Product Safety Assessment

*DOW™ Turbine Fluid TF-25*


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Names
- **DOW™ Turbine Fluid TF-25**
- Polyalkylene glycol
- Polypropylene glycol

Product Overview
- **DOW™ Turbine Fluid TF-25** is a formulated synthetic lubricant based on polyalkylene glycol (PAG).\(^1\) For further details, see Product Description.
- **DOW Turbine Fluid TF-25** is designed for lubrication of gas turbines. It offers significant advantages compared to petroleum-based lubricants.\(^2\) For further details, see Product Uses.
- Those working with DOW Turbine Fluid TF-25 in manufacturing operations or as a lubricant could be exposed during maintenance, sampling, testing, or other procedures. Consumer contact is unlikely. For further details, see Exposure Potential.
- Eye contact may cause slight temporary irritation. Brief skin contact is essentially nonirritating. Repeated skin contact may cause severe irritation with local redness and discomfort. Even prolonged skin contact is unlikely to result in absorption of harmful amounts. Exposure to vapor is minimal due to low volatility. Very low toxicity if swallowed.\(^3\) For further details, see Health Information.
- The components of DOW Turbine Fluid TF-25 are non-volatile, and are poorly soluble in water. The principle components are inherently biodegradable, and practically non-toxic to aquatic life. Any emissions will have limited distribution and low impact in the environment.\(^4\) For further details, see Environmental Information.
- **DOW Turbine Fluid TF-25** is stable at normal storage and use temperatures, however elevated temperatures can cause this product to decompose.\(^5\) For further details, see Physical Hazard Information.

Manufacture of Product
- **Locations** – The Dow Chemical Company manufactures DOW™ Turbine Fluid in the USA for distribution globally.

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- Process\(^6\) – DOW™ Turbine Fluid TF-25 is produced by blending a specific polypropylene glycol base fluid with other components and additives using proprietary methods and materials.

**Product Description\(^7\)**
DOW™ Turbine Fluid TF-25 is a formulated synthetic lubricant based on a polypropylene glycol, which is blended with other proprietary components and additives. It is a yellow to brown liquid with a mild odor.

**Product Uses\(^8\)**
DOW™ Turbine Fluid TF-25 is designed for lubrication of gas turbines. Compared to conventional petroleum-based lubricants, it is more stable toward oxidation, shear, moisture, high temperature, and sludge and varnish formation. This product provides these benefits while offering reduced friction, a wide operating temperature range, compatibility with commonly used metals and seal and hose materials, natural detergency, and low toxicity and environmental impact.

**Exposure Potential\(^9\)**
DOW™ Turbine Fluid TF-25 is used in industrial and commercial facilities. Based on the uses for this product, individuals could be exposed through:
- **Workplace exposure** – Exposure can occur either in a facility that formulates DOW Turbine Fluid TF-25 or in the various facilities that use this product as a lubricant. It is produced, distributed, stored, and used in closed systems. Those working with DOW Turbine Fluid TF-25 in manufacturing operations or as a lubricant 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 DOW Turbine Fluid TF-25** – Dow does not sell this product for consumer use. Consumer contact is unlikely. See *Health Information*.
- **Environmental releases** – Small quantities of DOW Turbine Fluid TF-25 could be released into the environment in a spill or as a result of a turbine failure. In the event of a spill, the focus is on containing the spill to prevent contamination of soil and surface or ground water. The components of this formulated product are non-volatile and poorly soluble in water, and as such would tend to remain associated with the environment to which it is spilled, and adsorb to soil and sediment particles. The principle components are inherently biodegradable, and releases to soil or water would result in the ultimate biodegradation of these components at a moderate rate; and their efficient removal from wastewater is expected in biological wastewater-treatment facilities. This formulated product is considered practically non-toxic to 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, the material should be captured, collected, and reprocessed or disposed of according to applicable governmental requirements. If released to water, the product would float at the surface. See *Environmental*, *Health*, and *Physical Hazard Information*.
- **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 are preferred. Use of a direct water stream may spread the fire. Immediately withdraw all personnel from the area in case

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of rising sounds from venting safety devices or discoloration of the container. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing. 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.

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Health Information

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

**Skin contact** – Brief contact is essentially nonirritating. Repeated contact may cause severe irritation with local redness and discomfort. Even prolonged contact is unlikely to result in absorption of harmful amounts. Animal testing with similar materials did not result in an allergic response.

**Inhalation** – At room temperature, exposure to vapor is minimal due to low volatility. Single exposures are not likely to be hazardous.

**Ingestion** – Very low toxicity if swallowed. Harmful effects are not anticipated from swallowing small amounts. Product is unlikely to be an aspiration hazard.

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Environmental Information

The components of this formulated product are non-volatile and are poorly soluble in water. If released to the environment, the product would tend to float on the surface of water, and adsorb to soil and sediment particles.

The principle components of this product are inherently biodegradable, and releases to soil or water would result in ultimate biodegradation of these components at a moderate rate; and their efficient removal from wastewater is expected in biological wastewater-treatment facilities. Whereas some minor (proprietary additives) components are poorly biodegradable and moderately toxic to aquatic organisms, the formulated product is considered practically non-toxic to aquatic organisms on an acute basis. None of the product’s components are expected to accumulate in aquatic life.

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

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Physical Hazard Information

DOW™ Turbine Fluid TF-25 is stable at normal storage and use temperatures; however, elevated temperatures can cause this product to decompose. Generation of gas during decomposition can cause pressure build-up in closed systems. Avoid contact with strong acids, strong bases, or strong oxidizers.

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Regulatory Information
Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of DOW™ Turbine Fluid TF-25. 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

• Request the Safety Data Sheet from the Dow Customer Information Group.
• Contact Us (www.dow.com/ucon/contact/index.htm)

For more business information about DOW Turbine Fluid TF-25, visit the UCON™ Fluids and Lubricants - Gas Turbine Fluids web page at www.dow.com/ucon/tech/pag.htm.

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