Product Safety Assessment

TRITON™ Phosphate Ester Surfactants

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

Select a Topic:
- Names
- Product Overview
- Manufacture of Product
- Product Description
- Product Uses
- Exposure Potential
- Health Information
- Environmental Information
- Physical Hazard Information
- Regulatory Information
- Additional Information
- References

Names
- CAS No. 52623-95-7
- Polyethylene glycol mono(octylphenyl) ether phosphate
- tert-Octylphenol, ethoxylated and phosphated
- Poly(oxy-1,2-ethanediyl), α-[(1,1,3,3-tetramethylbutyl)phenyl]-ω-hydroxy-, phosphate
- Polyethylene glycol (1,1,3,3-tetramethylbutyl) phenyl ether phosphate
- Octylphenoxy polyethl phosphate
- Phosphate ester potassium salt
- TRITON™ H-55 Surfactant
- TRITON H-66 Surfactant
- TRITON QS-44 Surfactant
- TRITON XQS-20 Surfactant

Product Overview
- TRITON™ phosphate ester surfactants are yellow to brown liquids with a pungent odor. These surfactants are soluble in water with good chemical stability in acidic and alkaline solutions. They are compatible with both anionic and nonionic surfactants. For further details, see Product Description.
- TRITON phosphate ester surfactants are used to solubilize other surfactants in detergents. They are also used in emulsion polymerization, cleaners, and agrochemical formulations. For further details, see Product Uses.
- Exposure can occur either in facilities that manufacture TRITON phosphate ester surfactants or in the various industrial or manufacturing facilities that formulate and use these products. TRITON phosphate ester surfactants are used in several applications that may present a potential for consumer exposure. For further details, see Exposure Potential.
- Eye contact may cause slight to severe irritation with corneal injury, which may result in permanent vision impairment, even blindness. Brief skin contact may cause burns with pain, severe local redness, and tissue damage. Vapor may cause irritation of the nose, throat, and lungs. These products have low toxicity if swallowed, but may result in burns to the mouth, throat, and gastrointestinal tract. For further details, see Health Information.
- TRITON phosphate ester surfactants are not persistent in the environment because they are readily biodegradable or inherently biodegradable according to the international Organisation for Economic Co-operation and Development (OECD) testing guidelines. These surfactants are either practically nontoxic or slightly toxic to aquatic organisms on an acute basis.
These surfactants are not expected to accumulate in the aquatic food chain (low bioconcentration potential). For further details, see Environmental Information.

- TRITON phosphate ester surfactants are stable under recommended storage and normal use conditions, but can decompose at elevated temperatures.\(^{18,19}\) For further details, see Physical Hazard Information.

### Manufacture of Product

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

### Product Description

TRITON™ phosphate ester surfactants are yellow to brown liquids with a pungent odor. These products contain 40 to 65% of a complex organic phosphate ester in water, with smaller amounts of other phosphate compounds. The surfactants are anionic (negatively charged), soluble in water, chemically stable in acidic and alkaline solutions, and compatible with both anionic and nonionic surfactants.

### Product Uses

TRITON™ phosphate ester surfactants are used to solubilize nonionic surfactants in detergents that contain “builders” that soften water by tying up metal ions. They are also used in emulsion polymerization, cleaners, and agrochemical formulations.

### Exposure Potential

TRITON™ phosphate ester 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 phosphate ester 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 TRITON phosphate ester surfactants** – TRITON phosphate ester surfactants are not sold for direct consumer use. However, they are formulated into cleaners and certain agrochemicals that consumers may use. Always 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 cleanup. Absorb small spills with sand or dirt. Collect in suitable and properly labeled containers. Once introduced to water, TRITON phosphate ester surfactants will remain in water. These products are readily or inherently biodegradable in water and can be removed by wastewater-treatment facilities. See Environmental, Health, and Physical Hazard Information.

\(^{TM}\)Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow
- **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 product may create a slipping hazard. Use appropriate safety equipment. See Environmental, Health, and Physical Hazard Information.

- **In case of fire** – These products will not burn until evaporated to dryness. The residue is combustible. Keep people away. Isolate the fire and deny any unnecessary entry. Use water fog, dry-chemical or carbon-dioxide extinguishers, or foam to fight the fire. A direct water stream may spread the fire and create a slip hazard. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing. Follow emergency procedures carefully. Keep fire water out of waterways and sewers to minimize the potential for environmental damage. 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 TRITON™ phosphate ester surfactants is summarized on the relevant Safety Data Sheets. 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 is provided below.

**Eye contact** – For most products, contact may cause slight to moderate eye irritation. Some products may cause severe eye irritation with corneal injury, which may result in permanent vision impairment, even blindness. For some products, eye contact may also cause chemical burns.

**Skin contact** – For most products, prolonged contact may cause slight irritation. For some products even brief contact may cause skin burns with pain, severe local redness, and tissue damage. Prolonged contact is unlikely to result in absorption of harmful amounts.

**Inhalation** – Vapor may cause irritation of the nose, throat, and lungs. Prolonged, excessive exposure to vapor or mist may cause severe irritation to the nose, throat, and lungs.

**Ingestion** – These products have low toxicity if swallowed. For most products, harmful effects are not expected from swallowing. For some products, swallowing may result in burns of the mouth, throat, and gastrointestinal tract. Aspiration into the lungs may cause lung damage or, even death, due to chemical pneumonia.

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

**Environmental Information**

TRITON™ phosphate ester surfactants are highly water soluble and have low volatility; therefore, these substances will stay in water if introduced into the environment. These materials are readily or inherently biodegradable according to the international Organisation of Economic and Co-operative Development test guidelines. The biodegradability of these materials suggests that they will be rapidly removed from water and soil environments, including wastewater-treatment.
facilities. Therefore, they are not persistent in the environment. These products are not expected to accumulate in the food chain (low bioconcentration potential) due to their high water solubility.

TRITON™ phosphate ester surfactants range from practically nontoxic (LC_{50} >100 mg/L) to slightly toxic (EC_{50} of 10 to 100 mg/L) to aquatic organisms on an acute basis.

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

Physical Hazard Information

TRITON™ phosphate ester surfactants are stable under recommended storage and normal use conditions. 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 reducing agents.

Spilled surfactant can create a slipping hazard.

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

Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of TRITON™ phosphate ester 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.

Additional Information

- Request the Safety Data Sheet from the Dow Customer Information Group (www.dow.com/assistance/dowcig.htm)
- Contact Us (www.dow.com/surfactants/contact/index.htm)

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

References


®Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow
Product Safety Assessment: TRITON™ Phosphate Ester Surfactants


Back to top

™Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow
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.

The information herein is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Dow be responsible for damages of any nature whatsoever resulting from the use of or reliance upon the information herein or the product to which that information refers.

Nothing contained herein is to be construed as a recommendation to use any product, process, equipment or formulation in conflict with any patent, and Dow makes no representation or warranty, express or implied, that the use thereof will not infringe any patent.

NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.

Dow makes no commitment to update or correct any information that appears on the Internet or on its World-Wide Web server. The information contained in this document is supplemental to the Internet Disclaimer, http://www.dow.com/homepage/term.asp.

Form No. 233-01013-MM-1212