Product Safety Assessment

UCON™ and SYNALOX™ Diol-Initiated Ethylene Oxide-Propylene Oxide Polyglycols


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Names
- CAS No. 9003-11-6
- SYNALOX™ 25-D210 Lubricant
- SYNALOX 50-D130 Lubricant
- SYNALOX 80-D145 Lubricant
- UCON™ Lubricant 50-H-1500
- UCON Lubricant 60-H-1500
- UCON Lubricant 75-H-450
- UCON Lubricant 75-H-1400
- UCON Lubricant 75-H-9500
- UCON Lubricant 75-H-90,000
- UCON Lubricant 75-H-90,000, 30% AQ
- UCON Lubricant 75-H-90,000, 40% AQ
- UCON Lubricant 75-H-230,000, 44% AQ
- UCON Lubricant 75-H-280,000, 40% AQ
- UCON Lubricant 75-H-280,000, 44% AQ
- UCON Lubricant 75-H-380,000, 20% AQ
- UCON Lubricant 75-H-380,000, 30% AQ
- UCON Lubricant 75-H-380,000, 40% AQ

Product Overview
- UCON™ and SYNALOX™ Diol-Initiated Ethylene Oxide-Propylene Oxide Polyglycols are copolymers of ethylene oxide ("EO") and propylene oxide ("PO") available in a range of molecular weights, EO/PO ratios, and aqueous solutions. They are supplied as colorless to yellow liquids with a mild odor. For further details, see Product Description.
- UCON and SYNALOX Diol-Initiated Ethylene Oxide-Propylene Oxide Polyglycols are used as lubricant base stocks in dozens of industries, in applications such as metal-working fluids, hydraulic-fluid components, and textile lubricants. For further details, see Product Uses.
- Worker exposure to UCON and SYNALOX Diol-Initiated Ethylene Oxide-Propylene Oxide Polyglycols is possible during manufacture, transport, or use. Exposure is minimized by engineering controls and personal protective equipment. These products are not sold directly to consumers, but are used in industrial products such as metal-working fluids, hydraulic fluids, and other lubricants. For further details, see Exposure Potential.
- Contact may cause slight temporary eye irritation. Prolonged skin exposure is essentially non-irritating, but components in some products may cause an allergic skin reaction. Exposure to vapor is minimal due to low volatility, but mist or vapor from heated product may cause respiratory irritation. These products have very low toxicity if swallowed, and are unlikely to be an aspiration.

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hazard. For further details, see Health Information and request the relevant Safety Data Sheet from the Dow Customer Information Group.

- UCON™ and SYNALOX™ Diol-Initiated Ethylene Oxide-Propylene Oxide Polyglycols are not expected to rapidly degrade in the environment and are unlikely to accumulate in the food chain. They would be adsorbed to soil, sediment, suspended solids, and organic matter in the environment. Although these products are nonbiodegradable, these products would be removed in wastewater treatment facilities by adsorption onto biosolids. These products are practically nontoxic to aquatic organisms on an acute basis. For further details, see Environmental Information.

- UCON and SYNALOX Diol-Initiated Ethylene Oxide-Propylene Oxide Polyglycols are stable under recommended storage and normal use conditions. Products can decompose at elevated temperatures. Avoid contact with strong oxidizers, strong acids, and strong bases. Prevent atmospheric moisture from entering storage tanks. For further details, see Physical Hazard Information.

Manufacture of Product

- Locations – The Dow Chemical Company (“Dow”) produces UCON™ Polyglycols in facilities in the United States and global affiliates of Dow produce SYNALOX™ Polyglycols in facilities located in Europe.
- Process – UCON and SYNALOX Polyglycols are produced by reacting EO and PO to form an EO/PO copolymer with hydroxyl end groups.

Product Description

UCON™ and SYNALOX™ Diol-Initiated Ethylene Oxide-Propylene Oxide Polyglycols are copolymers of EO and PO available in a range of molecular weights, EO/PO ratios and aqueous solutions. They feature excellent lubricity, high viscosity indices, low pour points, and clean burning properties. They are supplied as colorless to yellow liquids with a mild odor. SYNALOX 80-D145 Lubricant is insoluble in water. The other products noted in this document are soluble in water. SYNALOX Polyglycols are available exclusively in Europe, while the corresponding UCON Polyglycols are available in other global markets.

Product Uses

UCON™ and SYNALOX™ Diol-Initiated Ethylene Oxide-Propylene Oxide Polyglycols are used as lubricant base stocks in dozens of industries, in applications such as metal-working fluids, hydraulic-fluid components, textile lubricants, mandrel-release agents, electronic chemicals, paper-adhesive components, quenching components, and chemical intermediates.

Exposure Potential

UCON™ and SYNALOX™ Diol-Initiated Ethylene Oxide-Propylene Oxide Polyglycols are used in the production of industrial and consumer products. Based on the uses for these products, individuals could be exposed through:

- Workplace exposure – Exposure can occur either in facilities that manufacture or formulate UCON and SYNALOX Diol-Initiated Ethylene Oxide-Propylene Oxide Polyglycols or in the various industrial or manufacturing facilities that use these products. They are produced, distributed, stored, and consumed in closed systems. Those working with these products in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Each manufacturing facility should have a thorough training program for employees and appropriate work processes, ventilation, and safety equipment in place to limit exposure. See Health Information.

- Consumer exposure to products containing UCON and SYNALOX Diol-Initiated Ethylene Oxide-Propylene Oxide Polyglycols – Dow does not sell these products for direct consumer use. These products are used to formulate industrial products such as metal-working fluids, hydraulic fluids, and other lubricants. These applications are not expected to pose an exposure risk to consumers. See Health Information.

- Environmental releases – In the event of a spill, the focus is on containing the spill to prevent contamination of soil, surface water, or groundwater. Most UCON and SYNALOX Diol-Initiated Ethylene Oxide-Propylene Oxide Polyglycols are water soluble and are not expected to be readily biodegradable in the environment. They would likely degrade slowly in the environment, including degradation by physical action or upon exposure to sunlight. These products are expected to be removed by wastewater-treatment
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facilities by adsorption to biosolids. These products are practically nontoxic to aquatic organisms on an acute basis. See Environmental, Health, and Physical Hazard Information.

- **Large release** – Industrial spills or releases are infrequent and generally contained. For small spills, UCON and SYNALOX Diol-Initiated Ethylene Oxide-Propylene Oxide Polyglycols should be collected for disposal. If a large spill does occur, the product should be captured, collected, or disposed of according to applicable governmental requirements. Use appropriate safety equipment. Contain spilled product if possible. Prevent from entering into soil, ditches, sewers, waterways, and/or groundwater. Collect in suitable and properly labeled containers. See Environmental, Health, and Physical Hazard Information.

- **In case of fire** – Keep people away. Isolate the fire and deny unnecessary entry. Use water spray or fog, carbon-dioxide or dry-chemical extinguishers, or foam to fight the fire. Alcohol-resistant foams are preferred. Consider the use of unmanned hose holders or monitor nozzles. Use water spray to cool fire-exposed containers and the fire-affected zone until the fire is out and the danger of reignition has passed. Move containers away from the fire area if it is possible to do so without hazard. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use a direct water stream, which may spread the fire. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight the fire from a protected location or safe distance. During a fire, smoke may contain the original material in addition to combustion products that may be toxic and/or irritating. Containers may rupture from gas generation in a fire situation. Keep fire water out of waterways and sewers to minimize the potential for environmental damage. Follow emergency procedures outlined in the Safety Data Sheet carefully. See Environmental, Health, and Physical Hazard Information.

For more information, request the relevant Safety Data Sheet from the Dow Customer Information Group.

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Health Information

Health information for UCON™ and SYNALOX™ Diol-Initiated Ethylene Oxide-Propylene Oxide Polyglycols is summarized on the relevant Safety Data Sheet. These products may also contain minor components or additives that have additional health risks. It is important to note that health risks associated with individual products may vary based on their formulation or intended use. The Safety Data Sheet is the preferred source for specific health information. An overview of health information for these products appears below.

**Eye contact** – Contact may cause slight temporary eye irritation with discomfort and redness. Elevated temperatures may generate vapor levels sufficient to cause eye irritation.

**Skin contact** – Prolonged contact is essentially nonirritating and unlikely to result in absorption of harmful amounts. A minor component in some products (ppm level), bisphenol A, may cause an allergic skin reaction in some individuals.

**Inhalation** – At room temperature, exposure to vapor is minimal due to low volatility; a single exposure is not likely to be hazardous. Vapor from heated product or mist may cause respiratory irritation.

**Ingestion** – These products have very low toxicity if swallowed. Harmful effects are not anticipated from swallowing small amounts.

**Other** – Based on physical properties, these products are not likely to be an aspiration hazard.

For more information, request the relevant Safety Data Sheet from the Dow Customer Information Group.

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Environmental Information

Environmental information for UCON™ and SYNALOX™ Diol-Initiated Ethylene Oxide-Propylene Oxide Polyglycols is summarized on the relevant Safety Data Sheet. These products may also contain solvents or additives that have additional environmental impact. It is important to note that environmental impact associated with individual products may vary based on their formulation or intended use. The Safety Data Sheet is the preferred source for specific environmental information. An overview of environmental information for these products appears below.
Most UCON and SYNALOX Diol-Initiated Ethylene Oxide-Propylene Oxide Polyglycols are water soluble, nonvolatile (do not readily evaporate) and not expected to be rapidly biodegradable in the environment. If released to the environment, they would migrate toward or remain in water and adsorb on soil, sediment, and suspended solids. Although these products are not considered readily biodegradable, they would likely degrade slowly in the environment, including degradation by physical action or upon exposure to sunlight. These products are expected to be removed by wastewater-treatment facilities by adsorption to biosolids.

Because of their relatively high molecular weight, these products are not likely to accumulate in the food chain (bioconcentration potential is low). These products are practically nontoxic (EC₅₀/LC₅₀ >100 mg/L in the most sensitive species tested) to aquatic organisms on an acute basis.

These products do not contain components that are considered to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB).

For more information, request the relevant Safety Data Sheet from the Dow Customer Information Group.

Physical Hazard Information

UCON™ and SYNALOX™ Diol-Initiated Ethylene Oxide-Propylene Oxide Polyglycols are thermally stable under recommended storage and normal use conditions. These products can decompose at elevated temperatures. Generation of gas during decomposition can cause pressure build-up in closed systems. Decomposition products depend on temperature, air supply, and the presence of other materials. Decomposition can include, but is not limited to, aldehydes, alcohols, ethers, hydrocarbons, ketones, organic acids, and polymer fragments. Avoid contact with strong oxidizers, strong acids, and strong bases.

These products are hygroscopic; precautions should be taken to prevent atmospheric moisture from entering storage tanks.

For more information, request the relevant Safety Data Sheet from the Dow Customer Information Group.

Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of UCON™ and SYNALOX™ Diol-Initiated Ethylene Oxide-Propylene Oxide Polyglycols. 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.

Additional Information

- Safety Data Sheet: Search the Dow Safety Data Sheets website (www.dow.com/webapps/msds/msdssearch.aspx) or request from the Dow Customer Information Group (www.dow.com/assistance/dowcig.htm).
- Contact Us (http://www.dow.com/ucon/non_supported.htm or www.dow.com/polyglycols/synalox/contact/contact.htm)

For more business information about UCON™ Polyglycols visit the UCON Fluids and Lubricants website at www.dow.com/ucon/formulated/lubricants/. For more business information about SYNALOX™ Polyglycols, visit the SYNALOX Fluids and Lubricants website at www.dow.com/polyglycols/synalox/index.htm.
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References

2. The Dow Chemical Company. UCON™ Lubricant 75-H-90,000. Material Safety Data Sheet.
5. The Dow Chemical Company. UCON™ Lubricant 75-H Series Base Stocks: UCON Lubricant 75-H-90,000, 75-H-280,000 and 75-H-380,000. Form No. 816-00049.
7. The Dow Chemical Company. UCON™ Fluids and Lubricants. Form No. 118-01346.

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