

## SAFETY DATA SHEET

Creation Date 26-Sep-2009

Revision Date 26-Jan-2018

Revision Number 4

### 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  
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

<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
<b>Inhalation</b>	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.
<b>Ingestion</b>	Do NOT induce vomiting. Call a physician or poison control center immediately.
<b>Most important symptoms and effects</b>	. Metabolism may release cyanide, which may result in headache, dizziness, weakness, collapse, unconsciousness, and possible death
<b>Notes to Physician</b>	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. Refer product specification and/or product label for specific storage temperature requirement. Keep container tightly closed.

## 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> TWA: 3 ppm 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

<b>Physical State</b>	Solid
<b>Appearance</b>	Yellow
<b>Odor</b>	Odorless
<b>Odor Threshold</b>	No information available
<b>pH</b>	3-5 90.9 g/L
<b>Melting Point/Range</b>	30 - 34 °C / 86 - 93.2 °F
<b>Boiling Point/Range</b>	220 °C / 428 °F @ 760 mmHg
<b>Flash Point</b>	112 °C / 233.6 °F
<b>Evaporation Rate</b>	Not applicable
<b>Flammability (solid,gas)</b>	No information available
<b>Flammability or explosive limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Vapor Pressure</b>	1 hPa @ 50 °C
<b>Vapor Density</b>	Not applicable
<b>Specific Gravity</b>	1.040
<b>Solubility</b>	No information available
<b>Partition coefficient; n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	365 °C / 689 °F
<b>Decomposition Temperature</b>	> 100°C
<b>Viscosity</b>	Not applicable
<b>Molecular Formula</b>	C3 H2 N2
<b>Molecular Weight</b>	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 (NO <sub>x</sub> ), 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: = 0.57 mg/L, 96h static (Lepomis macrochirus) LC50: 1.48 - 1.8 mg/L, 96h flow-through (Oncorhynchus)	Not listed	Not listed

		mykiss) LC50: 0.51 - 0.61 mg/L, 96h flow-through (Pimephales promelas)		
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**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 - Active/Inactive	TSCA - EPA Regulatory Flags
Malononitrile	109-77-3	X	ACTIVE	-

#### **Legend:**

**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/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

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

**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): N  
DOT Marine Pollutant N  
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**16. Other information****Prepared By** Regulatory Affairs  
Thermo Fisher Scientific  
Email: EMSDS.RA@thermofisher.com**Creation Date** 26-Sep-2009

**Revision Date** 26-Jan-2018**Print Date** 26-Jan-2018**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**