Product Safety Assessment

**PRIMAL™ and RHOPLEX™ Acrylic Styrene Emulsions**


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**Names**
- Acrylic styrene emulsion
- Acrylic styrene emulsion polymer
- Acrylic styrene polymer

**Representative Commercial Product Names**
- PRIMAL™ AS-300 Emulsion
- PRIMAL AS-322 Emulsion
- PRIMAL AS-350 Emulsion
- PRIMAL AS-380 Emulsion
- PRIMAL AS-3813 Emulsion
- PRIMAL AS-390 Emulsion
- PRIMAL AS-398 Emulsion
- PRIMAL AS-450 Emulsion
- PRIMAL AS-500 Emulsion
- PRIMAL AS-510 Emulsion
- PRIMAL AS-550 Emulsion
- PRIMAL AS-1047 Emulsion
- PRIMAL™ AS-2010 Emulsion
- PRIMAL AS-2010EF Emulsion
- PRIMAL AS-8388 Emulsion
- PRIMAL DC-420 Emulsion
- PRIMAL DC-430 Emulsion
- PRIMAL SF-055 Emulsion
- PRIMAL SF-308 Emulsion
- RHOPLEX™ SF-012 Emulsion

**Product Overview**
- The PRIMAL™ and RHOPLEX™ acrylic styrene emulsions described in this Product Safety Assessment are water-based, acrylic-styrene polymer emulsions designed for waterborne coating applications. For further details, see Product Description.
- These emulsions are used almost exclusively as architectural coatings in a variety of high Pigment Volume Concentration (PVC) paint formulations. For further details, see Product Uses.
- Worker exposure to these emulsions is possible during manufacture, formulation, transport, or application. Exposure is minimized through engineering controls and the use of personal protective equipment. Consumers may use latex house paints that contain acrylic styrene emulsions. For further details, see Exposure Potential.

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Eye or skin contact with these products can result in slight irritation. Inhalation of vapor or mist can cause headache, nausea, and irritation of the nose, throat, and lungs. For further details, see Health Information.

PRIMAL™ and RHOPLEX™ acrylic styrene emulsions have limited biodegradability, but would likely adsorb onto soil or typical wastewater-treatment sludge and would be separated from water during normal wastewater-treatment processes. These emulsions are of high molecular weight and are not likely to accumulate in the food chain (bioconcentrate). Based on data from similar emulsion polymers, the aquatic toxicity would be expected to be low. For further details, see Environmental Information.

These products are stable under recommended storage and use conditions, and do not undergo any known hazardous reactions. For further details, see Physical Hazard Information.

Manufacture of Product

- **Locations** – The Dow Chemical Company and its global affiliates manufacture PRIMAL™ and RHOPLEX™ acrylic styrene emulsions in various locations around the world.
- **Process** – PRIMAL™ and RHOPLEX™ acrylic styrene emulsions are manufactured by first mixing styrene and acrylic monomers in water using an appropriate surfactant to emulsify the monomer. A polymerization reaction is then initiated using a suitable initiator, and the monomers react to form acrylic-styrene polymer particles that remain suspended as an emulsion.

Product Description

The PRIMAL™ and RHOPLEX™ emulsions described in this Product Safety Assessment are water-based, emulsion polymers that are formulated as milky white liquids with an ammonia-like odor.

Product Uses

The PRIMAL™ and RHOPLEX™ emulsions described in this Product Safety Assessment are added to water-based (latex) paint formulations to provide water whitening resistance, improved washability, and enhanced film formation. These emulsions are used almost exclusively as architectural coatings in a variety of high Pigment Volume Concentration (PVC) paint formulations. These products are used for both interior and exterior coating formulations for:
- Flat, sheen, and semi-gloss paints
- Primers
- Textured paints (e.g., stucco)

Exposure Potential

The PRIMAL™ and RHOPLEX™ emulsions described in this Product Safety Assessment are used in the production of waterborne coating products. Based on the uses for these products, individuals could be exposed through:
- **Workplace exposure** – Exposure can occur in an emulsion manufacturing facility, or during coating formulation or application. Those working with these emulsions in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures.

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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 PRIMAL™ and RHOPLEX™ emulsions** – Dow does not sell these emulsions for direct consumer use, but consumers may use products containing them such as interior or exterior paints. Read and follow product instructions carefully. See Health Information.

- **Environmental releases** – Small quantities of these products may be released into the environment during application. In the event of a spill, the focus is on immediate containment to prevent contamination of soil, surface water, or groundwater. For small spills the emulsions should be absorbed with inert materials such as sand or earth. These emulsion polymers are expected to be inert in the environment. If released to surface water the polymers would initially remain dispersed in water, but eventually settle into the sediments. The polymers are not expected to biodegrade but would likely be removed by adsorption onto biosolids in biological 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 runoff 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 these products are not combustible, they 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 (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**

Eye contact – Direct eye contact with liquid emulsion can cause slight irritation.

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

Inhalation – Inhalation of product vapor or mist can cause irritation of the nose, throat, and lungs. Headache and nausea are also possible.

For more information, see the relevant Safety Data Sheet.

**Environmental Information**

These emulsion polymers would be expected to be inert in the environment. If released to surface waters, these polymers would initially disperse, and eventually settle into the sediment. These materials would likely be removed by biological wastewater-treatment facilities via adsorption to sludge solids.

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Although polymeric substances are generally considered nonbiodegradable, these emulsion polymers are likely to degrade slowly in the environment, including degradation by physical action or upon exposure to sunlight.

Because of their high molecular weight and low water solubility, these emulsion polymers would not be expected to accumulate in the food chain (low bioconcentration potential). Based on data from similar emulsion polymers, the acute toxicity of these material would be expected to be low to fish and other aquatic organisms.

For more information, see the relevant Safety Data Sheet.

Physical Hazard Information

These products are stable under recommended storage and use conditions. Prevent these products from freezing.

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 PRIMAL™ and RHOPLEX™ acrylic styrene emulsions. 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

- Request the relevant Safety Data Sheets and Technical Data Sheets from the Dow Customer Information Group (www.dow.com/assistance/dowcig.htm)
- Contact Us (www.dow.com/assistance/dowcig.htm)
- Dow web site: Products: Construction; search for the relevant product (for example PRIMAL™ AS Products)

For more information about PRIMAL™ and RHOPLEX acrylic styrene emulsions, visit the Dow paint/coatings and binders product listing at www.dow.com/products/search/Paint%2fCoatings+Binders/.

References


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