

# MATERIAL SAFETY DATA SHEET — Ethyl Acrylate

## SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier Ethyl Acrylate 10-20 PPM MEHQ		[WHMIS Classification]	
Product Use			
Manufacturer's Name		Supplier's Name Ayers International Corp.	
Street Address		Street Address P.O. Box 4312	
City	State	City Greenwich	State CT
Postal Code	Emergency Telephone	Postal Code 06831	Emergency Telephone (800) 424 - 9300
Date MSDS Prepared 07/20/2010	MSDS Prepared By J. Miller	Phone Number (203) 329 - 8919	

## SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients ( <i>specific</i> )	%	CAS Number	LD <sub>50</sub> of Ingredient ( <i>specify species and route</i> )	LC <sub>50</sub> of Ingredient ( <i>specify species</i> )
Ethyl Acrylate	99.8-100.0	140-88-5		
Hazardous Ingredients ( <i>specific</i> )				

## SECTION 3 — HAZARDS IDENTIFICATION

Route of Entry Skin contact, eye contact, skin absorption, inhalation, ingestion

**Danger!** Flammable liquid and vapor. Causes burns of the mouth and throat. Causes eye irritation. Prolonged exposure may cause skin burns. Harmful if absorbed through skin. May cause allergic skin reaction. Causes respiratory tract irritation. May cause skin irritation. May be harmful if inhaled. May be harmful if swallowed. Aspiration hazard. Can enter lungs and cause damage. Vapor explosion hazard. Vapors may travel a long distance; ignition and/or flash back may occur. Evacuate area. Keep upwind of spill. Stay out of low areas. Warn public of downwind explosion hazard. Elevated temperatures can cause hazardous polymerization. Avoid temperatures above 38°C.

### Potential Health Effects

**Eye Contact:** May cause severe eye irritation. May cause severe corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness.

**Skin Contact:** Brief contact may cause moderate skin irritation with local redness. Prolonged contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.

**Skin Absorption:** Prolonged or widespread skin contact may result in absorption of harmful amounts.

**Skin Sensitization:** Skin contact may cause an allergic skin reaction.

**Inhalation:** Vapor concentrations are attainable which could be hazardous on single exposure. Excessive exposure may cause severe irritation to upper respiratory tract (nose and throat) and lungs. May cause headache and nausea due to odor. The odor of ethyl acrylate is noticeable at very low concentrations.

**Ingestion:** Low toxicity if swallowed. Swallowing may result in gastrointestinal irritation or ulceration. Swallowing may result in burns of the mouth and throat. Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

**Effects of Repeated Exposure:** In animals, effects have been reported on the following organs: nasal tissue.

**Cancer Information:** Has caused cancer in some laboratory animals. An increased incidence of stomach tumors was seen in animals given daily doses of ethyl acrylate. Tumors were judged to result from irritation. Long-term studies by more relevant routes of exposure (skin, inhalation) were negative. Workers exposed during 1933-1945 to very high vapor concentrations of ethyl acrylate and methyl methacrylate, and to volatile by-products of the ethyl acrylate/methyl methacrylate polymerization process, showed an increase in deaths due to colorectal cancer. Such increases were not observed in workers exposed after that time. Although suggestive, these findings do not establish a causal relationship between high level exposure to these acrylates and colorectal cancer.

## SECTION 4 — FIRST AID MEASURES

**Skin Contact:** Immediately wash skin with soap and plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Obtain medical attention without delay. Wash clothing before reuse. Destroy contaminated articles such as shoes.

**Eye Contact:** Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist.

**Inhalation:** Move person to fresh air. If not breathing, give artificial respiration: if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

**Ingestion:** Do not induce vomiting. Give one cup (8 ounces or 240 ml) of water or milk if available and transport to a medical facility. Do not give anything by mouth to an unconscious person.

**Notes to Physician:** Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. Maintain adequate ventilation and oxygenation of the patient. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

## SECTION 5 — FIRE FIGHTING MEASURES

Flammable <input type="checkbox"/> Yes	If yes, under which conditions?
<b>Means of Extinction:</b> Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Do not use direct water stream. Straight or direct water streams may not be effective to extinguish fire. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.	
<b>Fire Fighting Procedures:</b> Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Water may not be effective in extinguishing fire. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Do not use direct water stream. May spread fire. Eliminate ignition sources. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Avoid accumulation of water. Product may be carried across water surface spreading fire or contacting an ignition source.	
<b>Hazardous Combustion Products:</b> During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: carbon monoxide, carbon dioxide.	
<b>Unusual Fire and Explosion Hazards:</b> Container may vent and/or rupture due to fire. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Flammable mixtures may exist within the vapor space of containers at room temperature. Flammable concentrations of vapor can accumulate at temperatures above flash point; see Section 9.	

## SECTION 6 — ACCIDENTAL RELEASE MEASURES

### Leak and Spill Procedures

**Steps To be Taken if Material is Released or Spilled:** For small spills, absorb with materials such as: non-combustible material. Dirt. Sand. For large spills, dike area to contain spill. Contain spilled material if possible. Ground and bond all containers and handling equipment. Collect in suitable and properly labeled containers. Pump with explosion-proof equipment. If available, use foam to smother or suppress. See Section 13, Disposal Considerations, for additional information.

**Personal Precautions:** Evacuate area. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Only trained and properly protected personnel must be involved in clean-up operations. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. For large spills, warn public of downwind explosion hazard. Check area with combustible gas detector before reentering area. Ground and bond all containers and handling equipment. Vapor explosion hazard. Refer to Section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. See Section 10 for more specific information.

**Environmental Precautions:** Material may float on water and any runoff may create an explosion or fire hazard if ignited. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

## SECTION 7 — HANDLING AND STORAGE

### Handling Procedures and Equipment

**General Handling:** Keep away from heat, sparks, and flame. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Never use air pressure for transferring product. No smoking, open flames or sources of ignition in handling and storage area. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Electrically bond and ground all containers and equipment before transfer or use of material. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. See Section 8, Exposure Controls and Personal Protection.

### Storage Requirements

Minimize sources of ignition, such as static build-up, heat, spark or flame. Keep container closed. Store in a dry place. Store away from direct sunlight or ultraviolet light. Store away from incompatible materials. See Stability and Reactivity section. Maintain inhibitor and dissolved oxygen level. Do not purge containers of this material with nitrogen. Recommended inhibitor level is: 10 to 20 ppm. Recommended oxygen level is: 5 to 8 vol %. Uninhibited monomer vapors can polymerize and plug relief devices. See Section 10 for more specific information. When appropriate, unique handling information for containers can be found on the product label. Ask for a product brochure.

**Shelf Life:** Use within 12 months

**Storage Temperature:** <38°C

## SECTION 8 — EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure Limits	Component	List	Type	Value
Specific Engineering Controls ( <i>such as ventilation, enclosed process</i> )	Ethyl Acrylate	ACGIH	TWA	5 ppm
<b>Ventilation:</b> Use engineering controls to maintain airborne level below exposure limit requirements of guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.		ACGIH	STEL	15 ppm
		OSHA Table Z-1	PEL	100 mg/m <sup>3</sup> 25 ppm SKIN
	A "skin" notation following the exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact. It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.			

**Personal Protective Equipment**

**Eye/Face Protection:** Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

**Skin Protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Safety shower should be located in immediate work area. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly. Items which cannot be decontaminated, such as shoes, belts, and watchbands, should be removed and disposed of properly.

**Hand Protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Chlorinated polyethylene, polyethylene, ethyl vinyl alcohol laminate. Polyvinyl alcohol. Styrene/butadiene rubber. Examples of acceptable glove barrier materials include: butyl rubber. Nitrile/butadiene rubber. Polyvinyl chloride. Viton. Avoid gloves made of: Neoprene.

NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Respiratory Protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements of guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive-pressure air line with auxiliary self-contained air supply. The following should be effective types of air-purifying respirators: organic vapor cartridge.

**Ingestion:** Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

## SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

Physical State Liquid	Odor and Appearance Colorless, obnoxiousless	Dynamic Viscosity .55 cps @ 25°C
Liquid Density .923 g/cm <sup>3</sup> @ 20°C	Vapor Density (air = 1) 3.5	Vapor Pressure (mmHg) 28.8 mmHg @ 20°C
Evaporation Rate 3.3	Boiling Point (° C) 100	Freezing Point (° C) -71°C
Flash Point-Closed Cup 9°C	Flash Point-Open Cup 20°C	Solubility in Water 1.85% @ 25°C
Flammable Limits in Air Lower: 1.7%(V) – Upper: 11.8%(V)	Autoignition Temperature 383°C	Molecular Weight 100.12 g/mol

## SECTION 10 — STABILITY AND REACTIVITY

**Stability/Instability:** Stable under recommended storage conditions. See Storage, Section 7. Unstable at elevated temperatures. Hygroscopic.

**Conditions to Avoid:** Avoid temperatures above 38°C. Exposure to elevated temperatures can cause product to decompose. Avoid static discharge. Avoid moisture. Do not blanket or purge with an inert gas to avoid depleting the oxygen concentration. Avoid direct sunlight or ultraviolet sources.

**Inhibitor:** Methyl ether of hydroquinone. Inhibitor Concentration (ppm): 10-1,100

**Incompatible Materials:** Avoid contact with oxidizing materials. Avoid contact with: aldehydes, amines, azides, ethers, free radical initiators, halides, mercaptans, mineral acids, peroxides, strong inorganic bases. Avoid contact with metals such as brass, copper. Avoid unintended contact with activated carbon. Avoid contact with absorbent materials such as clay based absorbents, aluminum oxide, silica gel. Avoid unintended contact with peroxides.

**Hazardous Polymerization:** Can occur. Elevated temperatures can cause hazardous polymerization. Maintain inhibitor and dissolved oxygen level. Do not purge containers of this material with nitrogen. Polymerization can be catalyzed by absence of air, free radical initiators, high temperature, and peroxides. Presence of water can accelerate rate of polymerization. Uninhibited monomer vapors can polymerize and plug relief devices.

**Thermal Decomposition:** Decomposition products depend upon temperature, air supply and the presence of other materials.

## SECTION 11 — TOXICOLOGICAL INFORMATION

Effects of Acute Exposure

**Ingestion:** LD50, Rat >500 mg/kg

**Skin Absorption:** LD50, Rabbit 462 – 1,800 mg/kg

Effects of chronic exposure

Has caused cancer in some laboratory animals. An increase incidence of stomach tumors was seen in animals given daily oral doses of ethyl acrylate. Tumors were judged to result from irritation. Long-term studies by more relevant routes of exposure (skin, inhalation) were negative. Workers exposed during 1933-1945 to very high vapor concentrations of ethyl acrylate and methyl methacrylate, and to volatile by-products of the ethyl acrylate/methyl methacrylate polymerization process, showed an increase in deaths due to colorectal cancer. Such increases were not observed in workers exposed after that time. Although suggestive, these findings do not establish a causal relationship between high level exposure to these acrylates and colorectal cancer.

Irritancy of Product

Skin sensitization: Skin contact may cause an allergic skin reaction.

Repeated Dose Toxicity: In animals, effects have been reported on the following organs: nasal tissue.

Carcinogenicity-IARC: Possible carcinogen.; 2B

Carcinogenicity - ACGIH

Developmental Toxicity: Did not cause birth defects or any other fetal effects in laboratory animals.

Genetic Toxicity: In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were negative in some cases and positive in other cases.

Embrototoxicity

Mutagenicity

Name of synergistic products/effects

## SECTION 12 — ECOLOGICAL INFORMATION

**Movement & Partitioning:** Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is very high (Koc between 0 and 50).

**Henry's Law Constant (H):** 2.54E-4 atm\*m3/mole; 25oC Estimated

**Partition Coefficient, n-octanol/water (log Pow):** 1.32 Measured

**Partition Coefficient, soil organic carbon/water (Koc):** 12 Estimated

**Persistence and Degradability:** Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental

Indirect Photodegradation with OH Radicals		
Rate Constant	Atmospheric Half-Life	Method
1.09E-11 cm3/s	11.8h	Estimated

OECD Biodegradation Tests		
Biodegradation	Exposure Time	Method
> 60%	11d	OECD 302B Test
52%	14d	OECD 301C Test

Biological Oxygen Demand (BOD)			
BOD 5	BOD 10	BOD 20	BOD 208
18%	27%	50%	

conditions. Material is inherently biodegradable (reaches >20% biodegradation in OECD test(s) for inherent biodegradability).

**Ecotoxicity**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10mg/L in most sensitive species tested).

**Fish Acute & Prolonged Toxicity:** LC50, rainbow trout (*Oncorhynchus mykiss*), flow-through, 96h: 4.6 mg/l. LC50, sheepshead minnow (*Cyprinodon variegates*), 96h: 2.0 mg/l

**Aquatic Invertebrate Acute Toxicity:** EC50, water flea *Daphnia magna*, 48h, immobilization: 5.9 mg/l

**Aquatic Plant Toxicity:** EC50, green alga *Selenastrum capricornutum*, biomass growth inhibition, 96h: 11 mg/l

over the management practices or manufacturing processes or parties handling or using this material. The information presented here pertains only to the product as shipped in its intended condition as described in MSDS Section: Composition Information. For unused and uncontaminated product, the preferred options include sending to a licensed, permitted: incinerator or other thermal destruction service.

## SECTION 14 — TRANSPORT INFORMATION

<p><b>DOT Non-Bulk</b>          Proper Shipping Name: Ethyl Acrylate, Stabilized          Hazard Class: 3 ID Number: UN1917 Packing Group: PG II</p> <p><b>DOT Bulk</b>          Proper Shipping Name: Ethyl Acrylate, Stabilized          Hazard Class: 3 ID Number: UN1917 Packing Group: PG II</p> <p><b>IMDG</b>          Proper Shipping Name: Ethyl Acrylate, Stabilized          Hazard Class: 3 ID Number: UN1917 Packing Group: PG II          EMS Number: F-E, S-D          Marine Pollutant: No</p>	<p><b>ICAO/IATA</b>          Proper Shipping Name: Ethyl Acrylate, Stabilized          Hazard Class: 3 ID Number: UN1917 Packing Group: PG I          Cargo Packaging Instruction: 307          Passenger Packing Instruction: 305</p> <p><b>Additional Information</b>          Reportable quantity: 1,000 lb – Ethyl Acrylate</p> <p>This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.</p>
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## SECTION 15 — REGULATORY INFORMATION

<b>OSHA Hazard Communication Standard</b>	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200
<b>Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312</b>	<i>Immediate (Acute) Health Hazard: Yes</i> <i>Delayed (Chronic) Health Hazard: Yes</i> <i>Fire Hazard: Yes</i> <i>Reactive Hazard: Yes</i> <i>Sudden Release of Pressure Hazard: No</i>
<b>Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Right-to-Know Act of 1986) Section 313</b>	This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372. <i>Component: Ethyl Acrylate</i> <i>CAS #: 140-88-5</i> <i>Amount: &lt;=100.0%</i>
<b>Pennsylvania (Worker and Community Right-to-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List</b>	The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting. <i>Component: Ethyl Acrylate</i> <i>CAS #: 140-88-5</i> <i>Amount: &lt;=100.0%</i>
<b>Pennsylvania (Worker and Community Right-to-Know Act): Pennsylvania Special Hazardous Substances List</b>	The following product components are cited in the Pennsylvania Special Hazardous Substances List, and are present at levels which require reporting. <i>Component: Ethyl Acrylate</i> <i>CAS #: 140-88-5</i> <i>Amount: &lt;=100.0%</i>
<b>California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)</b>	WARNING: This product contains a chemical(s) known to the State of California to cause cancer. <i>Component: Ethyl Acrylate</i> <i>CAS #: 140-88-5</i> <i>Amount: &lt;=100.0%</i>
<b>US Toxic Substances Control Act</b>	All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30
<b>CEPA – Domestic Substances List (DSL)</b>	All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

SECTION 16 — OTHER INFORMATION

**Hazard Rating System:**

**NFPA**

Health: 3

Fire: 3

Reactivity: 1

**Recommended Uses and Restrictions:** Chemical intermediate

*Ayers International Corp. urges each customer or recipient of this MSDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this MSDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific MSDSs, we are not and cannot be responsible for MSDSs obtained from any source other than ourselves.*