
MATERIAL SAFETY DATA SHEET

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SECTION 1 – CHEMICAL IDENTIFICATION

Trade Name: MAHP
Synonyms: HHPA-HEA Monoester;
Monoacryloyloxyethyl hexahydrophthalate
Formula: C₁₃H₁₈O₆
Chemical Family: Ester/Acrylate/Carboxylic acid
Chemical Use: Chemical intermediate.
Telephone Number: Information (281) 474-3271
**Emergency Number: Chemtrec (800) 424-9300 Domestic
(703) 527-3887 International**

Date of Issue: February 11, 2004
Revised Date: October 30, 2006

HMIS Hazard Rating

Health:	3*	4 = Extreme
Fire:	1	3 = High
Reactivity:	2	2 = Moderate
*-Chronic effect indicator. See Section 11.		1 = Slight
PPE rating to be supplied by user depending on use conditions.		0 = Least

SECTION 2 – HAZARDS IDENTIFICATION

Inhalation: May cause respiratory tract irritation, sneezing, and coughing. May cause respiratory tract sensitization. May aggravate pre-existing respiratory disorders. Chronic exposure may cause bronchitis and asthma.

Skin Contact: May cause irritation. Prolonged contact with skin may cause severe irritation and burns. May cause skin sensitization. May aggravate pre-existing skin disorders.

Eye Contact: May cause severe irritation, redness, pain, blurred vision, and tearing. Corneal injury and burns are also possible.

Ingestion: May cause irritation of the mouth, throat, and gastrointestinal tract.

SECTION 3 – COMPOSITION

<u>Components</u>	<u>Percentage</u>	<u>TLV</u>	<u>CAS #</u>
Cis-1,2-cyclohexanedicarboxylic acid –2-hydroxyethyl acrylate mono ester (MAHP)	>95%	Not Established	57043-35-3
Hexahydrophthalic Anhydride (HHPA)	<0.5	Not Established	85-42-7
2-Hydroxyethyl Acrylate (HEA)	<1.5 %	Not Established	818-61-1

SECTION 4 – FIRST AID MEASURES

- Inhalation: Remove victim to fresh air. If breathing is difficult, give oxygen. If not breathing, administer artificial respiration. Get medical attention.
- Skin Contact: Immediately remove contaminated clothing and shoes. Wipe excess material from skin and flush with water for at least 15 minutes. Use soap if available or follow by washing with soap and water. Do not reuse contaminated clothing without laundering. Get medical attention.
- Eye Contact: Immediately flush with plenty of water for at least 15 minutes. Get medical attention.
- Ingestion: Get medical attention immediately.

SECTION 5 – FIREFIGHTING MEASURES

- Extinguishing Media: Use water, foam, dry chemical, or carbon dioxide (CO₂).
- Special Firefighting Procedures/Precautions: Firefighters should wear NIOSH approved self-contained breathing apparatus. Responders should wear protective clothing to prevent skin contact. Move containers from fire area. If unable to move, cool sealed containers with water.
- Unusual Fire and Explosion Information: Toxic vapors such as oxides of carbon, aldehydes, and organic acids will be emitted upon thermal decomposition.
- Environmental Note: Prevent entry into waterways.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Protective Measures: Evacuate area of unprotected personnel. Eliminate sources of ignition. Stay upwind and out of low areas. Wear personal protective equipment (See section 8) when responding to spills.

Spill Management: Stop source of leak if safe to do so. Dike and contain spill. Use water spray (fog) to reduce vapors. If vapor cloud forms, blanket area with water fog and foam. Use vacuum truck or pump to storage/salvage vessels. Clean up residue with an absorbent such as clay, sand or other suitable material and dispose of properly. Spray area with water to remove trace residue. Contain runoff from residue flush and dispose of properly. Prevent entry into waterways, sewer, or confined areas. Remove contaminated trace residues from soil and dispose of in same manner as material. For small spills, clean up residue with an absorbent such as clay, sand or other suitable material. Place in non-leaking container and dispose of material properly.

Disposal: Proper disposal should be evaluated based on regulatory status of this material (refer to section 13).

SECTION 7 – HANDLING AND STORAGE

Containers do not have to be grounded and bonded when material is transferred but is recommended as a good practice. Store in a cool, dry place. Keep away from heat, sparks, and flames.

SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

Respiratory Protection:	NIOSH approved respiratory protection for organic vapors.
Ventilation:	Utilize local exhaust to control high vapor connections in confined areas.
Protective Gloves:	Utilize appropriate impervious chemical gloves.
Eye Protection:	Chemical goggles and possibly a face shield. Have eyewash facilities readily available.
Other Protective Equipment:	Wear additional protective clothing to prevent skin contact. This may include chemical resistant boots and chemical resistant suits.
Work Practices:	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet facilities. Promptly remove soiled clothing and wash thoroughly before reuse. Shower after work using plenty of soap and water.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point:	>200°C (>392°F) (Decomposes)
Melting Point:	Not Applicable
Molecular Weight:	270
Volatility/Vol. (%):	<0.01%
Viscosity:	5900 – 6600 cps at 25°C (77°F)
Vapor Pressure (mm Hg):	Not Established
Vapor Density (Air = 1):	1.20 @ 25°C (77°F)
Solubility in H ₂ O:	Not Established
Appearance/Odor:	Light colorless viscous liquid / Mild to negligible odor.
Odor Threshold:	Not Established
Specific Gravity (H ₂ O = 1):	1.20 at 25°C (77°F) 1.15 @ 50°C (122°F)
pH:	Acid to Hydrion paper. pH 2-3
Evap. Rate (Butyl Acetate = 1):	Negligible
Flash Point:	159°C (318°F) (Methylcyclopentadiene)
Lower Explosive Limit:	Not Established
Upper Explosive Limit:	Not Established
Autoignition Temperature:	Not Established

SECTION 10 – STABILITY AND REACTIVITY

Chemical Stability:	Stable.
Conditions to Avoid:	Sources of ignition and incompatibles.
Incompatible Materials:	Oxygen free environment.
Decomposition Products:	Oxides of carbon and polymers.
Hazardous Polymerization:	Can potentially polymerize if depleted of oxygen or proper initiator is added.

SECTION 11 – TOXICOLOGICAL INFORMATION

The toxicological effects of this mixture have not been thoroughly investigated. However, 2-Hydroxyethyl Acrylate has produced reproductive effects in long-term animal experiments. It also has produced allergic contact dermatitis for some individuals.

Carcinogenicity listed by:		NTP: No	IARC: No	OSHA: No
ACGIH	MAHP	TLV:	Not Established	STEL: Not Established
	Hexahydrophthalic Anhydride	TLV:	Not Established	STEL: Not Established
	2-Hydroxyethyl Acrylate	TLV:	Not Established	STEL: Not Established
OSHA	MAHP	PEL:	Not Established	STEL: Not Established
	Hexahydrophthalic Anhydride	PEL:	Not Established	STEL: Not Established
	2-Hydroxyethyl Acrylate	PEL:	Not Established	STEL: Not Established

Inhalation: Hexahydrophthalic Anhydride

No deaths observed at 11 mg/m³/4 Hours

2-Hydroxyethyl Acrylate

LCLo: 500 ppm/4 Hours (rat)

Skin: Hexahydrophthalic Anhydride

1.58/8 – 50% in Mineral oil (rabbit) Draize Test

2/8 – 50% Aqueous (rabbit) Draize Test

LD50: >2000 mg/kg (rabbit)

2-Hydroxyethyl Acrylate

10 mg/24 Hours Open Mild (rabbit)

500 mg Open Moderate (rabbit)

LD50: 1010 mg/kg (rabbit)

Eyes: Hexahydrophthalic Anhydride

106/110 at 13 Days – Not Washed (rabbit) Draize Test

39/110 at 24 Hours – Washed after 4 seconds (rabbit) Draize Test

86/110 at 13 Days – Washed after 30 seconds (rabbit) Draize Test

2-Hydroxyethyl Acrylate

1 mg Severe (adult rabbit)

Ingestion: Hexahydrophthalic Anhydride

LD50: 3307 mg/kg (rat)

2-Hydroxyethyl Acrylate

LD50: 650 mg/kg (rat)

SECTION 12 – ECOLOGICAL INFORMATION

Not established.

SECTION 13 – DISPOSAL INFORMATION

Place in a city, state, or federally permitted disposal facility. Handle in accordance with all applicable regulations.

SECTION 14 – TRANSPORTATION INFORMATION**US DOT:**

Proper Shipping Name:	Corrosive liquid, acidic, organic, n.o.s. (Monoacryloyloxyethyl hexahydrophthalate; 2-Hydroxyethyl Acrylate)
Primary Hazard Class:	8
Secondary Hazard Class:	No
Identification Number:	UN 3265
Packing Group:	III
Reportable Quantity:	No
Marine Pollutant:	No
Label(s) Required:	Corrosive

SECTION 15 – REGULATORY INFORMATION

TSCA: All substances are listed on, or are exempt from reporting.

TSCA 12(b) Export Notification: Not Listed

California Proposition 65: Not Listed

SARA Hazard Notification:

Hazard Categories Under Title III: Acute, Chronic.

Section 302 Extremely Hazardous Substances: Not Listed

Section 313 Toxic Chemicals: Not listed.

CERCLA RQ: Not listed.

SECTION 16 – OTHER INFORMATION**PPE Codes (NPCA-HMIS)**

A – Glasses

B – Glasses, Gloves

C – Glasses, Gloves, Apron

D – Faceshield, Gloves, Apron

E – Glasses, Gloves, Dustmask

F – Glasses, Gloves, Apron, Dust Respirator

G – Glasses, Gloves, Vapor Respirator

H – Goggles, Gloves, Apron, Vapor Respirator

I – Glasses, Gloves, Dust/Vapor Respirator

J – Goggles, Gloves, Apron, Dust/Vapor Respirator

K – Supplied Air, Gloves, Full Protective Suit, Boots

Disclaimer

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