



ACUMER™ 1010 Scale Inhibitor

Chemistry and Mode of Action

ACUMER™ 1010 is a low molecular weight polyacrylate with a selected molecular weight around 2000 that can be used to optimize the anti-scale performance through at least three mechanisms:

- Solubility enhancement by threshold effect, which reduces precipitation of low solubility inorganic salts (calcium carbonate in particular).
- Crystal modification, which deforms the growing inorganic salt crystal to give small, irregular, readily fractured crystals that do not adhere well to surfaces and can be easily removed during cleaning operations.
- Dispersing activity, which prevents precipitated crystals or other inorganic particles from agglomerating and depositing on surfaces.

Anti-Precipitation Performance

ACUMER™ 1010 polymer is a general purpose scale inhibitor as it is effective to inhibit precipitation of calcium carbonate, calcium oxalate, calcium sulfate, barium sulfate, and other low solubility salts.

Typical Applications

- Industrial water treatment
 - Scale inhibition in open recirculating cooling circuits (CaCO₃ scale in particular).
 - Dispersant for boiler sludge control.
 - Oil field water treatment for preventing scale in both formation and production equipment.

Typical Physical Properties

(These properties are typical but do not constitute specifications.)

Property	Value
Appearance	Clear to slightly hazy
Chemical nature	Acrylic homopolymer
Grade	Na salt
Average molecular weight	2000 (Mw)
Total solids (%)	43
pH as is (at 25°C)	7
Bulk density (at 25°C)	1.32
Viscosity Brookfield (mPa.s/cps at 25°C)	200

Benefits of ACUMER™ 1010

- Contains no phosphorus, making its use acceptable where legislation requires that discharge waters contain low or no phosphorus.
- Exhibits exceptional stability in the presence of hypochlorite.
- Shows good anti-scaling efficiency at low dosage over a wide range of pH, water hardness and temperature conditions.
- Shows a higher degree of solubility in presence of Ca^{2+} than other higher molecular weight homopolymers.
- Offer a strong dispersant activity contrarily to phosphonates.

FDA Clearance

ACUMER™ 1010 complies with the U.S. Food and Drug Administration (FDA) Food Additives regulations indicated below, provided that the final formulation meets the limitations and other conditions prescribed by the regulation:

173.310 Boiler water additives.

175.105 Adhesives.

176.170 Components of paper, paperboard in contact with aqueous and fatty food.

176.180 Components of paper, paperboard in contact with dry food.

Handling Precautions	Before using this product, consult the Material Safety Data Sheet (MSDS)/Safety Data Sheet (SDS) for details on product hazards, recommended handling precautions and product storage.
Storage	Store products in tightly closed original containers at temperatures recommended on the product label. Freezing or long term cold storage of ACUMER™ 1010 may cause some separation of the components. Although product performance is not impaired as long as the whole container is heated and well mixed, it is recommended to keep ACUMER 1010 from freezing.
Disposal Considerations	Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner. It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.
Product Stewardship	Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.
Customer Notice	Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

Contact:

North America: 1-800-447-4369
Latin America: (+55)-11-5188-9000
Europe: (+800)-3-694-6367
(Toll) +31-11567-2626
Asia-Pacific: (+800)-7776-7776
(Toll) +60-3-7965-5392
<http://www.dow.com>

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries. Dow assumes no obligation or liability for the information in this document. References to "Dow" or the "Company" mean the Dow legal entity selling the products to Customer unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

