

BASIC ACRYLIC MONOMER MANUFACTURERS, INC.

GLOBAL PRODUCT SUMMARY: 2-ETHYLHEXYL ACRYLATE

(Last Updated: 8/5/14)

[Disclaimer](#)

SUBSTANCE NAME

2-Ethylhexyl acrylate

GENERAL STATEMENT

2-Ethylhexyl acrylate (2EHA) is used in the production of coatings and inks, adhesives, sealants, plastics and elastomers.

CHEMICAL IDENTITY

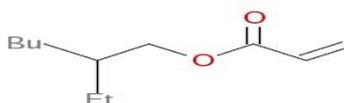
Name: 2-Ethylhexyl acrylate

Chemical name (IUPAC): 2-ethylhexyl acrylate

Synonym: 2-Propenoic acid, 2-ethylhexyl ester

CAS number(s): 103-11-7

Molecular formula: C₁₁H₂₀O₂



Structure:

USES AND APPLICATIONS

Acrylate esters, the family of chemicals to which 2EHA belongs, are used primarily as reactive building blocks to produce polymers and copolymers which are used in coatings and inks, adhesives, sealants, textiles, plastics and elastomers. Specifically, 2-EHA is used in the following applications:

- **Adhesives and caulks:** as a co-monomer in polymers used in construction caulks and sealants, or in the manufacture of pressure-sensitive adhesives
- **Chemical intermediates:** as a raw material for a variety of chemical products
- **Coatings:** as a co-monomer in polymers to be used as textile finishes, in water-based paints and coatings, and as coatings for paper and paper products
- **Leather:** as a co-monomer in polymers to be used as leather finishes
- **Plastics:** as a raw material for the manufacture of a variety of plastics or plastics additives
- **Fibers:** as a raw material in the manufacture of fibers of both woven and non-woven textiles

2-Ethylhexyl acrylate 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.

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	Sweet, organic
Density	0.88 g/cm ³ @ 20°C
Melting / boiling point	-90°C / 215°C @ 1013 hPa
Flammability	Not flammable The substance has no pyrophoric properties and does not liberate flammable gases on contact with water.
Explosive properties	Non explosive
Self-ignition temperature	252 °C
Vapor pressure	0.24 hPa @ 25 °C
Molecular weight	184.28
Water solubility	9.6 mg/L @ 25 °C
Flash point	86°C @ 1013 hPa
Octanol-water partition coefficient (Log Pow)	ca 4 @ 25 °C

HUMAN HEALTH SAFETY ASSESSMENT

Information for the general population and consumers handling products made with 2-ethylhexyl acrylate.

Acrylate esters, including 2EHA, 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, 2EHA can create hazards if not handled properly. The main hazard is irritation. It causes irritation to skin, eyes and the respiratory tract. Repeated skin contact may cause allergic reactions. It has a low toxicity if it is swallowed, inhaled or applied to the skin. 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	2EHA is of low toxicity after a single ingestion and virtually nontoxic after a single skin contact. The inhalation of a highly saturated vapor-air-mixture represents an unlikely acute hazard.
Irritation / corrosion Skin / eye/ respiratory tract	May cause skin irritation with local redness and swelling. Liquid may cause eye irritation which is reversible. Vapor or mists are irritating to the respiratory tract.
Sensitization	May cause an allergic skin reaction.
Toxicity after repeated exposure Oral / inhalation / dermal	Does not cause toxicity to internal organs after repeated exposure in animal studies. The predominant effect is local irritation.
Genotoxicity / Mutagenicity	Based on the available test data, not expected to cause genetic effects.
Carcinogenicity	Chronic/oncogenicity studies showed that 2-EHA did not produce evidence of carcinogenicity of known relevance to humans. 2-EHA caused an increase in skin tumors in some, but not all, chronic dermal studies in mice. 2-EHA induced skin tumors at high concentrations that were highly irritating, and this damage was presumed to be the mode of action for tumor formation.
Toxicity for reproduction	Did not cause birth defects in laboratory animals. Similar materials did not cause reproductive effects in laboratory animals. In addition, no effects were seen on reproductive organs in long-term animal studies.

ENVIRONMENTAL SAFETY ASSESSMENT

2-Ethylhexyl acrylate is a liquid which is unlikely to persist in the environment. It is not expected to bind extensively 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. 2EHA 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 the SDS provided by the manufacturer.

Effect Assessment	Result
Aquatic Toxicity	Toxic to aquatic organisms Harmful to aquatic life with long lasting effects.

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

2-Ethylhexyl 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 a 2EHA manufacturing facility or in the various industrial or manufacturing facilities that use it. It is produced, distributed, stored and consumed in closed systems. Those working with 2EHA in manufacturing operations could be exposed during maintenance, sampling, testing, manual transfer, or other procedures.
- **Consumer exposure to products containing 2-ethylhexyl acrylate** – 2EHA 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, 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: Warning

Hazard pictogram:

GHS07: exclamation mark



Hazard statements:

H227: Combustible liquid.

H303: May be harmful if swallowed.

H315: Causes skin irritation.

H317: May cause an allergic skin reaction.

H335: May cause respiratory irritation.

H401 Toxic to aquatic life.

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://publikationen.dguv.de/dguv/pdf/10002/grenzwerte2011.pdf>

EU Risk Assessment

<http://publications.jrc.ec.europa.eu/repository/handle/111111111/8760>

International Chemical Safety Card

<http://www.cdc.gov/niosh/ipcsneng/neng0478.html>

OECD SIDS

http://webnet.oecd.org/hpv/ui/SIDS_Details.aspx?id=34ffa6ed-25d3-4e99-a70b-d2f66719fed6

CONTACT

For further information on this substance or product safety summaries in general, please contact BMM. 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.**