EcoSmooth™ Silk Polymer


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Names
- EcoSmooth™ Silk polymer
- Ethylene/octene copolymer and ethylene/sodium acrylate copolymer
- Ethylene/sodium acrylate copolymer

Product Overview
- EcoSmooth™ Silk conditioning polymer is an advanced technology hair-care product. This product is formulated as a translucent white dispersion in water.¹ For further details, see Product Description.
- EcoSmooth Silk polymer is added to shampoo or body-wash formulations to impart conditioning properties. For further details, see Product Uses.
- Worker exposure to EcoSmooth polymers is possible during manufacture, formulation, transport, or use. Consumers may use shampoos or body washes that contain these polymers. When formulated in personal care products, EcoSmooth Silk Polymer is nontoxic, not irritating to skin, produces minimal to no eye irritation, and is not sensitizing.² For further details, see Exposure Potential.
- In the industrial setting, eye contact with undiluted product may cause slight irritation. Prolonged or repeated skin contact may cause slight irritation. No adverse effects are anticipated from inhalation.³ For further details, see Health Information.
- Ethylene/sodium acrylate polymer and ethylene/octene copolymer are expected to be inert in the environment. These polymers are unlikely to accumulate in the food chain. EcoSmooth Silk is considered practically non-toxic to aquatic organisms.⁴ For further details, see Environmental Information.
- EcoSmooth Silk polymer is stable under recommended storage and use conditions.⁵ For further details, see Physical Hazard Information.

Manufacture of Product
- Location – EcoSmooth™ Silk conditioning polymer is manufactured for The Dow Chemical Company and its foreign affiliates by a toll converter in Europe.
- Process – EcoSmooth polymers are manufactured using proprietary technology and chemistries.
**Product Safety Assessment: EcoSmooth™ Silk Polymer**

**Product Description**
EcoSmooth™ Silk polymer is a novel, anionic conditioning ingredient for use in shampoo and other rinse off personal-care products. EcoSmooth Silk polymer is formulated as translucent white dispersion in water and contains ethylene/octene copolymer and ethylene/sodium acrylate copolymer. This product is nominally 50% solids.

**Product Uses**
EcoSmooth™ Silk polymer is added to shampoo or body wash formulations to impart conditioning properties. This product is added at a very low level, typically between 0.2% and 1.0% (based on active ingredient). Compared to silicone-based conditioning shampoos, EcoSmooth polymers help minimize hair breakage and reduce product build-up on hair.

**Exposure Potential**
EcoSmooth™ Silk polymer is used in the production of shampoos and body washes. Based on this, individuals could be exposed through:

- **Workplace exposure** – Those working with EcoSmooth polymers in manufacturing and/or formulating 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 EcoSmooth polymers** – EcoSmooth polymers are not sold for direct consumer use, but small amounts are added to personal-care products used by the public. Always read and follow product label instructions. See Health Information.

- **Environmental releases** – Because EcoSmooth polymers are formulated into personal-care products, small quantities could enter wastewater-treatment facilities when consumer products are washed off or discarded. The polymers are expected to be inert in the environment but would likely be removed by biological waste-water treatment facilities to some extent via adsorption to biosolids. In the event of a spill, the focus is on containing the spill to prevent contamination of soil and surface or groundwater. See Environmental, Health, and Physical Hazard Information.

- **In case of fire** – Isolate the area and deny any unnecessary entry. Use extinguishing measures appropriate for the surrounding fire. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing. Collect firewater run-off and dispose of according to local regulations. Follow emergency procedures carefully. See Environmental, Health, and Physical Hazard Information.

For more information, refer to the product Safety Data Sheet.

**Health Information**
EcoSmooth™ Silk has been tested in a number of non-clinical and clinical tests to evaluate potential hazards associated with handling and use of the material. It is considered non-toxic by single oral and dermal exposure, slightly irritating to the skin and eyes, and not a sensitizer. Tests have shown that it is not mutagenic. This material is safe and appropriate for use in a broad range of rinse-off personal care applications.

The safety of ethylene/sodium acrylate copolymer, an active ingredient in EcoSmooth Silk polymer, has been assessed by the Cosmetic Ingredient Review (CIR) Expert Panel in the broad context of acrylate copolymers. The CIR Expert Panel evaluated the scientific data and concluded that ethylene/sodium acrylate copolymer is safe for use in cosmetics and personal-care products.

EcoSmooth Silk polymer contains 50% active ingredient. The following health information refers to the concentrated product encountered during manufacturing. By contrast, formulated shampoos contain only 0.2% to 1.0% of these active ingredients.
**Product Safety Assessment: EcoSmooth™ Silk Polymer**

**Eye contact** – Contact with concentrated product may cause slight eye irritation.

**Skin contact** – Prolonged or repeated contact may cause slight skin irritation.

**Inhalation** – No adverse effects are anticipated from inhalation. Repeated or prolonged inhalation of heated product vapor or mist during processing can cause irritation of the nose, throat, and lungs.

**Ingestion** – Based on information for similar products, these products have very low oral toxicity.

For more information, see the relevant [Safety Data Sheet](#).

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**Environmental Information**

Ethylene/sodium acrylate polymer and ethylene/octene copolymer, the active ingredients of EcoSmooth™ Silk polymer, are dispersible in water and would be expected to be inert in the environment. These polymers are expected to be removed to some extent by adsorption to biosolids during wastewater treatment. If released to surface waters the polymeric components would initially remain dispersed in water and eventually adsorb onto sediments.

Ethylene/sodium acrylate polymer and ethylene/octene copolymer, the active ingredients of EcoSmooth Silk polymer, are not considered readily biodegradable. However, they are likely to degrade slowly in the environment, including degradation by physical action or upon exposure to sunlight.

Because of their large molecular weight, these polymers are not likely to accumulate in the food chain (bioconcentration potential is low). EcoSmooth™ Silk is considered practically non-toxic to aquatic organisms.

For more information, see the relevant [Safety Data Sheet](#).

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**Physical Hazard Information**

EcoSmooth™ Silk polymer is stable under recommended storage and use conditions. Exposure to temperatures greater than 37°C (100°F) for extended periods may cause product decomposition. Protect this product from freezing.

For more information, refer to the product [Storage and Handling Guide](#) or [Safety Data Sheet](#).

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**Regulatory Information**

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of EcoSmooth™ Silk polymer. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant [Safety Data Sheet](#) or [Contact Us](#).

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**Additional Information**

- Safety Data Sheet ([www.dow.com/webapps/msds/ShowPDF.aspx?id=090003e880157af1](www.dow.com/webapps/msds/ShowPDF.aspx?id=090003e880157af1)) or use the search tool ([www.dow.com/webapps/msds/msdssearch.aspx](www.dow.com/webapps/msds/msdssearch.aspx))
- Contact Us ([www.dow.com/personalcare/ecosmooth_silk/contact/](www.dow.com/personalcare/ecosmooth_silk/contact/))

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Product Safety Assessment: EcoSmooth™ Silk Polymer

- EcoSmooth Silk Conditioning Polymer Storage and Handling Guide, Dow Personal Care, Form No. 324-00387-1010 BBI, October 2010 (www.dow.com/personalcare/pdfs/EcoSmooth_Silk_Storage_Handling_Guidelines.pdf)

For more business information about EcoSmooth Silk conditioning polymer, visit the Dow Personal Care website at www.dow.com/personalcare/.

References


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