

EMS CATALOG NO: 16900  
EMS PRODUCT: HPMA  
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MATERIAL SAFETY DATA SHEET

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FOR PRODUCT AND SALES INFORMATION

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CONTACT ELECTRON MICROSCOPY SCIENCES OFFICE ABOVE.

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PRODUCT IDENTIFICATION

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PRODUCT NAME: HPMA MONOMER

COMPONENT INFORMATION:	CAS REG NO:	AMOUNT (%):
Hydroxypropyl methacrylate	27813-02-1	97 MIN
Other ester adducts	Not Required	2.40 MAX
Methacrylic acid	79-41-4	0.8 MAX
MEHQ	150-76-5	0.035 MAX
1,2-Propylene oxide	75-56-9	0.001 MAX

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EMERGENCY RESPONSE INFORMATION

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FIRST AID:

INHALATION: Move subject to fresh air. If breathing is

difficult, give oxygen. Give artificial respiration if breathing has stopped. Call a physician.

**EYE CONTACT:** IMMEDIATELY flush eyes with a large amount of water for at least 15 minutes. Get prompt medical attention.

**SKIN CONTACT:** Wash skin thoroughly with soap and water. Remove and wash contaminated clothing thoroughly. See a physician.

**INGESTION:** If swallowed, give 2 glasses of water to drink. Never give anything by mouth to an unconscious person. Consult a physician.

**FIRE FIGHTING INFORMATION:**

**UNUSUAL HAZARDS:** Heat can cause polymerization. Heated containers can explode.

**EXTINGUISHING AGENTS:** Carbon dioxide - dry chemical - water spray.

**PERSONAL PROTECTIVE EQUIPMENT:**

Wear self-contained breathing apparatus (pressure-demand MSHA/NIOSH approved or equivalent) and full protective gear.

**SPECIAL PROCEDURES:** EXPLOSION HAZARD. Fight advanced fires from a protected location. Use water spray to cool containers exposed to fire.

**SPILL OR LEAK HANDLING INFORMATION:**

**PERSONAL PROTECTION:**

Appropriate protective equipment must be worn when handling a spill of this material. See the PERSONAL PROTECTION MEASURES Section for recommendations. If exposed to material during clean-up operations, see the FIRST AID PROCEDURES

**PROCEDURES:**

Keep spectators away. 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. See WASTE DISPOSAL Section for information regarding the disposal of contained spills.

**NOTE:** Spills on porous surfaces can contaminate groundwater.

CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

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#### HAZARD INFORMATION

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##### HEALTH EFFECTS FROM OVEREXPOSURE:

PRIMARY ROUTES OF EXPOSURE: Inhalation, dermal absorption, skin contact, eye contact.

INHALATION: May cause irritation of nose and throat.

EYE CONTACT: Can cause the severe irritation or possibly permanent injury.

SKIN CONTACT: This material is harmful if absorbed through the skin. Can cause moderate skin irritation or skin sensitization.

INGESTION: Material is possibly harmful if swallowed.

DELAYED EFFECTS: Prolonged or repeated exposure can cause allergic skin reaction, kidney damage or liver damage

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#### FIRE & EXPLOSION PROPERTIES

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FLASH POINT: 98oC / 208oF Setaflash Closed Cup

AUTO-IGNITION TEMPERATURE: No Data

LOWER EXPLOSIVE LIMIT: No Data

UPPER EXPLOSIVE LIMIT: No Data

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#### REACTIVITY INFORMATION

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##### INSTABILITY:

This material is considered stable under specified conditions of storage, shipment and/or use. See STORAGE AND HANDLING INFORMATION Section for specified conditions. MEHQ is added as a polymerization inhibitor. However, this material can undergo hazardous polymerization. See Hazardous Polymerization for conditions to avoid.

HAZARDOUS DECOMPOSITION PRODUCTS:

There are no known hazardous decomposition products for this material.

HAZARDOUS 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 on unvented closed containers.

INCOMPATIBILITY:

Acids, bases, oxidizing agents, reducing agents, free radical initiators, organic peroxides, mild steel.

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ACCIDENT PREVENTION INFORMATION

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COMPONENT EXPOSURE INFORMATION:

No:	COMPONENT:	CAS REG NO:	AMOUNT (%):
1	Hydroxypropyl methacrylate	27813-02-1	97 MIN
2	Other ester adducts	Not Required	2.40 MAX
3	Methacrylic acid	79-41-4	0.8 MAX
4	MEHQ	150-76-5	0.035 MAX
5	1,2-Propylene oxide	75-56-9	0-001 MAX

EXPOSURE LIMIT INFORMATION:

COMPONENT:		MANUFACTURER:		OSHA:		ACGIH:	
No.	Units:	TWA:	STEL:	TWA:	STEL:	TLV:	STEL:
1	ppm	3 ceiling	None	None	None	None	None
2		a	a	a	a	a	a
3	ppm	20	30	20 Skin	None	20 Skin	None
4	mg/m3	5	None	5	None	5	None
5	ppm	3	6	20	None	20	None

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a Not Required

NOTE: Contact Electron Microscopy Sciences for air monitoring method.

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## PERSONAL PROTECTION MEASURES

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### RESPIRATORY PROTECTION:

A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. None required if airborne concentrations are maintained below the TWA/TLV's listed on the COMPONENT EXPOSURE INFORMATION Section.

Up to 10 times the TWA/TLV: Wear a MSHA/NIOSH approved (or equivalent) half-mask, air-purifying respirator.

Up to 100 times the TWA/TLV: Wear a MSHA/NIOSH approved (or equivalent) full-facepiece, air-purifying respirator.

Above 100 times the TWA/TLV or Unknown: Wear a MSHA/NIOSH approved (or equivalent) self-contained breathing apparatus in the positive pressure mode, or MSHA/NIOSH approved (or equivalent) full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

Air-purifying respirators should be equipped with organic vapor cartridges.

### EYE PROTECTION:

Use chemical splash goggles and face shield (ANSI Z87.1 or approved equivalent). Eye protection worn must be compatible with respiratory protection system employed.

### HAND PROTECTION:

The glove(s) listed below may provide protection against permeation. Gloves of other chemically resistant materials may not provide adequate protection: Nitrile, Neoprene.

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 potential skin sensitizer.

OTHER PROTECTION: Use chemically resistant apron or other impervious clothing to avoid prolonged or repeated skin contact.

**VENTILATION:**

Use local exhaust ventilation with a minimum capture velocity of 100 ft/min. (30 m/min.) 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.

**OTHER PROTECTIVE EQUIPMENT:**

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

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**STORAGE & HANDLING INFORMATION**

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**STORAGE CONDITIONS:**

The maximum recommended storage temperature for this material is 32°C/90°F. Store out of direct sunlight in a cool place. Keep material dry. Moisture may affect product quality. Total absence of oxygen will inactivate the inhibitor. Do not store under oxygen-free environment. Leave air space over liquid surface in all containers introducing air periodically if stored more than 6 months. Use monomer within 1 year. Conduct a stability test on material stored in bulk every month; drums and pails every 3 months using test method TM-1011A available from Electron Microscopy Sciences.

Do not store this material in containers made of mild steel.

**HANDLING PROCEDURES:**

This material is a potential skin sensitizer. See the PERSONAL PROTECTION MEASURES Section prior to handling.

**OTHER:** Containers hazardous when empty. Since emptied containers retain product residue (vapors and/or liquid) follow all MSDS and label warnings even after container is emptied.

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**PHYSICAL DATA**

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<b>APPEARANCE:</b>	Clear
<b>COLOR:</b>	Colorless
<b>STATE:</b>	Liquid
<b>ODOR CHARACTERISTIC:</b>	Pungent, sweet odor
<b>pH:</b>	5 Estimate

VISCOSITY: 7.17 CST @ 30°C/86°F  
SPECIFIC GRAVITY (WATER = 1): 1.028  
VAPOR DENSITY (AIR = 1): > 1  
VAPOR PRESSURE: 0.05 mm Hg @ 20°C/68°F  
MELTING POINT: -89°C/-128°F  
BOILING POINT: 197°C/387°F  
SOLUBILITY IN WATER: 13%  
PERCENT VOLATILITY: 100%  
EVAPORATION RATE (Bac = 1): < 1

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#### TOXICITY DATA

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##### ACUTE DATA:

Oral LD50 - rat: > 5000 mg/kg  
Dermal LD50 - rabbit: > 5000 mg/kg  
Skin Irritation - rabbit: moderate irritation  
Eye Irritation - rabbit: severe irritation

##### SUBCHRONIC/CHRONIC DATA:

Prolonged rabbit dermal exposures to certain 2-Hydroxypropyl methacrylate mixtures resulted in central nervous system effects.

##### SENSITIZATION DATA:

Sensitization - guinea pig: - Allergic response observed.  
Sensitization - human: - Allergic response observed.

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#### DISPOSAL METHODS

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

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#### REGULATORY INFORMATION

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##### WORKPLACE CLASSIFICATIONS:

This product is considered hazardous under the OSHA Hazard Communication Standard (29CFR 1910.1200).

This product is a 'controlled product' under the Canadian Workplace Hazardous Materials Information System (WHMIS).

TRANSPORTATION CLASSIFICATIONS:

US DOT Hazard Class ..... NON-REGULATED

EMERGENCY PLANNING & COMMUNITY RIGHT-TO-KNOW (SARA TITLE 3):

SECTION 311/312 CATEGORIZATIONS (40CFR 370):

This product is a hazardous chemical under 29CFR 1910.1200, and is categorized as an immediate and delayed health, and reactivity physical hazard.

SECTION 313 INFORMATION (40CFR 372):

This product does not contain a chemical which is listed in Section 313 above de minimis concentrations.

CERCLA INFORMATION (40CFR 302.4):

Release of this material to air, land or water are not reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERLCA) or to State and local emergency planning committees under the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304.

RCRA INFORMATION:

When a decision is made to discard this material as supplied, it does not meet RCRA's characteristic definition of ignitability, corrosivity, or reactivity, and is not listed in 40 CFR 261.33. The toxicity characteristic (TC), however, has not been evaluated by the Toxicity Characteristic Leaching Procedure (TCLP).

CHEMICAL CONTROL LAW STATUS:

All components of this product are listed or are excluded from listing on the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

CALIFORNIA PROPOSITION 65: This product contains trace levels of a component or components known to the state of California to cause cancer: Propylene Oxide (75-56-9)

**ABBREVIATIONS:**

ACGIH = American Conference of Governmental Industrial Hygienists  
OSHA = Occupational Safety and Health Administration  
TLV = Threshold Limit Value  
PEL = Permissible Exposure Limit  
TWA = Time Weighted Average  
STEL = Short-Term Exposure Limit  
BAC = Butyl Acetate

**MANUFACTURER  
HAZARD RATING:**

Toxicity: 3  
Fire: 1  
Reactivity: 2  
Special: -

**SCALE:**

4 = Extreme  
3 = High  
2 = Moderate  
1 = Slight  
0 = Insignificant