Product Safety Assessment

TERGITOL™ X Series Nonionic EO/PO-based Surfactants

Product Safety Assessment documents are available at www.dow.com/productsafety/finder/.

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Names

- TERGITOL™ XD surfactant
- TERGITOL XJ surfactant
- TERGITOL XH surfactant
- TERGITOL XDLW surfactant

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Product Overview

- TERGITOL™ X series nonionic EO/PO-based surfactants are high-performance products featuring good solubility, excellent emulsifying properties, lubricity, and stabilizing properties. Most are white solids at room temperature and have a mild to fragrant odor. TERGITOL XDLW is a liquid at room temperature. For further details, see Product Description.
- TERGITOL X series surfactants improve the wetting properties, pigment stabilization, and coating performance of architectural and automotive coatings and paints, ink systems, industrial coatings and paints. These products contribute desirable mechanical properties and storage stability to emulsion polymerization systems and are used to emulsify or improve penetration for pesticide formulations and adjuvants. For further details, see Product Uses.
- Dow does not sell these products for direct consumer use, but they may be formulated into products that are used by consumers. Read labels and follow use instructions carefully. For further details, see Exposure Potential.
- Eye contact may cause slight to moderate irritation or slight corneal injury. Brief skin contact may cause slight irritation with local redness. Prolonged skin contact is unlikely to result in absorption of harmful amounts. Inhalation of heated material or mist may cause respiratory irritation. Low toxicity if swallowed. For further details, see Health Information.
- TERGITOL X series surfactants are practically nontoxic to fish and other aquatic organisms and do not accumulate in the aquatic food chain. They are slowly to moderately biodegradable under environmental conditions. For further details, see Environmental Information.
- TERGITOL™ X series surfactants are stable under recommended storage and use conditions, although they can decompose at elevated temperatures. For further details, see Physical Hazard Information.

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Manufacture of Product

- **Locations** – The Dow Chemical Company manufactures TERGITOL™ X series surfactants at facilities in North America. Foreign affiliated companies produce TERGITOL™ X series surfactants in Europe.
- **Process** – TERGITOL X series surfactants are produced by copolymerizing ethylene oxide (EO) and propylene oxide (PO) using a batch process.

Product Description

TERGITOL™ X series surfactants are block copolymers of ethylene oxide (EO) and propylene oxide (PO). The EO/PO ratio, order of addition, molecular weight, initiator level, and other process characteristics can be adjusted to tailor the chemical and physical properties of the final product for a variety of desired applications. TERGITOL X series surfactants feature good solubility, excellent emulsifying properties, lubricity, and stabilizing properties. Most are solids at room temperature and have a mild to fragrant odor. TERGITOL XDLW is a liquid at room temperature.

Product Uses

TERGITOL™ X series surfactants improve the wetting properties, pigment stabilization, and coating performance of architectural and automotive coatings and paints, ink systems, and industrial coatings and paints. They also contribute desired mechanical properties and storage stability to emulsion polymerization systems and are used to emulsify or improve penetration for a wide variety of pesticide formulations and adjuvants. Applications include:

- **Formulation stability** – automotive coatings, printing systems, industrial coatings
- **Wetting and pigment stabilization** – architectural paints and coatings, automotive paints and coatings, flexible and rigid packaging ink systems
- **Emulsion and dispersion** – agrochemicals, all polymer systems, architectural paints and coatings

Exposure Potential

TERGITOL™ X series surfactants are used in the production of industrial and consumer products. Based on the uses for these products, the public could be exposed through:

- **Workplace exposure** – Exposure can occur either in facilities that manufacture and formulate these products or in the various industrial or manufacturing facilities that use these products. Those working with these products in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Each 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 TERGITOL X series surfactants** – Dow does not sell these products for direct consumer use, but they may be formulated into products, such as coatings and paint, that are used by consumers. Always read product information labels before using and carefully follow use instructions. See Health Information.
- **Environmental releases** – 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, TERGITOL X series surfactants should be absorbed with sand or soil. Small quantities of these products may be released into the environment if consumer products that contain them are discarded. If released, they would tend to migrate toward or stay in water, where they would slowly

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degrade. They would not persist and would be removed by wastewater-treatment facilities. They are considered practically nontoxic 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, these products should be captured, collected, and reprocessed or disposed of according to applicable governmental requirements. Spilled product may cause a slipping hazard. Use appropriate safety equipment. See Environmental, Health, and Physical Hazard Information.

- **In case of fire** – Deny any unnecessary entry into the area and keep people away. Use water spray or fog, carbon-dioxide or dry-chemical extinguishers, or foam to fight the fire. Use of a direct water stream may spread the fire. Violent steam generation may occur upon application of direct water stream to hot liquids. Firefighters should wear positive-pressure, self-contained breathing apparatus 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.

### Health Information

Health information for TERGITOL™ X series surfactants is summarized on the relevant Safety Data Sheet. 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. These products may also contain minor components or additives that have additional health risks. An overview of health information for these products appears below.

- **Eye contact** – Contact may cause slight to moderate eye irritation or slight corneal injury.

- **Skin contact** – Brief contact may cause slight skin irritation with local redness. Prolonged skin contact is unlikely to result in absorption of harmful amounts.

- **Inhalation** – At room temperature, exposure to vapor is minimal due to low volatility. If products are heated or an aerosol/mist is produced, concentrations may be attained that are sufficient to cause respiratory irritation and other effects.

- **Ingestion** – These products have 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.

- **Repeated exposure** – In animal testing, repeated exposure to these products affect the kidney and liver. However, these effects were not reported in longer-term follow-up studies at the same doses. In laboratory testing, these materials did not cause cancer in animals.

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

### Environmental Information

Environmental data associated with individual products in this family of materials may vary. The Safety Data Sheet is the preferred source for specific environmental information.

Because of their high water solubility, if TERGITOL™ X series surfactants were released to the environment, they would migrate toward or remain in water. Although TERGITOL™ X series surfactants are nonionic nonylphenol ethoxylates, they are rapidly biodegradable in soil and do not present a significant environmental threat. They are detectable in surface water and groundwater. They are not considered to be harmful to aquatic organisms on a chronic basis. 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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surfactants are not considered readily biodegradable based on stringent test guidelines recommended by the Organization for Economic Cooperation and Development (OECD), they are expected to biodegrade at a slow to moderate rate under environmental conditions. They will also be removed by biological wastewater-treatment facilities. Therefore, they are not persistent in the environment.

Because of their high molecular weights and high water solubility, TERGITOL X series surfactants are not likely to accumulate in the food chain (the bioconcentration potential is low). They are practically nontoxic to fish and other aquatic organisms on an acute basis (LC$\text{50}$ or EC$\text{50}$ for most sensitive species $> 100$ mg/L).

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

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Physical Hazard Information
TERGITOL™ X series surfactants are stable under recommended storage and use conditions, although they can decompose at elevated temperatures. Avoid unintended 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 TERGITOL™ X series surfactants. 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: request the SDS from the Dow Customer Information Group (www.dow.com/assistance/dowcig.htm)
- Contact Us (www.dow.com/surfactants/contact/index.htm)
- Dow Surfactants web site: applications (www.dow.com/surfactants/applications/index.htm)

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References


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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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