Product Safety Assessment

PRIMAL™ and RHOPLEX™ Acrylic Emulsions – Dow Coatings Materials


Select a Topic:

Names
Product Overview
Manufacture of Product
Product Description
Product Uses
Exposure Potential
Health Information
Environmental Information
Physical Hazard Information
Regulatory Information
Additional Information
References

Names
- Water-based acrylic resin
- Acrylic emulsion
- Emulsion polymer

Trade names and grades for these products include, but are not limited to, the following:
- PRIMAL™ Acrylic Emulsions
- RHOPLEX™ Acrylic Emulsions

Product Overview
- PRIMAL™ and RHOPLEX™ acrylic emulsions are milky white liquids with an ammonia or acrylic odor.\textsuperscript{1,2} For further details, see Product Overview.
- PRIMAL and RHOPLEX acrylic emulsions are used in paints, stains, and coatings.\textsuperscript{3,4} For further details, see Product Uses.
- Worker exposure to PRIMAL and RHOPLEX acrylic emulsions is possible during manufacture, formulation, transport, or application. Exposure is minimized through engineering controls and the use of personal protective equipment. Consumers may come into contact with these emulsions in formulated paints and coatings. Consumers may also come into contact with cured or dried product in textiles and fabrics. For further details, see Exposure Potential.
- Eye contact can cause slight irritation. Prolonged or repeated skin contact can cause slight irritation. Inhalation of vapor or mist can cause headache, nausea, and irritation of the nose, throat, and lungs. Some grades of these products contain very small amounts (less than 1%) of formaldehyde, which is classified as a possible human carcinogen.\textsuperscript{2} For further details, see Health Information and request the relevant Safety Data Sheet from the Dow Customer Information Group.
- PRIMAL and RHOPLEX acrylic emulsions have limited biodegradability, but can readily absorb onto soil or biosolids and be removed from water during normal wastewater-treatment processes. These emulsions have a high molecular weight and are not likely to accumulate in the food chain (bioconcentrate). Based on data from similar products, these products are expected to be practically nontoxic to aquatic organisms on an acute basis.\textsuperscript{2} For further details, see Environmental Information.
Product Safety Assessment: PRIMAL™ and RHOPLEX™ Acrylic Emulsions – Dow Coatings Materials

- PRIMAL and RHOPLEX acrylic emulsions are stable under recommended storage and normal use conditions and do not undergo any known hazardous reactions.² For further details, see Physical Hazard Information.

Back to top

Manufacture of Product

- Locations – Rohm and Haas Chemicals LLC, a wholly owned subsidiary of The Dow Chemical Company, and its global affiliates produce PRIMAL™ and RHOPLEX™ acrylic emulsions in a number of global locations.
- Process³ – In emulsion polymerization, liquid monomers are added directly to water containing surfactant. The monomers are emulsified and then polymerize in small droplets in a continuous water medium. Polymerization normally proceeds via free-radical chemistry using a suitable initiator. The properties of the resultant polymer depend on the monomers and additives used and the reaction conditions employed.

Back to top

Product Description¹,²
PRIMAL™ and RHOPLEX™ acrylic emulsions are stable microsuspensions of acrylic polymers in water, consisting of 20 to 80% polymer solids, traces of residual monomer, and water. Most products are self-curing, but additional cross-linking agents can be added to effect the cure if desired. Some products may also contain very small amounts (less than 1%) of formaldehyde (CAS No. 50-00-0). PRIMAL and RHOPLEX acrylic emulsions are supplied as milky-white liquids with an ammonia or acrylic odor.

Back to top

Product Uses²,³
PRIMAL™ and RHOPLEX™ acrylic emulsions are used in paints, stains, and coatings.

Back to top

Exposure Potential²
PRIMAL™ and RHOPLEX™ acrylic emulsions are used in the production of industrial and consumer 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 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 PRIMAL and RHOPLEX acrylic emulsions – Dow does not sell PRIMAL and RHOPLEX acrylic emulsions for direct consumer use, but consumers may come into contact with these products in paints, stains, coatings, and nonwoven applications, such as fabrics. Read and follow product instructions carefully. See Health Information.
- Environmental releases – Small quantities of these products may be released into the environment during application of paints and coatings or when products are discarded. 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 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 product should be captured, collected, and reprocessed or disposed of according to applicable governmental requirements. Use appropriate personal protective equipment. Keep people away from and upwind of the spill or leak. These products can create slippery conditions. Keep spills and cleaning runoff out of municipal sewers and open bodies of water. Contain spills immediately with inert materials such as sand or earth. Transfer liquids and solid diking material to separate suitable containers for recovery or disposal. See Environmental, Health, and Physical Hazard Information.
- In case of fire – Thermal decomposition may release acrylic monomers. These products will not burn until evaporated to dryness. The dried residue can burn. Use extinguishing media appropriate for the surrounding fire. Product can splatter above 100°C (212°F). Firefighters should wear self-contained breathing apparatus and protective firefighting clothing. Follow emergency procedures

²Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow
Product Safety Assessment: PRIMAL™ and RHOPLEX™ Acrylic Emulsions – Dow Coatings Materials

outlined in the Safety Data Sheet carefully. See Environmental, Health, and Physical Hazard Information.

For more information, request the relevant Safety Data Sheet from the Dow Customer Information Group.

Back to top

Health Information

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

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

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

Other – Some products may contain small amounts of formaldehyde (CAS No. 50-00-0). Formaldehyde is classified as a possible human carcinogen.

For more information, request the relevant Safety Data Sheet from the Dow Customer Information Group.

Back to top

Environmental Information

PRIMAL™ and RHOPLEX™ acrylic emulsions are expected to be inert in the environment. If released to surface waters, these polymers could initially disperse and eventually settle into the sediment. Although they cannot be considered biodegradable, these polymers could readily absorb onto sludge or biosolids and therefore would be removed by biological wastewater-treatment facilities.

Because of their high molecular weight and low water solubility, these polymers would not be expected to accumulate in the food chain (bioconcentration potential is low). Based on data from similar emulsion polymers, these products are expected to be practically nontoxic (EC50/LC50 >100mg/L) to aquatic organisms on an acute basis.

For more information, request the relevant Safety Data Sheet from the Dow Customer Information Group.

Back to top

Physical Hazard Information

PRIMAL™ and RHOPLEX™ acrylic emulsions are stable under recommended storage and normal use conditions. Keep these products from freezing.

For more information, request the relevant Safety Data Sheet from the Dow Customer Information Group.

Back to top

Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of PRIMAL™ and RHOPLEX™ acrylic 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.

Back to top
Additional Information

- Request the relevant Safety Data Sheet from the Dow Customer Information Group (www.dow.com/assistance/dowcig.htm)
- Contact Us (www.dow.com/coating/contact/)

For more business information about PRIMAL™ and RHOPLEX™ acrylic emulsions, visit the Dow Coating Materials business web site at www.dow.com/coating.

References

1. The Dow Chemical Company. *Generic Aqueous Acrylic Emulsion Type IV Material Safety Data Sheet*.
3. The Dow Chemical Company. *RHOPLEX™ AC-464 Emulsion Polymer Technical Data Sheet*.
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 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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