Product Safety Assessment

UCON™ Lubricant LB-XY Products


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Names
- UCON™ Lubricant LB-XY Products
- UCON Lubricants
- UCON Lubricant LB-300-XY26
- UCON Lubricant LB-650-XY23
- UCON Lubricant LB-1800-XY26

Product Overview

- UCON™ Lubricant LB-XY Products are butanol-propylene oxide polymers with small amounts (less than 3%) of oxidation inhibitors added. These water-insoluble products are brown liquids with a mild odor. For further details, see Product Description.
- UCON Lubricant LB-XY Products are used as lubricating fluids for industrial applications. For further details, see Product Uses.
- UCON Lubricant LB-XY Products are intended for industrial use. Worker exposure is possible during manufacture, product transport, or use. Engineering controls and personal protective equipment reduce the potential for exposure. Consumers are not likely to come into contact with these products. For further details, see Exposure Potential.
- Eye contact may cause slight temporary irritation. Brief skin contact may cause slight irritation with local redness. These products may cause an allergic skin reaction. These products have low toxicity if swallowed, but may contain a component that in animal testing has been shown to affect the blood. For further details, see Health Information and request the relevant Safety Data Sheet from the Dow Customer Information Group.
- UCON Lubricant LB-XY Products have low vapor pressure and low solubility in water. The lower molecular weight products are readily biodegradable, whereas the higher molecular weight products are slowly biodegradable. These products are not likely to accumulate in the food chain. The major component (>95%) in these products are slightly to moderately toxic to aquatic organisms. They contain a minor component (<3%) that is highly toxic to fish and other aquatic organisms on an acute basis. For further details, see Environmental Information.
- UCON Lubricant LB-XY Products are thermally stable at recommended storage and normal use conditions, but can decompose at elevated temperatures. Avoid contact with strong acids, strong bases, and strong oxidizers. For further details, see Physical Hazard Information.

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Manufacture of Product

- **Location** – The Dow Chemical Company manufactures UCON™ Lubricant LB-XY Products at facilities in the USA.
- **Process** – The main component of UCON Lubricant LB-XY Products, is produced from the polymerization of propylene oxide initiated by n-butanol. The reaction is shown below.

\[
ROH + m \left( \begin{array}{c} \text{O} \\ \text{CH} \\ \text{H} \end{array} \right) \rightarrow \left( \begin{array}{c} \text{CH}_3 \\ \text{CH}_3 \\ \text{H} \end{array} \right)_{m} \left( \begin{array}{c} \text{RO} \\ \text{CH} \text{CH}_2 \text{OH} \end{array} \right)
\]

Alcohol \quad \text{Propylene oxide} \quad \text{Poly(oxypropylene)}

Product Description

UCON™ Lubricant LB-XY Products are butanol-propylene oxide polymers with small amounts (less than 3%) of oxidation inhibitors. These water-insoluble products are brown liquids with a mild odor. The number in the product name designates the nominal viscosity (in SUS units) of the product.

Product Uses

UCON™ Lubricant LB-XY Products are used as lubricating fluids for industrial applications requiring corrosion protection and use at high temperatures.

Exposure Potential

UCON™ Lubricant LB-XY Products are industrial lubricants. Based on the uses for this product, individuals could be exposed through:

- **Workplace exposure** – Exposure can occur in facilities that manufacture UCON Lubricant LB-XY Products or during transport or use. 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 UCON Lubricant LB-XY Products** – UCON Lubricant LB-XY Products are commercial products intended for industrial use. Consumers are not likely to contact these products. See Health Information.

- **Environmental releases** – Because UCON Lubricant LB-XY Products are used in closed systems, the potential for release to the environment is low. These products are not soluble in water and, if released to the environment, will not evaporate to the air. UCON Lubricant LB-XY Products are unlikely to persist in the environment. The lower molecular weight products are readily biodegradable, but the higher molecular weight products biodegrade slowly under environmental conditions. These products would be removed from water and soil environments, including biological wastewater-treatment facilities. 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, and reprocessed or disposed of according to applicable governmental requirements. Use appropriate safety equipment. Material will float on water. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Environmental, Health, and Physical Hazard Information.

- **In case of fire** – Use water fog or fine spray, dry-chemical or carbon-dioxide extinguishers, or foam to fight the fire. Alcohol-resistant foams are preferred. During a fire, smoke may contain the original material in addition to combustion products of varying composition, which may be toxic and/or irritating. Combustion products may include and are not limited to carbon monoxide, carbon dioxide, and trace amounts of nitrogen oxides. Containers may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Keep people away. Isolate the fire, and deny unnecessary entry. Use water spray to cool fire-exposed containers and the fire-affected zone until the fire is out and danger of reignition has passed. Fight the fire from a protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of a rising sound from venting safety devices or discoloration of the containers. Do not use a direct water stream as it may spread fire. Move containers from fire area if it is possible to do so without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

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Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes fire fighting 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. 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 UCON™ Lubricant LB-XY Products is summarized on the relevant Safety Data Sheets. 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 UCON Lubricant LB-XY Products appears below.

**Eye contact** – Contact may cause slight, temporary eye irritation. Corneal injury is unlikely.

**Skin contact** – Brief contact may cause slight skin irritation with local redness. Prolonged contact is unlikely to result in absorption of harmful amounts. Some of these products contain components that have caused allergic skin sensitization in laboratory animals and humans.

**Inhalation** – At room temperature, exposure to vapor is minimal due to low volatility. A single exposure is not likely to cause adverse effects.

**Ingestion** – These products have low toxicity if swallowed. Small amounts swallowed incidental to normal handling operations are not likely to cause injury.

**Repeated Exposure** – These products contain components that in animal testing have been shown to affect the blood.

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

Environmental Information
Environmental information for UCON™ Lubricant LB-XY Products is summarized on the relevant Safety Data Sheets. These products may also contain additives 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 UCON Lubricant LB-XY Products appears below.

UCON Lubricant LB-XY Products have low vapor pressure and low solubility in water. Product released to the environment would tend to remain in soil and not evaporate to the air.

UCON Lubricant LB-XY Products are unlikely to persist in the environment. The lower molecular weight products are readily biodegradable, but the higher molecular weight products are not readily biodegradable. They would be expected to biodegrade slowly under environmental conditions and would be removed from water and soil environments, including biological wastewater-treatment facilities. These products are not likely to accumulate in the food chain (bioconcentration potential is low) due to their relatively high molecular weight.

Products with higher viscosity/higher molecular weight tend to be more environmentally toxic than lower molecular weight products. In all products, the primary component, n-butanol initiated polypropylene glycol, is slightly to moderately toxic to fish and other aquatic organisms on an acute basis (LC_{50}/EC_{50} between 1 and 10 mg/L in the most sensitive species tested). These products contain a minor component, n-phenyl-alpha-naphthylamine (CAS No. 90-30-2), which is highly toxic to aquatic organisms on an acute basis (LC_{50}/EC_{50} between 0.1 and 1.0 mg/L in the most sensitive species tested).
Physical Hazard Information

UCON™ Lubricant LB-XY Products are thermally stable under recommended storage and normal use conditions, but can decompose at elevated temperatures. Decomposition products can include, but are not limited to aldehydes, alcohols, ethers, hydrocarbons, ketones, organic acids, and polymer fragments. Generation of gas during decomposition can cause pressure build-up in closed systems.

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.

Additional Information

- Safety Data Sheet (www.dow.com/webapps/msds/msdssearch.aspx)
- Contact Us (www.dow.com/ucon/contact/index.htm)

For more business information about UCON™ Lubricant LB-XY Products visit the Dow UCON Fluids and Lubricants website at www.dow.com/ucon/ or contact the Dow Customer Information Group at www.dow.com/assistance/dowcig.htm.

References

1. The Dow Chemical Company. UCON™ Lubricant LB-300-XY26 Material Safety Data Sheet
2. The Dow Chemical Company. UCON™ Lubricant LB-300-XY26 and LB-1800-XY26 Technical Data Sheet. Form No. 118-01678
3. The Dow Chemical Company. UCON™ Lubricant LB-650XY-23 Technical Data Sheet. Form No. 118-01679
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