EcoSmooth™ Satin Polymer

Product Overview
- EcoSmooth™ Satin conditioning polymer is an advanced technology hair-care product. This product is formulated as a translucent white dispersion in water. For further details, see Product Description.
- EcoSmooth Satin polymer is added to shampoo or body-wash formulations to impart conditioning properties. For further details, see Product Uses.
- Worker exposure to EcoSmooth polymer 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 Satin Polymer is nontoxic, not irritating to skin, produces minimal to no eye irritation, and is not sensitizing. 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. For further details, see Health Information.
- Ethylene/sodium acrylate polymer is expected to be inert in the environment. These polymers are unlikely to accumulate in the food chain and their toxicity ranges from practically non-toxic to moderately toxic under certain conditions. For further details, see Environmental Information.
- EcoSmooth Satin polymer is stable under recommended storage and use conditions. For further details, see Physical Hazard Information.

Manufacture of Product
- Location – EcoSmooth™ Satin 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™ Satin Polymer

Product Description
EcoSmooth™ Satin is a novel, anionic conditioning ingredient for use in shampoo and other rinse off personal-care products. EcoSmooth Satin is formulated as translucent white dispersion in water, contains ethylene/sodium acrylate copolymer, and ranges from 24-30% solids.

Product Uses
EcoSmooth™ Satin 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™ Satin polymer is used in the production of shampoos and body washes. Based on this, the public 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 polymer is 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. The ethylene/sodium acrylate polymer aquatic toxicity ranges from practically non-toxic to moderately toxic under certain circumstances. 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.
- **Large release** – Industrial spills or releases are infrequent and generally contained. If a large spill does occur, the focus is on immediate containment to prevent contamination of soil and surface or ground water. Keep upwind of spill. Spilled material may cause a slipping hazard. Ventilate the area. Dike the spill area. Sweep up or vacuum spillage into suitable and properly labeled containers. 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.

Health Information
EcoSmooth™ Satin 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, the active ingredient in EcoSmooth™ Satin 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 Satin polymer contains between 24-30% 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.

**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, refer to the product Safety Data Sheet.

**Environmental Information**

Ethylene/sodium acrylate polymer, the active ingredient of EcoSmooth Satin polymer, is dispersible in water and would be expected to be inert in the environment. The polymer is expected to be removed to some extent by adsorption to biosolids during wastewater treatment. If released to surface waters the polymeric component would initially remain dispersed in water and eventually adsorb onto sediments.

Ethylene/sodium acrylate polymer, the active ingredients of EcoSmooth Satin polymer, is not considered readily biodegradable. However, it is likely to degrade slowly in the environment, including degradation by physical action or upon exposure to sunlight.

Because of its large molecular weight, this polymer is not likely to accumulate in the food chain (bioconcentration potential is low). The ethylene/sodium acrylate polymer aquatic toxicity ranges from practically non-toxic to moderately toxic under certain circumstances.

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

**Physical Hazard Information**

EcoSmooth™ Satin 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.

**Regulatory Information**

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of EcoSmooth™ Satin 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.

Additional Information

- Safety Data Sheet

For more business information about EcoSmooth Satin conditioning polymer, visit the Dow Personal Care website at www.dow.com/personalcare/.
Product Safety Assessment: EcoSmooth™ Satin Polymer

Reference
2 EcoSmooth Satin Conditioning Polymer Frequently Asked Questions, Dow Personal Care.
3 EcoSmooth Satin Conditioning Polymer Storage and Handling Guide, Dow Personal Care.
5 “Ethylene/Sodium Acrylate Copolymer,” webpage, The Personal Care Products Council, CosmeticsINFO.Org.

Back to top
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Back to top