Product Safety Assessment

UCON™ Heat Transfer Fluid 50-HB-260-Y3


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Names
• UCON™ Heat Transfer Fluid 50-HB-260-Y3
• Polyalkylene glycol

Product Overview
• UCON Heat Transfer Fluid 50-HB-260-Y3 is a polyalkylene glycol polymer. It is a water-soluble yellow liquid with a mild odor and low volatility (does not evaporate easily at room temperature).¹ For further details, see Product Description.
• UCON Heat Transfer Fluid 50-HB-260-Y3 is used in heat-treating or processing of plastics, elastomers, thread, or fabricated parts where compatibility of the heat transfer fluid with the processed part is important.² For further details, see Product Uses.
• Worker exposure to UCON Heat Transfer Fluid 50-HB-260-Y3 is possible during manufacture and use. UCON Heat Transfer Fluid 50-HB-260-Y3 is not sold for direct consumer use, but may be used in the treatment or processing of consumer goods. Individual consumer exposure is negligible.¹,³ For further details, see Exposure Potential.
• Eye contact may cause slight, temporary irritation. Brief skin contact is essentially nonirritating. At room temperature, exposure to vapor is unlikely due to low volatility. Repeated exposure to mists may cause irritation of the upper respiratory tract (nose and throat) and lungs. Harmful effects are not anticipated from swallowing small amounts. For a minor component, skin contact may cause an allergic skin reaction.¹ For further details, see Health Information.
• UCON Heat Transfer Fluid 50-HB-260-Y3 is water-soluble, and exhibits low volatility. If released to the environment, this product will tend to migrate toward or remain in water with a minimal tendency to bind to soil, sediment, or suspended solids. This product will not persist in the environment because it components are either expected to be or shown to be readily biodegradable. The major component, polyalkylene glycol, is practically nontoxic (LC₅₀/EC₅₀ greater than 100 mg/L) to aquatic organisms on an acute basis. A minor component, bisphenol A, is moderately toxic (LC₅₀/EC₅₀ between 1 and 10 mg/L) on an acute basis.¹ This product has a low potential for bioaccumulation in the food chain. For further details, see Environmental Information.
• UCON Heat Transfer Fluid 50-HB-260-Y3 is thermally stable under recommended storage and use temperatures. Avoid contact with strong acids, strong bases, and strong oxidizers.¹ For further details, see Physical Hazard Information.

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**Product Safety Assessment: UCON™ Heat Transfer Fluid 50-HB-260-Y3**

**Manufacture of Product**
- **Locations** – The Dow Chemical Company manufactures UCON™ Heat Transfer Fluid 50-HB-260-Y3 at facilities in South Charleston, West Virginia (USA).
- **Process** – UCON Heat Transfer Fluid 50-HB-260-Y3 is produced by reacting ethylene oxide and propylene oxide initiated with butyl alcohol. The result is a copolymer with the general structure shown below:

\[
\begin{align*}
\text{Butanol} & + m \left[ \begin{array}{c} \text{H}_2\text{C} \quad \text{CH} \\ \text{CH}_3 \end{array} \right] + n \left[ \begin{array}{c} \text{H}_2\text{C} \quad \text{CH} \\ \text{CH}_2 \end{array} \right] & \rightarrow \text{C}_4\text{H}_9\text{O} \left[ \begin{array}{c} \text{CH}_3 \\ \text{CH}_2\text{CH}_2 \end{array} \right]_n \\
\text{Propylene oxide} & \quad \text{Ethylene oxide} & \text{UCON 50-HB Fluid}
\end{align*}
\]

**Product Description**
UCON™ Heat Transfer Fluid 50-HB-260-Y3 is a water-soluble yellow liquid with a mild odor and low volatility (does not evaporate easily at room temperature). This product also contains a small amount of Bisphenol-A (less than 1% by weight).

**Product Uses**
UCON™ Heat Transfer Fluid 50-HB-260-Y3 is used in heat-treating or processing of plastics, elastomers, thread, or fabricated parts where compatibility of the heat transfer fluid with the processed part is important.

**Exposure Potential**
UCON™ Heat Transfer Fluid 50-HB-260-Y3 is used for industrial applications and not sold for direct consumer use. Small amounts of this product may be present in certain treated products. Based on the uses for this product, individuals could be exposed through:

- **Workplace exposure** – Exposure can occur either in facilities that manufacture UCON Heat Transfer Fluid 50-HB-260-Y3 or in the various industrial or manufacturing facilities that use this product. Those working with this product in manufacturing operations could be exposed during maintenance, sampling, testing, use, or other procedures. Each facility that manufactures or uses this product 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 UCON Heat Transfer Fluid 50-HB-260-Y3** – Dow does not sell UCON Heat Transfer Fluid 50-HB-260-Y3 for direct consumer use, but it may be used in the treatment or processing of consumer goods. Individual consumer exposure is negligible. See Health Information.

- **Environmental releases** – Due to its low volatility and high water solubility, UCON Heat Transfer Fluid 50-HB-260-Y3 released into the environment will tend to migrate toward or remain in water. This product is readily biodegradable, it is unlikely to persist in the environment. This product is expected to be rapidly biodegradable in various environmental media such as water, soil/sediment, and wastewater treatment plant. The major component is practically nontoxic (LC$_{50}$/EC$_{50}$ greater than 100 mg/L) to aquatic organisms on an acute basis. A minor component is moderately toxic (LC$_{50}$/EC$_{50}$ between 1 and 10 mg/L) to aquatic organisms on an acute basis. In the event of a spill, the focus is on preventing the product from entering soil, ditches, sewers, waterways, or groundwater. 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. Keep upwind of the spill. Ventilate the area of the spill. Use appropriate safety equipment. See Environmental, Health, and Physical Hazard Information.

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In case of fire – Deny any unnecessary entry into the area and consider the use of unmanned hose holders. Use water spray or fog, carbon-dioxide or dry-chemical extinguishers, or foam to fight the fire. Alcohol-resistant foams (ATC) are preferred. Use of a direct water stream may spread the fire. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing. During a fire, smoke may be toxic and/or irritating. Immediately withdraw all personnel from the area in case of rising sounds from venting safety device or discolorations of the container. 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

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

Skin contact – Brief contact is essentially nonirritating. Prolonged contact is unlikely to result in absorption of harmful amounts. For the minor component, Bisphenol A, skin contact may cause an allergic skin reaction.

Inhalation – At room temperature, exposure to vapor is minimal due to low volatility. A single exposure is not likely to be hazardous.

Ingestion – Toxicity is very low if swallowed. Harmful effects are not anticipated from swallowing small amounts.

Repeated exposure – Heated vapor or mist may irritate the upper respiratory tract (nose and throat) and lungs.

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

Environmental Information

UCON™ Heat Transfer Fluid 50-HB-260-Y3 has low volatility (does not evaporate easily). Because it is water soluble at room temperature, this product will tend to remain in water with minimal tendency to bind to soil, sediment, or suspended solids.

UCON Heat Transfer Fluid 50-HB-260-Y3 is unlikely to persist in the environment. The major component of this product (a polyalkylene glycol polymer) is expected to be readily biodegradable based on data for a similar compound (>65% degraded in 28 days per OECD 301B testing). The minor component (Bisphenol A) is also readily biodegradable. Therefore, this product will be rapidly degraded in various environmental media such as water, soil/sediment, and biological wastewater-treatment facilities.

UCON Heat Transfer Fluid 50-HB-260-Y3 is not likely to bioaccumulate in the food chain in the environment (bioconcentration potential is low). The major component, a polyalkylene glycol polymer, is practically nontoxic (LC50/EC50 greater than 100 mg/L) to aquatic organisms on an acute basis. The minor component, Bisphenol A, is moderately toxic (LC50/EC50 between 1 and 10 mg/L) to the most sensitive species on an acute basis.

This product does 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

UCON™ Heat Transfer Fluid 50-HB-260-Y3 is thermally stable at recommended storage and use temperatures and pressures. Exposure to elevated temperatures can cause this product 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.

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UCON Heat Transfer Fluid 50-HB-260-Y3 is incompatible with strong acids, strong bases, and strong oxidizers. Contact with these materials should be avoided.

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

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Regulatory Information
Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of UCON™ Heat Transfer Fluid 50-HB-260-Y3. 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.

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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 website (www.dow.com/ucon/index.htm)


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References
1. UCON™ Heat Transfer Fluid 50-HB-260-Y3, Safety Data Sheet, The Dow Chemical Company
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