Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

ETHYL ACRYLATE 15 PPM MEHQ

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Emergency telephone number
1 800 424 9300
Local emergency telephone number
989-636-4400

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2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Ethyl acrylate	140-88-5	>= 99.5 %
Other ester adducts	Not Required	<= 0.5 %
Methoxyphenol	150-76-5	<= 20.0 PPM

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Form	liquid
Colour	clear colorless
Odour	Pungent, sweet odor

Hazard Summary	**DANGER!** CORROSIVE FLAMMABLE LIQUID AND VAPOR. CAUSES SEVERE EYE/SKIN BURNS. CAUSES SEVERE RESPIRATORY TRACT IRRITATION. MAY CAUSE SENSITIZATION BY SKIN CONTACT. CAN BE ABSORBED THROUGH INTACT SKIN. LIVER AND KIDNEY INJURIES MAY OCCUR. REACTIVE MONOMER

Potential Health Effects

Primary Routes of Entry: Inhalation
Eye contact
Skin contact
Dermal Absorption

Eyes: Material can cause the following:
corrosion to eyes
May cause permanent eye injury.

Skin: Material can cause the following:
corrosion to the skin
Can be absorbed through intact skin.
May cause sensitization by skin contact.

Ingestion: Harmful if swallowed.

Inhalation: Inhalation of vapor or mist is
harmful; possibly fatal in high concentrations.
Inhalation of vapor or mist can cause the following:
severe irritation of nose, throat, and lungs

Chronic Exposure: Prolonged or repeated overexposure can cause the following:
kidney damage
liver damage

Carcinogenicity

Component	**List**	**Classification**
Ethyl acrylate	IARC	Possible human carcinogen

4. FIRST AID MEASURES

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

Skin contact: IMMEDIATELY get under a safety shower. Remove contaminated clothing. Wash off with soap and water. Immediate medical attention is required. Wash contaminated clothing before re-use.

Eye contact: Rinse immediately with plenty of water for at least 15 minutes. Get prompt medical attention.

Ingestion: Do NOT induce vomiting. Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. Obtain medical attention.

Notes to physician: Acute effects can include mucosal damage and severe laryngeal edema associated with corrosive agents.

5. FIREFIGHTING MEASURES

Flash point	8 °C (46 °F) SETAFLASH CLOSED CUP
Ignition temperature	371.0 °C (699.80 °F)
Lower explosion limit	1.40 % vol
Upper explosion limit	14.00 % vol

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

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

Special protective equipment for firefighters: 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
This material is corrosive. 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). Use monomer within 1 year to avoid loss of stability or risk of polymerization. Keep container tightly closed. Store material in containers made of the following: Stainless steel glass Aluminium Carbon steel
Storage temperature: <= 38 °C (<= 100 °F)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit(s)

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value
Ethyl acrylate	Rohm and Haas	TWA	5 ppm
Ethyl acrylate	Rohm and Haas	STEL	15 ppm
Ethyl acrylate	Rohm and Haas	Absorbed via skin	
Ethyl acrylate	ACGIH	TWA	5 ppm
Ethyl acrylate	ACGIH	STEL	15 ppm
Ethyl acrylate	OSHA P1	TWA	100 mg/m3 25 ppm
Ethyl acrylate	OSHA P0	TWA	20 mg/m3 5 ppm
Ethyl acrylate	OSHA P0	STEL	100 mg/m3 25 ppm
Ethyl acrylate	NIOSH REL		
Methoxyphenol	Rohm and Haas	TWA	5 mg/m3
Methoxyphenol	Rohm and Haas	STEL	10 mg/m3
Methoxyphenol	Rohm and Haas	Absorbed via skin	
Methoxyphenol	ACGIH	TWA	5 mg/m3
Methoxyphenol	OSHA P0	TWA	5 mg/m3
Methoxyphenol	NIOSH REL	TWA	5 mg/m3

Exposure controls
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.

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

Individual protection measures

Eye/face 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.

Skin protection

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 may be absorbed through the skin in harmful amounts. NOTE: Material is a possible skin sensitizer. Reference: Basic Acrylic Monomer Manufacturers, Inc., "Chemical-Protective Gloves for Acrylic Acid and Acrylate Esters", September 1999.

Other protection: Wear as appropriate: Chemical resistant apron Complete suit protecting against chemicals

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Form	liquid
Colour	clear colorless
Odour	Pungent, sweet odor
Melting point/range	-71.2 °C (-96.2 °F)
Boiling point/boiling range	99 °C (211.6 °F) at 1,013 hPa
Flash point	8 °C (46 °F) SETAFLASH CLOSED CUP
Evaporation rate	1 Butyl acetate
Lower explosion limit	1.40 % vol
Upper explosion limit	14.00 % vol
Vapour pressure	31.0 mmHg at 20 °C (68 °F)
Relative vapour density	3.5

Relative density	0.92 at 20 °C (68 °F)
Water solubility	20 g/L at 20 °C (68 °F)
Partition coefficient: n-octanol/water	log Pow: 1.18 at 25 °C (77 °F)
Autoignition temperature	371 °C (699.80 °F)
Density	0.92 g/cm3 at 20 °C (68 °F)
Viscosity, dynamic	0.540 mPa.s at 25.00 °C (77.00 °F)
Surface tension	Not Surface Active

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

10. STABILITY AND REACTIVITY

Hazardous reactions Stable under recommended storage conditions.
Inhibitor is added to this product to prevent polymerization. However, this material can undergo hazardous polymerization. See Hazardous Polymerization for conditions to avoid.

Conditions to avoid Exposure to elevated temperatures can cause product to decompose. Avoid static discharge. Avoid moisture. Avoid direct sunlight or ultraviolet sources.

Materials to avoid Avoid contact with the following: Amines Aldehydes free radical initiators halides mercaptans Mineral acids Oxidizing agents Reducing agents UV light Peroxides Strong bases Avoid contact with metals such as: Brass.

Hazardous decomposition products There are no known hazardous decomposition products for this material.,

polymerisation 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

Toxicological information on this product or its components appear in this section when such data is available.

Acute oral toxicity LD50 rat male 1,120 mg/kg

Acute inhalation toxicity LC50 rat 4 Hour 12.9 mg/l OECD Test Guideline 403

Skin irritation Irritating to skin. Moderate irritation.

Eye irritation rabbit Irritating to eyes. moderate to severe.

Sensitisation Skin sensitiser May cause sensitization by skin contact.

Subchronic toxicity Inhalation nasal tissue damage

Carcinogenicity:
Not classifiable as a human carcinogen.
Reproductive toxicity
For similar material(s): In animal studies, did not interfere with reproduction.
Teratogenicity
Developmental effects were seen in laboratory animals only at dose levels that were maternally toxic.
Genetic Toxicity in vitro In vitro genetic toxicity studies were negative in some cases and positive in other cases.
Genetic Toxicity in vivo Animal genetic toxicity studies were negative.
Mutagenicity
Weight of evidence suggests that the substance is not genotoxic.

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.

Component: **Ethyl acrylate**
Acute dermal toxicity LD50 rat male 3,049 mg/kg

Component: **Methoxyphenol**
Acute dermal toxicity LD0 rabbit 2,000 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.
Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

Elimination information (persistence and degradability)
Biodegradability aerobic OECD Test Guideline 310 or Equivalent Readily biodegradable.
80 - 90 %
Readily biodegradable
10-day Window: Pass

Physico-chemical removability 28-Day Hydrolysis Study:
Rapidly hydrolyzed under alkaline conditions.

Bioaccumulation Fish ()
Bioconcentration factor (BCF): 2

Ecotoxicity effects

Toxicity to fish	flow-through test LC50 Oncorhynchus mykiss (rainbow trout) 96 Hour 4.6 mg/l
Toxicity to fish	flow-through test LC50 Cyprinodon variegatus (sheepshead minnow) 96 Hour 2.0 mg/l
Toxicity to algae	static test EC50 (cell density) Pseudokirchneriella subcapitata (green algae) 72 Hour OECD Test Guideline 201 or Equivalent 4.5 mg/l
Toxicity to bacteria	Respiration inhibition EC10 Bacteria (active sludge) 72 Hour > 100 mg/l
Toxicity to aquatic invertebrates	flow-through test EC50 Daphnia magna 48 Hour 7.9 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
Waste Classification: 40 CFR 261.30 - .38 - Listed Waste U113
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.

14. TRANSPORT INFORMATION

DOT

Proper shipping name	Ethyl acrylate, stabilized
UN number	UN 1917
Class	3
Packing group	II
Reportable Quantity	Ethyl acrylate

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ETHYL ACRYLATE, STABILIZED
UN number	UN 1917
Class	3
Packing group	II

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

15. REGULATORY INFORMATION

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

SARA TITLE III: Section 311/312 Categorizations (40CFR370): Acute Health Hazard
Chronic Health Hazard
Fire Hazard
Reactivity Hazard

SARA TITLE III: Section 313 Information (40CFR372)
This product contains a chemical which is listed in Section 313 at or above de minimis concentrations. The following listed chemicals are present: (Quantity present is found elsewhere on this MSDS.)

SARA Title III Components:	Ethyl acrylate	140-88-5

CERCLA Information (40CFR302.4)
This material is regulated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)and the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304. This material is or contains chemical(s) listed in 40 CFR Table 302.4 or nondesignated RCRA ICR substance(s). (Nondesignated ICR substances apply to materials that will not be reused.) The Reportable Quantity(s) (RQ) are listed below. Releases in excess of its reportable quantity must be reported to the National Response Center (1-800-424-8802) and to the appropriate state and local emergency response organizations.

Ethyl acrylate	140-88-5	1000 lbs RQ

United States TSCA Inventory (US.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.

Pennsylvania
The following chemicals are listed because of the additional requirements of Pennsylvania law:

Components:	Ethyl acrylate	140-88-5

California (Proposition 65)
This product contains a component or components known to the state of California to cause cancer:

Components:	Ethyl acrylate	140-88-5

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.

HMIS Hazard Rating

Health	Fire	Reactivity	Physical Hazard	PPE
*3	3	2		

* = Chronic Effects (See Hazards Identification)

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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