Product Safety Assessment

SOLTEX™ OPT Polymers

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Names
- SOLTEX™ OPT polymer
- SOLTEX OPT PG polymer

Acrylates/C12-22 alkyl methacrylate copolymer (INCI name)

Product Overview

- SOLTEX™ OPT polymers are stable, milky-white, acrylic copolymer emulsions in water. These products are marketed by Rohm and Haas Company, a wholly owned subsidiary of The Dow Chemical Company. For further details, see Product Description.
- SOLTEX OPT polymers are added to sunscreen and skin-care products to make these products waterproof (improve water resistance). SOLTEX OPT polymers are formulated into lotions, creams, and sprays. For further details, see Product Uses.
- Occupational exposure is possible during the manufacture of SOLTEX OPT polymers, as well as during the formulation or manufacture of sunscreen and skin-care products that contain them. Consumers may use sunscreen and skin-care products containing low levels of these polymers. For further details, see Exposure Potential.
- SOLTEX OPT polymers are formulated into finished sunscreen and skin-care products at levels that are nontoxic, not irritating to skin and eyes, not sensitizing, not photo-toxic and not photo-sensitizing. In the manufacturing setting, inhalation of vapor or mist may cause headache, nausea, and irritation of the nose, throat, and lungs. Eye or skin contact during manufacturing can cause slight irritation. For further details, see Health Information.
- Although acrylic polymers may be considered inert in the environment, in water, these polymers would adsorb (stick) to dissolved solids and sediment, and be removed from water by biological wastewater-treatment facilities. Based on data for similar materials, these polymers are unlikely to accumulate in the food chain and are nontoxic to aquatic organisms on an acute basis. For further details, see Environmental Information.
- SOLTEX OPT polymers are stable under recommended storage and use conditions. Avoid contact with strong oxidizing agents. For further details, see Physical Hazard Information.

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Manufacture of Product\textsuperscript{11,12}  
- **Capacity** – SOLTEX™ OPT polymers are manufactured by Rohm and Haas and affiliated companies in the United States.  
- **Process** – SOLTEX OPT polymers are manufactured using proprietary materials and technology to form alkylmethacrylate-based copolymers with the basic structure shown below.

\[
\begin{align*}
(\text{CH}_2\text{CH}_1) \quad (\text{CH}_2\text{CH}_2) \quad (\text{CH}_2\text{CH}_3) \quad (\text{CH}_2\text{CH}_4) \\
\text{C}_2n+1 \quad \text{C}_2 \quad \text{C}_3 \quad \text{C}_4
\end{align*}
\]

Product Description\textsuperscript{13,14}  
SOLTEX™ OPT polymers are alkylmethacrylate-based copolymers. These complex acrylic polymers are milky-white, water-based emulsions with nominally 48% solids. They are formulated with preservatives. Due to their unique chemical structure, SOLTEX OPT polymers provide highly efficient waterproofing properties to the formulations in which they are used.

Product Uses\textsuperscript{15,16}  
SOLTEX™ OPT polymers impart superior water-resistance to sunscreen and skin-care products. They are used in lotion, cream, and spray formulations. SOLTEX OPT polymers are suitable in a broad variety of sunscreen and skin-care formulations:  
- Oil-in-water, water-in-oil, water-in-silicone systems  
- Cold- and heat-processable systems  
- Alcohol-based spray systems  
- Nonionic-emulsified systems

Exposure Potential\textsuperscript{17}  
SOLTEX™ OPT polymers are used in the production of waterproof sunscreen and skin-care products. Based on these uses, the public could be exposed through:  
- **Workplace exposure** – Exposure can occur in facilities that manufacture SOLTEX OPT polymers or facilities that formulate these polymers into other products. Workers may be exposed during maintenance, sampling, testing, or other procedures. Avoid breathing process fumes. 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 products containing SOLTEX OPT polymers** – The Rohm and Haas Company does not sell these polymers for direct consumer use, but they are added to sunscreens and skin-care products used by consumers. SOLTEX OPT polymers are formulated into these products at levels of nontoxic, not irritating to skin and eyes, not sensitizing, not photo-toxic and not photo-sensitizing. Always read the product information before use and follow the label/use instructions. See Health Information.  
- **Environmental releases** – SOLTEX OPT polymers will be slowly released to the environment during consumer use of products containing them. Small amounts may be
referred to sewers and enter wastewater-treatment facilities, where they would be removed as biosolids. These polymers are considered nontoxic to fish and other aquatic organisms. See Environmental, Health, and Physical Hazard Information.

- **Large release** – In the event of a spill, the focus is on containing the spill to prevent contamination of soil and surface or ground water. Industrial spills or releases are infrequent and generally contained. If a large spill does occur, dike the area with sand or earth to contain the spill. Ventilate the area and evacuate personnel. Appropriate protective equipment must be worn when handling a spill of this material. Spilled material may create slippery conditions. Transfer liquids and solid diking material to separate suitable containers for recovery and disposal. See Environmental, Health, and Physical Hazard Information.

- **In case of fire** – Deny any unnecessary entry into the area. These products are not combustible. Use an extinguisher that is suitable for the surrounding material to fight the fire. To extinguish combustible residues of these products, use alcohol foam, carbon-dioxide or dry-chemical extinguisher, or water spray. 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**

SOLTEX™ OPT polymers are safe to use in sunscreen and skin-care formulations. These polymers have been shown to be nontoxic, not irritating to skin and eyes, not sensitizing, not photo-toxic and not photo-sensitizing when properly formulated.

- **Eye contact** – Eye contact with the concentrated material in the industrial setting may cause slight irritation.

- **Skin contact** – Prolonged or repeated contact during manufacturing may result in slight irritation.

- **Inhalation** – Inhalation of product vapor or mist during manufacturing may cause irritation of the nose, throat, and lungs and headache or nausea.

For more information, see the relevant Safety Data Sheet.

**Environmental Information**

SOLTEX™ OPT polymers are nonvolatile (do not evaporate), inert, and disperse but do not dissolve in water. Although these polymers do not biodegrade, they are bioeliminable. In other words, these polymers will stick to sludge, sediment, and dissolved solids and be removed from water by biological wastewater-treatment facilities with other biosolids.

Because of their high molecular weight, these polymers are unlikely to accumulate in the food chain (low bioconcentration potential) and are considered nontoxic to fish and other aquatic organisms on an acute basis.

For more information, see the relevant Safety Data Sheet.
Physical Hazard Information
SOLTEX™ OPT polymer formulations are stable under recommended storage and use conditions. Keep these products from freezing. Avoid contact with strong oxidizing agents.

Spilled polymer may cause slippery surfaces.

For more information, see the relevant Safety Data Sheet.

Regulatory Information
Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of SOLTEX™ OPT polymers. 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
- Contact Us (www.dow.com/assistance/thoughts.htm)
- SOLTEX™ OPT Waterproofing Polymer for Maximum Water Resistance in Skin and Suncare, Rohm and Haas Personal Care, Form No. Form No. PC0372007, August 2007 (www.dow.com/assets/attachments/business/pcare/soltex/soltex_opt/tds/soltex_opt.pdf)


References
2 SOLTEX OPT Waterproofing Polymer for Maximum Water Resistance in Skin and Suncare, Rohm and Haas Personal Care, Form No. PC0372007, August 2007, page 2.
6 SOLTEX OPT Polymer Material Safety Data Sheet, Rohm and Haas Company, December 10, 2009, pages 1–2 and 5.

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