Product Safety Assessment

ACUDYNE™ Polymers

Product Safety Assessment documents are available at: www.dow.com/productsafety/finder/.

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Names
• ACUDYNE™ 180 polymer
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• ACUDYNE LT-120 polymer
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• ACUDYNE SHINE
• Durable hold resin
• Hair fixative and styling polymer
• Hair fixative polymer
• Hair styling conditioning polymer
• Shine and bold

Product Overview
• ACUDYNE™ polymers are water-based, acrylic polymers manufactured by Rohm and Haas, a wholly owned subsidiary of The Dow Chemical Company. These formulations are clear, off white, white, or milky white in color with a mild acrylic odor.\textsuperscript{1,2,3,4} For further details, see Product Uses.
• ACUDYNE polymers are personal-care ingredients used primarily in hair-styling products.\textsuperscript{5} For further details, see Product Uses.
• Exposure to ACUDYNE polymer is possible in both industrial and consumer applications. When used as directed, product exposure does not cause adverse health effects at the levels used in personal-care products. Consumers should refer to product instructions to protect against unnecessary exposure. Those working with ACUDYNE polymers in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Workers can minimize the potential for exposure by carefully following workplace procedures and wearing the proper protective equipment.\textsuperscript{1,2,3,4} For further details, see Exposure Potential.
• These products, as supplied, may cause slight eye irritation. Prolonged or repeated skin contact may cause slight skin irritation. Inhalation may cause irritation to upper respiratory tract (nose and throat) and lungs, headache, or nausea.\textsuperscript{1,2,3,4} For further details, see Health Information.
• ACUDYNE polymers released to land or water are not likely to accumulate in the food chain and are bioeliminable via absorptive mechanisms. Specific ecological toxicity data is not

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available for these products at this time.\textsuperscript{1,2,3,4} However, ecotoxicity data from similar polymers indicate that the aquatic toxicity of ACUDYNE\textsuperscript{TM} polymers would be low. For further details, see Environmental Information.

- These products are stable under recommended storage and use conditions. The stability of ACUDYNE polymers can be affected by freezing temperatures. Elevated temperatures during manufacturing may evolve monomer vapors.\textsuperscript{1,2,3,4} For further details, see Physical Hazard Information.

Manufacture of Product\textsuperscript{6,7,8,9}

- **Capacity** – ACUDYNE\textsuperscript{TM} polymers are manufactured by or on behalf of Rohm and Haas, a wholly owned subsidiary of The Dow Chemical Company, in USA facilities.
- **Process** – ACUDYNE polymers are prepared using proprietary Rohm and Haas materials and technology.

Product Description

ACUDYNE\textsuperscript{TM} polymers are water-based, acrylic polymers manufactured by Rohm and Haas, a wholly owned subsidiary of The Dow Chemical Company.\textsuperscript{10} These formulations are water-based products that are clear, off white, white, or milky white in color with a mild acrylic odor.\textsuperscript{1,2,3,4}

Product Uses\textsuperscript{11}

ACUDYNE\textsuperscript{TM} polymers are used in aerosol and non-aerosol hairsprays, pump sprays, aerosol mousses, hair-styling gels, styling creams and lotions, curl activators, and hair glazes. These products are especially effective for high-humidity conditions. Several polymers are available depending on the end-use requirements.

- **ACUDYNE 180 polymer** – firm-hold hair fixative and styling polymer
- **ACUDYNE 5800** – an acrylic polymer for hair care for hair extensions
- **ACUDYNE SHINE** – a styrene acrylic polymer for hair care
- **ACUDYNE DHR polymer** – hair-fixative polymer for long-lasting hold and flexible style
- **ACUDYNE HC** – a styrene acrylic polymer for hair care nearing launch
- **ACUDYNE\textsuperscript{TM} LT-120 polymer** – hair-fixative polymer for maximum hold with stiff feel and excellent humidity resistance
- **ACUDYNE SCP polymer** – hair-fixative polymer for firm hold and conditioning effect
- **ACUDYNE SHINE** – a styrene acrylic polymer for hair care

Exposure Potential\textsuperscript{1,2,3,4}

ACUDYNE\textsuperscript{TM} polymers are used in personal hair-care products. Based on the intended consumer uses and manufacturing processes of these products, potential for exposure could include:

- **Workplace exposure** – Those working with ACUDYNE polymers in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Exposure can occur either in a facility that manufactures these polymers or in industrial, commercial, or manufacturing facilities that formulate products that contain ACUDYNE

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polymers. Each manufacturing facility should have a thorough training program for employees and appropriate work processes and safety equipment in place to limit unnecessary exposure. See Health Information.

- **Consumer exposure to products containing ACUDYNE™ polymers** – These products are not sold directly to consumers, but are incorporated into products used by consumers. Always read the product information before use and follow the label/use instructions. See Health Information.

- **Environmental releases** – In the event of a spill, the focus is on containing the spill to prevent contamination of soil and surface or ground water. Absorb small spills with inert absorbents such as sand, sawdust, or cat litter. Collect recovered material in properly labeled containers and dispose of it according to applicable government requirements. Because ACUDYNE polymers are bioeliminable, they will be removed by wastewater treatment plants via adsorption to sludge biosolids. See Environmental and Physical Hazard Information.

- **Large release** – Industrial spills or releases are infrequent and generally contained. Spilled material should be captured, collected, and reprocessed or disposed of according to applicable governmental requirements. Only properly trained and equipped personnel should attempt to isolate or contain the spill. Thermal decomposition may yield acrylic monomers. Material can splatter above 100°C. Dried product can burn. See Environmental, Health, and Physical Hazard Information.

- **In case of fire** – Keep people away. Isolate the fire and deny any unnecessary entry into the area. Firefighters should wear full chemical-resistant firefighting clothing with positive-pressure, self-contained breathing apparatus (SCBA) with an approved full-face mask. Contain fire water run-off if possible. If not contained, fire water run-off may cause environmental damage. Follow emergency procedures carefully. See Environmental, Health, and Physical Hazard Information.

For more information, obtain the relevant Safety Data Sheet or contact the Dow Customer Information Group.

**Health Information**

Health information for ACUDYNE™ 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 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 ACUDYNE™ polymers and products formulated with them appears below.

**Eye contact** – May cause slight eye irritation.

**Skin contact** – Repeated or prolonged contact may cause slight skin irritation.

**Inhalation** – Inhalation may cause irritation to the upper respiratory tract (nose and throat) and lungs, as well as headache or nausea.

For more information, obtain the relevant Safety Data Sheet or contact the Dow Customer Information Group.
Spilled ACUDYNE polymers should be prevented from entering soil, ditches, sewers, waterways, and/or groundwater. ACUDYNE polymers released to land or water are not likely to accumulate in the food chain and are bioeliminable via absorptive mechanisms. The polymers will be removed from the water phase via adsorption to suspended particulate matter and/or sediment.

Specific ecological toxicity data is not available for these products at this time. However, ecotoxicity data from similar polymers indicate that the aquatic toxicity of ACUDYNE polymers would be low.

For more information, obtain the relevant Safety Data Sheet or contact the Dow Customer Information Group.

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Physical Hazard Information

The Safety Data Sheet is the preferred source for specific information. An overview of general physical hazard information for ACUDYNE™ polymers appears below.

These products are stable under recommended storage and use conditions. The stability of ACUDYNE polymers can be affected by freezing temperatures. Elevated temperatures during manufacturing may evolve monomer vapors.

For more information, obtain the relevant Safety Data Sheet or contact 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 ACUDYNE™ polymers. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant Safety Data Sheet or Dow Customer Information Group.

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Additional Information

- Safety Data Sheets (may be obtained by visiting the relevant product page at http://www.dow.com/webapps/msds/msdssearch.aspx or contacting the Dow Customer Information Group at www.dow.com/assistance/dowcig.htm)
- ACUDYNE™ for Personal Care -- Hair Fixative Resins Website (http://www.dow.com/products/#market/personal-care-and-apparel/?&_suid=14111505389090032925421757573496)
- ACUDYNE™ 180: The best styling polymer for clean and long lasting hold, Rohm and Haas Company, a subsidiary of The Dow Chemical Company, Form No. PC0452006
- ACUDYNE 180 Hair Fixative and Styling Polymer, Rohm and Haas Company, a subsidiary of The Dow Chemical Company, PC0222003
- ACUDYNE DHR Durable Hold Resin, Rohm and Haas, a subsidiary of the Dow Chemical Company, PC0042004
- ACUDYNE DHR Durable Hold Resin All Day Long Flexible Style, Rohm and Haas Company, a subsidiary of The Dow Chemical Company, PC0302006ER

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- **ACUDYNE LT-120 Hair Fixative Polymer**, Rohm and Haas Company, a subsidiary of The Dow Chemical Company, PC0362007
- **ACUDYNE SCP Hair Styling Conditioning Polymer**, Rohm and Haas Company, a subsidiary of The Dow Chemical Company, PC0012005_FUR
- **ACUDYNE SCP: The women’s choice for long lasting hold and smooth hair**, Rohm and Haas Company, a subsidiary of The Dow Chemical Company, PC0462006
- **ACUDYNE 180 Polymer Technical Data Detail Page**, Rohm and Haas Company, a subsidiary of The Dow Chemical Company, PC0222008
- **ACUDYNE DHR Polymer Technical Data Detail Page**, Rohm and Haas Company, a subsidiary of The Dow Chemical Company, PC0422004
- **ACUDYNE LT-120 Polymer Technical Data Detail Page**, Rohm and Haas Company, a subsidiary of The Dow Chemical Company, PC0362007
- **ACUDYNE SCP Polymer Technical Data Detail Page**, Rohm and Haas Company, a subsidiary of The Dow Chemical Company

For more business information about the ACUDYNE polymers, visit the Dow Chemical Personal Care, Hair Care Application website at Dow Personal Care

**References**

1. ACUDYNE™ 180 Polymer Material Safety Data Sheet, The Dow Chemical Company
2. ACUDYNE DHR Polymer Material Safety Data Sheet, The Dow Chemical Company
3. ACUDYNE LT-120 Polymer Material Safety Data Sheet, The Dow Chemical Company
4. ACUDYNE SCP Polymer Material Safety Data Sheet, The Dow Chemical Company
6. ACUDYNE 180 Polymer Technical Data Detail Page, Rohm and Haas Company, a subsidiary of The Dow Chemical Company
7. ACUDYNE DHR. Polymer Technical Data Detail Page, Rohm and Haas Company, a subsidiary of The Dow Chemical Company
8. ACUDYNE LT-120 Polymer Technical Data Detail Page, Rohm and Haas Company, a subsidiary of The Dow Chemical Company
9. ACUDYNE™ SCP Polymer Technical Data Detail Page, Rohm and Haas Company, a subsidiary of The Dow Chemical Company

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NOTICES:

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