We create chemistry

Safety data sheet

1. Substance/preparation and manufacturer/supplier identification

Product name:
METHYL ACRYLATE

Use: Monomer.

Uses advised against: All consumer uses are strongly advised against., Use of substance in adhesives (professional), Use of substance in coatings (professional), Use of substance in inks and toners (professional)

Manufacturer/supplier:
BASF (Thai) Limited
23rd Floor, Emporium Tower, 622, Sukhumvit 24 Rd.,
Klongton, Klongtoey, Bangkok 10110, THAILAND
Telephone: +66 2624-1999
Telefax number: +66 2664-9254
E-mail address: Thailand-SDS-info@basf.com

Emergency information:
International emergency number:
Telephone: +49 180 2273-112

2. Hazard identification

Classification according to UN GHS 2009

Classification of the substance and mixture:
Flammable liquids: Cat.2
Acute toxicity: Cat.3 (Inhalation - vapour)
Acute toxicity: Cat.4 (oral)
Acute toxicity: Cat.4 (dermal)
Skin irritation: Cat.2
Eye irritation: Cat.2A
Skin sensitization: Cat.1B

Specific target organ toxicity — single exposure: Cat.3 (irritating to respiratory system)
Hazardous to the aquatic environment - acute: Cat.2
Hazardous to the aquatic environment - chronic: Cat.3

Label elements and precautionary statement:

Pictogram:

Signal Word:
Danger

Hazard Statement:

H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H331	Toxic if inhaled.
H317	May cause an allergic skin reaction.
H335	May cause respiratory irritation.
H302 + H312	Harmful if swallowed or in contact with skin.
H412	Harmful to aquatic life with long lasting effects.
H401	Toxic to aquatic life.

Precautionary Statements (Prevention):

P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves and eye protection or face protection.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe mist or vapour.
P280	Wear eye protection.
P243	Take action to prevent static discharges.
P273	Avoid release to the environment.
P241	Use explosion-proof electrical, ventilating and lighting equipment.
P272	Contaminated work clothing should not be allowed out of the workplace.
P264	Wash contaminated body parts thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P242	Use non-sparking tools.
P240	Ground and bond container and receiving equipment.

Precautionary Statements (Response):

P311	Call a POISON CENTER or physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P361 + P364	Take off immediately all contaminated clothing and wash it before reuse.
P330	Rinse mouth.
P370 + P378	In case of fire: Use water spray, dry powder, foam or carbon dioxide for extinction.

Precautionary Statements (Storage):

P403 + P235	Store in a well-ventilated place. Keep cool.
P233	Keep container tightly closed.
P405	Store locked up.

Precautionary Statements (Disposal):

P501	Dispose of contents and container to hazardous or special waste collection point.

Other hazards which do not result in classification:
If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.
See section 12 - Results of PBT and vPvB assessment.

3. Composition/information on ingredients

Chemical nature

Substance nature: Substance

methyl acrylate
CAS Number: 96-33-3

Hazardous ingredients

methyl acrylate

Content (W/W): >= 99.8 % - <= 100 % CAS Number: 96-33-3	Flam. Liq.: Cat. 2 Acute Tox.: Cat. 3 (Inhalation - vapour) Acute Tox.: Cat. 4 (oral) Acute Tox.: Cat. 4 (dermal) Skin Irrit.: Cat. 2 Eye Irrit.: Cat. 2A Skin Sens.: Cat. 1B STOT SE: Cat. 3 (irr. to respiratory syst.) Aquatic Acute: Cat. 2 Aquatic Chronic: Cat. 3

4. First-Aid Measures

General advice:
First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

If inhaled:
Keep patient calm, remove to fresh air, seek medical attention.

On skin contact:
Immediately wash thoroughly with soap and water, seek medical attention.

On contact with eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

On ingestion:
Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Note to physician:
Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.
Hazards: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11. (Further) symptoms and / or effects are not known so far
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Suitable extinguishing media:
dry powder, water spray, carbon dioxide, foam

Unsuitable extinguishing media for safety reasons:
water jet

Additional information:
Use extinguishing measures to suit surroundings.

Specific hazards:
Risk of violent self-polymerization if overheated in a container. Cool endangered containers with water-spray.

Flammable. See SDS section 7 - Handling and storage.

Special protective equipment:
Wear a self-contained breathing apparatus. Special protective equipment for firefighters

Further information:
Extend fire extinguishing measures to the surroundings. Fight fire from maximum distance. Vapours are heavier than air and may accumulate in low areas and travel a considerable distance up to the source of ignition.

Further information:
In case of a fire in the vicinity a restabilization system should be used if the temperature in the bulk storage-tank reaches 45°C. Evacuate area of all unnecessary personnel. In case of a fire in the vicinity evacuate all personnel in a greater area if the temperature in the bulk storage-tank reaches 60°C.

Further information:
Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental Release Measures

Personal precautions:
Handle in accordance with good industrial hygiene and safety practice.

Avoid all sources of ignition: heat, sparks, open flame.Use antistatic tools.

Environmental precautions:
Discharge into the environment must be avoided.

Methods for cleaning up or taking up:
For large amounts: Pump off product.
Spills should be contained, solidified, and placed in suitable containers for disposal. Dispose of absorbed material in accordance with regulations. Ensure adequate ventilation. Suppress gases/vapours/mists with water spray jet. Clean contaminated floors and objects thoroughly with water and detergents, observing environmental regulations. Cleaning operations should be carried out only while wearing breathing apparatus. Pick up with suitable appliance and dispose of.

Additional information: High risk of slipping due to leakage/spillage of product.

Release of substance/product can cause fire or explosion. Shut off or stop source of leak. Shut off or stop released substance/product under safe conditions.

Pack in tightly closed containers for disposal.

7. Handling and Storage

Handling

The substance/ product may be handled only by appropriately trained personnel. Facility parts must be checked for polymer residues and cleaned on regular basis in order to avoid hazardous reactions.

Ensure thorough ventilation of stores and work areas. Encapsulation or exhaust ventilation required. When filling, transferring, or emptying of containers, adequate local exhaust ventilation is necessary. Vent waste air to atmosphere only through suitable separators. Check the condition of seals and connector screw threads.

The temperatures which must be avoided are to be considered. Protect against heat. Protect from direct sunlight. Protect contents from the effects of light. Do not open warm or swollen product containers. Remove persons to safety and alert fire brigade.

Ensure adequate inhibitor and dissolved oxygen level.

Avoid inhalation of dusts/mists/vapours. Avoid aerosol formation. Avoid all direct contact with the substance/product.

Protection against fire and explosion:
Avoid all sources of ignition: heat, sparks, open flame. Substance/product can form explosive mixture with air. Ground all transfer equipment properly to prevent electrostatic discharge. It is recommended that all conductive parts of the machinery are grounded. Explosion-proof equipment is not necessary when loading and processing of the product takes place at a minimum of 5 °C below the flash point.

Heated containers should be cooled to prevent polymerization. If exposed to fire, keep containers cool by spraying with water. Emergency cooling must be provided for the eventuality of a fire in the vicinity.

Storage

Further information on storage conditions: Prior to storage ensure that the transfer equipment used and the intended storage containers do not contain other substances/products. Before transfer to stock the identity of the product must be proved to be without doubt. The entrance to storage rooms is to be granted only to appropriately trained personnel.
The stabilizer is only effective in the presence of oxygen. Maintain contact with atmosphere containing 5 - 21% oxygen. Never use tanks with inert-gas installation for storage.
Risk of polymerization. Protect against heat. Protect from direct sunlight. Avoid UV-light and other radiation with high energy. Protect against contamination.
In case of bulk storage, the storage-tanks should at least be equipped with two high temperature alert devices.
Even if the product is stored and handled as prescribed/indicated it should be used up within the indicated duration of storage.

Storage stability:
Storage temperature: < 35 °C
Storage duration: 12 Months
The stated storage temperature should be noted.
Avoid prolonged storage.
This product should be processed as soon as possible.
Ensure adequate inhibitor and dissolved oxygen level.
Do not store with less than 10 % headspace above liquid.
Storage stability is based upon ambient temperatures and conditions described.
It is recommended to keep a safe distance of +2 degrees above the crystallization range.
The product is stabilized, the shelf life should be noted.
Storage temperature: 45 °C
A restabilization system should be used if the temperature in the bulk storage-tank reaches the indicated value.
Storage temperature: 60 °C
All personnel in a greater area should be evacuated if the temperature in the bulk storage-tank reaches the indicated value.

8. Exposure controls and personal protection

Components with occupational exposure limits

methyl acrylate, 96-33-3;
TWA value 2 ppm (ACGIHTLV)
Skin Designation (ACGIHTLV)
Danger of cutaneous absorption

Personal protective equipment

Respiratory protection:
Suitable respiratory protection for lower concentrations or short-term effect: Gas filter for gases/vapours of organic compounds (boiling point >65 °C, e. g. EN 14387 Type A)

Hand protection:
Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN ISO 374-1):
butyl rubber (butyl) - 0.7 mm coating thickness
Manufacturer's directions for use should be observed because of great diversity of types.
Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.

Eye protection:
Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures:
Avoid contact with the skin, eyes and clothing. Avoid inhalation of vapour. Wearing of closed work clothing is required additionally to the stated personal protection equipment.

9. Physical and Chemical Properties

Form:	liquid	
Colour:	colourless	
Odour:	pungent	
Odour threshold:	not determined	
pH value:	(20 °C) neutral, moderately soluble	
Melting point:	-76.5 °C Literature data.	
Boiling point:	80.1 °C (1,013 hPa)	
Flash point:	-2.8 °C Literature data.	(closed cup)
Evaporation rate:	Value can be approximated from Henry's Law Constant or vapor pressure.	
Flammability (solid/gas):	Highly flammable.	(derived from flash - and boiling point)

Lower explosion limit:	For liquids not relevant for classification and labelling., The lower explosion point may be 5 - 15 °C below the flash point.	
Upper explosion limit:	For liquids not relevant for classification and labelling.	
Ignition temperature:	468 °C Literature data.	
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated. > 350 J/gReaction heat in case of polymerization	
Self ignition:	Based on its structural properties the product is not classified as self-igniting.	Test type: Spontaneous self-ignition at room-temperature.
Self heating ability:	not applicable, the product is a liquid	
SADT:	Not a substance/mixture liable to self-decomposition according to GHS.	
Explosion hazard:	Based on the chemical structure there is no indication of explosive properties.	
Fire promoting properties:	Based on its structural properties the product is not classified as oxidizing.	
Vapour pressure:	90 hPa (20.1 °C)	(measured)
Density:	0.95 g/cm3 (20 °C) Literature data.	
Relative density:	0.95 (20 °C) Literature data.	
Relative vapour density (air):	2.96 (20 °C) Heavier than air.	(calculated)
Solubility in water:	Literature data. 60 g/l (20 °C)	
Solubility (qualitative) solvent(s):	organic solvents miscible	
Partitioning coefficient n-octanol/water (log Pow):	0.739 (25 °C)	(OECD Guideline 107)
Adsorption/water - soil:	KOC: 6.42; log KOC: 0.81	(calculated)
Surface tension:	Based on chemical structure, surface activity is not to be expected.	

Viscosity, dynamic:	0.472 mPa.s (25 °C) Literature data.
Viscosity, kinematic:	10 mm2/s (23 °C)
Molar mass:	86.09 g/mol

Particle characteristics

Particle size distribution: The substance / product is marketed or used in a non solid or granular form. -

10. Stability and Reactivity

Conditions to avoid:
Avoid heat. Avoid oxygen content above the product of less than 5 %. Avoid UV-light and other radiation with high energy. Avoid direct sunlight. Avoid prolonged storage. Avoid inhibitor loss. Avoid excessive temperatures. Avoid all sources of ignition: heat, sparks, open flame. Avoid freezing. Avoid moisture.

Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.
Thermal decomposition:	> 350 J/gReaction heat in case of polymerization

Substances to avoid:
radical formers, free radical initiators, peroxides, mercaptans, nitro-compounds, perborates, azides, ether, ketones, aldehydes, amines, nitrates, nitrites, oxidizing agents, reducing agents, strong bases, alkaline reactive substances, acid anhydrides, acid chlorides, concentrated mineral acids, metal salts Inert gas

Corrosion to metals: No corrosive effect on metal.

Hazardous reactions:
Explosion and fire hazard exists under confined conditions. Ignitable air mixtures can form when the product is heated above the flash point and/or when sprayed or atomized. Formation of explosive gas/air mixtures.
Polymerization coupled with heat formation.
Risk of spontaneous polymerization by oxygen depletion of the liquid phase. Risk of spontaneous polymerization when heated or in the presence of UV radiation. Risk of spontaneous and violent self-polymerization if inhibitor is lost or product is exposed to excessive heat. Polymerization produces gases which may burst closed or confined containers. Reactions may cause ignition.
Risk of spontaneous polymerization in the presence of starters for radical chain reactions (e.g. peroxides). Reacts with nitric acid. Risk of spontaneous polymerization in the presence of oxidizing agents.
Hazardous reactions in presence of mentioned substances to avoid.
The product is stabilized against spontaneous polymerization prior to despatch. The product is stable if stored and handled as prescribed/indicated.

Hazardous decomposition products:
No hazardous decomposition products if stored and handled as prescribed/indicated.

Chemical stability:
The product is stable if stored and handled as prescribed/indicated.

Reactivity:
No hazardous reactions if stored and handled as prescribed/indicated.

11. Toxicological Information

Routes of exposure

Acute oral toxicity

Experimental/calculated data:
LD50rat (oral): approx. 768 mg/kg (BASF-Test)

Acute inhalation toxicity

LC50 rat (by inhalation): < 10.832 mg/l 4 h (OECD Guideline 403)
The vapour was tested.

Acute dermal toxicity

LD50 rabbit (dermal): approx. 1,250 mg/kg

Assessment of acute toxicity

Of moderate toxicity after single ingestion. Of pronounced toxicity after short-term inhalation. Of moderate toxicity after short-term skin contact.

Symptoms

Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.

Irritation

Assessment of irritating effects:
Skin contact causes irritation. May cause severe damage to the eyes.

Experimental/calculated data:
Skin corrosion/irritation rabbit: Irritant. (OECD Guideline 404)

Serious eye damage/irritation rabbit: irreversible damage (Draize test)

Respiratory/Skin sensitization

Assessment of sensitization:
Sensitization after skin contact possible.

Experimental/calculated data:
Mouse Local Lymph Node Assay (LLNA) mouse: skin sensitizing (OECD Guideline 429)

Germ cell mutagenicity

Assessment of mutagenicity:

Results from a number of mutagenicity studies with microorganisms, mammalian cell culture and mammals are available. Taking into account all of the information, there is no indication that the substance is mutagenic.

Carcinogenicity

Assessment of carcinogenicity:
In a reliable long-term inhalation study, not exceeding the maximum tolerated dose, a carcinogenic effect was not observed. IARC (International Agency for Research on Cancer) has classified this substance as group 2B (The agent is possibly carcinogenic to humans).

Reproductive toxicity

Assessment of reproduction toxicity:
The results of animal studies gave no indication of a fertility impairing effect.

Developmental toxicity

Assessment of teratogenicity:
No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Specific target organ toxicity (single exposure)

Causes temporary irritation of the respiratory tract.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:
The substance may cause damage to the olfactory epithelium after repeated inhalation. After repeated exposure the prominent effect is local irritation.

Aspiration hazard

not applicable

12. Ecological Information

Ecotoxicity

Assessment of aquatic toxicity:
Acutely toxic for aquatic organisms. Harmful to aquatic organisms based on long-term (chronic) toxicity study data. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish:
LC50 (96 h) 3.4 mg/l, Salmo gairdneri, syn. O. mykiss (OECD 203; ISO 7346; 84/449/EWG, C.1, Flow through.)
The statement of the toxic effect relates to the analytically determined concentration.

LC50 (96 h) 1.1 mg/l, Cyprinodon variegatus (OECD 203; ISO 7346; 84/449/EWG, C.1, Flow through.)

The statement of the toxic effect relates to the analytically determined concentration.

Aquatic invertebrates:
EC50 (48 h) 2.6 mg/l, Daphnia magna (OECD Guideline 202, part 1, Flow through.)
The statement of the toxic effect relates to the analytically determined concentration.

EC50 (96 h) 1.6 mg/l, Mysidopsis bahia (OPP 72-3 (EPA-Guideline), Flow through.)
The statement of the toxic effect relates to the analytically determined concentration.

Aquatic plants:
EC50 (72 h) 3.55 mg/l (growth rate), Selenastrum capricornutum (OECD Guideline 201, static)
The statement of the toxic effect relates to the analytically determined concentration.

Microorganisms/Effect on activated sludge:
EC10 (72 h) > 100 mg/l, activated sludge (other, aquatic)

Chronic toxicity to fish:
No data available.

Chronic toxicity to aquatic invertebrates:
No observed effect concentration (21 d), 0.19 mg/l, Daphnia magna (Flow through.)
The statement of the toxic effect relates to the analytically determined concentration. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

No observed effect concentration (21 d), 0.136 mg/l, Daphnia magna (OECD Guideline 211, semistatic)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Assessment of terrestrial toxicity:

Soil living organisms:
other (28 d) > 1,000 mg/kg, soil dwelling microorganisms (OECD Guideline 217)

Terrestrial plants:
No data available.

Other terrestrial non-mammals:
No data available.

Mobility

Assessment transport between environmental compartments:
The substance will not evaporate into the atmosphere from the water surface.
Adsorption to solid soil phase is not expected.

Persistence and degradability

Elimination information:
90 - 100 % TIC of the ThIC (28 d) (ISO 14593) (aerobic, activated sludge, domestic)

Assessment of stability in water:
In contact with water the substance will hydrolyse slowly.

Information on Stability in Water (Hydrolysis):
$t_{1/2}$ > 28 d, (OPPTS 835.2130, pH 7)

Bioaccumulation potential

Assessment bioaccumulation potential:
Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

13. Disposal Considerations

Must be sent to a suitable incineration plant, observing local regulations.

Contaminated packaging:
Uncleaned empties should be disposed of in the same manner as the contents.

14. Transport Information

Domestic transport:

UN number or ID number:	UN 1919
UN proper shipping name:	METHYL ACRYLATE, STABILIZED
Transport hazard class(es):	3
Packing group:	II
Environmental hazards:	no
Special precautions for user:	None known

Sea transport
IMDG

UN number or ID number:	UN 1919
UN proper shipping name:	METHYL ACRYLATE, STABILIZED
Transport hazard class(es):	3
Packing group:	II
Environmental hazards:	no Marine pollutant: NO
Special precautions for user:	EmS: F-E; S-D

Air transport
IATA/ICAO

UN number or ID number:	UN 1919
UN proper shipping name:	METHYL ACRYLATE, STABILIZED
Transport hazard class(es):	3
Packing group:	II
Environmental hazards:	No Mark as dangerous for the environment is needed
Special precautions for user:	None known

Maritime transport in bulk according to IMO instruments

Regulation:	IBC-Code
Product name:	Methyl acrylate
Pollution category:	Y
Ship Type:	3

15. Regulatory Information

Other regulations

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

16. Other Information

Safe Handling and Storage aspects are covered in a brochure which is available on request.

參考文獻: 巴斯夫環安資料
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地址/電話:台北市松江路87號16樓 / (02) 25187600
製表人: 祝鼎新

Vertical lines in the left hand margin indicate an amendment from the previous version.

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