
Product Safety Assessment

DOW™ 2-Ethylhexyl Acrylate

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Names

- CAS No. 103-11-7
- 2-Ethylhexyl acrylate
- 2-Propenoic acid, 2-ethylhexyl ester
- DOW™ 2-ethylhexyl acrylate
- EC No. 203-080-7
- 2-Ethylhexyl propenoate
- Acrylic acid, 2-ethylhexyl ester

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Product Overview

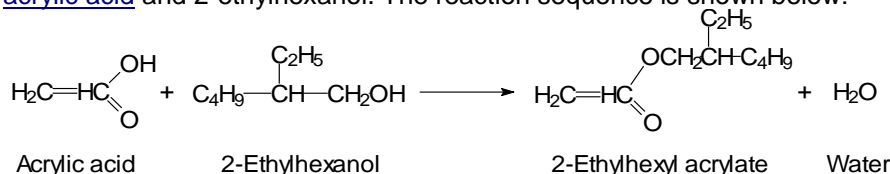
- DOW™ 2-ethylhexyl acrylate is used in the production of polymer coatings and finishes, adhesives, sealants, and plastics. For further details, see [Product Uses](#).
- DOW 2-ethylhexyl acrylate is stable under recommended storage conditions. Elevated temperatures and contaminants can cause hazardous polymerization, so DOW 2-ethylhexyl acrylate has inhibitors added to reduce the probability of polymerization. For further details, see [Product Description](#) and [Physical Hazard Information](#).
- Consumer exposure to 2-ethylhexyl acrylate is unlikely. Those working with 2-ethylhexyl acrylate in manufacturing operations could be exposed during maintenance, sampling, testing, manual transfer, or other procedures. For further details, see [Exposure Potential](#).
- Acrylic esters, including 2-ethylhexyl acrylate, have a sharp odor that may be bothersome. However, the smell does not necessarily indicate a health risk.¹ Eye contact with 2-ethylhexyl acrylate liquid or vapor could result in slight, temporary eye irritation. Brief skin contact may cause severe irritation with pain and redness and repeated contact may cause skin burns. Has caused allergic skin reactions. Vapor exposure could result in irritation to the upper respiratory tract and lungs. 2-Ethylhexyl acrylate has a low oral toxicity, but can cause burns to mouth and throat and irritation to the gastrointestinal tract. For further details, see [Health Information](#).
- DOW 2-ethylhexyl acrylate released to the air will undergo degradation by reaction with photochemically-produced hydroxyl radicals. 2-Ethylhexyl acrylate is classified as readily biodegradable including removal by wastewater treatment facilities. This material is considered moderately toxic to aquatic organisms.² For further details, see [Environmental Information](#).
- DOW 2-ethylhexyl acrylate is a combustible liquid and vapor. See [Physical Hazard Information](#).

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Manufacture of Product³

- **Capacity** –The Dow Chemical Company (with its consolidated subsidiaries) is one of the largest global producers of acrylic acid and its esters. Dow has production facilities in Louisiana.
- **Process** – DOW™ 2-ethylhexyl acrylate is produced by an esterification reaction between [acrylic acid](#) and 2-ethylhexanol. The reaction sequence is shown below:



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Product Description^{4,5,6,7}

DOW™ 2-ethylhexyl acrylate is a clear, water-white liquid with a sweet odor. It is readily miscible with most organic solvents, but has negligible solubility in water. DOW 2-ethylhexyl acrylate contains monomethyl ether of hydroquinone (MEHQ, CAS 150-76-5) as an inhibitor to prevent polymerization under recommended storage conditions.

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Product Uses^{8,9,10}

2-Ethylhexyl acrylate is primarily used as a reactive building block to produce polymer coatings, adhesives, and sealants. It can be polymerized by itself or in combination with other acrylic monomers. The presence of 2-ethylhexyl acrylate can improve the water resistance, weatherability, and sunlight resistance of the final product.

- **Coatings** – in latex paints, textile finishes, paper coatings, and other surface coating formulations
- **Adhesives** – especially in pressure-sensitive adhesives
- **Sealants/caulk** – flexible caulk especially suitable for outdoor applications
- **Plastic additives** – as modifiers for a variety of plastic materials

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Exposure Potential^{4,11}

DOW™ 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 2-ethylhexyl acrylate manufacturing facility or in the various industrial or manufacturing facilities that use 2-ethylhexyl acrylate. It is produced, distributed, stored and consumed in closed systems. Those working with 2-ethylhexyl acrylate in manufacturing operations could be exposed during maintenance, sampling, testing, manual transfer, or other procedures. Each manufacturing facility should have a thorough training program for employees, appropriate work processes and safety equipment in place to limit unnecessary 2-ethylhexyl acrylate exposure. Preferred glove barrier materials include chlorinated polyethylene, polyethylene, ethyl vinyl alcohol laminate (EVAL), polyvinyl alcohol (PVA), or styrene/butadiene rubber. Consult the relevant [Safety Data Sheet](#) or see [Health Information](#).

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- **Consumer exposure to products containing 2-ethylhexyl acrylate** – Dow does not sell 2-ethylhexyl acrylate 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. See [Health Information](#).
- **Environmental releases** – 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. Evacuate the area and stay upwind of the spill. Ventilate the area of leaks or spills. Only trained and properly protected personnel should be involved in clean-up operations. Eliminate all sources of ignition in vicinity of the spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Use appropriate safety and protective equipment. Absorb with noncombustible material such as sand or sawdust. 2-Ethylhexyl acrylate will float on the surface of water. Consult the relevant [Safety Data Sheet](#) for more information about protective equipment and procedures. See [Environmental Information](#), [Health](#) and [Physical Hazard Information](#).
- **Large release** – Industrial spills or releases are infrequent and are generally contained. If a large spill does occur, dike area to contain spill. Contain the spilled material if possible and keep it out of sewers. Ground and bond all containers and handling equipment and avoid all ignition sources. Pump with explosion-proof equipment. If available, use foam to smother or suppress vapors. The material should be captured, collected and reprocessed, or disposed of according to applicable governmental requirements. For emergency and other conditions where the exposure guideline may be exceeded (like confined or poorly ventilated areas), use an approved positive-pressure self-contained breathing apparatus (SCBA) or positive-pressure air line with auxiliary self-contained air supply. Follow emergency procedures carefully. See [Environmental Information](#), [Health](#) and [Physical Hazard Information](#).

For more information, request the relevant [Safety Data Sheet](#).

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Health Information^{4,12,13}

Acrylic esters, including 2-ethylhexyl acrylate, have a very strong odor that may be bothersome. However, the smell alone does not necessarily indicate a health risk. These esters have an extremely low odor “threshold,” meaning that even very small amounts in the air can be detected by smell.¹

2-Ethylhexyl acrylate liquid may cause slight, temporary eye Corneal injury is unlikely.

Brief contact may cause severe skin irritation with pain and local redness. Repeated contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage. Skin contact is unlikely to result in absorption of harmful amounts, but may result in an allergic skin reaction.

Prolonged excessive exposure may cause adverse effects. Excessive exposure may cause severe irritation to upper respiratory tract (nose and throat) and lungs. Signs and symptoms of excessive exposure may include: May cause dizziness and drowsiness. Headache. May cause pulmonary edema (fluid in the lungs.) Effects may be delayed. 2-Ethylhexyl acrylate has low toxicity if swallowed, but may result in gastrointestinal irritation or ulceration. Swallowing 2-ethylhexyl acrylate may result in burns of the mouth and throat. Vomiting should not be induced as it could result in aspiration of the material into the lungs.

Effects on the respiratory tract have been observed in some animal studies. 2-Ethylhexyl acrylate has caused skin tumors in animal testing, however, these findings are believed to be secondary to chronic irritation and tissue injury.

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For more information, request the relevant [Safety Data Sheet](#).

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Environmental Information^{2,4,14}

DOW™ 2-ethylhexyl acrylate is moderately volatile. It is nearly insoluble (does not mix) in water, and if introduced into water, would float on the surface. It has moderate potential to bind to soil or sediment.

DOW 2-ethylhexyl acrylate is unlikely to persist in the environment. 2-Ethylhexyl acrylate released to air will undergo degradation by photochemically-produced hydroxyl radicals within days. This compound is readily biodegradable which suggests it will be rapidly and completely removed from water and soil environments, including biological wastewater treatment plants.

DOW 2-ethylhexyl acrylate has moderate potential to accumulate in the food chain (its bioconcentration potential is moderate) and it is moderately toxic to fish and other aquatic organisms on an acute basis.

For more information, request the relevant [Safety Data Sheet](#).

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Physical Hazard Information^{4,15}

DOW™ 2-ethylhexyl acrylate is not considered an unusual fire hazard. However, it is combustible and should be kept away from heat, sparks, flame and any sources of ignition. In addition, containers can vent and/or rupture during a fire. The products of combustion may include toxic components such as carbon monoxide and carbon dioxide.

Fire Fighting Instructions

Should ignition occur, extinguish 2-ethylhexyl acrylate with water fog or fine spray, dry chemical fire extinguisher, carbon dioxide fire extinguisher, or foam.

- Alcohol-resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.
- Personal protection for fire fighters should include positive-pressure, self-contained breathing apparatus (SCBA) and protective fire-fighting clothing includes fire fighting helmet, coat, trousers, boots, and gloves.
- Avoid contact with this material during fire-fighting operations. If contact is likely, change to full chemical-resistant fire-fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical-resistant clothing with self-contained breathing apparatus and fight fire from a remote location.

For more information, request the relevant [Safety Data Sheet](#).

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Reactivity/Stability

DOW™ 2-ethylhexyl acrylate is stable under recommended storage conditions. Elevated temperatures can cause hazardous polymerization. Polymerization can be initiated by the absence of air, the presence of free radical initiators and peroxides, acids, UV light, bases, or high temperature.

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DOW™ 2-ethylhexyl acrylate contains an inhibitor to minimize polymerization under recommended storage conditions. See [Product Description](#) or [Safety Data Sheet](#). Maintain inhibitor and dissolved oxygen level. Uninhibited monomer vapors can polymerize and plug relief devices.

Avoid unintended contact with activated carbon, silica gel or aluminum oxide, which may cause polymerization. Avoid contact with cellulose- or clay-based absorbents, and with incompatible materials, such as:

- Oxidizing or reducing materials
- Mineral acids
- Inorganic bases
- Aldehydes, amines, azides, ethers, halides, and mercaptans
- Metals (copper, brass) and iron oxides

For more information, request the relevant [Safety Data Sheet](#).

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Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use and/or disposal of DOW™ 2-ethylhexyl acrylate. These regulations may vary by city, state, country or geographic region. Information may be found by consulting the relevant [Safety Data Sheet](#) or [Contact Us](#).

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Additional Information

- [Safety Data Sheet](#) (request from Dow Customer Information Group ([DOW CIG](#)))
- *Acrylic Esters: A Summary of [Safety and Handling](#)*, Intercompany Committee for the Safety and Handling of Acrylate Monomers (ICSHAM), May 2002
- Tipton, T.R.; Murphy, S.R.; and Hunt, E.K.; *Health Effect Assessments of the Basic Acrylates*, Basic Acrylate Monomer Manufacturers Association (BAMM) and CRC Press, 1993
- [Technical Data Sheet](#), 2-Ethylhexyl Acrylate, The Dow Chemical Company, Form No. 745-00110 . October 2004.
- Glauser, James, with Blagoev, Milen and Fujita, Kenji, "CEH Marketing Research Report: Acrylic Acid and Esters" *Chemical Economics Handbook*, SRI Consulting, July 2007
- U.S. Department of Health and Human Services Hazardous Substances Data Bank ([HSDB](#)), National Library of Medicine, TOXNET web site. Type in '2-ethylhexyl acrylate' and/or CAS No. '103-11-7' then select "search"

For more business information about DOW™ 2-ethylhexyl acrylate, visit the [DOW Acrylic Monomers](#) web site at www.dow.com/acrylates/.

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References

- ¹ *About Acrylates*, Basic Acrylic Monomer Manufacturers, Inc., 2014.
- ² "2-Ethylhexyl Acrylate CASRN 103-11-7," Hazardous Substances Databank (HSDB), U.S. National Library of Medicine, TOXNET system, Environmental Fate and Exposure section pages 1–8.
- ³ Glauser, James, with Blagoev, Milen and Fujita, Kenji, "CEH Marketing Research Report: Acrylic Acid and Esters" *Chemical Economics Handbook*, SRI Consulting, July 2007, page 39.
- ⁴ *2-Ethylhexyl Acrylate, Safety Data Sheet for Canada*, The Dow Chemical Company
- ⁵ *2-Ethylhexyl Acrylate, Technical Data Sheet*, The Dow Chemical Company, Form No. 745-00110-1004
- ⁶ *Acrylic Esters: A Summary of Safety and Handling*, Intercompany Committee for the Safety and Handling of Acrylate Monomers (ICSHAM), May 2002, pages 2–3.
- ⁷ Tipton, T.R.; Murphy, S.R.; and Hunt, E.K.; *Health Effect Assessments of the Basic Acrylates*, Basic Acrylate Monomer Manufacturers Association (BAMM) and CRC Press, 1993, page 103.
- ⁸ DOW Acrylates website: Applications (www.dow.com/acrylates/app/index.htm)
- ⁹ Glauser, James, with Blagoev, Milen and Fujita, Kenji, "CEH Marketing Research Report: Acrylic Acid and Esters" *Chemical Economics Handbook*, SRI Consulting, July 2007, page 44.
- ¹⁰ Tipton, T.R.; Murphy, S.R.; and Hunt, E.K.; *Health Effect Assessments of the Basic Acrylates*, Basic Acrylate Monomer Manufacturers Association (BAMM) and CRC Press, 1993, page 104.
- ¹¹ Tipton, T.R.; Murphy, S.R.; and Hunt, E.K.; *Health Effect Assessments of the Basic Acrylates*, Basic Acrylate Monomer Manufacturers Association (BAMM) and CRC Press, 1993, pages 104–6.
- ¹² *Acrylic Esters: A Summary of Safety and Handling*, Intercompany Committee for the Safety and Handling of Acrylate Monomers (ICSHAM), May 2002, pages 6–9.
- ¹³ Tipton, T.R.; Murphy, S.R.; and Hunt, E.K.; *Health Effect Assessments of the Basic Acrylates*, Basic Acrylate Monomer Manufacturers Association (BAMM) and CRC Press, 1993, pages 107–114.
- ¹⁴ Tipton, T.R.; Murphy, S.R.; and Hunt, E.K.; *Health Effect Assessments of the Basic Acrylates*, Basic Acrylate Monomer Manufacturers Association (BAMM) and CRC Press, 1993, page 106.
- ¹⁵ *Acrylic Esters: A Summary of Safety and Handling*, Intercompany Committee for the Safety and Handling of Acrylate Monomers (ICSHAM), May 2002, pages 9–10.

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