

Material Safety Data Sheet

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Version 1.10

According to 91/155/EEC

1 - Product and Company Information

Product Name	ACRYLIC ACID ANHYDROUS, STAB.
Product Number	01730
Company	Sigma-Aldrich Pte Ltd #08-01 Citilink Warehouse Singapore 118529 Singapore
Technical Phone #	65 271 1089
Fax	65 271 1571

2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
ACRYLIC ACID ANHYDROUS	79-10-7	201-177-9	607-061-00-8
Formula	C3H4O2		
Molecular Weight	72.06 AMU		
Synonyms	Acroleic acid * Acrylic acid (ACGIH) * Acrylic acid, glacial * Ethylenecarboxylic acid * Glacial acrylic acid * Kyselina akrylova (Czech) * Propene acid * Propenoic acid * 2-Propenoic acid (9CI) * RCRA waste number U008 * Vinylformic acid		

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

Flammable. Harmful by inhalation, in contact with skin and if swallowed. Causes severe burns. Very toxic to aquatic organisms.

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

AFTER SKIN CONTACT

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

AFTER EYE CONTACT

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS

Specific Hazard(s): Combustible liquid. Emits toxic fumes under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep tightly closed. Keep away from heat and open flame. Store in a cool dry place.

SPECIAL REQUIREMENTS: Hygroscopic.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Safety shower and eye bath. Mechanical exhaust required.

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	20 MG/M3
Poland		NDSch	50 MG/M3
Poland		NDSP	-

EXPOSURE LIMITS - DENMARK

Source	Type	Value
OEL	TWA	5.9 mg/m3
		2 ppm

Remarks: H

EXPOSURE LIMITS - NORWAY

Source	Type	Value
OEL	OEL	30 mg/m3
		10 ppm

EXPOSURE LIMITS - SWITZERLAND

Source	Type	Value
OEL	OEL	30 mg/m3
		10 ppm

EXPOSURE LIMITS - UNITED KINGDOM

Source	Type	Value
OEL	OEL	30 mg/m3
		10 ppm
OEL	STEL	60 mg/m3
		20 ppm

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

 9 - Physical and Chemical Properties

Appearance	Physical State: Clear liquid Color: Colorless Odor: Stench.	
Property	Value	At Temperature or Pressure
pH	1 - 2	Concentration: 500 g/l
BP/BP Range	139 °C	760 mmHg
MP/MP Range	12 °C	
Flash Point	46 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	396 °C	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 2 % Upper: 13.7 %	
Vapor Pressure	4 mmHg	20 °C
SG/Density	1.05 g/cm3	
Partition Coefficient	Log Kow: 0.46	
Viscosity	1.3 Pas	20 °C
Vapor Density	2.5 g/l	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	< 0.2 %	
Surface Tension	28.1 mN/m	30 °C
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	Solubility in Water: Miscible. Other Solvents: MISCIBLE IN ALCOHOL, ETHER CHLOROFORM SOLUBLE IN BE	

 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents, Strong bases.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

STABILIZERS PRESENT

inhibited with 20 ppm hydroquinone monomethyl ether (MEHQ).

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will occur

11 - Toxicological Information

RTECS NUMBER: AS4375000

ACUTE TOXICITY

LD50

Oral

Rat

2,590 mg/kg

LD50

Oral

Rat

1,500 mg/kg

LD50

Oral

Rat

193 mg/kg

LD50

Oral

Rat

2,600 mg/kg

LD50

Oral

Rat

360 mg/kg

LD50

Oral

Mouse

2,400 mg/kg

LD50

Oral

Mouse

830 mg/kg

LD50

Oral

Mouse

1,200 mg/kg

LC50

Inhalation

Rat

1,202 - 3,840 ppm

4 H

LC50

Inhalation

Rat

> 5,100 mg/m3

4 H

LC50

Inhalation

Rat

3,600 mg/m3
4 H
LC50
Inhalation
Rat
25,800 mg/m3
30 MIN
LD50
Skin
Rabbit
280 mg/kg
LD50
Skin
Rabbit
640 mg/kg
LD50
Skin
Rabbit
990 mg/kg
LD50
Skin
Rabbit
295 mg/kg
LD50
Skin
Rabbit
750 mg/kg

LD50
Oral
Rat
33.5 mg/kg

LD50
Intraperitoneal
Rat
22 MG/KG

LD50
Oral
Mouse
2400 mg/kg
Remarks: Tumorigenic:Active as anti-cancer agent.

LC50
Inhalation
Mouse
5,300 mg/m3
2H

LD50
Intraperitoneal
Mouse
144 MG/KG

LD50
Subcutaneous
Mouse
1590 MG/KG

LD50
Skin

Rabbit
280 UL/KG

IRRITATION DATA

Skin
Rabbit
500 mg
Remarks: Open irritation test

Skin
Rabbit
5 mg
24H
Remarks: Severe irritation effect

Eyes
Rabbit
1 mg
Remarks: Severe irritation effect

Eyes
Rabbit
0.25 mg
24H
Remarks: Severe irritation effect

SIGNS AND SYMPTOMS OF EXPOSURE

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

ROUTE OF EXPOSURE

Skin Contact: Causes severe burns.
Skin Absorption: Harmful if absorbed through skin.
Eye Contact: Causes severe burns.
Inhalation: Harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion: Harmful if swallowed.

TARGET ORGAN INFORMATION

Liver. Kidneys.

CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Mouse
Route of Application: Skin
Exposure Time: 78W
Result: Tumorigenic: Carcinogenic by RTECS criteria.
Blood: Leukemia

Mouse
Route of Application: Subcutaneous
Exposure Time: 52W

Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Tumorigenic: Tumors at site or application.

Mouse

Route of Application: Skin

Exposure Time: 78W

Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.

IARC CARCINOGEN LIST

Rating: Group 3

CHRONIC EXPOSURE - MUTAGEN

Result: Laboratory experiments have shown mutagenic effects.

Mouse

450 MG/L

Cell Type: lymphocyte

Cytogenetic analysis

Mouse

500 MG/L

Cell Type: lymphocyte

Mutation in mammalian somatic cells.

Hamster

116 MG/L

Cell Type: ovary

Cytogenetic analysis

CHRONIC EXPOSURE - TERATOGEN

Species: Rat

Dose: 14340 UG/KG

Route of Application: Intraperitoneal

Exposure Time: (5-15D PREG)

Result: Specific Developmental Abnormalities: Other developmental abnormalities.

Species: Rat

Dose: 7329 UG/KG

Route of Application: Intraperitoneal

Exposure Time: (5-15D PREG)

Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat

Dose: 169 GM/KG

Route of Application: Oral

Exposure Time: (13W MALE/13W PRE-3W POST)

Result: Paternal Effects: Testes, epididymis, sperm duct. Effects on Newborn: Growth statistics (e.g., reduced weight gain). Effects on Newborn: Physical.

Species: Rat

Dose: 43680 MG/KG

Route of Application: Oral

Exposure Time: (MULTIGENERATION)

Result: Maternal Effects: Other effects. Effects on Newborn: Growth statistics (e.g., reduced weight gain).

12 - Ecological Information

ECOTOXICOLOGICAL EFFECTS

Test Type: EC50 Algae
Species: *Scenedesmus subspicatus*
Time: 96 h
Value: 0.04 mg/l

Test Type: EC50 Daphnia
Species: *Daphnia magna*
Time: 48 h
Value: 95 mg/l

Test Type: LC50 Fish
Species: *Onchorhynchus mykiss* (Rainbow trout)
Time: 96 h
Value: 27 mg/l

Test Type: LC50 Fish
Species: *Leuciscus idus*
Time: 48 h
Value: 315 mg/l

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

UN#: 2218
Class: 8
PG: II
Proper Shipping Name: Acrylic acid, inhibited

IMDG

UN#: 2218
Class: 8
PG: II
Subrisk: 3
Proper Shipping Name: Acrylic acid, inhibited
Marine Pollutant: No
Severe Marine Pollutant: No

IATA

UN#: 2218
Class: 8
PG: II
Subrisk: 3
Proper Shipping Name: Acrylic acid, stabilized
Inhalation Packing Group I: No

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 607-061-00-8

NOTA: D

INDICATION OF DANGER: C N

Corrosive. Dangerous for the environment.

R-PHRASES: 10 20/21/22 35 50

Flammable. Harmful by inhalation, in contact with skin and if swallowed. Causes severe burns. Very toxic to aquatic organisms.

S-PHRASES: 26 36/37/39 45 61

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/safety data sheets.

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 1

SWITZERLAND

SWISS POISON CLASS: 2

16 - Other Information

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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