AdaKem®
Kimya San. Ve Tic Ltd. Şti.

SAFETY DATA SHEET

Safety Data Sheet according to Directive 2001/58/EC

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product name: **METHYL METHACRYLATE - 15 PPM MEHQ**

Product description Monomer for Polymer Products

Supplier

ADAKEM KİMYA
Yeşilbağlar Mahallesi, Kaptan Sk. Metrowin Tower 17/1, Kat:8
Daire:51 Pendik / İstanbul – TURKİYE

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2. HAZARDS IDENTIFICATION

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a substance.

Component	CAS-No.	EINECS-No.	Concentration	Classification
Methyl methacrylate	80-62-6	201-297-1	95,0 - <= 100,0 %	F, Xi R11, R37/38, R43
Ethyl methacrylate	97-63-2	202-597-5	0,1 - < 0,2 %	F, Xi R11, R36/37/38, R43

The full text of each R phrase is listed in section 16.

4. FIRST AID MEASURES

Inhalation: Move to fresh air. Oxygen or artificial respiration if needed. Call a physician immediately.

Skin contact: Wash off with soap and plenty of water. Wash contaminated clothing before re-use. If skin irritation persists, call a physician.

Eye contact: Rinse with plenty of water. If eye irritation persists, consult a specialist.

Ingestion: Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. Consult a physician. If vomiting occurs spontaneously, keep airway clear.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media:
Water spray
Dry powder
Foam
Alcohol-resistant foam
Carbon dioxide (CO2)

Specific hazards during fire fighting: Vapors can travel to a source of ignition and flash back. Heat can cause polymerization. Heated containers can explode.

Special protective equipment for fire-fighters: Wear self-contained breathing apparatus and protective suit.

Further information: EXPLOSION HAZARD. Fight advanced fires from a protected location. Cool containers / tanks with water spray.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment.
If exposed to material during clean-up operations, see SECTION 4, First Aid Measures, for actions to follow.

Environmental precautions
CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.
Do not allow material to contaminate ground water system.

Methods for cleaning up
Remove all sources of ignition.
Contain spills immediately with inert materials (e.g., sand, earth).
Transfer liquids and solid diking material to separate suitable containers for recovery or disposal.
Contaminated monomer may be unstable. Add inhibitor to prevent polymerization.
Absorbent can act as a contaminant (removes inhibitor) in liquid monomer. Avoid freestanding monomer with absorbent or add inhibitor to stabilize. Dispose of promptly.

7. HANDLING AND STORAGE

Handling
May cause sensitization of susceptible persons by skin contact. For personal protection see section 8.
Ground all metal containers during storage and handling.

Storage
Storage conditions: Minor deviations (7C/13F) above the recommended temperature (see below) are acceptable for short periods of time (one week) for material in transit. Store in cool place. Keep away from direct sunlight. Material can burn; limit indoor storage to approved areas equipped with

automatic sprinklers. Ground all metal containers during storage and handling. This product contains inhibitor to stabilize it during shipment and storage. The effectiveness of the inhibitor is dependent on the presence of dissolved oxygen. In order to maintain sufficient dissolved oxygen in the liquid to avoid polymerization, the monomer must always be stored with a vapor space oxygen concentration of 5% to 21%(air). Store material in containers made of the following: Stainless steel Carbon steel glass Aluminium Keep container tightly closed.
Storage temperature: <= 38 ℃
Storage period: 8 Months
Other data: Use monomer within the recommended storage period from date of manufacture to avoid loss of stability or risk of polymerization.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limit(s)

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value
Methyl methacrylate	Rohm and Haas	TWA	50 ppm
	Rohm and Haas	STEL	75 ppm
	EH40 WEL	TWA	208 mg/m3 50 ppm
	EH40 WEL	STEL	416 mg/m3 100 ppm

Component	Regulation	Type of listing	Value
Ethyl methacrylate	Rohm and Haas	TWA	50 ppm
	Rohm and Haas	STEL	75 ppm

Exposure controls

Eye protection: Chemical resistant goggles must be worn. Eye protection worn must be compatible with respiratory protection system employed.

Hand protection: Chemical-resistant gloves should be worn whenever this material is handled. The glove(s) listed below may provide protection against permeation. (Gloves of other chemically resistant materials may not provide adequate protection): butyl-rubber Rinse and remove gloves immediately after use. Wash hands with soap and water. Gloves should be removed and replaced immediately if there is any indication of degradation or chemical breakthrough. NOTE: Material is a possible skin sensitizer. Reference: Methacrylate Producers Association, Inc., "Chemical- Protective Gloves for Methacrylic Acid and its Esters", September 1998.

Skin and body protection: Use chemically resistant apron or other impervious clothing to avoid prolonged or repeated skin contact.

Respiratory protection: A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements or equivalent must be followed whenever workplace conditions warrant a respirator's use. None required if airborne concentrations are maintained below the exposure limit listed in Exposure Limit Information. Up to 10 times the exposure limit: Wear a properly fitted NIOSH approved (or equivalent) half-mask, air-purifying respirator. Up to 50 times the exposure limit: Wear a properly fitted NIOSH approved (or equivalent) full-facepiece, air-purifying respirator, OR full-facepiece, airline respirator in the pressure demand mode. Above 50 times the exposure limit or Unknown: Wear a properly fitted NIOSH approved (or equivalent) self-contained breathing apparatus in the pressure demand mode, OR full-facepiece, airline respirator in the pressure demand mode with emergency escape provision. Air-purifying respirators should be equipped with NIOSH approved (or equivalent) organic vapor cartridges and N95 filters. If oil mist is present, use R95 or P95 filters. NOTE: Contact Rohm and Haas Company for air monitoring method.

Protective measures: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Engineering measures: Use explosion-proof local exhaust ventilation with a minimum capture velocity of 100 ft/min (0.5 m/sec) at the point of vapor evolution. Refer to the current edition of Industrial Ventilation: A Manual of Recommended Practice published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Colour	clear
Odour	Fruity odor
Boiling point/boilingrange	101 ℃
Melting point/range	-48,00 ℃
Flash point	8 ℃ SETAFLASH CLOSED CUP
Ignition temperature	435 ℃
Lower explosion limit	2,10 %(V)
Upper explosion limit	12,50 %(V)
Vapour pressure	29,0 mmHg at 20 ℃
Relative vapour density	3,5
Water solubility	15,00000 g/l at 0,00 ℃
Relative density	0,94
Viscosity, dynamic	0,530 mPa.s
Evaporation rate	>1,00
Percent volatility	100 %

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Hazardous reactions	Inhibitor is added to this product to prevent polymerization. However, this material can undergo hazardous polymerization. See Hazardous Polymerization for conditions to avoid. This material is considered stable under specified conditions of storage, shipment and/or use. See SECTION 7, Handling And Storage, for specified conditions.
Materials to avoid	Avoid contact with the following: Acids Bases Oxidizing agents Reducing agents UV light free radical initiators organic peroxides
Hazardous decomposition products	There are no known hazardous decomposition products for this material.,

polymerization	Excessive aging, heat, contamination with polymerization catalysts, oxygen-free atmosphere, inhibitor depletion or ultraviolet light (sunlight) may cause polymerization. An uncontrolled polymerization may produce a rapid release of energy with the potential for an explosion of unvented closed containers.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	LD50 rat > 5.000 mg/kg
Acute inhalation toxicity	LC50 rat 4 h 7094 ppm
Acute dermal toxicity	LD50 rabbit > 5.000 mg/kg
Skin irritation	rabbit Moderate irritation.
Eye irritation	rabbit slight irritation
Sensitisation	May cause sensitization by skin contact.

Teratogenicity
MMA did not cause birth defects, malformations, or fetal toxicity in pregnant rats inhaling concentrations up to 2028 ppm.
Mutagenicity
Methyl methacrylate has produced mutations and chromosomal aberrations in certain in-vitro assays using cultured mammalian cells. However, there is no convincing evidence for in-vivo clastogenicity of methyl methyacryl ate. In several lifetime animal studies, methyl methacrylate has been shown to be non-carcinogenic.

In a retrospective study of the effects of exposure to ethyl acrylate and methyl methacrylate on workers hired in one plant between 1933 and 1945, a higher-than-expected incidence of colorectal cancer mortality was observed. However, there was no association of risk in similarly exposed populations from other locations or in subsequent evaluations of the same location.

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)
Biodegradability

	Ultimately biodegradable (88% within 28 days) under aerobic conditions
Physico-chemical removability	28-Day Hydrolysis Study: Rapidly hydrolyzed under alkaline conditions.
Stability in soil	Adsorption/Desorption:Very highly mobile, not adsorbed to soilSoil metabolism: MMA is rapidly dissipated, t1/2<1 day
Ecotoxicity effects	
Toxicity to fish	LC50 Oncorhynchus mykiss (rainbow trout) 96 h > 79 mg/l

Toxicity to algae	EC50 Algae (Selenastrum capricornutum) 72 h 170 mg/l
Toxicity to aquatic invertebrates	EC50 Daphnia magna 48 h 69 mg/l

13. DISPOSAL CONSIDERATIONS

Environmental precautions: CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.
Do not allow material to contaminate ground water system.

Disposal

After the addition of excess inhibitor, incinerate liquid and contaminated diking material in accordance with local, state, and federal regulations.

Contaminated packaging: Dispose of as unused product. CONTAINERS MAY BE HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all MSDS and label warnings even after container is emptied. Do not burn, or use a cutting torch on, the empty drum. Pursue safe, legal methods for recycle of empty containers. Improper disposal or re-use of this container may be dangerous and illegal. Refer to applicable local, state and federal regulations.

European Waste Catalogue (2000/532/EC)	The definitive assignment of this material to the appropriate EWC group and thus its proper EWC code will depend on the use that is made of this material. Contact waste disposal services.

14. TRANSPORT INFORMATION

Classification for ROAD and Rail transport (ADR/RID):

Proper shipping name	METHYL METHACRYLATE MONOMER, STABILIZED
UN-Number	UN 1247
Class	3
Packing group	II

Classification for SEA transport (IMO-IMDG):

Proper shipping name	METHYL METHACRYLATE MONOMER, STABILIZED
UN-Number	UN 1247
Class	3
Packing group	II

Classification for AIR transport (IATA/ICAO):

Consult current IATA regulations prior to shipping by air.

Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations

15. REGULATORY INFORMATION

Label

Classification and labeling have been performed according to EU directives 67/548/EEC and 99/45/EC including amendments (2001/60/EC and 2006/8/EC).

Hazard symbol and Indication of danger

F	Highly flammable
Xi	Irritant

Contains: Methyl methacrylate

R-phrase(s)

R11	Highly flammable.
R37/38	Irritating to respiratory system and skin.
R43	May cause sensitization by skin contact.

S-phrase(s)

S24	Avoid contact with skin.
S37	Wear suitable gloves.
S46	If swallowed, seek medical advice immediately and show this container or label.

EC Label 201-297-1

EU. EINECS (EINECS) This product satisfies all the requirements of the European Inventory of Existing Chemical Substances (EINECS).

US. Toxic Substances Control Act (TSCA) All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

16. OTHER INFORMATION

Further information

MONOMER END USES

Acrylic and methacrylic monomers are industrial chemicals and intended for industrial use only. They are not intended for direct consumer, medical, cosmetic, or personal uses. Exposure to high levels of acrylic or methacrylic monomer vapors may cause respiratory tract irritation, skin sensitization, or other effects.

DO NOT USE IN APPLICATIONS INVOLVING IMPLANTATION IN THE HUMAN BODY OR PROLONGED CONTACT WITH INTERNAL BODY FLUIDS OR TISSUES. DO NOT USE FOR IN-SITU POLYMERIZATIONS ON, OR ADHESION TO, ANY HUMAN BODY PART.Rohm and Haas Company's acrylic and methacrylic monomers are not designed or manufactured for these uses.

Rohm and Haas Company does not recommend the use of acrylic or methacrylic monomers in medical applications or artificial fingernail extension or replacement applications. Rohm and Haas Company has neither sought, nor received, approval from the FDA or any other agency for these applications. Rohm and Haas Company has not performed technical or clinical testing on the suitability of acrylic or methacrylic monomers in uses involving prolonged contact with human tissues or in artificial fingernail extension or replacement applications. Use of unpolymerized, liquid acrylic or methacrylic monomers in artificial fingernail extension or replacement applications may result in loosening, shedding, fungal infection of nails.

ACRYLIC AND METHACRYLIC POLYMERS ARE USED SAFELY IN A WIDE VARIETY OF APPLICATIONS, INCLUDING PERSONAL CARE AND HYGIENE PRODUCTS.

If you have any questions concerning the safe use of acrylic and methacrylic monomers, please call the manufacturer.

Full text of the R-phrases given in Section 3

R11	Highly flammable.
R36/37/38	Irritating to eyes, respiratory system and skin.
R37/38	Irritating to respiratory system and skin.
R43	May cause sensitization by skin contact.

Legend

ACGIH	American Conference of Governmental Industrial Hygienists
BAc	Butyl acetate
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
STEL	Short Term Exposure Limit (STEL):
TLV	Threshold Limit Value
TWA	Time Weighted Average (TWA):
|	Bar denotes a revision from prior MSDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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