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## SECTION 1: Identification

### 1.1 GHS Product identifier

Product name Methacrylonitrile

### 1.2 Other means of identification

Product number -

Other names METHALLYL MERCAPTAN; Methallyl mercaptan (2-Methyl-2-propene-1-thiol); 2-Propenenitrile, 2-methyl-

### 1.3 Recommended use of the chemical and restrictions on use

Identified uses Industrial and scientific research uses.

Uses advised against no data available

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## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Flammable liquids, Category 2  
Acute toxicity - Category 3, Oral  
Acute toxicity - Category 3, Dermal  
Skin sensitization, Category 1  
Acute toxicity - Category 3, Inhalation

### 2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour  
H301 Toxic if swallowed  
H311 Toxic in contact with skin  
H317 May cause an allergic skin reaction  
H331 Toxic if inhaled

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233 Keep container tightly closed.  
P240 Ground and bond container and receiving equipment.  
P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.  
P242 Use non-sparking tools.  
P243 Take action to prevent static discharges.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...  
P264 Wash ... thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P272 Contaminated work clothing should not be allowed out of the workplace.  
P271 Use only outdoors or in a well-ventilated area.

Response

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].  
P370+P378 In case of fire: Use ... to extinguish.  
P301+P316 IF SWALLOWED: Get emergency medical help immediately.  
P321 Specific treatment (see ... on this label).  
P330 Rinse mouth.  
P302+P352 IF ON SKIN: Wash with plenty of water/...  
P316 Get emergency medical help immediately.  
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.  
P333+P317 If skin irritation or rash occurs: Get medical help.  
P362+P364 Take off contaminated clothing and wash it before reuse.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Storage

P403+P235 Store in a well-ventilated place. Keep cool.  
P405 Store locked up.

Disposal

P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P501 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.

### 2.3 Other hazards which do not result in classification

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Methacrylonitrile	Methacrylonitrile	126-98-7	204-817-5	100%

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## SECTION 4: First-aid measures

### 4.1 Description of necessary first-aid measures

#### If inhaled

Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.

#### Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention .

#### Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

#### Following ingestion

Give a slurry of activated charcoal in water to drink. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Wear protective gloves when inducing vomiting. NO mouth-to-mouth artificial respiration. Administration of oxygen may be needed. Refer for medical attention .

### 4.2 Most important symptoms/effects, acute and delayed

A lacrimator (causes tearing); an insidious poison which causes delayed skin reactions. Very readily absorbed through skin. Highly toxic. (EPA, 1998)

### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

Severe acute inhalations should be treated like cyanide poisoning. The first priority is to establish adequate ventilation (100% oxygen) and circulation, since cyanide antidotes are theoretically useful but clinically unproven in acrylonitrile poisoning. Acrylonitrile

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## SECTION 5: Fire-fighting measures

### 5.1 Suitable extinguishing media

Usual precautions for flammable liquid should be applied. (EPA, 1998)

### 5.2 Specific hazards arising from the chemical

Methacrylonitrile evolves flammable concentrations of vapor at temperatures down to 55.04F. Thus, at room temperatures, flammable concentrations are liable to be present. Toxic fumes of nitrogen oxides are released when the material burns. Also, the chemical will explode due to its tendency to polymerize violently. Avoid heat. Hazardous polymerization may occur. (EPA, 1998)

### 5.3 Special protective actions for fire-fighters

Use alcohol-resistant foam. Use dry powder. Use carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

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## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Remove all ignition sources. Evacuate danger area! Personal protection: chemical protection suit including self-contained breathing apparatus. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

### 6.2 Environmental precautions

Remove all ignition sources. Evacuate danger area! Personal protection: chemical protection suit including self-contained breathing apparatus. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

### 6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### 7.2 Conditions for safe storage, including any incompatibilities

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure limit values

TLV: 1 ppm as TWA; (skin); A4 (not classifiable as a human carcinogen)

#### Biological limit values

no data available

### 8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

### 8.3 Individual protection measures, such as personal protective equipment (PPE)

#### Eye/face protection

Wear face shield or eye protection in combination with breathing protection.

#### Skin protection

Protective gloves. Protective clothing.

#### Respiratory protection

Use local exhaust or breathing protection.

#### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties and safety characteristics

<b>Physical state</b>	Methacrylonitrile, stabilized is a clear colorless liquid. Less dense than water. Flash point 55Å°F. Boiling point 195Å°F. Very be toxic by ingestion, inhalation and skin absorption. Used to make plastics and coatings.
<b>Colour</b>	Colorless liquid.
<b>Odour</b>	Odor-like bitter almonds.
<b>Melting point/freezing point</b>	âˆ˘35.8 Å°C(lit.)
<b>Boiling point or initial boiling point and boiling range</b>	90-92 Å°C(lit.)
<b>Flammability</b>	Class IB Flammable Liquid; F.I.P. below 73Å°F and BP at or above 100Å°F.
<b>Lower and upper explosion limit/flammability limit</b>	Lower flammable limit: 2%; upper flammable limit: 6.8%
<b>Flash point</b>	54 Å°F
<b>Auto-ignition temperature</b>	no data available
<b>Decomposition temperature</b>	no data available
<b>pH</b>	no data available
<b>Kinematic viscosity</b>	0.392 cP @ 20 deg C
<b>Solubility</b>	10 to 50 mg/mL at 72Å° F (NTP, 1992)
<b>Partition coefficient n-octanol/water</b>	log Kow = 0.68
<b>Vapour pressure</b>	64 mm Hg ( 20 Å°C)
<b>Density and/or relative density</b>	0.8 g/mL at 25 Å°C(lit.)
<b>Relative vapour density</b>	2.31 (EPA, 1998) (Relative to Air)
<b>Particle characteristics</b>	no data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

The substance may violently polymerize under the influence of acids, bases and light. This generates fire or explosion hazard. The substance may polymerize due to heating. This generates fire or explosion hazard. On combustion, forms toxic and corrosive fumes including cyanides and nitrogen oxides.

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

METHACRYLONITRILE EVOLVES FLAMMABLE CONCENTRATIONS OF VAPOR AT TEMPERATURES DOWN TO 12.8 DEG C. THUS, AT ROOM TEMPERATURES, FLAMMABLE ... CONCENTRATIONS ARE LIABLE TO BE PRESENT IN ABSENCE OF PRECAUTIONS. THE NORMAL DANGERS ASSOCIATED WITH FIRE ... ARE INTENSIFIED BY THE LETHAL NATURE OF THE FUMES & VAPORS EVOLVED.The vapour is heavier than air and may travel along the ground; distant ignition possible. Vapours are uninhibited and may polymerize, causing blockage of vents.METHACRYLONITRILE is a colorless, flammable, toxic liquid. Explosive in

the form of vapor when exposed to heat, flame or sparks. When heated to decomposition it emits toxic fumes of nitrile and oxides of nitrogen [Lewis, 3rd ed., 1993, p. 829].

#### 10.4 Conditions to avoid

no data available

#### 10.5 Incompatible materials

Strong acids, strong oxidizers, alkali, light. [Note: Polymerization may occur due to elevated temperature, visible light, or contact with a concentrated alkali.]

#### 10.6 Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /nitrogen oxides and cyanides/.

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### SECTION 11: Toxicological information

#### Acute toxicity

- Oral: LD50 Rat oral 25-50 mg/kg
- Inhalation: LC50 Rat inhalation 328 ppm/4 hr
- Dermal: no data available

#### Skin corrosion/irritation

no data available

#### Serious eye damage/irritation

no data available

#### Respiratory or skin sensitization

no data available

#### Germ cell mutagenicity

no data available

#### Carcinogenicity

no data available

#### Reproductive toxicity

no data available

#### STOT-single exposure

The vapour is irritating to the eyes and respiratory tract. The substance may cause effects on the cellular respiration. This may result in convulsions and unconsciousness. Exposure could cause death.

#### STOT-repeated exposure

no data available

#### Aspiration hazard

A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20Â°C.

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### SECTION 12: Ecological information

#### 12.1 Toxicity

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

#### 12.2 Persistence and degradability

Microorganisms hydrolyze nitriles predominately to ammonia and carboxylic acids(1). A bacterium isolated from soil (*Pseudomonas putida*) was able to utilize methylacrylonitrile as a sole source of carbon and nitrogen(2). In another study, a mixed microbial culture, isolated from an environment contaminated with organic cyanides and PCBs, utilized methylacrylonitrile as the sole source of carbon and nitrogen(1). The mixed microbial culture was grown for 48 hrs at pH 7 with 1 g/l of methylacrylonitrile; the final pH and ammonia concn were determined to be 8.17 and 40.9 umol/ml, respectively(1).

#### 12.3 Bioaccumulative potential

An estimated BCF of 3 was calculated for methylacrylonitrile(SRC), using a log Kow of 0.68(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

#### 12.4 Mobility in soil

The Koc of methylacrylonitrile is estimated as 56(SRC), using a measured log Kow of 0.68(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that methylacrylonitrile is expected to have high mobility in

soil(SRC).

## 12.5 Other adverse effects

no data available

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## SECTION 13: Disposal considerations

### 13.1 Disposal methods

#### Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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## SECTION 14: Transport information

### 14.1 UN Number

ADR/RID: UN3079 (For reference only, please check.) IMDG: UN3079 (For reference only, please check.) IATA: UN3079 (For reference only, please check.)

### 14.2 UN Proper Shipping Name

ADR/RID: METHACRYLONITRILE, STABILIZED (For reference only, please check.) IMDG: METHACRYLONITRILE, STABILIZED (For reference only, please check.) IATA: METHACRYLONITRILE, STABILIZED (For reference only, please check.)

### 14.3 Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.) IMDG: 6.1 (For reference only, please check.) IATA: 6.1 (For reference only, please check.)

### 14.4 Packing group, if applicable

ADR/RID: I (For reference only, please check.) IMDG: I (For reference only, please check.) IATA: I (For reference only, please check.)

### 14.5 Environmental hazards

ADR/RID: No IMDG: No IATA: No

### 14.6 Special precautions for user

no data available

### 14.7 Transport in bulk according to IMO instruments

no data available

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## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Methacrylonitrile	Methacrylonitrile	126-98-7	204-817-5
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

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## SECTION 16: Other information

#### Information on revision

Creation Date July 15, 2019

Revision Date July 15, 2019

#### Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

## References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

## Other Information

The commercial product contains 50 ppm hydroquinone monoethyl ether as a stabilizer. The odour warning when the exposure limit value is exceeded is insufficient. Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available. Use same antidotes as in the case of cyanide poisoning.