

1. PRODUCT NAME: Ethyl Acrylate
2. CHEMICAL NAME: Acrylic Acid, Ethyl Ester
3. SYNONYMS:
4. CAS NUMBER: 140-88-5
5. COMPOSITION: Acrylic Acid, Ethyl Ester (140-88-5) - 100%

IN CASE OF
TRANSPORT EMERGENCY
CONTACT CHEMTREC
USA: 1-800-424-9300
INTERNATIONAL: 1-703-527-3887

6. PROPERTIES: ODOR & APPEARANCE: clear, colorless liquid with sharp, pungent, acrid, "hot plastic" odor
ODOR THRESHOLD: 0.2-0.4ppb (Note: 1000ppb = 1ppm)
VAPOUR PRESSURE: approx. 30mmHg/4kPa (20 c)
EVAPORATION RATE (butyl Acetate=1): 3.3
VAPOR DENSITY (air=1): 3.5
BOILING RANGE: 100 c/212 F
FREEZING POINT: -71 F/-96 F
SPECIFIC GRAVITY: 0.923 (20/20 c)
WATER SOLUBILITY: 15 – 20 grams per litre (20 c)
IN OTHER SOLVENTS: soluble in many alcohols, ethers and ketones
VISCOSITY: 0.75 centipoise (20 c)
PH: none – does not liberate hydrogen ions when dissolved
FLASH POINT: 8 c/46 F (closed cup) – also reported as 16 c/60 F
AUTOIGNITION TEMPERATURE: 375 c/671 F
FLAMMABLE LIMITS: 1.4% - 12.1%
COMBUSTION PRODUCTS: carbon monoxide, nitrogen oxides, smoke, part oxidized hydrocarbon fragments
FIREFIGHTING PRECAUTIONS: foam, dry chemical, water fog, water spray only to cool & dilute, product floats on water – water jet spreads flames; firefighters must wear SCBA
STATIC DISCHARGE: unlikely to accumulate a static charge
MECHANICAL IMPACT: not sensitive
CHEMICAL STABILITY: unstable; may polymerize if heated or allowed to contact materials listed below
REACTIVE WITH: strong oxidizing agents; catalysts such as copper, iron, moisture, or azo compounds; may react violently with strong acids, alkalis; may soften or even dissolve certain plastics.
DECOMPOSITION PRODUCTS: may polymerise violently when heated or exposed to bright light; oxygen-free conditions may also initiate polymerization

7. HAZARDS: HMIS (USA): Health - 3, Fire - 3, Reactivity - 2

8. FIRE FIGHTING INFORMATION: foam, dry chemical, water fog, water spray only to cool & dilute, product floats on water – water jet spreads flames; firefighters must wear SCBA

9. PERSONAL PROTECTION MEASURES: HANDS: "Teflon", "responder", "Tychem" gloves recommended – consult supplier to confirm suitability
EYES: safety glasses with side shields or chemical goggles – always protect the eyes
VENTILATION: product should be always processed in sealed apparatus; storage areas should be ventilated to ensure no accumulation of vapor; respirators with organic vapor cartridges should be available at the workplace (kept in air-tight containers) for escape purpose should vapor be released
CLOTHING: impermeable (hands, above) boots, apron, and long sleeves if there is any danger of splashing



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10. FIRST AID PROCEDURES: SKIN: Wash with soap and plenty of water. Remove contaminated clothing and do not reuse until thoroughly cleaned or laundered.
EYES: Wash eyes with plenty of water, holding eyelids open. Seek medical assistance promptly if there is irritation.
INHALATION: Remove from contaminated area promptly. CAUTION: Rescuer must not endanger himself! If breathing stops, administer artificial respiration and seek medical aid promptly.
INGESTION: Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim's head below hips to prevent inhalation of vomited material. Seek medical help promptly.
NOTE: Inadvertent inhalation of vomited material may seriously damage the lungs. The risk and danger of this is greater than the risk of poisoning through absorption of this relatively low-toxicity product. The stomach should only be emptied under medical supervision, after the installation of an airway to protect the lungs.
11. EXPOSURE LIMITS: TWAEV ppm/mg/m³: 5/20
LD50 ORAL: 370
SKIN (mg/kg): 3000
LC50ppm INHALATION: 1400
IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH): NIOSH has recommended that ethyl acrylate be treated as a potential human carcinogen.
ALLOWABLE TOLERANCE: /Polymers of Acrylic Acid Esters/ are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only.
OSHA STANDARDS: Permissible Exposure Limit: Table Z-1 8-hr Time Weighted Avg: 25ppm (100mg/cu m). Skin Designation. Vacated 1989 OSHA PEL TWA 5ppm (20mg/cu m); STEL 25ppm (100mg/cu m), skin designation, is still enforced in some states.
NIOSH RECOMMENDATIONS: NIOSH Recommends that ethyl acrylate be regulated as a potential human carcinogen. NIOSH usually recommends that occupational exposure to carcinogens be limited to the lowest feasible concn.
THRESHOLD LIMIT VALUES
8 hr Time Weighted Avg (TWA): 5ppm; 15 min Short Term Exposure Limit (STEL) 15ppm. A4. A4 = Not classifiable as a human carcinogen.
OTHER OCCUPATIONAL PERMISSIBLE LEVELS
Australia: 5ppm, peak limitation, sensitizer ... (1990); Federal Republic of Germany: 5ppm, short-term level 10ppm, 5min, 8 times per shift, sensitizer (1990); Sweden: 10ppm: 10ppm, 15min short-term value 15ppm, skin, sensitizer (1989); United Kingdom: 5ppm, 10 min STEL 15ppm, skin (1991)
12. TOXICOLOGICAL INFORMATION: EFFECTS ACUTE EXPOSURE
SKIN CONTACT: brief exposure mildly irritating – causes tissue necrosis (burns) if contact continues
SKIN ABSORPTION: slight; no toxic effects likely by this route
EYE CONTACT: liquid irritating – depends on duration of contact, can destroy cornea causing blindings; vapor very irritating – causes tears
INHALATION: vapor is highly irritating, and may cause life threatening pulmonary oedema
Note: High vapor pressure makes this substance particularly dangerous if spilled.
INGESTION: may cause mouth and throat irritation and stomach discomfort; may cause diarrhoea
EFFECTS OF CHRONIC EXPOSURE
GENERAL: prolonged exposure causes severe irritation, blistering and corrosion
SENSITISING: yes – cases of human sensitization have been reported
REPRODUCTIVE EFFECT: no known effect in humans; no animal data available
SYNERGISTIC WITH: not known



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LD50: 800mg/kg (oral, rat), 1800mg/kg (oral, mouse), 370mg/kg (oral, rabbit); 3000mg/kg (skin, rabbit)
LC50: 4000ppm (inhalation, mouse), 1400ppm (inhalation, rat)

13. **ECOLOGICAL INFORMATION:** This product is readily metabolized and cannot accumulate in living tissue; this product is readily and rapidly biodegradable in the presence of oxygen; 60-100% degrades in 1-2 weeks (various test results); half-life in air estimated at 2 days.
14. **DISPOSAL CONSIDERAIONS:** DO NOT FLUSH TO SEWER; may be incinerated in approved facility.
15. **CARCINOGENIC PROPERTIES & NOTIFICATIONS:** Not considered a tumorigen or a carcinogen in humans or animals;
Note: One study found stomach cancer in rodents after oral doses. This is not a normal route of industrial exposure. Extensive testing failed to find skin or lung cancer following skin application or chronic inhalation.
16. **TRANSPORT INFORMATION:** USA 49 CFR
Product identification number: UN – 1917
Shipping name: Ethyl Acrylate, stabilised
Classification: Class 3; Packing Group II
Label: flammable liquid, Class 3
WHMIS Class: B2, D 1A, D 2A, E, F
17. **HANDLING & STORAGE:** Store and use a cool (below 10 c) dry environment, away from sources of ignition, heat and oxidizing agents. This product contains a polymerization inhibitor which is gradually depleted. If stored, check inhibitor titre frequently and replenish if required. Do not store in low or Zero oxygen environment – polymerization inhibitor does not work under these conditions! All electrical and mechanical equipment used with or around this product should be explosion-proof. Use non-sparking bronze or aluminium hand tools. Use with adequate ventilation. Do not cut, drill, weld or grind on or near this container. Avoid prolonged contact with skin and wash work clothes frequently. An eye bath and safety shower should be available near the workplace.
Note: The stored product may polymerize gradually in vents and flame arrestors, blocking them. If blockage is serious enough, the contained vessel may rupture. Check containment vessel venting regularly for patency.
18. **ACCIDENTAL RELEASE MEASURES:** LEAK PRECAUTION: dyke to control spillage and prevent environmental contamination. Fire Potential: blanket spill with foam as a precaution against accidental ignition. Take care to avoid sparks – do not operate (turn on OR off) electrical appliances near spill, unless explosion proof.
HANDLING SPILL: ventilate contaminated area thoroughly; recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep & pick up using non-sparking plastic aluminium shovel & store in closed containers for recycling or disposal.
19. **REGULATORY INFORMATION:** IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH): NIOSH has recommended that ethyl acrylate be treated as a potential human carcinogen.
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ATMOSPHERIC STANDARDS: This action promulgates standards of performance for equipment leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemical Manufacturing Industry (SOC-MI). The intended effect of these standards is to require all newly constructed, modified, and reconstructed SOCMI process units to use the best demonstrated system of continuous emission reduction for equipment leaks of VOC, considering costs, non air quality health and environmental impact and energy requirements. Ethyl acrylate is produced, as an intermediate or final product, by process units covered under this subpart.

STATE DRINKING WATER GUIDELINES: Florida 5,000 ug/l

CERCLA REPORTABLE QUANTITIES: Persons in charge of vessels or facilities are required to notify the National Response Center (NRC) immediately, when there is a release of this designated hazardous substance, in an amount equal to or greater than its reportable quantity of 1000 lb or 454 kg. The NRC toll free number is (800) 424-8802; In the Washington D.C metropolitan area (202) 426-2675. The rule for determining when notification is required is stated in 40 CFR 302.4. (section IV. D.3.b).

TSCA REQUIREMENTS

Pursuant to section 8(d) of TSCA, EPA promulgated a model Health and Safety Data Reporting rule. The section 8(d) model rule requires manufactures, importers, and processors of listed chemical substances and mixtures to submit to EPA copies and lists of unpublished health and safety studies. Ethyl acrylate is included on this list.

RCRA REQUIREMENTS

U113; As stipulated in 40 CFR 261.33, when ethyl acrylate, as a commercial chemical product or manufacturing chemical intermediate or an off-specification commercial chemical product or a manufacturing chemical intermediate, becomes a waste, it must be managed according to Federal and/or State hazardous waste regulations. Also defined as a hazardous waste is any residue, contaminated soil, water, or other debris resulting from the cleanup of a spill, into water or on dry land, of this waste. Generators of small quantities of this waste may qualify for partial exclusion from hazardous waste regulations (40 CFR 261.5).

FIFRA REQUIREMENTS

/Polymers of acrylic acid esters/ are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only.

FDA REQUIREMENTS

Ethyl acrylate is a food additive permitted for direct addition to food for human consumption in accordance with the following conditions: a) they are used in the minimum quantity required to produce their intended effect, and otherwise in accordance with all the principles of good manufacturing practice, and b) they consist of one or more of the following, used alone or in combination with flavoring substances and adjuvants generally recognized as safe in food, prior-sanctioned for such use, or regulated by an appropriate section in this part. Homopolymers and copolymers of Ethyl acrylate are an indirect food additive for use only as a component of adhesives used in the manufacture of paper and paperboard products used in food packaging shall include /ethyl acrylate copolymers of itaconic acid or methacrylic acid/ for use only on paper and paperboard which is waxed. Under the conditions of normal use, these substances would not reasonably be expected to migrate to food, based on available scientific information and data.