Product Safety Assessment

**ACUMER™ Polymers**


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**Names**

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- ACUMER 9341 polymer
- ACUMER 9400 polymer
- ACUMER 9410 polymer
- ACUMER 9420 polymer
- ACUMER 9460 polymer

**Product Overview**

- ACUMER™ polymers are water-based polymers that are formulated as colorless to pale yellow liquids with a mild odor. Most are based on acrylic copolymers. For further details, see Product Description.
- ACUMER polymers are used in the water-treatment industry as scale inhibitors and dispersants in cooling-water systems, boilers, and reverse-osmosis (RO) units. Some products are used in mining processing applications as dispersants. For further details, see Product Uses.
- ACUMER polymers are intended for commercial use. Worker exposure is possible during manufacture, transport, or application. Consumer contact with ACUMER products used for food and drinking water contact is not expected to represent a risk. For further details, see Exposure Potential.
- Eye and skin contact with the undiluted liquid can cause slight irritation. Inhalation of vapor or mist can cause irritation of the nose, throat, and lungs. For further details, see Health Information.
- ACUMER polymers are expected to be relatively inert in the environment. The polymers are unlikely to accumulate in the food chain and are expected to be practically non-toxic to fish and other aquatic organisms on an acute basis. For further details, see Environmental Information.
- ACUMER polymers are noncombustible and stable under recommended storage and use conditions. For further details, see Physical Hazard Information.
Manufacture of Product

- **Locations** – Rohm and Haas Company, a wholly owned subsidiary of The Dow Chemical Company, and its foreign affiliates, manufacture ACUMER™ polymers at facilities worldwide.
- **Process** – ACUMER polymers are produced in batch operations using proprietary Rohm and Haas methods, chemistries, and formulations.

Product Description

ACUMER™ polymers are water-based polymers that are formulated as colorless to pale yellow liquids with a mild odor. They are typically 40 to 50% solids, with one or more of several copolymers including, but not limited to, acrylic resins, neutralized polycarboxylic acid, or polycarboxylate. In addition to small amounts of residual monomer, some formulations may contain stabilizers and surfactants.

Product Uses

Most ACUMER™ polymers are commercial water-treatment products used as scale inhibitors, dispersants, and stabilizers for cooling-water systems, boilers, and reverse-osmosis (RO) units. These products prevent fouling of heat-transfer surfaces, minimize corrosion by inhibiting crystal growth, and act as dispersants under specific conditions. The 9000 series products are dispersants designed mainly for mining processing applications. Some products designed for specific applications are listed below:

- ACUMER 1000 – General-purpose acrylic acid homopolymer scale inhibitor
- ACUMER 1010 – Polycrylic acid homopolymer for general-purpose scale inhibition within water systems
- ACUMER 1035 – General-purpose acrylic homopolymer dispersant for scale prevention of RO membranes
- ACUMER 1050 – Partially neutralized, polycrylic acid polymer for use as a scale inhibitor during sugar processing
- ACUMER 1051 – Fully neutralized polycrylic acid polymer for use as a scale inhibitor during sugar processing
- ACUMER 1100 – Polyacrylate homopolymer for general-purpose scale inhibition
- ACUMER 1110 – Polyacrylate homopolymer for general-purpose scale inhibition
- ACUMER 1510 – Polycrylic acid homopolymer for general dispersant applications
- ACUMER 1850 – Thermally stable, polycarboxylate dispersant for boiler treatment
- ACUMER 2000 – Copolymer stabilizer, scale inhibitor, and dispersant for cooling-water treatment
- ACUMER 2100 – Carboxylate/sulfonate copolymer that functions as a scale inhibitor and dispersant for water systems
- ACUMER 2200 – Carboxylate copolymer for scale inhibition in industrial water
- ACUMER 3100 – Terpolymer stabilizer and dispersant for water treatment
- ACUMER 4161 – Phosphinopolycarboxylic acid scale inhibitor and dispersant for water treatment
- ACUMER 4300 – Superior scale inhibitor and dispersant for calcium carbonate and sulfate control in water systems
- ACUMER 4800 – High-performance scale inhibitor for scale prevention of RO membranes and thermal desalination processes
- ACUMER 5000 – Superior silica and magnesium silicate scale inhibitor and dispersant
- ACUMER 6600 – A high-performance biodispersant
- ACUMER 9000 – Dispersant for aqueous calcium hydroxide and magnesium hydroxide slurries
- ACUMER 9141 – High-performance dispersant for various minerals in mining processing
- ACUMER 9210 – Dispersant and stabilizer for a variety of inorganic pigments in mineral slurries
- ACUMER 9300 – Acrylic homopolymer dispersant for mineral slurries
- ACUMER 9310 – Dispersant and stabilizer for a variety of mineral slurries
- ACUMER 9320 – Low-residual dispersant polymer for stabilizing a variety of mineral slurries
- ACUMER 9341 – Cost-effective dispersant polymer for the stabilization of high-solids mineral slurries
- ACUMER 9400 – High-performance dispersant for various mineral slurries, pH 7
Exposure Potential

ACUMER™ polymers are used in industrial applications. Based on the uses for this product, the public could be exposed through:

- **Workplace exposure** – Those working with ACUMER polymers in manufacturing operations could be exposed during application, 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.

- **Consumer exposure to products containing ACUMER polymers** – Some ACUMER polymers are intended for industrial use only and are maintained only by trained personnel. Consumers are unlikely to come into direct contact with these products. See Health Information.

- **Environmental releases** – ACUMER polymers are expected to be relatively inert in the environment. If released to surface waters, the polymer would initially remain dispersed in water, but eventually settle into the sediments. The polymers are not expected to be biodegradable but would likely be removed by adsorption onto biosolids (sludge) in biological wastewater treatment facilities. In the event of a spill, the focus is on immediate containment to prevent contamination of soil, surface water, or groundwater. If released to soil, the products are likely to remain in place and be degraded gradually by sunlight and mechanical action. For small spills, ACUMER polymers should be absorbed with inert materials such as sand or earth. 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. Spills of some products should also be neutralized immediately with slaked lime, sodium bicarbonate, or crushed limestone. Approved positive-pressure, self-contained breathing apparatus (SCBA) with a full-face mask is recommended for emergency work. Spilled material can cause slippery conditions. See Environmental, Health, and Physical Hazard Information.

- **In case of fire** – These products are noncombustible. Dried residue may burn. They can splatter above 100°C (212°F). Deny any unnecessary entry into the area. Use extinguishing techniques appropriate for surrounding materials. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing. Keep fire water out of waterways and sewers to minimize the potential for environmental damage. Follow emergency procedures carefully. See Environmental, Health, and Physical Hazard Information.

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

Health Information

Health information for ACUMER™ polymers is summarized on the relevant Safety Data Sheet. It is important to note that health risks associated with individual products may vary based on their formulation and/or intended use. The Safety Data Sheet is the preferred source for specific health information. These products may also contain minor components or additives that have additional health risks. An overview of health information for undiluted ACUMER polymers appears below.

**Eye contact** – Direct contact can cause slight irritation.
**Skin contact** – Prolonged or repeated contact can cause slight irritation. These products have not been reported to be sensitizers.

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

**Repeated exposure** – Prolonged or repeated overexposure to dusts or mists can cause lung irritation.

For more information, request the Safety Data Sheet from the [Dow Customer Information Group](mailto:dowinfo@dow.com).

### Environmental Information

ACUMER™ polymers are water-based polymers. If released to the environment, the polymer components would be inert, but would likely be removed by biological wastewater-treatment facilities via adsorption to biosolids. If released to surface waters, the polymeric component would initially remain dispersed in water, but eventually settle into sediments. If ACUMER polymers are released to soil, they would be expected to remain in place and be degraded gradually by sunlight and mechanical action.

ACUMER polymers would not be expected to accumulate in the food chain (low bioconcentration potential).

ACUMER polymers are practically non-toxic, with the EC/LC\textsubscript{50} ranging from 200 to 1100 mg/L for the most sensitive species tested.

For more information, request the Safety Data Sheet from the [Dow Customer Information Group](mailto:dowinfo@dow.com).

### Physical Hazard Information

ACUMER™ polymers are stable under recommended storage and use conditions, but can decompose at temperatures above 230°C (446°F). Thermal decomposition may produce monomer vapors.

Avoid freezing.

There are no known materials that are incompatible with these products.

ACUMER products are noncombustible. However, the dried residue may burn.

For more information, request the Safety Data Sheet from the [Dow Customer Information Group](mailto:dowinfo@dow.com).

### Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of ACUMER™ polymers. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant Safety Data Sheet, Technical Data Sheet, or Contact Us.
Additional Information

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


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