

BASIC ACRYLIC MONOMER MANUFACTURERS, INC.

GLOBAL PRODUCT SUMMARY: ETHYL ACRYLATE

(Last Updated: March 8, 2023)

[Disclaimer](#)

SUBSTANCE NAME

Ethyl acrylate

GENERAL STATEMENT

Ethyl acrylate (EA) is used in the production of coatings and inks, adhesives, sealants, plastics and elastomers.

CHEMICAL IDENTITY

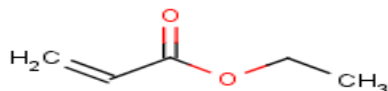
Name: Ethyl acrylate

Chemical name (IUPAC): ethyl acrylate

Synonym: 2-Propenoic acid, ethyl ester

CAS number(s): 140-88-5

Molecular formula: C₅H₈O₂



Structure:

USES AND APPLICATIONS

Acrylate esters, the family of chemicals to which EA belongs, are used primarily as reactive building blocks to produce coatings and inks, adhesives, sealants, textiles, plastics and elastomers. The acrylate esters typically are present only in trace amounts (as residual monomer) in the finished product. Specifically, EA is used in the following applications:

- **Adhesives:** for use in construction and pressure-sensitive adhesives as a co-monomer
- **Chemical intermediates:** for a variety of chemical products.
- **Coatings:** monomers used to produce polymers for architectural, decorative, industrial, paper and roof coatings
- **Leather:** to produce different polymer finishes, particularly nubuck and suede
- **Plastics:** for the manufacture of a variety of plastics
- **Fibers:** in the manufacture of fibers of both woven and non-woven textiles as a copolymer of e.g. acrylonitrile and EA. The fibers are in turn used for e.g. the manufacture of textiles.

Ethyl acrylate is not sold for direct consumer use and the manufacturers do not support the use in consumer products. EA is used as a raw material to make a variety of goods used by consumers or construction personnel and could be present in trace amounts as residual monomer in consumer products, including paints.

PHYSICAL/CHEMICAL PROPERTIES

The following table includes information which refers to testing performed with the concentrated substance. It is not intended to be comprehensive or to replace information found in the Safety Data Sheet (SDS). A Safety Data Sheet may be obtained from one of the manufacturers

Property	Value
Physical state	Liquid
Color	Colorless
Odor	Pungent
Density	0.92 g/cm ³ @ 20°C
Melting / boiling point	-71.2°C / 99.8°C @ 1013 hPa
Flammability	Highly flammable liquid and vapor The substance has no pyrophoric properties and does not liberate flammable gases on contact with water.
Explosive properties	Non explosive
Self-ignition temperature	372°C
Vapor pressure	40 hPa @ 20.9°C
Molecular weight	100.12
Water solubility	20 g/L @ 20°C
Flash point	9°C
Octanol-water partition coefficient (Log Pow)	1.18 @ 25°C

HUMAN HEALTH SAFETY ASSESSMENT

Information for the general population and consumers handling products made with ethyl acrylate.

Acrylate esters, including EA, have a very strong, unpleasant odor that may be bothersome. However, the smell of acrylates does not necessarily indicate a health hazard.

Like any reactive chemical, EA can create hazards if not handled properly. It is toxic if inhaled or harmful with skin contact. It causes irritation to skin, eyes and the respiratory tract. Repeated skin contact may cause allergic reactions. It has a low toxicity if swallowed but may result in gastrointestinal irritation or ulceration as well as burns to the mouth and throat. Animal studies have not indicated that it causes cancer or reproductive toxicity.

The following table includes information for someone handling the concentrated substance. The data, while verifiable, are not intended to be comprehensive nor replace the information found in the SDS.

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	Harmful after contact with skin or if swallowed. Toxic after short-term inhalation.
Irritation / corrosion Skin / eye/ respiratory tract	Contact may cause skin irritation. May cause eye irritation. May cause irritation to upper respiratory tract (nose & throat)
Sensitization	May cause an allergic skin reaction.
Toxicity after repeated exposure Oral / inhalation / dermal	After repeated exposure the predominant effect is local irritation. The degree of irritation depends on the concentration of the product and the duration of exposure.
Genotoxicity / Mutagenicity	Based on the available test data, not expected to cause genetic effects.
Carcinogenicity	Not anticipated to cause cancer under conditions of normal use. Studies involving skin exposure, drinking water exposure and inhalation have not shown evidence of cancer. Has caused forestomach tumors in rats and mice when administered orally by gavage and severe stomach irritation was also seen. Tumors were judged to be the result of chronic irritation. Listed as a possible carcinogen by the International Agency for Research on Cancer (IARC).
Toxicity for reproduction	Did not cause adverse effects in the fetus at doses that were not toxic to the mother. Not expected to cause reproduction toxicity. Structurally similar substances did not cause reproductive effects in laboratory animals. In addition, no effects were seen on reproductive organs in long-term animal studies.

ENVIRONMENT SAFETY ASSESSMENT

Ethyl acrylate is a liquid which evaporates easily and is unlikely to persist in the environment. It is not expected to bind to soil or sediment. If released to air, it will undergo degradation within days. It is not expected to accumulate in the food chain, i.e., the bioconcentration potential is low. It biodegrades rapidly in the environment. EA is toxic to aquatic organisms (fish, algae, invertebrates).

The following tables include information for testing performed with the concentrated substance. Additional information may be obtained from a manufacturer's SDS.

Effect Assessment	Result
Aquatic Toxicity	Toxic to aquatic organisms. Harmful to aquatic life with long-lasting effects. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Fate and Behavior	Result
Biodegradation	Readily biodegradable
Bioaccumulation potential	Not expected to bioaccumulate
PBT / vPvB* conclusion	Not considered to be either PBT nor vPvB

* Persistent/Bioaccumulative/Toxic (PBT) very Persistent-very Bioaccumulative (vPvB)

EXPOSURE

Human health

Ethyl acrylate is used in the production of industrial and consumer products. Based on these uses, the public could be exposed through:

- **Workplace exposure** – Exposure can occur either in an EA manufacturing facility or in the various industrial or manufacturing facilities that use EA. It is produced, distributed, stored and consumed in closed systems. Those working with EA in manufacturing operations could be exposed during maintenance, sampling, testing, manual transfer, or other procedures.
- **Consumer exposure to products containing ethyl acrylate** –EA is not sold for direct consumer use, but it is used as a raw material to make a variety of goods used by consumers or construction personnel and could be present in trace amounts as residual monomer in consumer products, including paints.

Environment

Potential releases into the environment are limited and for the most part occur only during production and processing, typically via wastewater and exhaust gases. If accidentally released to surface water, it rapidly biodegrades and will not persist in the environment and will not accumulate in the food chain.

RISK MANAGEMENT RECOMMENDATIONS

Industrial Manufacturing and Processing

In industrial manufacturing and processing applications, it is always important to obtain a current Safety Data Sheet from your supplier (leave), follow the guidance provided and comply with applicable regulations.

Acrylates and products containing them should always be handled in well ventilated areas. Each manufacturing facility should have a thorough training program for employees, appropriate work processes, and safety equipment in place to limit unnecessary exposure.

In the event of a spill, the focus is on containing the spill to prevent contamination of soil, ditches, sewers, or surface or ground water. Only trained and properly protected personnel should be involved in clean-up operations.

Professional Applications

Before using any chemical product, the user should be properly trained in safe handling procedures for that product. This means that they should always contact the supplier of the product being used to obtain the most current safe handling advice and follow all instructions and warnings.

Consumer Applications

It is important to read and follow all warnings and instructions on the product label or packaging.

REGULATORY INFORMATION

This substance is subject to a number of federal and international statutes and regulations. Selected U.S. regulatory information is available on the [BAMM website](#). Other federal, state and local regulations may apply.

This substance has been registered under EU chemical control law known as REACH (Registration, Evaluation, Authorisation and Restriction of Chemical substances), and is listed on various chemical inventories. It has been reviewed under the OECD SIDS (Screening Information Data Set) program.

While the toxicological data are not specific to a particular region, the regulatory frameworks differ between countries and regions. The Global Harmonized System (GHS) attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use.

Under the GHS, substances are classified according to their physical, health, and environmental hazards.

Note: The hazard statements and symbols presented here refer to the hazard properties of the concentrated substance and are meant to provide a brief overview of the substance's labelling. It is not intended to be comprehensive or to replace information found in the SDS.

Signal word: Danger

Hazard pictogram:

GHS02: flame



GHS07: exclamation mark



GHS Classifications	Hazard Statements
Flammable Liquid Category 2	H225: Highly flammable liquid and vapour.
Acute Oral Toxicity Category 4	H302: Harmful if swallowed.
Acute Dermal Toxicity Category 4	H312: Harmful in contact with skin.H312: Harmful in contact with skin.
Acute Inhalation Toxicity Category 3	H331: Toxic if inhaled.
Skin Irritation Category 2	H315: Causes Skin Irritation
Eye Irritation Category 2A	H319: Causes serious eye irritation
Skin Sensitization Category 1B	H317: May cause an allergic reaction
Specific target organ toxicity – single exposure (STOT-SE) Category 3	H335: May cause respiratory irritation.
Aquatic Acute Category 2	H401: Toxic to aquatic life.
Aquatic Chronic Category 3	H412: Harmful to aquatic life with long lasting effects

ADDITIONAL INFORMATION

Information on registered substance (ECHA)

<http://apps.echa.europa.eu/registered/registered-sub.aspx>

IFA GESTIS-database on hazardous substances

<http://www.dguv.de/ifa/en/gestis/stoffdb/index.jsp>

International Chemical Safety Card

<http://www.inchem.org/documents/icsc/icsc/eics0267.htm>

OECD SIDS

http://webnet.oecd.org/hpv/UI/SIDS_Details.aspx?Key=42d76e32-5f9d-4635-9fdf-678c53092b50&idx=0

International Agency for Research on Cancer (IARC)

<https://www.iarc.who.int/fr/news-events/iarc-monographs-evaluation-of-the-carcinogenicity-of-isobutyl-nitrite-picoline-and-some-acrylates-2/>

CONTACT

For further information on this substance or product safety summaries in general, please contact BAMM. Click on a logo below to go to the company's website.



Glossary

Acute toxicity - harmful effects after a single exposure

Bioaccumulation - accumulation of substance in an organism

Biodegradation- chemical breakdown of substances by a physiological environment

Carcinogenicity - effects causing cancer

Chronic toxicity - harmful effects after repeated exposures

Clastogen - a substance that causes breaks in chromosomes

Embryotoxicity - harmful effects on fetal health

EU - European Union

eSDS -Extended Safety Data Sheet

GHS -Global Harmonized System

Hazard - situation bearing a threat to health and environment

HPV-High Production Volume

ICCA-International Council of Chemical Associations

Mutagenicity - effects that change genes

OECD-Organisation for Economic co-operation and Development

Concentrated - Non-formulated undiluted substance

REACH-Registration, Evaluation, Authorisation and Restriction of Chemical substances

Reprotoxicity - combining teratogenicity, embryotoxicity and harmful effects on fertility

SIDS - Screening Inventory Data set

SDS-Safety Data Sheet

Sensitizing - causes allergies

Teratogenic - effects on fetal morphology

PBT / vPvB-Persistent, Bioaccumulative and Toxic/ Very Persistent and Very Bioaccumulative

Disclaimer

This document is not intended to be comprehensive. It is provided solely as background information and should not substitute for an up-to-date Safety Data Sheet or research should specific regulatory or other legal questions arise. It is not intended to be a statement of legal requirements when using or handling acrylates. Although the information is believed to be accurate as of the last update, new information may become available and regulations frequently change, and no warranty, expressed or implied, is made concerning the contents. In addition, many states and localities adopt their own regulations, which are not covered by this summary or on the [BAMM website](#). In all events, the user should consult applicable laws and regulations, as well as their supplier's Safety Data Sheet, for current information and requirements. **NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY, OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN.**