Material Safety Data Sheet

Malononitrile MSDS

Section 1: Chemical Product and Company Identification

| Product Name: | Malononitrile |
| Catalog Codes: | 10862 |
| CAS#: | [109-77-3] |
| RTECS: | Not available |
| TSCA: | Not available |
| CI#: | Not available |
| Synonym: | MDN; Dicyanomethane |
| Chemical Formula: | C3H2N2 |
| Contact Information: | Finar Limited |
| | 184-186/P, Chacharwadi Vasna, Sarkhej-Bavla Highway, Ta.: Sanand, Dist.: Ahmedabad, Email: info@finarchemicals.com Web: www.finarchemicals.com |

Section 2: Composition and Information on Ingredients

<table>
<thead>
<tr>
<th>Composition:</th>
<th>Name</th>
<th>CAS #</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malononitrile</td>
<td>109-77-3</td>
<td>99</td>
<td></td>
</tr>
</tbody>
</table>

Toxicological Data on Ingredients: Not available

Section 3: Hazards Identification

Potential Acute Health Effects:
Eye: Causes eye irritation.
Skin: May cause skin irritation. Toxic in contact with skin. May be metabolized to cyanide which in turn acts by inhibiting cytochrome oxidase impairing cellular respiration.
Ingestion: May cause irritation of the digestive tract. May cause nausea and vomiting. Metabolism may release cyanide, which may result in headache, dizziness, weakness, collapse, unconsciousness and possible death. Toxic if swallowed.
Inhalation: May cause respiratory tract irritation. Toxic if inhaled.

Potential Chronic Health Effects:
May cause liver and kidney damage. Chronic exposure may cause blood effects. Exposure to high concentrations may cause central nervous system depression. Exposure to small amounts of cyanide compounds over long periods of time is reported to cause loss of appetite, headache, weakness, nausea, dizziness, and symptoms of irritation of the upper respiratory tract and eyes.

Section 4: First Aid Measures

Eyes:
Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid imme diately.

Skin:
Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion:
POISON material. If swallowed, get medical aid immediately. Only induce vomiting if directed to do so by medical
personnel. Never give anything by mouth to an unconscious person.

**Inhalation:**
Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. 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.

**Notes to Physician:** Treat symptomatically and supportively.

### Section 5: Fire and Explosion Data

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH approved or equivalent), and full protective gear.

**Extinguishing Media:** Use water spray, dry chemical, carbon dioxide, or chemical foam.

**Flash Point:** 112 deg C (233.60 deg F)

**Auto ignition Temperature:** 365 deg C (689.00 deg F)

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 3; Flammability: 1; Instability: 2

### Section 6: Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Sweep up or absorb material, then place into a suitable clean, dry, closed container for disposal. Avoid generating dusty conditions. Provide ventilation. Do not let this chemical enter the environment.

### Section 7: Handling and Storage

**Handling:** Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale. Use only in a chemical fume hood.

**Storage:** Store in a cool, dry place. Keep containers tightly closed.

### Section 8: Exposure Controls/Personal Protection

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

**Exposure Limits**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malononitrile</td>
<td>none listed</td>
<td>3 ppm TWA; 8 mg/m3 TWA</td>
<td>none listed</td>
</tr>
</tbody>
</table>

**OSHA Vacated PELs:** Malononitrile: No OSHA Vacated PELs are listed for this chemical.

**Personal Protective Equipment**

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA’s eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** A respiratory protection program that meets OSHA’s 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

### Section 9: Physical and Chemical Properties

**Physical State:** Solid

**Appearance:** white - yellow - brown

**Odor:** None reported.

**pH:** Not available.

**Vapor Pressure:** 1 hPa @ 50 deg C

**Vapor Density:** Not available.

**Evaporation Rate:** Not available.

**Viscosity:** Not available.
Boiling Point: 220 deg C @ 760 mmHg
Freezing/Melting Point: 30 - 34 deg C
Decomposition Temperature: Not available.
Solubility: 13.3 g/100mL (20°C)
Specific Gravity/Density: 1.040
Molecular Formula: C3H2N2
Molecular Weight: 66.06

Section 10: Stability and Reactivity Data
Chemical Stability: Polymerization may occur upon heating.
Conditions to Avoid: Incompatible materials, dust generation, excess heat, temperatures above 130°C
Incompatibilities with Other Materials: Strong oxidizing agents, strong reducing agents, strong acids, strong bases.
Hazardous Decomposition Products: Hydrogen cyanide, nitrogen oxides, carbon monoxide, carbon dioxide.
Hazardous Polymerization: May occur.

Section 11: Toxicological Information
RTECS#: CAS# 109-77-3: OO3150000
LD50/LC50:
CAS# 109-77-3:
- Draize test, rabbit, eye: 5 mg/24H Severe;
- Oral, mouse: LD50 = 19 mg/kg;
- Oral, rat: LD50 = 14 mg/kg;
- Skin, rat: LD50 = 350 mg/kg;
- Oral, Rat: LD50 = 60.8
Carcinogenicity: CAS# 109-77-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
Epidemiology: No information available.
Teratogenicity: No information available.
Reproductive Effects: No information available.
Mutagenicity: No information available.
Neurotoxicity: No information available.
Other Studies:

Section 12: Ecological Information
Ecotoxicity: No data available. No information available.
Environmental: No information found.
Physical: No information found.
Other: Do not empty into drains.

Section 13: Disposal Considerations
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series:
CAS# 109-77-3: waste number U149.

Section 14: Transport Information

<table>
<thead>
<tr>
<th></th>
<th>US DOT</th>
<th>Canada TDG</th>
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<tbody>
<tr>
<td>Shipping Name:</td>
<td>MALONONITRILE</td>
<td>MALONONITRILE</td>
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<tr>
<td>Hazard Class:</td>
<td>6.1</td>
<td>6.1</td>
</tr>
<tr>
<td>UN Number:</td>
<td>UN2647</td>
<td>UN2647</td>
</tr>
<tr>
<td>Packing Group:</td>
<td>II</td>
<td>II</td>
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</tbody>
</table>
**Section 15: Other Regulatory Information**

**US FEDERAL**

**TSCA**
- CAS# 109-77-3 is listed on the TSCA inventory.

**Health & Safety Reporting List**
- CAS# 109-77-3: Effective 3/7/86, Sunset 12/19/95

**Chemical Test Rules**
- CAS# 109-77-3: 40 CFR 799.5055

**Section 12b**
- None of the chemicals are listed under TSCA Section 12b.

**TSCA Significant New Use Rule**
- None of the chemicals in this material have a SNUR under TSCA.

**CERCLA Hazardous Substances and corresponding RQs**
- CAS# 109-77-3: 1000 lb final RQ; 454 kg final RQ

**SARA Section 302 Extremely Hazardous Substances**
- CAS# 109-77-3: 500 lb lower threshold TPQ; 10000 lb upper threshold TPQ

**SARA Codes**
- CAS# 109-77-3: immediate, reactive.

**Section 313**
- This material contains Malononitrile (CAS# 109-77-3, 99%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

**Clean Air Act:**
- This material does not contain any hazardous air pollutants.
- This material does not contain any Class 1 Ozone depleters.
- This material does not contain any Class 2 Ozone depleters.

**Clean Water Act:**
- None of the chemicals in this product are listed as Hazardous Substances under the CWA.
- None of the chemicals in this product are listed as Priority Pollutants under the CWA.
- None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**OSHA:**
- None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**
- CAS# 109-77-3 can be found on the following state right to know lists: New Jersey, Pennsylvania, Minnesota, Massachusetts.

**California Prop 65**
- California No Significant Risk Level: None of the chemicals in this product are listed.

**European/International Regulations**

**European Labeling in Accordance with EC Directives**

**Hazard Symbols:**
- T N

**Risk Phrases:**
- R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
- R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety Phrases:**
- S 23 Do not inhale gas/fumes/vapour/spray.
- S 27 Take off immediately all contaminated clothing.
- S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S 60 This material and its container must be disposed of as hazardous waste.
- S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

**WGK (Water Danger/Protection)**
CAS# 109-77-3: No information available.

Canada - DSL/NDSL
CAS# 109-77-3 is listed on Canada's DSL List.

Canada - WHMIS
This product has a WHMIS classification of D1B, D2B, F.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List
CAS# 109-77-3 is listed on the Canadian Ingredient Disclosure List.

Section 16: Other Information

References: Not available.
Other Special Considerations: Not available.
Created: 10/06/2010
Last Updated: 24/11/2012

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