Product Safety Assessment

UCON™ HD Series Food-Grade Lubricants


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Names
• UCON™ HD Series Food-Grade Lubricants
• UCON Lubricant HD-46-FG
• UCON Lubricant HD-68-FG
• UCON Lubricant HD-100-FG

Product Overview
• UCON™ HD Series Food-Grade Lubricants are base fluids derived from polyalkylene glycols. These products are colorless liquids with a mild odor and are completely water soluble.¹,² For further details, see Product Description.
• UCON HD Series Food-Grade Lubricants are used in industrial machinery where the potential for incidental food contact with machine lubricants may exist.²,³ For further details, see Product Uses.
• UCON HD Series Food-Grade Lubricants are for commercial use only. Worker exposure is possible at facilities that formulate these lubricants or during transport or use. Engineering controls and personal protective equipment reduce exposure risk. UCON HD Series Food-Grade Lubricants are safe for incidental food contact (FDA Regulation 21 CFR 178.3570).¹,³,⁴ For further details, see Exposure Potential.
• Eye contact may cause slight, temporary irritation. Corneal injury is unlikely. Prolonged skin contact may result in irritation with local redness. These products have very low toxicity if swallowed.¹ For further details, see Health Information and request the relevant Safety Data Sheet from the Dow Customer Information Group.
• UCON HD Series Food-Grade Lubricants are soluble in water and nonvolatile. These products are biodegradable and unlikely to accumulate in the food chain (low bioconcentration potential). They are practically nontoxic to fish and other aquatic organisms on an acute basis.¹ For further details, see Environmental Information.
• UCON HD Series Food-Grade Lubricants are thermally stable at recommended storage and use conditions. Elevated temperatures can cause some components of these formulations to decompose. Avoid contact with strong acids, strong bases, and strong oxidizers.¹ For further details, see Physical Hazard Information.

Manufacture of Product

¹™Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow

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- **Locations** – The Dow Chemical Company manufactures and formulates UCON™ HD Series Food-Grade Lubricants at facilities in the United States.
- **Process** – UCON HD Series Food-Grade Lubricants are blended products using proprietary polyethylene glycol and polyalkylene glycol constituents.

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**Product Description**
UCON™ HD Series Food-Grade Lubricants are low viscosity, water-soluble base oils. They are colorless, odorless liquid blends of polyethylene glycol and polyalkylene glycol. These products offer a high viscosity index, good low-temperature properties, deposit control, oxidation stability, and complete water solubility.

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**Product Uses**
UCON™ HD Series Food Grade Lubricants are used in industrial food-processing equipment, where the potential for incidental food contact from machine lubricants may exist. Applications include:
- Hydraulic fluids
- Gear oils
- Compressor oils
- Other fluids

The polyethylene glycol and polyalkylene glycol in these products comply with applicable standards set by the U.S. Food and Drug Administration (FDA) and European Union (EU) Directives concerning food contact (FDA Regulation 21 CFR 178.3570).

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**Exposure Potential**
UCON™ HD Series Food-Grade Lubricants are used in industrial food-processing equipment. Based on the uses for this product, individuals could be exposed through:

- **Workplace exposure** – Exposure can occur either in facilities that manufacture UCON HD Series Food-Grade Lubricants or in the various industrial or manufacturing facilities that use these products. They are produced, distributed, and stored 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 UCON HD Series Food-Grade Lubricants** – These products are used in the commercial food-processing industry. These products comply with applicable standards set by the U.S. Food and Drug Administration (FDA) (FDA Regulation 21 CFR 178.3570). 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. UCON HD Series Food-Grade Lubricants are completely water soluble and have low volatility. Because of these physical properties, once introduced to the environment these products will tend to migrate toward or remain in water. UCON HD Series Food-Grade Lubricants are rapidly biodegradable, which suggests they are expected to be rapidly and completely biodegraded in water and soil environments, and will be efficiently removed in biological wastewater-treatment facilities. These fluids are practically nontoxic to fish and other 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, evacuate personnel and ventilate the area. Use appropriate safety equipment. Product will dissolve in water. Prevent from entering soil, ditches, sewers, waterways and/or groundwater. 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. Use water spray to cool fire-exposed containers and fire-affected zone until the fire is out and any danger of re-ignition has passed. Consider the use of unmanned hoseholders or monitor nozzles. Immediately withdraw all personnel from the area in the case of rising sound from venting safety devices or discoloration of product containers. Burning liquids may be extinguished by dilution with water. Do not use a direct water stream as it may spread the 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. Contain firewater runoff if possible to reduce environmental damage. Firefighters should
wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing. Follow emergency procedures carefully. 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 of varying composition which may be toxic and/or irritating. Containers may rupture from gas generation in a fire situation. 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™ HD Series Food-Grade Lubricants 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 UCON HD Series Food-Grade Lubricants appears below.

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

Skin contact – Prolonged contact may cause slight irritation with local redness. Prolonged contact is unlikely to result in absorption of harmful amounts. Prolonged/repeated exposure to damaged skin (as in burn patients) may result in absorption of toxic amounts. Polyethylene glycol did not cause allergic skin reaction when tested in humans. Polyethylene glycol is considered to be biocompatible material with low immunogenicity.

Inhalation – At room temperature, exposure to vapor is minimal due to low volatility; a single exposure is not likely to be hazardous. No significant adverse effects from polyethylene glycol have been observed in inhalation toxicology studies.

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

Repeated exposure – Previous findings with severely burned patients suggest that polyethylene glycol may have been a factor in kidney failure and death; the use of topical applications containing this product may not be appropriate in individuals with impaired renal function and is not supported by The Dow Chemical Company. Based on available data, polyethylene glycol has low toxic potential in animals and in healthy individuals.

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

Environmental Information

Environmental information for UCON™ HD Series Food-Grade Lubricants is summarized on the relevant Safety Data Sheet. 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.

UCON HD Series Food-Grade Lubricants are nonvolatile (do not evaporate) and water soluble. If released to the environment, these products would tend to remain in and be transported with surface or ground water, and will adsorb to soil, suspended solids, and sediment. These products are known or expected to be either readily biodegradable (>65% biodegraded in 28 days per OECD 301F test) or inherently biodegradable according to Organisation for Economic and Co-operation and Development (OECD) test guidelines. These products are expected to be rapidly degradable in the environment and will be efficiently removed during treatment in biological wastewater-treatment facilities.

UCON HD Series Food-Grade Lubricants are not expected to accumulate in the food chain (low bioconcentration potential) and are practically nontoxic to aquatic organisms on an acute basis (LC50/EC50 >100 mg/L for the most sensitive species tested). UCON HD Series Food Grade Lubricants are not regarded as exhibiting persistent, bioaccumulative, and toxic (PBT) or very persistent and very bioaccumulative (vPvB) properties.
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For more information, request the relevant Safety Data Sheet from the Dow Customer Information Group.

**Physical Hazard Information**
UCON™ HD Series Food-Grade Lubricants are thermally stable under recommended storage and normal use conditions. These products can oxidize at elevated temperatures and generate gas during decomposition, causing pressure build-up in closed systems. Spills of these products on hot, fibrous insulation may reduce the autoignition temperature, increasing the potential for spontaneous combustion. 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 UCON™ HD Series Food-Grade Lubricants. 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**
- Request the relevant Safety Data Sheet from the Dow Customer Information Group at (www.dow.com/assistance/dowcig.htm)
- Contact Us (www.dow.com/ucon/contact/index.htm)
- Dow website: UCON™ Fluids and Lubricants – Food Grade Lubricants (www.dow.com/ucon/formulated/lubricants/food.htm)

For more business information about UCON™ HD Series Food-Grade Lubricants, visit the Dow web site for UCON Fluids and Lubricants at www.dow.com/ucon/index.htm or contact the Dow Customer Information Group at www.dow.com/assistance/dowcig.htm.

**References**
2. Dow website: UCON™ Fluids and Lubricants – Food-Grade Lubricants (www.dow.com/ucon/formulated/lubricants/food.htm)
NOTICES

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.

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