**MATERIAL SAFETY DATA SHEET**

1. **IDENTIFICATION OF THE SUBATANCE/PREPARATION AND OF THE COMPANY/UNDERTAKIN**

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1. **COMPOSITION/INFORMATION ON INGREDIENTS**

**CHEMICAL NAME : Malononitrile**

**CAS REGISTRY NUMBER: 109-77-3**

**MOLECULAR FORMULA :** C3H2N2

1. **HAZARDS INDENTIFICATION**

Appearance: brown solid.

**Warning!** Harmful if absorbed through the skin. Harmful if swallowed. Causes eye irritation. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic nvironment. May cause skin and respiratory tract irritation. Hazardous polymerization may occur.

**Target Organs:** Blood, kidneys, central nervous system, liver, eyes.

**Potential 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.

**Chronic:** 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.

1. **First aid Measures**

**Eye Contact:**

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

**Skin Contact:**

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.

1. **Fire Fighting Measures**

**General Information:** As in any fire, wear a self-contained breathing apparatus in

pressuredemand, 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)

**Autoignition 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

1. **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.

1. **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.

1. **Exposure Controls, Personal Protection**

**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.

1. **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

**Specific Gravity/Density:**1.040

**Molecular Formula:**C3H2N2

**Molecular Weight:**66.06

1. **Stability and Reactivity**

**Chemical Stability:** Polymerization may occur upon heating.

**Conditions to Avoid:** Incompatible materials, dust generation, excess heat, temperatures above 130 Deg 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.

1. **ACUTE TOXICITY DATA**

**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.

1. **ECOLOGICAL INFORMATION**

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

1. **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.

1. **TRANSPORT INFORMATION**

**DOT Classification:** Class 6.1

**Identification:** : MALONONITILE : UN2647 PG: II

1. **REGULATORY INFORMATION**

**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 TP Q

**SARA Codes**

CAS # 109-77-3: immediate, reactive.

1. **PERSONAL PROTECTIVE EQUIPMENT**

Eyes Wear safety glasses and chemical goggles if splashing is possible.

Skin Wear appropriate protective gloves to prevent skin exposure.

Clothing Wear appropriate protective clothing to minimize contact with skin.

Respirators Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece

airline respirator in the positive pressure mode with emergency escape provisions.

1. **OTHER INFORMATION**

It must be recognised that the physical and chemical properties of any product may not be fully understood and that new, possibly hazardous products may arise from reactions between chemicals. The information given in this data sheet is based on our present knowledge and shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.