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## Product Safety Assessment

### **OPULYN™ Opacifiers**

Product Safety Assessment documents are available at: [www.dow.com/productsafety/finder/](http://www.dow.com/productsafety/finder/).

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#### Names

##### Styrene/Acrylates Copolymer (INCI)

- CAS No. 9010-92-8  
(OPULYN™ 301 Opacifier)
- CAS No. 104551-84-0  
(OPULYN 302B Opacifier)

##### Trade Names

- OPULYN™ 301 Opacifier
- OPULYN 302B Opacifier
- OPULYN 303B Opacifier
- OPULYN 305 Opacifier

##### Acrylate/Methoxy PEG-10 Maleate/Styrene Copolymer (INCI)

- CAS No. 68988-26-1 (OPULYN™ 305 Opacifier)

##### Ethalkonium Chloride Acrylate/HEMA/Styrene Copolymer (INCI)

- CAS No. 26010-51-5

##### Styrene/Acrylamide Copolymer (INCI)

- CAS No. 24981-13-3  
(OPULYN™ 303B Opacifier)

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#### Product Overview

- OPULYN™ Opacifiers are styrene/acrylate or styrene/acrylamide emulsion copolymers, supplied at approximately 40% solids in water.<sup>1</sup> For further details, see [Product Description](#).
- OPULYN Opacifiers can be used to provide a translucent to milky appearance to a wide range of cosmetic products.<sup>1</sup> For further details, see [Product Uses](#).
- These products are not sold directly for consumer use, but are included in some personal-care product formulations. Therefore consumer contact with low levels of these materials is likely. For further details, see [Exposure Potential](#).
- Eye or skin contact can result in slight irritation. Inhalation of vapor or mist can cause headache, nausea, and irritation of the nose, throat, and lungs.<sup>2</sup> For further details, see [Health Information](#).

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- Because of their high molecular weight and low water solubility, OPULYN™ Opacifiers would not be expected to bioconcentrate (accumulate in the food chain). Biodegradation of these products is considered limited and depends on the origin of the treatment sludge. However, these products would likely absorb onto soil or typical wastewater-treatment sludge and would be separated from liquid effluents.<sup>2</sup> For further details, see [Environmental Information](#).
- OPULYN Opacifiers are stable products and do not undergo any known reactions.<sup>2</sup> For further details, see [Physical Hazard Information](#).

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### Manufacture of Product<sup>3</sup>

- **Capacity** – The Dow Chemical Company produces OPULYN™ Opacifiers at facilities in the USA and Europe.
- **Process** – In emulsion polymerization, liquid monomers are added directly to water containing a small amount of surfactant. The monomers are emulsified and polymerized in small droplets in the continuous water medium. Polymerization normally proceeds via free-radical chemistry using a suitable initiator. Typical reaction conditions are 70–80°C for 1 hour. The water helps control the heat of reaction and improves the handling properties of the resulting resin. The properties of the resultant polymer depend on the monomers and additives used and the reaction conditions.

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### Product Description<sup>1,4</sup>

OPULYN™ Opacifiers are emulsion copolymers of styrene/acrylate, styrene/acrylamide, or acrylate/Methoxy PEG-10/styrene blends. They are supplied at approximately 40% solids in water and are milky white liquids with a slight acrylic odor.

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### Product Uses<sup>4</sup>

OPULYN™ Opacifiers offer a dense and creamy look to personal-care formulations, and that visual impact enhances the richness and properties of the products. Typical levels in the formulation range from 0.5 to 1.0%. Personal-care products that may include OPULYN Opacifiers include:

- Shampoos and shower gels
- Hair conditioners
- Liquid hand soaps

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### Exposure Potential<sup>2</sup>

OPULYN™ Opacifiers are used in the production of personal-care products. Based on the uses for these products, the public could be exposed through:

- **Workplace exposure** – Exposure can occur either in an emulsion manufacturing facility or in a formulating facility that uses OPULYN Opacifiers. Those working with these products in manufacturing or formulating operations could be exposed during maintenance, sampling, testing, or other procedures. Each manufacturing or formulating 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 OPULYN™ Opacifiers** – These products are not sold for direct consumer use, but consumers may come in contact with low levels of these products by using personal-care products that contain them. At use concentrations in personal-care products (0.5 to 1.0% copolymer), the OPULYN Opacifiers are not expected to present risk to the consumer.
- **Environmental releases** – Small quantities of this product may be released into the environment during processing. In the event of a release, the focus is on containing the spill to prevent contamination of soil and surface or ground water. Small spills should be absorbed with inert materials such as sand or soil. Because it will coagulate and bind to sludge, this product would be expected to be removed by 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, the material should be captured, collected, and reprocessed or disposed of according to applicable governmental requirements. Respiratory protection is recommended for cleaning up spills and leaks because the odor may be unpleasant. Keep spills and cleaning run-off out of municipal sewers and open bodies of water. See [Environmental](#), [Health](#), and [Physical Hazard Information](#).
- **In case of fire** – Deny unnecessary entry into the area. Although the product is not combustible, it can spatter when heated above 100°C (212°F), and the dried residue can burn. Use extinguishing techniques that are suitable for the materials surrounding the fire. Firefighters should wear positive-pressure, self-contained breathing apparatus and protective firefighting clothing when fighting the fire. Follow emergency procedures carefully. See [Environmental](#), [Health](#), and [Physical Hazard Information](#).

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

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## Health Information<sup>2</sup>

**Eye contact** – Direct eye contact with this product can cause slight irritation.

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

**Inhalation** – Inhalation of vapor or mist from this product can cause headache, nausea, and irritation of the nose, throat, and lungs.

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

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## Environmental Information<sup>2</sup>

OPULYN™ Opacifiers are not soluble in water, but can be dispersed in water. If there is a release or spill, these products would not evaporate into the air. Because of their high molecular weight and low water solubility, OPULYN Opacifiers would not be expected to bioconcentrate (accumulate in the food chain). The biodegradation of these products is considered limited and depends on the origin and location of the material in the environment. However, these products would likely absorb onto soil or typical wastewater-treatment sludge and would be separated from liquid effluents.

To properly dispose of these products, coagulate the emulsion by the stepwise addition of ferric chloride and lime. Separate the coagulated material from the clear liquid and flush the liquid to a

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chemical sewer. Dispose of the solid material in accordance with local, state, and federal regulations.

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

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### Physical Hazard Information<sup>1,2</sup>

OPULYN™ Opacifiers are stable products that do not undergo any known hazardous reactions. Although the product is not combustible, it can spatter when heated above 100°C (212°F), and the dried residue can burn. To maintain product quality, avoid extreme temperatures during storage. Keep the product from freezing. Do not store in heat or direct sunlight. At elevated temperatures, such as a fire, thermal decomposition of this product may yield styrene or acrylic monomers.

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 OPULYN™ Opacifiers. 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 (<http://www.dow.com/webapps/msds/msdssearch.aspx>)
- Contact Us (<http://hips.dow.com/en/contact>)

For more business information about OPULYN™ Opacifiers, visit the Dow Personal-Care Products web site at <http://hips.dow.com/en/personal-care>.

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### References

- <sup>1</sup> *OPULYN™ Opacifiers Selection Guide*, Rohm and Haas Company, Form No. PC0042008
- <sup>2</sup> *OPULYN 301 Opacifier Material Safety Data Sheet*, Rohm and Haas Company
- <sup>3</sup> Linak, Eric and Kishi, Akihiro, “CEH Marketing Report: Acrylic Surface Coatings,” *Chemical Economics Handbook*, SRI Consulting
- <sup>4</sup> Dow Chemical website: Personal Care: Opulyn (<http://www.dow.com/personalcare/technologies/opacifiers/>).

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### 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

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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.

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