Product Safety Assessment

TRITON™ DF Series Surfactants


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**Names**
- CAS No. 68154-99-4
- CAS No. 68603-25-8
- CAS No. 25322-68-3
- CAS No. 28805-58-5
- TRITON™ DF-12 surfactant
- TRITON DF-16 surfactant
- TRITON DF-20 surfactant
- Alcohols, C8-C10, ethers with polyethylene-polypropylene glycol monobenzyl ether
- Alcohols, C8-C10, ethoxylated propoxylated
- Polyethylene oxide
- Octenylsuccinic acid
- Anionic surfactant blend

**Product Overview**
- TRITON™ DF surfactants are low foam surfactants with good chemical stability in acidic and alkaline solutions. They are readily biodegradable with good wetting ability. For further information, see Product Description.
- TRITON DF surfactants are designed for low foam applications. For further information, see Product Uses.
- Those working with TRITON DF surfactants in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Dow does not sell these products for direct consumer use, but they may be formulated into certain household paints, cleaning products, dishwashing detergents, and rinse aids. For further information, see Exposure Potential.
- Eye contact with undiluted TRITON DF surfactants may cause severe burns and irritation with corneal injury, possibly resulting in permanent impairment of vision, even blindness. Brief skin contact may cause slight irritation with local redness. No adverse effects are expected from inhalation. For further information, see Health Information.
- TRITON DF surfactants are readily biodegradable according to the international Organisation for Economic Co-operation and Development (OECD) testing guidelines, so they will not persist in the environment. TRITON DF surfactants are either toxic or slightly to moderately toxic to aquatic organisms on an acute basis and they are not expected to bioaccumulate in the food chain (low bioconcentration potential). For further information, see Environmental Information.

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TRITON™ DF surfactants are stable at recommended storage and use temperatures, but can decompose at elevated temperatures. For further information, see Physical Hazard Information.

Manufacture of Product

- **Location** – The Dow Chemical Company produces TRITON™ DF surfactants at facilities in South Charleston, West Virginia, USA.
- **Process** – TRITON DF surfactants are manufactured using proprietary methods, chemistries, and formulations.

Product Description

TRITON™ DF surfactants are yellow liquids that have mild and either sweet or pungent odors. These materials are specially designed for low-foam applications. TRITON DF surfactants are low foam surfactants with good chemical stability in acidic and alkaline solutions.

Product Uses

TRITON™ DF surfactants are ideal for formulations that require low-foam properties. These surfactants are used in the following applications:

- **TRITON DF-12 surfactant** – food and dairy cleaners, machine dishwashing liquids, metal cleaners, pulp and paper, rinse aids, and wetting agents
- **TRITON DF-16 surfactant** – ion-exchange resin cleaners, metal cleaners, pigment dispersions, pulp and paper, rinse aids, textile processing, and wetting agents
- **TRITON DF-20 surfactant** – metal cleaners

Exposure Potential

TRITON™ DF surfactants are used in the formulation of industrial and consumer products. Based on the uses for this product, the public could be exposed through:

- **Workplace exposure** – Exposure can occur either in facilities that manufacture TRITON DF surfactants or in the various industrial or manufacturing facilities that formulate and use these products. Occupational exposure in manufacturing could occur 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 TRITON DF surfactants** – TRITON DF surfactants are not sold for direct consumer use. However, they are formulated into household cleaners, dishwashing detergents, rinse aids, household paints, and other products, the use of which may present potential for consumer exposure to diluted solutions. Consumers should read product information before use and follow label instructions. 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. Do not use water for clean-up. Absorb small spills with sand or dirt. Collect in suitable and properly labeled containers. Once introduced to water, these surfactants will remain in water. Because these compounds are readily biodegradable, they will not persist in water and soil environments. These products

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can be readily removed by biological wastewater-treatment facilities. 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 the area. Keep upwind of the spill and ventilate the area. Only trained and properly protected personnel must be involved in clean-up operations. Spilled material may cause a slipping hazard. Use appropriate safety equipment. See Environmental, Health, and Physical Hazard Information.

- **In case of fire** – Keep people away. Isolate the fire and deny any unnecessary entry. These products will not burn until the water has evaporated, leaving a combustible residue. To extinguish residues, use water fog, dry-chemical or carbon-dioxide extinguishers, or foam. 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, see the relevant Safety Data Sheet.

**Health Information**

Health information for TRITON™ DF 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 materials may also contain minor components or additives that have additional health risks. An overview of health information for TRITON DF surfactants is below.

**Eye contact** – Contact may cause severe irritation with corneal injury, which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

**Skin contact** – Prolonged contact may cause slight irritation with local redness. Prolonged or widespread contact may result in absorption of potentially harmful amounts.

**Inhalation** – Brief exposure (minutes) is not likely to cause adverse effects.

**Ingestion** – These products have low toxicity if swallowed. Swallowing small amounts incidental to normal handling operations is not likely to cause injury. However, swallowing larger amounts may cause injury.

For more information, see the relevant Safety Data Sheet.

**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.

TRITON™ DF-12 and DF-16 surfactants are water soluble. They tend to stay in water if released in the environment. TRITON DF-20 has limited water solubility. However, all of these products pose a low risk to the environment.

TRITON™ DF Surfactants are readily biodegradable [per Organisation for Economic Co-operation and Development (OECD) 301 testing guidelines]. They are expected to be removed from water, soil and biological wastewater-treatment facilities through biodegradation. Therefore, they are not persistent in the environment. These products are toxic (EC50 of 1 to
10 mg/L) or slightly to moderately toxic (EC50 of 10 to 100 mg/L) to aquatic organisms on an acute basis and are not likely to accumulate in the food chain (low bioconcentration potential).

For more information, see the relevant Safety Data Sheet.

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Physical Hazard Information

TRITON™ DF surfactants are thermally stable at recommended storage and normal use temperatures. Exposure to elevated temperatures can cause these products to decompose. Decomposition products depend upon temperature, air supply, and the presence of other materials. Avoid contact with strong acids, strong bases, strong oxidizers, and strong reducing agents.

Spilled surfactant can be a slipping hazard.

For more information, see the relevant Safety Data Sheet.

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Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of TRITON™ DF 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 Sheets (www.dow.com/webapps/msds/msdsssearch.aspx)
- Contact Us (www.dow.com/surfactants/contact/index.htm)
- Dow Surfactants – Low Foam Surfactants web page (www.dow.com/surfactants/products/low_foam.htm)

For more business information about TRITON DF surfactants, visit the Dow Surfactants website at www.dow.com/surfactants/index.htm.
References


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