Product Safety Assessment

**DOW SYMBIO™ Fluids**


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**Names**

- DOW SYMBIO™ Base Fluid
- DOW SYMBIO Bio-hydraulic Fluid

**Product Overview**

- DOW™ SYMBIO fluids are biodegradable, general-purpose, anti-wear fluids designed for hydraulic systems and other industrial applications. These fluids combine high oleic canola oil with polyalkylene glycol (PAG). DOW SYMBIO fluids are formulated as colorless to yellow liquids with a mild odor.¹ For further details, see *Product Description*.
- DOW SYMBIO Base Fluid can be used to formulate hydraulic fluids, metalworking fluids, chain oils, biodegradable greases, and other anti-wear products. DOW SYMBIO Bio-hydraulic Fluid is formulated for stationary industrial hydraulic systems.² For further details, see *Product Uses*.
- DOW SYMBIO fluids are for commercial use. Worker exposure is possible during formulation or use. The general public is not likely to contact these fluids.¹ For further details, see *Exposure Potential*.
- Eye or skin contact with these products may cause slight irritation. At room temperature, exposure to vapor is minimal due to low volatility.¹ For further details, see *Health Information*.
- DOW SYMBIO fluids are readily biodegradable, unlikely to accumulate in the food chain (bioaccumulation potential is low), and are practically nontoxic to fish and other aquatic organisms.¹ For further details, see *Environmental Information*.
- DOW SYMBIO fluids are stable at normal storage and use temperatures; however, elevated temperatures can cause these products to decompose.¹ For further details, see *Physical Hazard Information*.

**Manufacture of Product**

- **Location** – The Dow Chemical Company manufactures DOW SYMBIO™ fluids at facilities in the United States.
- **Process** – DOW SYMBIO fluids are proprietary blends of high oleic (HO) canola oil and polyalkylene glycols formulated in batch operations.
Product Description
DOW SYMBIO™ fluids are environmentally friendly general-purpose anti-wear fluids designed for hydraulic systems and other industrial applications. DOW SYMBIO Base Fluid is a blend of high oleic canola oil and polyalkylene glycols (PAGs). DOW SYMBIO Bio-hydraulic Fluid is a ready-to-use product that combines the base fluid with a proprietary additive package. DOW SYMBIO fluids have excellent anti-wear properties, are non-sludging or varnishing, and have high thermo-oxidative stability. These products are compatible with mineral oil and other hydrocarbon-based fluids. DOW SYMBIO fluids are formulated as clear to yellow liquids with a mild odor.

Product Uses
DOW SYMBIO™ Base Fluid is a biodegradable anti-wear fluid used to formulate:
- Hydraulic fluids
- Metalworking fluids
- Chain oils
- Biodegradable greases
- Other anti-wear products

DOW SYMBIO Bio-hydraulic Fluid is formulated for stationary industrial hydraulic systems. It is designed for use in systems operating under mild conditions such as:
- Marine equipment – offshore (above water), harbor, ship lock
- Amusement park hydraulics
- Large fountains

Exposure Potential
DOW SYMBIO™ fluids are used as hydraulic fluids and other industrial anti-wear applications. Based on the uses for these products, the public could be exposed through:
- **Workplace exposure** – Exposure can occur in a facility that manufactures or formulates DOW SYMBIO fluids, during transport, or in the various industrial facilities that use these products. Those working with DOW SYMBIO 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 DOW SYMBIO fluids** – These products are sold only for commercial use. Consumer contact is not likely. See Health Information.
- **Environmental releases** – DOW SYMBIO fluids are not water soluble, not likely to evaporate, and are typically used in closed systems. As a result, their potential for release to the environment is low. If released to the environment, they will tend to float on water or remain associated/adsorbed to soil and sediment particles. Because the substances are readily biodegradable, they will be removed from water, sediment, 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. For small spills, hydraulic fluid should be absorbed with materials such as sand. 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 focus is on containing the spill to prevent contamination of soil and surface or ground water. Product will float on water. Contain spilled material if possible.
Collect recovered material in suitable and properly labeled containers. 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. Fight the fire from a protected area or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Use water fog or fine spray, dry-chemical or carbon-dioxide extinguishers, or foam to fight the fire. Alcohol-resistant foams are preferred. A direct water stream may spread the fire. 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**¹

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

*Skin contact* – Prolonged contact may result in slight irritation with local redness. 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.

*Ingestion* – Low toxicity if swallowed. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

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

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**Environmental Information**¹

DOW SYMBIO™ fluids are not soluble (do not mix) in water and have low volatility (do not evaporate readily). If spilled to water, these fluids would float, or become associated with suspended or sediment particles. DOW SYMBIO fluids are unlikely to persist in the environment. These products are readily biodegradable, which suggests they will be removed from water, sediment, and soil environments, including biological wastewater-treatment facilities.

Because of their high molecular weight, the components of these fluids are not expected to accumulate in the food chain (low potential for bioconcentration). These substances are also practically non-toxic to fish and other aquatic organisms.

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

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**Physical Hazard Information**¹

DOW SYMBIO™ fluids are stable at normal storage and use temperatures; however, elevated temperatures can cause these products 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.
For more information, request the 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 DOW SYMBIO™ fluids. 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 SYMBIO fluids, visit the UCON™ Fluids and Lubricants web site at www.dow.com/ucon/ or contact the Dow Customer Information Group.

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References
1 DOW SYMBIO™ Base Fluid Material Safety Data Sheet, The Dow Chemical Company.

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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