Product Safety Assessment

UCON™ Lubricant LB-X Series


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Names
• UCON™ Lubricant LB-X Series
• UCON Lubricant LB-170-X
• UCON Lubricant LB-300-X
• UCON Lubricant LB-400-X
• UCON Lubricant LB-550-X
• UCON Lubricant LB-650-X
• Oxypropylene polymers
• Poly(oxypropylene)

Product Overview
• UCON™ Lubricant LB-X Series consist of alcohol-initiated polypropylene glycols with an oxidation inhibitor. These water-insoluble products are brown liquids with a mild odor.¹ For further details, see Product Description.
• UCON Lubricant LB-X Series are used as lubricating fluids for industrial applications.² For further details, see Product Uses.
• UCON Lubricant LB-X Series are intended for industrial use. Worker exposure is possible during manufacture or during product transport or use. Engineering controls and personal protective equipment reduce exposure risk. Consumers are not likely to come into contact with these products.³ For further details, see Exposure Potential.
• Eye contact is essentially nonirritating. Brief skin contact is essentially nonirritating. These products may cause an allergic skin reaction, as they contain a component that has caused allergic skin sensitization in laboratory animals and humans. UCON Lubricant LB-X Series have very low toxicity if swallowed. These products contain a component that in animal testing has been shown to affect the blood.⁴ For further details, see Health Information and the relevant Safety Data Sheet.
• UCON Lubricant LB-X Series have low vapor pressure and low solubility in water. The lower molecular weight products are readily biodegradable, whereas the higher molecular weight products are slow to biodegrade. These products are not likely to accumulate in the food chain. They contain a component that is highly toxic to aquatic organisms on an acute basis.⁵ For further details, see Environmental Information.
• UCON Lubricant LB-X Series 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.⁶ For further details, see Physical Hazard Information.

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Manufacture of Product

- **Location** – The Dow Chemical Company manufactures the UCON™ Lubricant LB-X Series at facilities in the USA.
- **Process** – The polypropylene glycol that is the main component of UCON Lubricant LB-X Series results from the polymerization of propylene oxide initiated by n-butanol. The reaction is shown below.

\[
ROH + m \text{HO-CH}_{2}-\text{CH(OH)}_m \rightarrow RO-\text{CH}_{2}-\text{CH(OH)}_m-H
\]

Product Description

UCON™ Lubricant LB-X Series consist of n-butanol-initiated polypropylene glycols with the addition of an oxidation inhibitor. These water-insoluble products are brown liquids with a mild odor. The number in the product designates the nominal viscosity of the product.

Product Uses

UCON™ Lubricant LB-X Series are used as lubricating fluids for industrial applications requiring enhanced stability toward oxidation at high temperatures.

Exposure Potential

UCON™ Lubricant LB-X Series 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-X Series 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 and safety equipment in place to limit exposure. See Health Information.

- **Consumer exposure to UCON Lubricant LB-X Series** – UCON Lubricant LB-X Series are commercial products intended for industrial use. Consumers are not likely to contact these products. See Health Information.

- **Environmental releases** – Because UCON Lubricant LB-X Series 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-X Series 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 and 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. Contain spilled material if possible. Collect in suitable and properly labeled containers. 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 (ATC types) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function but will be less effective. 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 fire, and deny unnecessary entry. Use water spray to cool fire-exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from 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 rising sound from venting safety device or discoloration of the container. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. 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 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, see the relevant Safety Data Sheet.

Health Information

Health information for UCON™ Lubricant LB-X Series-containing is summarized on the relevant Safety Data Sheets. These materials 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-X Series-containing appears below.

**Eye contact** – Contact is essentially nonirritating to the eyes.

**Skin contact** – Brief contact is essentially nonirritating to the skin. Prolonged contact is unlikely to result in absorption of harmful amounts. These products contain a component that has 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 very low toxicity if swallowed. Small amounts swallowed incidental to normal handling operations are not likely to cause injury.

**Repeated Exposure** – These products contain a component that in animal testing has been shown to affect the blood.

For more information, see the relevant Safety Data Sheet.

Environmental Information

Environmental information for UCON™ Lubricant LB-X Series-containing products is summarized on the relevant Safety Data Sheets. These materials 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 UCON Lubricant LB-X Series-containing products appears below.

UCON Lubricant LB-X Series products have low vapor pressure and low solubility in water. Product released to the environment would tend to remain there and not evaporate to the air.

UCON Lubricant LB-X Series 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 larger molecular weights tend to be more 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 (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested). These products contain a component, n-phenyl-alpha-naphthylamine (CAS No. 90-30-2), which is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1.0 mg/L in the most sensitive species tested).

For more information, see the relevant Safety Data Sheet.
Physical Hazard Information
UCON™ Lubricant LB-X Series 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, see the relevant Safety Data Sheet.

Regulatory Information
Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of UCON™ Lubricant LB-X Series. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant Safety Data Sheet, Technical Data Sheet, or Contact Us.

Additional Information
- Safety Data Sheet (www.dow.com/webapps/msds/msdssearch.aspx)
- Contact Us (www.dow.com/ucon/contact/index.htm)
- UCON™ Fluids and Lubricants Technical Data Sheet, The Dow Chemical Company (www.dow.com/ucon/tech/special.htm)


References
NOTICES

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