Product Safety Assessment

**UCON™ TPEG Products**


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**Names**

- CAS No. 31694-55-0
- Polyethylene glycol glyceryl ether
- UCON™ TPEG 500 fluids
- UCON TPEG products
- UCON TPEG 990 fluids

**Product Overview**

- UCON™ TPEG products are derived from ethylene oxide. These fluids are completely water soluble and remain liquids at low temperatures. They are nonvolatile (do not evaporate) and are stable at higher temperatures than competitive products. For further details, see **Product Description**.
- UCON TPEG products are used in industrial applications as a lubricant base, chemical intermediate, and additive. For further details, see **Product Uses**.
- Worker exposure is possible at a facility that manufactures UCON TPEG products or during product transport or use. Engineering controls and personal protective equipment minimize occupational exposure. UCON TPEG products are for industrial use only. Consumer contact is not likely. For further details, see **Exposure Potential**.
- Eye contact with these products may cause slight temporary irritation. Corneal injury is unlikely. These fluids are essentially nonirritating to skin. At room temperature, exposure to vapor is minimal. Vapor from heated material or mist may irritate the nose and throat. For further details, see **Health Information**.
- UCON TPEG products are biodegradable, not expected to accumulate in the food chain (have low bioconcentration potential), and are practically nontoxic to fish and other aquatic organisms on an acute basis. For further details, see **Environmental Information**.
- UCON TPEG products are stable under recommended storage conditions and use. Exposure to elevated temperatures can cause these products to decompose. Avoid contact with strong acids, strong bases, and strong oxidizers. For further details, see **Physical Hazard Information**.
Manufacture of Product
- **Manufacturing** – UCON™ TPEG products are manufactured by Dow at facilities in South Charleston, West Virginia (USA).
- **Process** – UCON TPEG fluids are produced by reacting glycerine with ethylene oxide. The general structure is shown below.

\[
\text{HOCH}_2\text{CHO} - \text{CH}_2\text{CHO}^* \text{H}
\]

Product Description
UCON™ TPEG 500 and TPEG 990 fluids are colorless liquids with a mild odor. They are very high purity synthetic polymers derived from ethylene oxide. UCON TPEG products are nonvolatile (do not evaporate) and are completely water soluble. They remain liquid at lower temperatures and remain stable at higher temperatures than competitive products.

Product Uses
UCON™ TPEG products are used in following industrial applications:
- **Base fluid** – for the manufacture of lubricants
- **Chemical intermediate** – raw material for the production of other chemicals

Exposure Potential
UCON™ TPEG products are used in the production of industrial products. Based on the uses for these fluids, the public could be exposed through:
- **Workplace exposure** – Exposure can occur either in a facility that manufactures UCON TPEG products, during transport, or in the various industrial or manufacturing facilities that use these fluids. They are produced, distributed, and stored in closed systems. Those working with UCON TPEG fluids 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 products containing UCON TPEG products** – UCON TPEG products are for industrial use only. Consumer contact is not likely. See Health Information.
- **Environmental releases** – Because UCON TPEG products are used in closed systems, the potential for release to the environment is low. UCON TPEG products are soluble in water and, when introduced, will have a tendency to remain in water. Because these compounds are biodegradable, they will be removed from water and soil environments, including sewage treatment plants. In the event of a spill, the focus is on containing the spill to prevent contamination of soil and surface or ground water. 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 material should be captured, collected, and reprocessed or disposed of according to applicable governmental requirements. Use 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 a water fog or fine spray, dry-chemical or carbon dioxide extinguisher, or foam to fight the fire. Consider the use of unmanned hose holders. A direct water stream may spread the fire.
Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing. Immediately withdraw all personnel from the area in case of rising sounds from venting safety device or discolorations of the container. Follow emergency procedures carefully. See Environmental, Health, and Physical Hazard Information.

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

Health Information¹

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

Skin contact – These fluids are essentially nonirritating to skin. Prolonged contact is unlikely to result in absorption of harmful amounts.

Inhalation – At room temperature, exposure to vapor is minimal due to low volatility. A single exposure is not likely to be hazardous. Inhalation of heated vapor or mist may irritate the nose and throat.

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

Repeated exposure – Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

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

Environmental Information¹

UCON™ TPEG products are polymers with low volatility. Because they are soluble in water, once introduced, they have a tendency to remain in water. They have minimal tendency to bind to soil or sediment.

UCON TPEG products are unlikely to persist in the environment. These compounds are biodegradable, which suggests they will be removed from water and soil environments, including biological wastewater treatment plants.

UCON TPEG products are not likely to accumulate in the food chain (bioconcentration potential is low) and are practically non-toxic to fish and other aquatic organisms on an acute basis.

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

Physical Hazard Information¹

UCON™ TPEG products are stable under recommended storage conditions and use. These products can decompose at elevated temperatures. 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 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™ TPEG products. 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 – contact the Dow Customer Assistance Group (www.dow.com/assistance/dowcig.htm)
- Contact Us (www.dow.com/ucon/contact/index.htm)

For more business information about UCON TPEG 500 and TPEG 990 lubricants, visit Dow’s web site for UCON Fluids and Lubricants at www.dow.com/ucon/ or www.ucon.com.

References
1 UCON™ TPEG 500 Material Safety Data Sheet, The Dow Chemical Company
2 UCON TPEG 500 and TPEG 990, Technical Data Sheet, The Dow Chemical Company, Form No. 118-01329-0601-rlr
3 Dow UCON™ Fluids and Lubricants website – Water-Soluble Base Stocks (www.dow.com/ucon/base/soluble.htm)
NOTICES:

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