Section 1 - Product and Company Information

Product Name: Acrylonitrile, 99+%  
Product Number: 110213  
Company: Sigma-Aldrich  
Address: 3050 Spruce Street  
City, State, Zip, Country: SAINT LOUIS, MO 63103 US  
Technical Phone: 800-325-5832  
Fax: 800-325-5052  
Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name: ACRYLONITRILE  
CAS #: 107-13-1  
SARA 312: Yes  
EC No: 203-466-5  
Annex I Index Number: 608-003-06-4

Formula: C3H3N  

Section 3 - Hazards Identification


HMIS Rating:  
Health: 3  
Flammability: 3  
Reactivity: 1

NFPA Rating:  
Health: 3  
Flammability: 3  
Reactivity: 1

Section 4 - First Aid Measures

Oral Exposure: If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

Inhalation Exposure: If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

Section 5 - Fire Fighting Measures

Flammable Hazards: Yes

Explosion Hazards: Vapor may travel considerable distance to source of ignition and flash back. Contains explosion may occur under fire conditions.

Flash Point: 23 °F  
Explosion Limits: Lower: 3%  
Upper: 17%

Autoignition Temp: 481 °C  
Flammability: Yes

Extinguishing Media: 
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

Section 6 - Accidental Release Measures

Procedure to be Followed in Case of Leak or Spill: 
Evacuate area. Shut off all sources of ignition.

Procedures of Personal Preadeution(s): Wear self-contained breathing apparatus. rubber boots. and heavy rubber gloves.

Methods for Cleaning Up: 
Cover with dry lime, sand, or soda ash. Place in covered containers using nonsparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling: 
User Exposure: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

Storage: 
Suitable: Keep tightly closed. Keep away from heat, sparks, and open flame.

Incompatible Materials: Copper, Copper alloys

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Section 8 - Exposure Controls / PPE

Engineering Controls
Safety shower and eye bath. Use nonsparking tools. Use only in a chemical fume hood.

Personal Protective Equipment
Respiratory
Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows airpurifying respirators are appropriate, use a fullface respirator with multipurpose combination (US) or type ABEX (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a fullface supplied air respirator.

Hand
Compatible chemical resistant gloves.

Eye
Chemical safety goggles.

General Hygiene Measures
Wash contaminated clothing before reuse. Wash thoroughly after handling.

Special Precautions
For protection and handling requirements consult CFR title 29 part 1910.

Section 9 - Physical/Chemical Properties

Appearance
Physical State
Clear liquid
Color
Colorless

Molecular Weight
53.06 AMU

pH
N/A

BP/VP Range
77 - 78 °C

MP/VP Range
-83 °C

Freezing Point
N/A

Vapor Pressure
86 mmHg

Vapor Density
1.93 gr/L

Saturated Vapor Conc.
N/A

SG/Density
0.806 g/cm3

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Section 10 - Stability and Reactivity

Stability
Conditions to Avoid
Heat. May polymerize on exposure to light.

Materials to Avoid
Oxidizing agents, Copper, Copper alloys

Hazardous Decomposition Products
Carbon monoxide, Carbon dioxide, Nitrogen oxides

Hazardous Polymerization
May occur.

Section 11 - Toxicological Information

Route of Exposure
Skin Contact
Carcinogenic

Skin Absorption
Toxic if absorbed through skin

Eye Contact
Carcinogenic

Inhalation
Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

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**Ingestion**

Tox if swallowed.

**Target Organ(s) or System(s)**
Liver, Central nervous system, Cardiovascular system, Kidneys.

**Signs and Symptoms of Exposure**

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. May be partially metabolized to cyanide in the body. CNS depression. Ataxia. Symptoms may be delayed.

**RETECS Number:** AT5250000

**Toxicity Data**

**Inhalation - Man:** 1,000 mg/m³ (LC₅₀).


**Skin - Child:** 2015 mg/kg (LD₅₀).


**Oral - Rat:** 78 mg/kg (LD₅₀).


**Inhalation - Rat:** 333 ppm (LC₅₀).


**Skin - Rat:** 148 mg/kg (LD₅₀)

Intraarticular - Rat: 65 MG/KG (LD₅₀)

Subcutaneous - Rat: 75 MG/KG (LD₅₀)


**Oral - Mouse:** 27 mg/kg (LD₅₀).


**Intraarticular - Mouse:** 46 MG/KG (LD₅₀).


Subcutaneous - Mouse: 25 MG/KG (LD₅₀)


**Skin - Rabbit:** 63 mg/kg (LD₅₀).

Remarks: Behavioral: Somnolence (general depressed activity), Skin and Appendages: Skin: After systemic exposure: Dermatitis, other.

**Intravenous - Rabbit:** 69 MG/KG (LD₅₀).


**Oral - Guinea pig:** 50 mg/kg (LD₅₀)

**Skin - Guinea pig:** 202 mg/kg (LD₅₀)

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**Subcutaneous - Guinea pig:** 130 MG/KG (LD₅₀)


**Irritation Data**

**Skin - Human:** 500 mg

**Skin - Rabbit:** 500 mg

Remarks: Severe irritation effect.

**Eyes - Rabbit:** 100 mg

Remarks: Moderate irritation effect.

**Chronic Exposure - Carcinogen**

Result: This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

**Rat - Oral:** 18200 MG/KG 52W C


**Rat - Inhalation:** 5 PPM 52W I

Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: tumors.

**Rat - Inhalation:** 20 PPM 4H/52W I


**Rat - Inhalation:** 40 PPM 4H/52W I


**Rat - Oral:** 3640 MG/KG 52W C


**Rat - Oral:** 2490 MG/KG 2Y C


**OSHA Carcinogen List**

**Rating:** cancer hazard

**IARC Carcinogen List**

**Rating:** Group 2B

**NTP Carcinogen List**

**Rating:** Anticipated to be a carcinogen.

**ACGIH Carcinogen List**

**Rating:** A3

**Chronic Exposure - Teratogen**

<table>
<thead>
<tr>
<th>Species</th>
<th>Date</th>
<th>Route of Application</th>
<th>Exposure Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rat</td>
<td>650 MG/KG</td>
<td>Oral</td>
<td>(6-15D PREG)</td>
</tr>
<tr>
<td>Result: Specific Developmental Abnormalities: Musculoskeletal system. Specific Developmental Abnormalities: Cardiovascular (circulatory) system.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rat</td>
<td>80 PPM/I</td>
<td>Inhalation</td>
<td>(6-15D PREG)</td>
</tr>
<tr>
<td>Result: Specific Developmental Abnormalities: Musculoskeletal system.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rat</td>
<td>25 PPM/I</td>
<td>Inhalation</td>
<td>(6-20D PREG)</td>
</tr>
<tr>
<td>Result: Effect of Embryo or Fetus: Teratogenicity. Effect of Embryo or Fetus: Deformity (except death, e.g., stunted fetus).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hamster</td>
<td>641 MG/KG</td>
<td>Intraperitoneal</td>
<td>(60 PREG)</td>
</tr>
<tr>
<td>Result: Effect of Embryo or Fetus: Extra embryonic structures (e.g., placenta, umbilical cord). Effect of Embryo or Fetus: Cytological changes (including somatic cell genetic material). Effect of Embryo or Fetus: Teratogenicity. Effect of Embryo or Fetus: Deformity (except death, e.g., stunted fetus).</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Section 12 - Ecological Information

Acute Ecotoxicity Tests

Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 48.0 h
Value: 7.4 - 10 mg/l

Test Type: LC50 Fish
Species: Lepomis macrochirus (Bluegill)
Time: 96.0 h
Value: 8 - 12 mg/l

Section 13 - Disposal Considerations

Appropriate Method of Disposal of Substance or Preparation
Confined to a licensed professional waste disposal service to dispose of this material.

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable.

Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
Proper Shipping Name: Acrylonitrile, Inhibited
UN No: 1593
Packaging Group: I
Packing Group: I
Hazard Class: 3
Not Allowed - Aircraft: Cargo aircraft only. Not permitted on passenger aircraft.

Section 15 - Regulatory Information

EU Directives Classification
Symbol of Danger: T
Indication of Danger: Highly Flammable. Toxic. Dangerous for the environment.
Risk Statements: R: 5 11 23/24/25 41 43 37/38 51/53
May cause cancer. Highly flammable. Toxic by inhalation, in contact with skin and if swallowed. Risk of serious damage to eyes. May cause sensitization by skin contact. Irritating to respiratory system and skin. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety Statements

Restricted to professional users. Attention: Avoid exposure - obtain special instructions before use. Keep container in a well ventilated place. Keep away from sources of ignition - no smoking. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/safety data sheets.

US Classification and Label Text

Indication of Danger
Flammable (USA) Highly Flammable (EU). Highly Toxic (USA) Very Toxic (EU).
Risk Statements
Toxic in contact with skin and if swallowed. Very toxic by inhalation. Causes burns. May cause cancer.
Safety Statements
Avoid exposure - obtain special instructions before use. Keep container tightly closed. Keep away from sources of ignition - no smoking. Do not breathe vapor. Avoid contact with skin. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Take precautionary measures against static discharges. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
US Statements

United States Regulatory Information

SARA Listed: Yes
Demimiss: 0.1 %
Notes: This product is subject to SARA section 313 reporting requirements.

TSCA Inventory Item: Yes

United States - State Regulatory Information

California Prop- 65
This product is or contains chemical(s) known to the state of California to cause cancer.

Canada Regulatory Information

WHMIS Classification
This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DISL: Yes
NDSL: No

Section 16 - Other Information

Disclaimer
For F&D use only. Not for drug, household or other uses.

Warranty
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice packing slip for additional terms and conditions of sale. Copyright©2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.