Product Safety Assessment

ACUSOL™ Anionic Rheology Modifier


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Names
Trade names:
- ACUSOL™ 801S polymer
- ACUSOL 805S polymer
- ACUSOL 810A polymer
- ACUSOL 820 polymer
- ACUSOL 823 polymer
- ACUSOL 830 polymer
- ACUSOL 835 polymer
- ACUSOL 842 polymer

Product Overview
- ACUSOL™ anionic rheology modifiers are water-based acrylic polymer formulations that enhance the flow characteristics of liquids by acting as thickeners and stabilizers. These products are formulated as milky-white liquids with a mild odor. For further information, see Product Description.
- ACUSOL anionic rheology modifiers are used in household and institutional formulations to improve product stability and flow quality. Applications include products for dishwashing, laundry, and cleaning. For further information, see Product Uses.
- Worker exposure to ACUSOL rheology modifiers is possible during manufacture, transport, or use. Consumers may use home-care products that contain these polymers. For further information, see Exposure Potential.
- The polymers in ACUSOL anionic rheology modifiers have a well-established toxicological profile and are safe for normal use. In the industrial setting, eye or skin contact with undiluted product may cause slight irritation. Inhalation of product vapor or mist during processing may cause irritation of the nose, throat, and lungs. For further information, see Health Information.
- ACUSOL anionic rheology modifiers are acrylic polymers suspended in water. If released to the environment, the polymers would be expected to be inert. Due to their high molecular weight, acrylic polymers are not expected to accumulate in the food chain. ACUSOL anionic rheology modifiers are expected to be practically non-toxic to fish and other aquatic organisms on an acute basis. For further information, see Environmental Information.
- ACUSOL anionic rheology modifiers are stable under recommended storage and normal use conditions. For further information, see Physical Hazard Information.
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Manufacture of Product

- **Locations** – Rohm and Haas Company, a wholly owned subsidiary of The Dow Chemical Company, manufactures ACUSOL™ anionic rheology modifiers at facilities in Croydon, Pennsylvania and Knoxville, Tennessee, USA, and through global affiliates in Canada and South Africa, in quantities sufficient to meet global demand.

- **Process** – ACUSOL anionic rheology modifiers are produced and formulated in batch operations using proprietary materials and technology. The general structure of ACUSOL anionic acrylic polymers is shown below.

![General structure of ACUSOL anionic acrylic polymers](image)

Product Description

ACUSOL™ anionic rheology modifiers are thickening agents that are formulated as dispersions of acrylic polymers in water. ACUSOL anionic rheology modifiers consist of two types of products: HASE associative thickeners (hydrophobically modified alkali-soluble emulsions) and ASE non-associative thickeners (alkali-swellable emulsions). Both range from 20 to 30% solids.

Product Uses

ACUSOL™ anionic rheology modifiers are used worldwide to improve products for home-care, fabric-care, and institutional applications. These polymers provide performance enhancement and storage stability for the following types of products:

- Household cleaners – floor cleaners, hard-surface cleaners, wall cleaners, oven/grill cleaners, abrasive creams/cleaners, all-purpose cleaners, toilet cleaners, floor polishes
- Laundry detergents – household and industrial laundry liquids, liquid fabric softeners
- Dishwashing liquids – household and industrial dishwashing liquids, rinse aids
- Other household products – paint strippers, car polishes, drain cleaners

Exposure Potential

ACUSOL™ anionic rheology modifiers are used in the production of household and institutional cleaners and products. Based on this, exposure could occur through:

- **Workplace exposure** – Those working with ACUSOL rheology modifiers 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 ACUSOL anionic rheology modifiers** – These products are not sold for direct consumer use, but may be formulated at low levels into home- and fabric-care products, such as liquid household cleaners, dishwashing detergents, and laundry detergents used by the general public. The polymers in ACUSOL anionic rheology modifiers have a well-established toxicological profile and are safe for normal use. Always read and follow product label instructions. See Health Information.
- **Environmental releases** – Because these products are formulated into home- and fabric-care products, small quantities could enter wastewater-treatment facilities when these products are used or discarded. If released to water, the polymers would initially disperse in water and eventually settle into the sediment. These products will degrade slowly in the environment, and will likely be removed by biological wastewater-treatment facilities by adsorbing onto biosolids. These products are not acutely toxic to fish or other aquatic organisms. 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, surface water, or groundwater. Evacuate personnel upwind and away from the spill or leak. Appropriate protective equipment must be worn when handling spills of these products. Dike the spill and absorb with inert solids such as sand or soil. Collect liquids and solid diking material in suitable separate containers. Spilled product can create slippery conditions. See Environmental, Health, and Physical Hazard Information.

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Created: March 23, 2013

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In case of fire – These products are noncombustible, but the dried residue can burn. Use extinguishing media appropriate for the surrounding fire. Firefighters should wear positive-pressure, self-contained breathing apparatus and protective firefighting clothing. 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.

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Health Information

Health information for ACUSOL™ anionic rheology 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 ACUSOL anionic rheology polymers appears below.

Eye contact – Direct contact can cause slight eye irritation.

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

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

Ingestion – These products are nontoxic.

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

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Environmental Information

The acrylic polymers in ACUSOL™ anionic rheology modifiers are expected to be inert in the environment. If released to surface waters, the acrylic polymers would initially remain dispersed in water and eventually settle into the sediment. These polymers will likely be removed by biological wastewater-treatment facilities by adsorbing onto biosolids.

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

Because of their high molecular weight, these products would not be expected to accumulate in the food chain (low bioconcentration potential). ACUSOL anionic polymers are nontoxic to fish and other aquatic organisms on an acute basis.

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

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Physical Hazard Information

ACUSOL™ anionic rheology modifiers are stable under recommended storage and normal use conditions. Keep these products from freezing. Vapors can be evolved when products are heated during processing operations. ACUSOL anionic rheology modifiers are noncombustible, but the dried residue can burn.

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

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Regulatory Information
Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of ACUSOL™ anionic rheology modifiers. 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
• 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)
• ACUSOL™ Rheology Modifiers for Home and Fabric Care Products, Rohm and Haas, Form No. CS-727D, May 2008 (www.dow.com/assets/attachments/business/acusol_guides/AcusolRheo_low.pdf)
• ACUSOL™ 801S Rheology Modifier for Heavy Duty Liquid Detergents, Liquid Hand Wash Dish Soaps and All Purpose Cleaners, Rohm and Haas, Form No. FC-454B, July 2002 (www.dow.com/assets/attachments/business/pmat/acusol_detergent_polymers/acusol_801s/tds/acusol_801s.pdf)
• ACUSOL™ 820 Rheology Modifier and Stabilizer, Rohm and Haas, Form No. FC-456A, January 2003 (www.dow.com/assets/attachments/business/pmat/acusol_rheology_modifiers/acusol_820/tds/acusol_820.pdf)
• ACUSOL™ 823 Rheology Modifier and Stabilizer, Rohm and Haas, Form No. CS-757, January 2003 (www.dow.com/assets/attachments/business/pmat/acusol_rheology_modifiers/acusol_823/tds/acusol_823.pdf)
• ACUSOL™ 830 Rheology Modifier and Stabilizer, Rohm and Haas, Form No. CS-75B, February 2003 (www.dow.com/assets/attachments/business/pmat/acusol_rheology_modifiers/acusol_830/tds/acusol_830.pdf)

For more business information about ACUSOL™ products, visit the Dow webpage for ACUSOL™ rheology modifiers at www.dow.com/products/product-line/acusol-rheology-modifiers/.

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References
1 ACUSOL™ Rheology Modifiers for Home and Fabric Care Products, Rohm and Haas, Form No. CS-727D, May 2008, pages 4–5.
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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