Product Safety Assessment

SYNALOX™ and UCON™ Butanol-Propylene Oxide-Ethylene Oxide Based Polyglycols


Select a Topic:
Names
Product Overview
Manufacture of Product
Product Description
Product Uses
Exposure Potential
Health Information
Environmental Information
Physical Hazard Information
Regulatory Information
Additional Information
References

Names
• CAS No. 9038-95-3
• Polyalkylene Glycol Monobutyl Ether
• Butanol-Propylene Oxide-Ethylene Oxide Based Polyglycols
• FLUENT-LUB™ 364 Polyglycol
• SYNALOX™ 25-220B Lubricant
• SYNALOX 50-15B Lubricant
• SYNALOX 50-50B Lubricant
• SYNALOX 55-70B Lubricant
• SYNALOX 80-130B Lubricant
• SYNALOX 50-30B Lubricant
• SYNALOX 50-100B Lubricant
• SYNALOX 55-55B Lubricant
• SYNALOX 50-25B Lubricant
• SYNALOX 55-150B Lubricant
• SYNALOX 55-300B Lubricant
• SYNALOX 85-90B Lubricant
• SYNALOX 40-60B Lubricant
• UCON™ Fluid 50-HB-260
• UCON Fluid 50-HB-1075
• UCON Lubricant 50-HB-100
• UCON Lubricant 50-HB-260
• UCON Lubricant 50-HB-600
• UCON Fluid 50-HB-715
• UCON Lubricant 50-HB-55, Inh
• UCON Lubricant 50-HB-170
• UCON Lubricant 50-HB-400
• UCON Lubricant 50-HB-700
• UCON Lubricant 50-HB-58
• UCON Lubricant 50-HB-660

Product Overview
• SYNALOX™ and UCON™ Butanol-Propylene Oxide-Ethylene Oxide Based Polyglycols are colorless to yellow liquids with a mild odor and low volatility. The products range from completely soluble to partially soluble in water depending upon the relative proportion of ethylene oxide and propylene oxide in the product. For further details, see Product Description.

©2015 Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow

Created: August 8, 2014  The Dow Chemical Company  Page 1 of 6
SYNALOX™ and UCON™ Butanol-Propylene Oxide-Ethylene Oxide Based Polyglycols are used as lubricants in applications such as compressor lubricants, gear/bearing lubricants, metal-working fluids, polyethylene extrusion aids, release agents for molded parts, rubber lubricants, textile lubricants, and turbine oils. For further details, see Product Uses.

Worker exposure to SYNALOX and UCON Butanol-Propylene Oxide-Ethylene Oxide Based Polyglycols is possible during manufacture, transport, or use. Exposure is minimized by engineering controls and the use of appropriate personal protective equipment. These products are not sold for direct consumer use, but may be used in the treatment or processing of consumer goods. Individual consumer exposure is not expected to be significant. For further details, see Exposure Potential.

Eye contact may cause moderate irritation and/or slight corneal injury. Skin contact is essentially nonirritating and unlikely to result in absorption of harmful amounts. Exposure to vapor is minimal due to low volatility. Repeated exposure to mists may cause respiratory irritation and lung effects. These products have very low toxicity; however, swallowing larger amounts may cause injury. For further details, see Health Information and the relevant Safety Data Sheet.

SYNALOX and UCON Butanol-Propylene Oxide-Ethylene Oxide Based Polyglycols have various water solubility (from partially soluble to 100% miscible). These products have varying degrees of biodegradability, from slowly biodegradable to readily biodegradable. These products are practically nontoxic to aquatic organisms on an acute basis. These products are unlikely to accumulate in the food chain (low bioconcentration potential). These products do not contain components that are considered to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB). For further details, see Environmental Information.

SYNALOX and UCON Butanol-Propylene Oxide-Ethylene Oxide Based 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. For further details, see Physical Hazard Information.

Manufacture of Product

- **Locations** – The Dow Chemical Company (“Dow”) produces UCON™ Polyglycols in facilities in the USA and global affiliates of Dow produce SYNALOX™ Polyglycols in facilities in Europe.
- **Process** – SYNALOX and UCON Butanol-Propylene Oxide-Ethylene Oxide Based Polyglycols are produced by initiating the reaction of ethylene oxide and propylene oxide with butyl alcohol (butanol) to form a random polyalkylene glycol copolymer with the general structure shown below.

\[
\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{O}\left[\text{CH}_2\text{CHO}\right]_n\left[\text{CH}_2\text{CH}_2\text{O}\right]_m\text{H}
\]

Product Description

SYNALOX™ and UCON™ Butanol-Propylene Oxide-Ethylene Oxide Based Polyglycols are colorless to yellow liquids with a mild odor and low volatility (does not evaporate readily at room temperature). The products range from completely soluble to partially soluble in water depending upon the relative proportion of ethylene oxide and propylene oxide in the product. SYNALOX Polyglycols are available mainly in Europe, while the corresponding UCON Polyglycols are available in other global markets.

Product Uses

SYNALOX™ and UCON™ Butanol-Propylene Oxide-Ethylene Oxide Based Polyglycols feature excellent lubricity, high viscosity indices, low pour points, and clean burning properties. They are used as lubricants in applications such as compressor lubricants, gear/bearing lubricants, metal-working fluids, polyethylene extrusion aids, release agents for molds, rubber lubricants, textile lubricants, and turbine oils.
Exposure Potential

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

- **Workplace exposure** – Exposure can occur either in facilities that manufacture SYNALOX and UCON Butanol-Propylene Oxide-Ethylene Oxide Based Polyglycols or in the various industrial or manufacturing facilities that use or formulate 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, use, or other procedures. Each facility that manufactures or uses these products 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 SYNALOX and UCON Butanol-Propylene Oxide-Ethylene Oxide Based Polyglycols** – Dow does not sell these products for direct consumer use, but they may be used in the treatment or processing of consumer goods. Consumer exposure is not expected to be significant. 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. Small spills should be collected for disposal. If released to the environment, they would adsorb on soil, sediment, and suspended solids. These products have varying degrees of biodegradability, from slowly biodegradable to readily biodegradable. These products are expected to be removed by wastewater-treatment facilities by adsorption to biosolids or bioremediation. 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. If a large spill does occur, the product should be captured, collected, or disposed of according to applicable governmental requirements. Keep upwind of the spill. Ventilate the area of the spill. Prevent product from entering waterways. Respiratory protection is necessary for cleaning up spills and leaks. Use other appropriate safety equipment. 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.

Health Information

Health information for SYNALOX™ and UCON™ Butanol-Propylene Oxide-Ethylene Oxide Based Polyglycols is summarized on the relevant Safety Data Sheet. These products may also contain minor components that have additional health risks. 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 to moderate eye irritation and/or slight corneal injury.

**Skin contact** – Brief contact is essentially nonirritating. Prolonged skin contact may cause slight irritation, but is unlikely to result in absorption of harmful amounts. Did not cause allergic skin reactions when tested in humans.

**Inhalation** – At room temperature, exposure to vapor is minimal due to low volatility. Single exposure is not likely to be hazardous. Inhalation of heated vapor or mist may cause respiratory irritation.

**Ingestion** – Toxicity is very low if swallowed. Harmful effects are not anticipated from swallowing small amounts; however, swallowing larger amounts may cause injury.
**Product Safety Assessment:** SYNALOX™ and UCON™ Butanol-Propylene Oxide-Ethylene Oxide Based Polyglycols

**Repeated exposure** – Repeated exposure to mist may cause irritation of upper respiratory tract (nose and throat) and effects in lungs. Based on available animal data, repeated oral exposures are not anticipated to cause significant adverse effects.

For more information, request the relevant Safety Data Sheet from the [Dow Customer Information Group](#).

**Environmental Information**

Environmental information for SYNALOX™ and UCON™ Butanol-Propylene Oxide-Ethylene Oxide Based Polyglycols is summarized on the relevant Safety Data Sheet. These products may also contain minor components that have additional environmental impact. It is important to note that the 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.

SYNALOX and UCON Butanol-Propylene Oxide-Ethylene Oxide Based Polyglycols are nonvolatile (do not readily evaporate). These products have varying degrees of water solubility, from partially soluble to 100% miscible. If released to the environment, they would migrate toward or remain in water and adsorb on soil, sediment, and suspended solids. These products have varying degrees of biodegradability, from slowly biodegradable to readily biodegradable. For the slowly biodegradable products in this family, they would likely degrade slowly in the environment, including degradation by physical action or upon exposure to sunlight. For the products that are readily biodegradable, they would be rapidly biodegradable in various environmental media. These products are expected to be removed by wastewater-treatment facilities by adsorption to biosolids or biodegradation.

Because of their relatively high molecular weight, and/or high water solubility, SYNALOX and UCON Butanol-Propylene Oxide-Ethylene Oxide Based Polyglycols 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**

SYNALOX™ and UCON™ Butanol-Propylene Oxide-Ethylene Oxide Based Polyglycols are thermally stable at recommended storage and use conditions. Exposure to elevated temperatures can cause these products to decompose. 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 and can include aldehydes, alcohols, ethers, hydrocarbons, ketones, organic acids, and polymer fragments. Avoid contact with strong acids, strong bases, and strong oxidizers.

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 SYNALOX™ and UCON™ Butanol-Propylene Oxide-Ethylene Oxide Based 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.

---

+™Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow

Created: August 8, 2014 
The Dow Chemical Company 
Page 4 of 6
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/index.htm or www.dow.com/polyglycols/synalox/contact/contact.htm).
- UCON™ Fluids and Lubricants, The Dow Chemical Company, Form No. 118-01346 (www.dow.com/ucon/tech/index.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.

References

2. The Dow Chemical Company. SYNALOX™ 85-90B Lubricant, Safety Data Sheet.
3. The Dow Chemical Company. UCON™ Fluids and Lubricants. Form No. 118-01346.

No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer’s use and for ensuring that Customer’s workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries. Dow assumes no obligation or liability for the information in this document. References to “Dow” or the “Company” mean the Dow legal entity selling the products to Customer unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow
NOTICE

As part of its 2015 Sustainability Goals, Dow has committed to make publicly available safety assessments for its products globally. This product safety assessment is intended to give general information about the chemical (or categories of chemicals) addressed. It is not intended to provide an in-depth discussion of health and safety information. Additional information is available through the relevant Safety Data Sheet, which should be consulted before use of the chemical. This product safety assessment does not replace required communication documents such as the Safety Data Sheet.

The information herein is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Dow be responsible for damages of any nature whatsoever resulting from the use of or reliance upon the information herein or the product to which that information refers.

Nothing contained herein is to be construed as a recommendation to use any product, process, equipment or formulation in conflict with any patent, and Dow makes no representation or warranty, express or implied, that the use thereof will not infringe any patent.

NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.

Dow makes no commitment to update or correct any information that appears on the Internet or on its World-Wide Web server. The information contained in this document is supplemental to the Internet Disclaimer, www.dow.com/homepage/term.asp.

Back to top