### Section 1. Chemical Product and Company Identification

<table>
<thead>
<tr>
<th>NFPA</th>
<th>HMIS</th>
<th>Personal Protective Equipment</th>
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<tbody>
<tr>
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<td><img src="image" alt="Image" /> See Section 15.</td>
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<table>
<thead>
<tr>
<th>Common Name/Trade Name</th>
<th>Adiponitrile</th>
</tr>
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<tbody>
<tr>
<td>Catalog Number(s)</td>
<td>A2207</td>
</tr>
<tr>
<td>CAS#</td>
<td>111-69-3</td>
</tr>
<tr>
<td>RTECS</td>
<td>AV2625000</td>
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<td>TSCA</td>
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</tr>
<tr>
<td>CI#</td>
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</table>

**Manufacturer**
SPECTRUM LABORATORY PRODUCTS INC.
14422 S. SAN PEDRO STREET
GARDENA, CA 90248

**Commercial Name(s)**
Not available.

**Synonym**
1,4-Dicyanobutane; Adipic acid dinitrile; Adipic acid nitrile; Hexanedinitrile; Hexanoic acid, dinitirile; Tetramethylene cyanide

**Chemical Name**
Adiponitrile

**Chemical Family**
Not available.

**Chemical Formula**
C₆H₈N₂ or NC(CH₂)CN

**Supplier**
SPECTRUM LABORATORY PRODUCTS INC.
14422 S. SAN PEDRO STREET
GARDENA, CA 90248

### Section 2. Composition and Information on Ingredients

#### Exposure Limits

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS #</th>
<th>TWA (mg/m³)</th>
<th>STEL (mg/m³)</th>
<th>CEIL (mg/m³)</th>
<th>% by Weight</th>
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</thead>
<tbody>
<tr>
<td>1) Adiponitrile</td>
<td>111-69-3</td>
<td>4</td>
<td></td>
<td></td>
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</table>

**Toxicological Data on Ingredients**
Adiponitrile:
- **ORAL** (LD₅₀): Acute: 155 mg/kg [Rat]. 172 mg/kg [Mouse]. 22 mg/kg [Rabbit].
- **MIST** (LC₅₀): Acute: 1170 mg/m³ 4 hours [Rat].

### Section 3. Hazards Identification

#### Potential Acute Health Effects
Hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation. Severe over-exposure can result in death.

#### Potential Chronic Health Effects
**Carcinogenic Effects**: Not available.
**Mutagenic Effects**: Not available.
**Teratogenic Effects**: Not available.
**Developmental Toxicity**: Not available.
The substance may be toxic to blood, lungs, the nervous system, central nervous system (CNS), thyroid. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

**Material Safety Data Sheet**
SPECTRUM LABORATORY PRODUCTS INC.
14422 S. SAN PEDRO STREET
GARDENA, CA 90248
CALL (310) 516-8000

**IN CASE OF EMERGENCY**
CHEMTREC (24hr) 800-424-9300

**continued on next page**
### Section 4. First Aid Measures

**Eye Contact**
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention.

**Skin Contact**
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

**Serious Skin Contact**
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

**Inhalation**
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Serious Inhalation**
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

**Ingestion**
If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

**Serious Ingestion**
Not available.

### Section 5. Fire and Explosion Data

**Flammability of the Product**
Combustible.

**Auto-Ignition Temperature**
550°C (1022°F)

**Flash Points**
OPEN CUP: 93°C (199.4°F).

**Flammable Limits**
LOWER: 1% - 1.7% UPPER: 4.99%

**Products of Combustion**
These products are carbon oxides (CO, CO2), nitrogen oxides (NO, NO₂...).

**Fire Hazards in Presence of Various Substances**
Flammable in presence of open flames and sparks, of heat.

**Explosion Hazards in Presence of Various Substances**
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions**
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards**
When heated to decomposition, it releases vapors containing Hydrocyanic acid.
When heated to decomposition it emits highly toxic fumes of cyanides.

**Special Remarks on Explosion Hazards**
Not available.

### Section 6. Accidental Release Measures

**Small Spill**
Absorb with an inert material and put the spilled material in an appropriate waste disposal.

**Large Spill**
Combustible material. Poisonous liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Continued on Next Page
Section 7. Handling and Storage

Precautions

Keep locked up. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents.

Storage

Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8. Exposure Controls/Personal Protection

Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits

TWA: 2 (ppm) from ACGIH (TLV) [United States] SKIN
TWA: 4 (ppm) from NIOSH [United States]
TWA: 18 (mg/m³) from NIOSH [United States]

Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance

Liquid. (Oily liquid.)

Odor

Almost odorless

Molecular Weight

108.16 g/mole

Taste

Not available.

pH (1% soln/water)

Not available.

Color

Clear Colorless.

Boiling Point

295°C (563°F) @ 760 mm Hg

Melting Point

1°C (33.8°F) - 0°C

Critical Temperature

507°C (944.6°F)

Specific Gravity

0.9510 - 0.9676 (Water = 1)

Vapor Pressure

0 kPa @ 20°C

2 mm Hg @ 119°C

Vapor Density

3.73 (Air = 1)

Volvility

Not available.

Odor Threshold

Not available.

Water/Oil Dist. Coeff.

The product is more soluble in water; log(oil/water) = -0.3

Ionicity (in Water)

Not available.

Dispersion Properties

See solubility in water, methanol, acetone.

Solubility

Soluble in methanol, acetone. Slightly soluble in cold water, diethyl ether. Soluble in alcohol(ethanol), chloroform, chloroalkanes, and aromatics. Low solubility in carbon disulfide, aliphatic hydrocarbons.
Section 10. Stability and Reactivity Data

**Stability**  The product is stable.

**Instability Temperature**  Not available.

**Conditions of Instability**  Heat, ignition sources (flames, sparks, static), incompatible materials

**Incompatibility with various substances**  Reactive with oxidizing agents.

**Corrosivity**  Not available.

**Special Remarks on Reactivity**  Not available.

**Special Remarks on Corrosivity**  Not available.

**Polymerization**  Will not occur.

Section 11. Toxicological Information

**Routes of Entry**  Absorbed through skin. Dermal contact. Eye contact.

**Toxicity to Animals**  Acute oral toxicity (LD50): 22 mg/kg [Rabbit].
Acute toxicity of the vapor (LC50): 1170 mg/m^3 4 hours [Rat].

**Chronic Effects on Humans**  May cause damage to the following organs: blood, lungs, the nervous system, central nervous system (CNS), thyroid.

**Other Toxic Effects on Humans**  Hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

**Special Remarks on Toxicity to Animals**  Not available.

**Special Remarks on Chronic Effects on Humans**  May cause adverse reproductive effects based on animal test data. No human data found.

**Special Remarks on other Toxic Effects on Humans**  Acute Potential Health Effects:
Skin: Causes skin irritation. It can be absorbed through the skin in harmful amounts. Absorption into the body causes system toxicity with symptoms similar to acute ingestion.
Eyes: Causes eye irritation.
Inhalation: Harmful if inhaled. Can cause respiratory tract (nose, throat, lungs) irritation with coughing, and/or shortness of breath. It can also affect respiration and cardiovascular system and produce symptoms similar to that of acute ingestion.
Ingestion: Harmful if swallowed. It causes nausea, vomiting, diarrhea and flushing of face. The systemic toxicity of Adiponitrile is due to the metabolic release of cyanide. Cyanide interferes with respiration. Ingestion can cause chest tightness, hypoxia, hyperpnea, tachypnea, apnea, pulmonary edema, hyperventilation. It can also affect behavior/central nervous system/nervous system, cardiovascular system, eyes, and metabolism and cause headache, weakness, dizziness, anxiety, depression, mild rigidity, tremor, personality changes, memory deficits, lightheadedness, unsteady gait, vertigo, agitation, stupor, masked facies, hypophonia, generalized convulsions, generalized seizures, hypotension, hypertension, tachycardia, bradycardia, arrhythmias, palpitations, mydriasis (dilated, poorly reactive pupils), confusion, tonic-clonic muscle contractions, metabolic acidosis. It may also cause hyperglycemia, cyanosis (a bluish discoloration of the skin due to deficient oxygenation of the blood). It may cause collapse, unconsciousness, coma, and death. Cyanosis is generally a late finding and does not occur until stage of circulatory collapse and apnea. Note that individuals with cyanide poisoning can have an odor of bitter almonds their gastric contents or expired breath.
Chronic Potential Health Effects:
Ingestion: Chronic ingestion can cause similar symptoms as acute ingestion.
Inhalation: Chronic inhalation can cause excessive salivation, irregular respirations, increased blood sugar, BUN and creatinine levels, bone marrow depression, decreased white blood cell and red blood cell levels, and decreased blood hemoglobin levels.
Chronic exposure may affect the thyroid gland and result in a goiter.

Continued on Next Page
### Section 12. Ecological Information

<table>
<thead>
<tr>
<th>Ecotoxicity</th>
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</thead>
<tbody>
<tr>
<td>BOD5 and COD</td>
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</tr>
<tr>
<td>Products of Biodegradation</td>
<td>Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.</td>
</tr>
<tr>
<td>Toxicity of the Products of Biodegradation</td>
<td>The products of degradation are less toxic than the product itself.</td>
</tr>
<tr>
<td>Special Remarks on the Products of Biodegradation</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

### Section 13. Disposal Considerations

| Waste Disposal                                | Waste must be disposed of in accordance with federal, state and local environmental control regulations. |

### Section 14. Transport Information

| DOT Classification                             | CLASS 6.1: Poisonous material.                                                                 |
| Identification                                 | : Adiponitrile UNNA: 2205 PG: III                                                            |
| Special Provisions for Transport               | Not available.                                                                                |
| DOT (Pictograms)                               | ![Pictogram](image)                                                                          |

### Section 15. Other Regulatory Information and Pictograms

| Federal and State Regulations                 | Illinois chemical safety act: Adiponitrile  
New York release reporting list: Adiponitrile  
Rhode Island RTK hazardous substances: Adiponitrile  
Pennsylvania RTK; Adiponitrile  
Minnesota: Adiponitrile  
Massachusetts RTK: Adiponitrile  
Massachusetts spill list: Adiponitrile  
New Jersey: Adiponitrile  
New Jersey spill list: Adiponitrile  
Louisiana RTK reporting list: Adiponitrile  
TSCA 8(b) inventory: Adiponitrile  
TSCA 8(d) H and S data reporting: Adiponitrile: Effective Date: 6/1/87; Sunset date: 12/19/95  
SARA 302/304/311/312 extremely hazardous substances: Adiponitrile  
CERCLA: Hazardous substances.: Adiponitrile: 1000 lbs. (453.6 kg)  |
| California Proposition 65 Warnings            | California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: No products were found.  
California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.  |

Continued on Next Page
Adiponitrile

EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances (EINECS No. 203-896-3).
Canada: Listed on Canadian Domestic Substance List (DSL).
China: Listed on National Inventory.
Japan: Listed on National Inventory (ENCS).
Korea: Listed on National Inventory (KECI).
Philippines: Listed on National Inventory (PICCS).
Australia: Listed on AICS.

Other Classifications

WHMIS (Canada)  CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC).

DSCL (EEC)  R23/25- Toxic by inhalation and if swallowed.
R36/37/38- Irritating to eyes, respiratory system and skin.

S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.)  National Fire Protection Association (U.S.A.)

Health Hazard  2  Flammability
Fire Hazard  2  Reactivity
Reactivity  0  Specific hazard

Personal Protection  Health

S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Continued on Next Page
Section 16. Other Information

<table>
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<tr>
<th>MSDS Code</th>
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<tbody>
<tr>
<td>References</td>
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<tr>
<td>Other Special</td>
<td>Uses: Intermediate in the manufacture of nylon; Organic synthesis; Preparation of adipoquanamine; Extractant for aromatic hydrocarbons</td>
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<tr>
<td>Considerations</td>
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</table>

Verified by Sonia Owen.  

CALL (310) 516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) 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 MSDS. 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 MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.