

## SAFETY DATA SHEET

Creation Date 26-Sep-2009

Revision Date 24-Dec-2021

Revision Number 5

### 1. Identification

**Product Name** Malononitrile

**Cat No. :** AC125270000; AC125270025; AC125270050; AC125271000;  
AC125275000

**CAS No** 109-77-3  
**Synonyms** MDN; Dicyanomethane

**Recommended Use** Laboratory chemicals.  
**Uses advised against** Food, drug, pesticide or biocidal product use.

#### Details of the supplier of the safety data sheet

##### Company

Fisher Scientific Company  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

Acros Organics  
One Reagent Lane  
Fair Lawn, NJ 07410

**Emergency Telephone Number** For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

### 2. Hazard(s) identification

#### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

|                                             |            |
|---------------------------------------------|------------|
| Acute oral toxicity                         | Category 3 |
| Acute dermal toxicity                       | Category 3 |
| Acute Inhalation Toxicity - Dusts and Mists | Category 3 |

#### Label Elements

##### **Signal Word**

Danger

##### **Hazard Statements**

Toxic if swallowed, in contact with skin or if inhaled

**Precautionary Statements****Prevention**

Wash face, hands and any exposed skin thoroughly after handling  
Do not eat, drink or smoke when using this product  
Wear protective gloves/protective clothing/eye protection/face protection  
Avoid breathing dust/fume/gas/mist/vapors/spray  
Use only outdoors or in a well-ventilated area

**Inhalation**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
Call a POISON CENTER or doctor/physician

**Skin**

IF ON SKIN: Wash with plenty of soap and water  
Call a POISON CENTER or doctor/physician if you feel unwell  
Remove/Take off immediately all contaminated clothing  
Wash contaminated clothing before reuse

**Ingestion**

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician  
Rinse mouth

**Storage**

Store locked up  
Store in a well-ventilated place. Keep container tightly closed

**Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

Very toxic to aquatic life with long lasting effects

### 3. Composition/Information on Ingredients

| Component     | CAS No   | Weight % |
|---------------|----------|----------|
| Malononitrile | 109-77-3 | >95      |

### 4. First-aid measures

**Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.  
Immediate medical attention is required.

**Skin Contact**

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

**Inhalation**

Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.  
Immediate medical attention is required.

**Ingestion**

Do NOT induce vomiting. Call a physician or poison control center immediately.

**Most important symptoms and effects**

. Metabolism may release cyanide, which may result in headache, dizziness, weakness, collapse, unconsciousness, and possible death

**Notes to Physician**

Treat symptomatically

## 5. Fire-fighting measures

**Suitable Extinguishing Media** Water spray. Carbon dioxide (CO<sub>2</sub>). Dry chemical. Chemical foam.

**Unsuitable Extinguishing Media** No information available

**Flash Point** 112 °C / 233.6 °F

**Method -** No information available

**Autoignition Temperature** 365 °C / 689 °F

**Explosion Limits**

**Upper** No data available

**Lower** No data available

**Sensitivity to Mechanical Impact** No information available

**Sensitivity to Static Discharge** No information available

**Specific Hazards Arising from the Chemical**

Do not allow run-off from fire-fighting to enter drains or water courses.

**Hazardous Combustion Products**

Nitrogen oxides (NO<sub>x</sub>). Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Hydrogen cyanide (hydrocyanic acid).

**Protective Equipment and Precautions for Firefighters**

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

**NFPA**

**Health**  
3

**Flammability**  
1

**Instability**  
1

**Physical hazards**  
N/A

## 6. Accidental release measures

**Personal Precautions** Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

**Environmental Precautions** Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

**Methods for Containment and Clean Up** Wear self-contained breathing apparatus and protective suit. Sweep up and shovel into suitable containers for disposal. Do not let this chemical enter the environment.

## 7. Handling and storage

**Handling** Use only under a chemical fume hood. Do not breathe dust. Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance. Minimize dust generation and accumulation. Wash hands before breaks and immediately after handling the product.

**Storage.** Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Incompatible Materials. Strong oxidizing agents. Strong acids. Strong bases. Strong reducing agents.

## 8. Exposure controls / personal protection

**Exposure Guidelines**

| Component     | ACGIH TLV | OSHA PEL                           | NIOSH IDLH                                                           | Mexico OEL (TWA) |
|---------------|-----------|------------------------------------|----------------------------------------------------------------------|------------------|
| Malononitrile |           | (Vacated) TWA: 5 mg/m <sup>3</sup> | IDLH: 25 mg/m <sup>3</sup><br>TWA: 3 ppm<br>TWA: 8 mg/m <sup>3</sup> |                  |

Legend

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

**Engineering Measures** Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

**Eye/face Protection** 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 and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure.

**Respiratory Protection** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

|                                        |                            |
|----------------------------------------|----------------------------|
| Physical State                         | Solid                      |
| Appearance                             | Yellow                     |
| Odor                                   | Odorless                   |
| Odor Threshold                         | No information available   |
| pH                                     | 3-5 90.9 g/L               |
| Melting Point/Range                    | 30 - 34 °C / 86 - 93.2 °F  |
| Boiling Point/Range                    | 220 °C / 428 °F @ 760 mmHg |
| Flash Point                            | 112 °C / 233.6 °F          |
| Evaporation Rate                       | Not applicable             |
| Flammability (solid,gas)               | No information available   |
| Flammability or explosive limits       |                            |
| Upper                                  | No data available          |
| Lower                                  | No data available          |
| Vapor Pressure                         | 1 hPa @ 50 °C              |
| Vapor Density                          | Not applicable             |
| Specific Gravity                       | 1.040                      |
| Solubility                             | No information available   |
| Partition coefficient; n-octanol/water | No data available          |
| Autoignition Temperature               | 365 °C / 689 °F            |
| Decomposition Temperature              | > 100°C                    |
| Viscosity                              | Not applicable             |
| Molecular Formula                      | C3 H2 N2                   |
| Molecular Weight                       | 66.06                      |

## 10. Stability and reactivity

**Reactive Hazard** None known, based on information available

**Stability** Stable under normal conditions.

**Conditions to Avoid** Temperatures above 100°C. Incompatible products. Avoid dust formation.

|                                         |                                                                                                                     |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <b>Incompatible Materials</b>           | Strong oxidizing agents, Strong acids, Strong bases, Strong reducing agents                                         |
| <b>Hazardous Decomposition Products</b> | Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Hydrogen cyanide (hydrocyanic acid) |
| <b>Hazardous Polymerization</b>         | Hazardous polymerization may occur.                                                                                 |
| <b>Hazardous Reactions</b>              | None under normal processing.                                                                                       |

## 11. Toxicological information

### Acute Toxicity

#### Product Information Component Information

| Component     | LD50 Oral               | LD50 Dermal              | LC50 Inhalation           |
|---------------|-------------------------|--------------------------|---------------------------|
| Malononitrile | LD50 = 14 mg/kg ( Rat ) | LD50 = 350 mg/kg ( Rat ) | LC50 = 57 ppm ( Rat ) 2 h |

**Toxicologically Synergistic Products** No information available

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

|                        |                                                                                          |
|------------------------|------------------------------------------------------------------------------------------|
| <b>Irritation</b>      | May cause skin, eye, and respiratory tract irritation                                    |
| <b>Sensitization</b>   | No information available                                                                 |
| <b>Carcinogenicity</b> | The table below indicates whether each agency has listed any ingredient as a carcinogen. |

| Component     | CAS No   | IARC       | NTP        | ACGIH      | OSHA       | Mexico     |
|---------------|----------|------------|------------|------------|------------|------------|
| Malononitrile | 109-77-3 | Not listed | Not listed | Not listed | Not listed | Not listed |

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** None known  
**STOT - repeated exposure** None known

**Aspiration hazard** No information available

**Symptoms / effects, both acute and delayed** Metabolism may release cyanide, which may result in headache, dizziness, weakness, collapse, unconsciousness, and possible death

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

### Ecotoxicity

The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

| Component     | Freshwater Algae | Freshwater Fish                                                                         | Microtox   | Water Flea |
|---------------|------------------|-----------------------------------------------------------------------------------------|------------|------------|
| Malononitrile | Not listed       | LC50: 1.48 - 1.8 mg/L, 96h flow-through (Oncorhynchus mykiss)<br>LC50: = 0.57 mg/L, 96h | Not listed | Not listed |

|  |  |                                                                                                                               |  |  |
|--|--|-------------------------------------------------------------------------------------------------------------------------------|--|--|
|  |  | static ( <i>Lepomis macrochirus</i> )<br>LC50: 0.51 - 0.61 mg/L, 96h<br>flow-through ( <i>Pimephales</i><br><i>promelas</i> ) |  |  |
|--|--|-------------------------------------------------------------------------------------------------------------------------------|--|--|

**Persistence and Degradability** Persistence is unlikely

**Bioaccumulation/ Accumulation** No information available.

**Mobility** Will likely be mobile in the environment due to its water solubility.

| Component     | log Pow |
|---------------|---------|
| Malononitrile | -0.5    |

### 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

| Component                | RCRA - U Series Wastes | RCRA - P Series Wastes |
|--------------------------|------------------------|------------------------|
| Malononitrile - 109-77-3 | U149                   | -                      |

### 14. Transport information

#### DOT

UN-No UN2647  
 Proper Shipping Name MALONONITRILE  
 Hazard Class 6.1  
 Packing Group II

#### TDG

UN-No UN2647  
 Proper Shipping Name MALONONITRILE  
 Hazard Class 6.1  
 Packing Group II

#### IATA

UN-No UN2647  
 Proper Shipping Name MALONONITRILE  
 Hazard Class 6.1  
 Packing Group II

#### IMDG/IMO

UN-No UN2647  
 Proper Shipping Name MALONONITRILE  
 Hazard Class 6.1  
 Packing Group II

### 15. Regulatory information

#### United States of America Inventory

| Component     | CAS No   | TSCA | TSCA Inventory notification -<br>Active-Inactive | TSCA - EPA Regulatory<br>Flags |
|---------------|----------|------|--------------------------------------------------|--------------------------------|
| Malononitrile | 109-77-3 | X    | ACTIVE                                           | -                              |

#### **Legend:**

**TSCA** US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

**TSCA 12(b)** - Notices of Export Not applicable

**International Inventories**

Canada (DSL/NDL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

| Component     | CAS No   | DSL | NDL | EINECS    | PICCS | ENCS | ISHL | AICS | IECSC | KECL     |
|---------------|----------|-----|-----|-----------|-------|------|------|------|-------|----------|
| Malononitrile | 109-77-3 | X   | -   | 203-703-2 | X     | X    | X    | X    | X     | KE-10262 |

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

**U.S. Federal Regulations****SARA 313**

| Component     | CAS No   | Weight % | SARA 313 - Threshold Values % |
|---------------|----------|----------|-------------------------------|
| Malononitrile | 109-77-3 | >95      | 1.0                           |

**SARA 311/312 Hazard Categories** See section 2 for more information

**CWA (Clean Water Act)**

| Component     | CWA - Hazardous Substances | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants |
|---------------|----------------------------|-----------------------------|------------------------|---------------------------|
| Malononitrile | -                          | -                           | X                      | X                         |

**Clean Air Act**

| Component     | HAPS Data | Class 1 Ozone Depletors | Class 2 Ozone Depletors |
|---------------|-----------|-------------------------|-------------------------|
| Malononitrile | X         |                         | -                       |

**OSHA** - Occupational Safety and Health Administration

Not applicable

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

| Component     | Hazardous Substances RQs | CERCLA EHS RQs |
|---------------|--------------------------|----------------|
| Malononitrile | 1000 lb                  | 1000 lb        |

**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

| Component     | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|---------------|---------------|------------|--------------|----------|--------------|
| Malononitrile | X             | X          | X            | X        | X            |

**U.S. Department of Transportation**

Reportable Quantity (RQ): Y  
DOT Marine Pollutant Y  
DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security**

This product does not contain any DHS chemicals.

**Other International Regulations****Mexico - Grade**

No information available

**Authorisation/Restrictions according to EU REACH**

| Component | REACH (1907/2006) - Annex XIV - Substances Subject to | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous | REACH Regulation (EC 1907/2006) article 59 - Candidate |
|-----------|-------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------|
|-----------|-------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------|

|               | Authorization | Substances                                                         | List of Substances of Very High Concern (SVHC) |
|---------------|---------------|--------------------------------------------------------------------|------------------------------------------------|
| Malononitrile | -             | Use restricted. See item 75.<br>(see link for restriction details) | -                                              |

<https://echa.europa.eu/substances-restricted-under-reach>

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

| Component     | CAS No   | OECD HPV | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|---------------|----------|----------|------------------------------|---------------------------|--------------------------------------------|
| Malononitrile | 109-77-3 | Listed   | Not applicable               | Not applicable            | Not applicable                             |

| Component     | CAS No   | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|---------------|----------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|----------------------------|------------------------------------|
| Malononitrile | 109-77-3 | Not applicable                                                                            | Not applicable                                                                           | Not applicable             | Not applicable                     |

## 16. Other information

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**Revision Date** 24-Dec-2021

**Print Date** 24-Dec-2021

**Revision Summary** This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

#### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**