

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking			
1.1	Product identifiers		
	Product name	:	Malononitrile
	CAS-No.	:	109-77-3
1.2	Relevant identified uses of the substance or mixture and uses advised against		
	Identified uses	:	Laboratory chemicals, Manufacture of substances
1.3	Details of the supplier of the safety data sheet		
	Company	:	Inventys Research Company Pvt Ltd 901C Tower 2, One International Centre, Senapati Bapat Marg, Prabhadevi, Mumbai 400013. INDIA Tel:+91.22.714.00.200 Fax: +91.22.714.00.299 www.inventys.in
1.4	Emergency telephone number		
	Emergency Phone #	:	+91 22.714.00.200
SECTION 2: Hazards identification			
2.1	Classification of the substance or mixture		
	Classification according to Regulation (EC) No 1272/2008 Acute toxicity, Oral (Category 2), H300 Acute toxicity, Inhalation (Category 3), H331 Acute toxicity, Dermal (Category 3), H311 Eye irritation (Category 2), H319 Skin sensitization (Category 1), H317 Short-term (acute) aquatic hazard (Category 1), H400 Long-term (chronic) aquatic hazard (Category 1), H410 For the full text of the H-Statements mentioned in this Section, see Section 16.		
2.2	Label elements		
	Labelling according to Regulation (EC) No 1272/2008 Pictogram:   Signal Word: Danger Hazard statement(s): H300 Fatal if swallowed. H311 + H331 Toxic in contact with skin or if inhaled. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation. H410 Very toxic to aquatic life with long lasting effects. Precautionary statement(s) P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. P302 + P352 + P312 IF ON SKIN: Wash with plenty of water.Call a POISON CENTER/ doctor if you feel unwell. P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.		

	P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.											
	Pictogram: Supplemental Hazard Statements: None Reduced Labeling (<= 125 ml) Pictogram  Signal Word Danger Hazard statement(s) H300 Fatal if swallowed. H317 May cause an allergic skin reaction. H311 + H331 Toxic in contact with skin or if inhaled. Precautionary statement(s) P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. P302 + P352 + P312 IF ON SKIN: Wash with plenty of water. Call a POISON CENTER/ doctor if you feel unwell. P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor. Supplemental Hazard Statements: None											
2.3	Other hazards 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.											
SECTION 3: Composition/information on ingredients												
3.1	Substances											
	Synonyms	:	Dicyanomethane									
	Formula	:	C ₃ H ₂ N ₂									
	Molecular weight	:	66,06 g/mol									
	CAS-No	:	109-77-3									
	EC-No.	:	203-703-2									
	No components need to be disclosed according to the applicable regulations.											
	<table><tr><th>Component</th><th>Classification</th><th>Concentration</th></tr><tr><td colspan="3">malonic acid dinitrile</td></tr><tr><td>CAS-No.: 109-77-3 EC-No.: 203-703-2</td><td>Acute Tox. 2; Acute Tox. 3; Eye Irrit. 2; Skin Sens. 1; Aquatic Acute 1; Aquatic Chronic 1; H300, H331, H311, H319, H317, H400, H410 M-Factor - Aquatic Acute:10 M-Factor - Aquatic Chronic: 1</td><td><= 100 %</td></tr></table>			Component	Classification	Concentration	malonic acid dinitrile			CAS-No.: 109-77-3 EC-No.: 203-703-2	Acute Tox. 2; Acute Tox. 3; Eye Irrit. 2; Skin Sens. 1; Aquatic Acute 1; Aquatic Chronic 1; H300, H331, H311, H319, H317, H400, H410 M-Factor - Aquatic Acute:10 M-Factor - Aquatic Chronic: 1	<= 100 %
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	For the full text of the H-Statements mentioned in this Section, see Section 16.											
SECTION 4: First aid measures												
4.1	Description of first aid measures											

	General advice First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance. If inhaled After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen. In case of skin contact In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately. In case of eye contact After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses. If swallowed If swallowed: 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.
4.2	Most important symptoms and effects, both acute and delayed
	The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
4.3	Indication of any immediate medical attention and special treatment needed
	No data available
SECTION 5: Firefighting measures	
5.1	Extinguishing media
	Suitable extinguishing media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
5.2	Special hazards arising from the substance or mixture
	Carbon oxides ,Nitrogen oxides (NOx), Combustible.Combustible. 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.
5.3	Advice for firefighters
	Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing..
5.4	Further information
	Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.
SECTION 6: Accidental release measures	
6.1	Personal precautions, protective equipment and emergency procedures
	Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.
6.2	Environmental precautions
	Do not let product enter drains
6.3	Methods and materials for containment and cleaning up
	Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4	Reference to other sections
	For disposal see section 13
SECTION 7: Handling and storage	
7.1	Precautions for safe handling
	Advice on safe handling Work under hood. Do not inhale substance/mixture. Advice on protection against fire and explosion Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge. Hygiene measures Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2.
7.2	Conditions for safe storage, including any incompatibilities
	Storage conditions Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons. Storage stability Recommended storage temperature 2 - 8 °C Protect from light. Store under argon. Air sensitive. Storage class Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials.
7.3	Specific end use(s)
	Apart from the uses mentioned in section 1.2 no other specific uses are stipulated
SECTION 8: Exposure controls/personal protection	
8.1	Control parameters
	Ingredients with workplace control parameters
8.2	Exposure controls
	Personal protective equipment Eye/face protection Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses Skin protection Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. Full contact Material: Nature latex/chloroprene Minimum layer thickness: 0,6 mm Break through time: 480 min Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M) Splash contact Material: Nitrile rubber

Minimum layer thickness: 0,11 mm

Break through time: 30 min

Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario

Body Protection

Flame retardant antistatic 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.

Control of environmental exposure: Do not let product enter drains.

Malononitrile

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SECTION 9: Physical and chemical properties		
9.1	Information on basic physical and chemical properties	
	a) Appearance	Form: molten Color: white, yellow, orange, beige
	b) Odor	sweet
	c) Odor Threshold	No data available
	d) pH	3 - 5 at 90,9 g/l(External MSDS)
	e) Melting point/ freezing point	Melting point/range: 30 - 32 °C - lit.
	f) Initial boiling point and boiling range	220 °C - lit
	g) Flash point	86 °C - closed cup
	h) Evaporation rate	no data available
	i) Flammability (solid, gas)	no data available
	j) Upper/lower flammability or explosive limits	no data available
	k) Vapor pressure	no data available
	l) Vapor density	1,049 g/cm ³ at 25 °C - lit.
	m) Relative density	no data available
	n) Water solubility	133 g/l at 20 °C - (External MSDS)
	o) Partition coefficient:n octanol/water	2.734
	p) Auto-ignition temperature	> 365 °C
	q) Decomposition temperature	no data available
	r) Viscosity	no data available
	s) Explosive properties	no data available
	t) Oxidizing properties	no data available
9.2	Other safety information	
	No data available	

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SECTION 10: Stability and reactivity	
10.1	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.
10.2	Chemical stability
	The product is chemically stable under standard ambient conditions (room temperature) . Stable under recommended storage conditions.
10.3	Possibility of hazardous reactions
	No data available
10.4	Conditions to avoid
	Do not heat over: 130°C Strong heating.
10.5	Incompatible materials
	Strong oxidizing agents, Strong acids, Strong bases, Strong reducing agents Alkali metals, Nitrogen oxides (NOx).
10.6	Hazardous decomposition products
	In the event of fire: see section 5
SECTION 11: Toxicological information	
11.1	Information on toxicological effects
	Acute toxicity LD50 Oral - Rat - male and female - 14 mg/kg Remarks: (External MSDS) LC50 Inhalation - 4 h - 0,51 mg/l - dust/mist Acute toxicity estimate Dermal - 300,1 mg/kg (Expert judgment) Skin corrosion/irritation Skin - Rabbit Result: Mild skin irritation - 4 h Remarks: (External MSDS) Serious eye damage/eye irritation Eyes - Rabbit Result: irritating Remarks: (External MSDS) Respiratory or skin sensitization Maximization Test - Guinea pig Result: positive (OECD Test Guideline 406) Germ cell mutagenicity Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Test Type: In vivo micronucleus test Species: Mouse Cell type: Bone marrow Application Route: Oral Method: OECD Test Guideline 474 Result: negative

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	Carcinogenicity No data available Reproductive toxicity No data available Specific target organ toxicity - single exposure No data available Specific target organ toxicity - repeated exposure: No data available Aspiration hazard : No data available
11.2	Additional Information
	Endocrine disrupting properties Product: Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. RTECS: OO3150000 May be partially metabolized to cyanide in the body., The onset of symptoms is generally delayed pending conversion to cyanide., Headache, Dizziness, Convulsions, Cyanosis, Irregular breathing., Lung irritation, Central nervous system depression
SECTION 12: Ecological information	
12.1	Toxicity
	Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 0,56 mg/l - 96 h Remarks: (External MSDS) Toxicity to daphnia and other aquatic invertebrates: static test EC50 - Daphnia magna (Water flea) - 21,4 mg/l - 24 h (OECD Test Guideline 202) Toxicity to bacteria static test EC10 - Pseudomonas putida - 6 mg/l - 18 h Remarks: (ECHA)
12.2	Persistence and degradability
	No data available
12.3	Bio accumulative potential
	No data available
12.4	Mobility in soil
	No data available
12.5	Results of PBT and vPvB assessment
	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.
12.6	Endocrine disrupting properties
	Product: Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
12.7	Other adverse effects
	No data available
SECTION 13: Disposal considerations	
13.1	Waste treatment methods
	Product See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

	Dispose of as unused product.		
SECTION 14: Transport information			
14.1	UN number		
	ADR/RID: -2647	MDG: -2647	IATA: 2647
14.2	UN proper shipping name		
	ADR/RID: MALONONITRILE IMDG: MALONONITRILE IATA: MALONONITRILE		
14.3	Transport hazard class(es)	ADR/RID: 6.1	IMDG: 6.1 IATA: 6.1
14.4	Packaging group	ADR/RID: II	IMDG: II IATA: II
14.5	Environmental hazards	ADR/RID: yes	IMDG Marine pollutant: yes IATA: no
14.6	Special precautions for user Tunnel restriction code : (D/E) Further information : No data available		
SECTION 15: Regulatory information			
15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture			
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.			
Authorizations and/or restrictions on use			
National legislation			
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of : ACUTE TOXIC major-accident hazards involving dangerous substances. :			
ENVIRONMENTAL HAZARDS :			
ACUTE TOXIC :			
ENVIRONMENTAL HAZARDS			
Other regulations			
Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.			
Take note of Dir 94/33/EC on the protection of young people at work.			
15.2 Chemical safety assessment			
For this product a chemical safety assessment was not carried out			
SECTION 16: OTHER INFORMATION			
Full text of H-Statements referred to under sections 2 and 3.			
H300 Fatal if swallowed.			
H311 Toxic in contact with skin.			
H311 + H331 Toxic in contact with skin or if inhaled.			
H317 Fatal if swallowed. H319 Toxic in contact with skin or if inhaled.			
H331 May cause an allergic skin reaction.			
H400 Causes serious eye irritation.			
H410 Very toxic to aquatic life with long lasting effects.			
Further information			
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