/water log Pow: 1.56
Relative vapour density: 3.56 (Air = 1.0)

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Conditions to avoid
Avoid moisture. Do not heat over: 30°C

Materials to avoid
Strong bases, Strong oxidizing agents, Strong reducing agents, acids, Chlorates, Nitrates, Plastics

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)

11. TOXICOLOGICAL INFORMATION

Acute toxicity
LD50 Oral - mouse - 971 mg/kg
LC50 Inhalation - mouse - 1,800 mg/m3
LD50 Dermal - rabbit - 1,250 mg/kg

Skin corrosion/irritation
Skin - rabbit - Skin irritation - 24 h

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

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
No data available

Specific target organ toxicity - single exposure (GHS)
No data available

Specific target organ toxicity - repeated exposure (GHS)
No data available

Aspiration hazard
No data available

Potential health effects

Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion: Harmful if swallowed.
Skin: Harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes 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: DI2450000

### 12. ECOLOGICAL INFORMATION

**Toxicity**
- **Toxicity to fish**
  - LC50 - *Oncorhynchus mykiss* (rainbow trout) - 32 mg/l - 96 h

**Persistence and degradability**
- **Biodegradability**
  - Biotic/Aerobic
  - **Result**: Readily biodegradable.

**Bioaccumulative potential**
- No data available

**Mobility in soil**
- No data available

**PBT and vPvB assessment**
- No data available

**Other adverse effects**
- No data available

### 13. DISPOSAL CONSIDERATIONS

**Product**
- This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.
- Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

**Contaminated packaging**
- Dispose of as unused product.

### 14. TRANSPORT INFORMATION

**DOT (US)**
- UN-Number: 2224  Class: 6.1
- Proper shipping name: Benzonitrile
- Reportable Quantity (RQ): 5000 lbs
- Marine pollutant: No
- Poison Inhalation Hazard: No
- Packing group: II

**IMDG**
- UN-Number: 2224  Class: 6.1
- Proper shipping name: BENZONITRILE
- Marine pollutant: No
- Packing group: II
- EMS-No: F-A, S-A

**IATA**
- UN-Number: 2224  Class: 6.1
- Proper shipping name: Benzonitrile
- Packing group: II

### 15. REGULATORY INFORMATION

**OSHA Hazards**
- Combustible Liquid, Target Organ Effect, Harmful by ingestion., Harmful by skin absorption., Irritant

**DSL Status**
- All components of this product are on the Canadian DSL list.
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, Chronic Health Hazard

Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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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

Further information
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