

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MALONONITRILE (DICYANOMETHANE)

CAS Number: 109-77-3

1. IDENTIFICATION:

Product Code : 91949

Company Name : ADVENT CHEMBIO PRIVATE LIMITED

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2. HAZARDS IDENTIFICATION:**Hazard classification****Physical hazards****Health hazards**

Acute toxicity, Oral : Category 2

Acute toxicity, Dermal : Category 3

Acute toxicity, Inhalation : Category 3

Skin sensitization : Category 1

Eye irritation : Category 2

Short-term (acute) aquatic hazard : Category 1

Long-term (chronic) aquatic hazard : Category 1

Labels elements :

Hazard symbol :



Signal word : Danger

Hazard statement

Fatal if swallowed.
Toxic in contact with skin or if inhaled.
: May cause an allergic skin reaction.
Causes serious eye irritation.
Very toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention

: Obtain special instructions before use.
Do not breathe dust/ fume/ gas/ mist/ vapors/ spray. Do not handle until all safety precautions have been read and understood.
Wear protective gloves/ protective clothing/ eye protection/ face protection.

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- Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
 Keep container tightly closed. Ground/ bond container and receiving equipment.
 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
 Use only non-sparking tools. Take precautionary measures against static discharge.
- Response** : IF exposed or concerned: Get medical advice/ attention.
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- Storage** : Store in a dry & well-ventilated place. Keep container tightly closed. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
- Disposal** : Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
- Other hazards which do not result in GHS classification** : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

3. COMPOSITION/ INFORMATION ON INGREDIENTS:

Ingredient	CAS Number	Percent	Hazardous
Malononitrile (Dicyanomethane)	109-77-3	NLT 99.0%	Yes

4. FIRST AID MEASURES:

- General information** : Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
- Ingestion** : Call a physician or poison control center immediately. Rinse mouth. Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting. (Only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.
- Inhalation** : Move to fresh air. Call a physician or poison control center immediately. If breathing stops, provide artificial respiration. If breathing is difficult, give oxygen.
 Get medical attention if symptoms persist.
- Skin contact** : Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.
- Eye contact** : Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.
- Most important symptoms/effects, acute and delayed** : The most important known symptoms and effects are described in the labelling
- Indication of immediate medical attention and special treatment needed** : No data available

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5. FIRE FIGHTING MEASURES:**General information****Suitable (and unsuitable) extinguishing media**

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

Unsuitable extinguishing media : No data available

Specific hazards arising from the chemical Carbon oxides
Nitrogen oxides (NOx)
Combustible.
: **Fire may cause evolution of:** Hydrogen cyanide (hydrocyanic acid), nitrogen oxides Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air on intense heating. Development of hazardous combustion gases or vapours possible in the event of fire.

Special protective equipment and precautions for firefighters

Special firefighting procedures : Use water spray to keep fire-exposed containers cool. Water may be ineffective in fighting the fire. Fight fire from a protected location. Move containers from fire area if you can do so without risk.

Special protective equipment for fire-fighters : Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. ACCIDENTAL RELEASE MEASURES:

Personal precautions, protective equipment and emergency procedures : ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Avoid breathing mists or vapors. Keep upwind. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep unauthorized personnel away.

Methods and material for containment and cleaning up : Eliminate all ignition sources if safe to do so. Use only non-sparking tools. Take precautionary measures against static discharges. Stop leak if possible without any risk. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

Notification Procedures : Prevent entry into waterways, sewer, basements or confined areas. Inform authorities if large amounts are involved.

Environmental precautions : Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. HANDLING AND STORAGE:

Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Protect material from direct sunlight. Take precautionary measures against static discharges. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Wear protective gloves/protective clothing/eye protection/ face protection. Avoid contact with eyes, skin, and clothing. Do not breathe mist or vapor. Use only with adequate ventilation. Wash hands

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thoroughly after handling.

**Conditions for safe storage,
including any
incompatibilities**

: Keep away from food, drink and animal feeding stuffs. Keep container tightly closed in a dry, well-ventilated place

8. EXPOSURE CONTROLS PERSONAL PROTECTION:**Control parameters****Appropriate engineering****controls** : No data available**Individual protection measures, such as personal protective equipment****General information** : Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. An eye wash and safety shower must be available in the immediate work area. Use explosion-proof ventilation equipment.**Eye/face protection** : Wear safety glasses with side shields (or goggles).**Hand protection** : Chemical resistant gloves.**Other** : Wear suitable protective clothing.**Respiratory protection** : Recommended Filter type: Filter A-(P3). The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.**Hygiene measures** : Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Provide eyewash station and safety shower. Avoid contact with eyes, skin, and clothing.**9. PHYSICAL AND CHEMICAL PROPERTIES:****Appearance** : White to yellow-brown crystalline solid**Odor** : sweet**Solubility** : Soluble in water. 133 g/l at 20 °C**Formula** : $C_3H_2N_2$ **Molecular Weight** : 66.06 g/mol**Density** : 1.049 g/cm³ at 25°C**pH** : 3 - 5**% Volatiles by volume @
21C (70F)** : No data available**Boiling Point** : 220°C

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Melting Point	:	32-34°C
Flash Point	:	86 °C
Vapor Density (Air=1)	:	No data available
Vapor Pressure (mm Hg)	:	No data available
Evaporation Rate (BuAc=1)	:	No data available

10. STABILITY AND REACTIVITY:

Reactivity	:	Forms explosive mixtures with air on intense heating. A range from approx. 15 Kelvin below the flash point is to be rated as critical. The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.
Chemical stability	:	Material is stable under ambient conditions..
Possibility of hazardous reactions	:	A risk of explosion and/or of toxic gas formation exists with the following substances: Strong oxidizing agents, strong alkalis, Strong acids, strong reducing agents, Oxygen.
Conditions to avoid	:	Strong heating.
Incompatible materials	:	No data available.
Hazardous decomposition products	:	In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION:**Acute toxicity (list all possible routes of exposure)**

Oral Product	:	LD 50 (Rat): 14 mg/kg
Dermal Product	:	300.1 mg/kg
Inhalation Product	:	0.51 mg/l - dust/mist.
Repeated dose toxicity Product	:	No data available.
Skin corrosion/irritation Product	:	Rabbit- Result: Mild skin irritation - 4 h
Serious eye damage/eye irritation Product	:	Rabbit- Result: irritating
Respiratory or skin sensitization Product	:	Maximization Test - Guinea pig- Result: positive
Carcinogenicity Product	:	No data available.
IARC Monographs on the Evaluation of Carcinogenic Risks to Humans	:	No data available.
US. National Toxicology Program (NTP) Report on Carcinogens	:	No data available.

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US. OSHA Specifically**Regulated Substances (29 CFR 1910.1001-1050)** : No data available.**Germ cell mutagenicity****Germ cell mutagenicity****In vivo micronucleus test**

Species: Mouse

Cell type: Bone marrow

: Application Route: Oral

Method: OECD Test Guideline 474

Result: negative

Reproductive toxicity**Product** : No data available.**Specific target organ****toxicity - single exposure** : No data available.**Product****Specific target organ****toxicity - repeated** : No data available.**exposure Product****Aspiration hazard Product** : No data available.**Other effects**

: No data available.

12. ECOLOGICAL INFORMATION:**Ecotoxicity****Acute hazards to the aquatic environment****Fish Product**

: LC50 - Pimephales promelas (fathead minnow) – 0.56 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates

: static test EC50 - Daphnia magna (Water flea) – 21.4 mg/l - 24 h

Toxicity to bacteria

: static test EC10 - Pseudomonas putida - 6 mg/l - 18 h

Chronic hazards to the aquatic environment**Fish Product**

: No data available.

Aquatic invertebrates**Product** : No data available.**Toxicity to Aquatic Plants****Product:** : No data available.**Persistence and degradability****Biodegradation Product**: aerobic - Exposure time 28 d
Result: 3 % - Not readily biodegradable**BOD/COD ratio Product**

: No data available.

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Bioaccumulative potential**Bioconcentration factor (BCF) Product** : No data available.**Partition coefficient n-octanol / water (log Kow) Product** : No data available.**Mobility in soil** : No data available.**Other adverse effects** : No data available.**13. DISPOSAL CONSIDERATION:****Disposal instructions** : Discharge, treatment, or disposal may be subject to national, state, or local laws. Disposal recommendations are based on uncontaminated material.**Contaminated packaging** : Since emptied containers retain product residue, follow label warnings even after container is emptied.**14. TRANSPORT INFORMATION:**

	UN No.	UN proper shipping name	Hazard Class(es)	Packaging group	Marine Pollutant
DOT	UN 2647	Malononitrile (Dicyanomethane)	6.1	II	Yes
IMDG	UN 2647	Malononitrile (Dicyanomethane)	6.1	II	Yes
IATA	UN 2647	Malononitrile (Dicyanomethane)	6.1	II	No

15. REGULATORY INFORMATION:

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Safety, health and environmental regulations/legislation specific for the substance or mixture

No Data Available.

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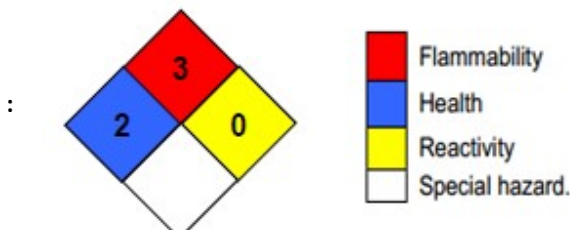
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16. OTHER INFORMATION:

NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

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