

Material Safety Data Sheet

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Version 1.4

According to 91/155/EEC

1 - Product and Company Information

Product Name	METHYL METHACRYLATE, STAB. WITH 0.0025% HYDROQUINONE
Product Number	64200
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
METHACRYLIC ACID METHYL ESTER	80-62-6	201-297-1	607-035-00-6

Formula	C5H8O2
Molecular Weight	100.12 AMU
Synonyms	Acrylic acid, 2-methyl-, methyl ester * Metakrylan metylu (Polish) * Methacrylate de methyle (French) * Methacrylsaeuremethyl ester (German) * 2-(Methoxycarbonyl)-1-propene * Methylester kyseliny methakrylove (Czech) * Methylmethacrylaat (Dutch) * Methyl-methacrylat (German) * Methyl methacrylate (ACGIH:OSHA) * Methyl methacrylate monomer * Methyl methylacrylate * Methyl alpha-methylacrylate * Methyl 2-methyl-2-propenoate * 2-Methyl-2-propenoic acid methyl ester * Metil metacrilato (Italian) * NCI-C50680 * Pegalan * 2-Propenoic acid, 2-methyl-, methyl ester * RCRA waste number U162

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

Highly flammable. Irritating to respiratory system and skin. May cause sensitization by skin contact.

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 contact, immediately wash skin with soap and copious amounts of water.

AFTER EYE CONTACT

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

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): Flammable liquid. Emits toxic fumes under fire conditions.

Explosion Hazards: Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur 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. Shut off all sources of ignition.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep container closed. Keep away from heat, sparks, and open flame.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Safety shower and eye bath. Use nonsparking tools. Use only in a chemical fume hood.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling. Wash contaminated clothing before reuse.

EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	50 MG/M3
Poland		NDSch	400 MG/M3
Poland		NDSP	-

EXPOSURE LIMITS - DENMARK

Source	Type	Value
OEL	TWA	102 mg/m3 25 ppm

Remarks: H

EXPOSURE LIMITS - GERMANY

Source	Type	Value
TRGS 900	OEL	210 mg/m3 50 ppm

Remarks: =1=

Remarks: Y

EXPOSURE LIMITS - NORWAY

Source	Type	Value
	OEL	100 mg/m3 25 ppm

Remarks: AH

EXPOSURE LIMITS - SWEDEN

Source	Type	Value
	LLV (Level)	200 mg/m3 50 ppm

Remarks: H, S

EXPOSURE LIMITS - SWITZERLAND

Source	Type	Value
OEL	OEL	210 mg/m3 50 ppm

Remarks: S C

EXPOSURE LIMITS - UNITED KINGDOM

Source	Type	Value
OEL	OEL	208 mg/m3 50 ppm
OEL	STEL	416 mg/m3 100 ppm

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Wear heavy rubber gloves.

Eye Protection: Chemical safety goggles.

Special Protective Measures: Faceshield (8-inch minimum).

9 - Physical and Chemical Properties

Appearance	Physical State: Liquid
	Color: Colorless

Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	98 - 100 °C	
MP/MP Range	-48 °C	
Flash Point	9 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	435 °C	

Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 2.12 % Upper: 12.5 %	
Vapor Pressure	38.5 mmHg	25 °C
SG/Density	0.943 g/cm3	
Partition Coefficient	Log Kow: 1.38	
Viscosity	0.63 Pas	20 °C
Vapor Density	3.5 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	N/A	
Surface Tension	28 mN/m	20 °C
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	Solubility in Water:15 mg/ml H2O Other Solvents: MEK,THF, ESTERS, AROMATIC AND CHLORINATED HYDRO	

10 - Stability and Reactivity

STABILITY

Stable: Stable.

Conditions to Avoid: Heat. May polymerize on exposure to light.

Materials to Avoid: Oxidizing agents, Peroxides, Amines, Bases, Acids, Reducing agents, Halogens.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

STABILIZERS PRESENT

Methyl methacrylate is inhibited with 10 ppm hydroquinone monomethyl ether. Do not store under inert atmosphere. It is advisable to use material within 6 months.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: May undergo autopolymerization

11 - Toxicological Information

RTECS NUMBER: OZ5075000

ACUTE TOXICITY

LD50

Oral

Rat

7872 mg/kg

Remarks: Behavioral:Muscle weakness. Behavioral:Coma. Lungs, Thorax, or Respiration:Respiratory depression.

LC50

Inhalation

Rat

78,000 mg/m3

4H

LD50

Intraperitoneal

Rat
1328 MG/KG

LD50
Subcutaneous

Rat
7088 MG/KG

Remarks: Behavioral:Somnolence (general depressed activity).

LD50
Oral
Mouse
3625 mg/kg

LC50
Inhalation
Mouse
18,500 mg/m3
2H

LD50
Intraperitoneal
Mouse
945 MG/KG

Remarks: Behavioral:Somnolence (general depressed activity).

LD50
Subcutaneous
Mouse
5954 MG/KG

Remarks: Behavioral:Somnolence (general depressed activity).

LD50
Oral
Dog
4725 mg/kg

Remarks: Behavioral:Somnolence (general depressed activity).
Behavioral:Ataxia. Gastrointestinal:Changes in structure or
function of salivary glands.

LD50
Subcutaneous
Dog
4252 MG/KG

Remarks: Behavioral:Somnolence (general depressed activity).

LD50
Oral
Rabbit
8700 mg/kg

LD50
Skin
Rabbit
> 5000 mg/kg

Remarks: Skin and Appendages:Skin: After systemic exposure:
Dermatitis, other

LD50
Oral
Guinea pig
5954 mg/kg

Remarks: Behavioral:Somnolence (general depressed activity).
Behavioral:Ataxia. Gastrointestinal:Changes in structure or
function of salivary glands.

LD50

Intraperitoneal

Guinea pig

1890 MG/KG

Remarks: Behavioral:Somnolence (general depressed activity).

LD50

Subcutaneous

Guinea pig

5954 MG/KG

Remarks: Behavioral:Somnolence (general depressed activity).

LC50

Inhalation

Mammal

20,000 mg/m3

IRRITATION DATA

Skin

Rabbit

10,000 mg

KG

Remarks: Open irritation test

Eyes

Rabbit

150 mg

SENSITIZATION

Skin: May cause allergic skin reaction.

SIGNS AND SYMPTOMS OF EXPOSURE

Exposure can cause CNS depression, drowsiness, light-headedness,
and irritability. Ataxia. Narcotic effect.

ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes eye irritation. Lachrymator.

Inhalation: May be harmful if inhaled. Material is irritating to
mucous membranes and upper respiratory tract.

Ingestion: May be 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.

Rat

Route of Application: Implant

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

IARC CARCINOGEN LIST

Rating: Group 3

CHRONIC EXPOSURE - MUTAGEN

Rat
4 MG/M3/16W
Inhalation
Cytogenetic analysis

Mouse
2202 MG/L
Cell Type: lymphocyte
Micronucleus test

Mouse
500 MG/L (+S9)
Cell Type: lymphocyte
Mutation in microorganisms

Mouse
2799 MG/L
Cell Type: lymphocyte
Cytogenetic analysis

Mouse
2202 MG/L
Cell Type: lymphocyte
Cytogenetic analysis

Mouse
704 MG/L
Cell Type: lymphocyte
Mutation in mammalian somatic cells.

Hamster
1600 MG/L
Cell Type: ovary
Cytogenetic analysis

Hamster
1500 MG/L
Cell Type: ovary
Sister chromatid exchange

CHRONIC EXPOSURE - TERATOGEN

Result: Possible risk of congenital malformation in the fetus.

Species: Rat
Dose: 109 GM/M3/17M
Route of Application: Inhalation
Exposure Time: (6-15D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

Species: Rat
Dose: 109 GM/M3/54M
Route of Application: Inhalation
Exposure Time: (6-15D PREG)
Result: Effects on Embryo or Fetus: Fetal death. Specific Developmental Abnormalities: Other developmental abnormalities.

Species: Rat
Dose: 405 MG/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: Other developmental abnormalities.

Species: Rat
Dose: 801 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (5-15D PREG)
Result: Specific Developmental Abnormalities: Other developmental abnormalities.

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Woman
Dose: 10 MG/M3
Route of Application: Inhalation
Exposure Time: (9Y PREG)
Result: Maternal Effects: Other effects. Effects on Embryo or Fetus: Extra embryonic structures (e.g., placenta, umbilical cord). Effects on Newborn: Delayed effects.

Species: Rat
Dose: 54 MG/M3/24H
Route of Application: Inhalation
Exposure Time: (8W PRE)
Result: Maternal Effects: Menstrual cycle changes or disorders.

Species: Rat
Dose: 4480 MG/M3/2H
Route of Application: Inhalation
Exposure Time: (6-18D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Species: Mouse
Dose: 116 PPM/6H
Route of Application: Inhalation
Exposure Time: (4-13D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

12 - Ecological Information

ECOTOXICOLOGICAL EFFECTS

Test Type: LC50 Fish
Species: Leuciscus idus
Value: 350 mg/l

Test Type: LC50 Fish
Species: Lepomis macrochirus (Bluegill)
Time: 96 h
Value: 250 mg/l

Test Type: EC50 Daphnia
Species: Daphnia magna
Value: 720 mg/l

Test Type: LC50 Fish
Species: Lepomis macrochirus (Bluegill)
Time: 96 h
Value: 154 - 342 mg/l

Test Type: LC50 Fish
Species: Pimephales promelas (Fathead minnow)
Time: 96 h
Value: 125.5 - 275 mg/l

Test Type: EC50 Algae
Species: Selenastrum capricornutum resp.
Time: 96 h
Value: 170 mg/l

Test Type: LC0 Bacteria
Value: 100 mg/l

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

UN#: 1247
Class: 3
PG: II
Proper Shipping Name: Methyl methacrylate monomer,
inhibited

IMDG

UN#: 1247
Class: 3
PG: II
Proper Shipping Name: METHYL METHACRYLATE, MONOMER,
INHIBITED
Marine Pollutant: No
Severe Marine Pollutant: No

IATA

UN#: 1247
Class: 3
PG: II
Proper Shipping Name: Methyl methacrylate monomer,
stabilized
Inhalation Packing Group I: No

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES
ANNEX I INDEX NUMBER: 607-035-00-6
NOTA: D

INDICATION OF DANGER: F Xi

Highly Flammable. Irritant.

R-PHRASES: 11 37/38 43

Highly flammable. Irritating to respiratory system and skin.

May cause sensitization by skin contact.

S-PHRASES: 24 37 46

Avoid contact with skin. Wear suitable gloves. If swallowed, seek medical advice immediately and show this container or label.

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 1

SWITZERLAND

SWISS POISON CLASS: 4

NORWAY

Labelling for organic solvents where the package is 1liter or more.

YL-tall m3/l: 13160

YL-group: 5

Risk phrases: 20

Harmful by inhalation.

Safety phrases: 38 42 210

In case of insufficient ventilation, wear suitable respiratory equipment. During fumigation/spraying wear suitable respiratory equipment. Use compressed air- or fresh air line breathing apparatus in confined spaces.

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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