



ACUMER™ 1850
Scale Inhibitor and Dispersant

Typical Properties

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

Property	Typical Values
Appearance	Clear solution*
Chemical nature	Polycarboxylate
Grade	Na salt
Average molecular weight	30000 (Mw)
Total solids (%)	30
pH as is (at 25°C)	10
Bulk density (at 25°C)	1.19
Brookfield Viscosity (mPa.s/cps at 25°C)	225

*A slight haze may appear; this does not affect the intrinsic properties of the product or its performance.

Chemistry and Mode of Action

ACUMER™ 1850 is a low molecular weight polycarboxylate with a selected molecular weight around 30000 to optimize the dispersant performance. It can be used effectively 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.

Performance

ACUMER™ 1850 is a general purpose scale inhibitor and dispersant. It is effective to inhibit scale deposition on equipment surfaces. It acts against precipitation and deposition of calcium carbonate, calcium sulphate and other sparingly soluble salts.

ACUMER 1850 is thermally very stable. There is no weight loss up to 450°C (thermogravimetric analysis). It is particularly recommended to use ACUMER 1850 as sludge dispersant and scale control polymer in boiler, even in high pressure boilers.

Suggested Applications

- Industrial water treatment:
 - Scale inhibition in open recirculating cooling circuits
 - Dispersant for all types of cooling circuits
 - Dispersant for boiler sludge control

Benefits of ACUMER™ 1850

- Contains no phosphorus, making its use acceptable where legislation requires that discharge waters contain no or low phosphorous.
- 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.
- Exhibits a very good thermal stability.
- Offers a very strong dispersant activity.

Storage Recommendation

Freezing or long term cold storage of ACUMER™ 1850 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 store ACUMER 1850 at temperatures above freezing.

FDA Clearance

ACUMER™ 1850 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.

21 CFR 173.310 Boiler water additives.

21 CFR 175.105 Adhesives.

21 CFR 175.300 Resinous and polymeric coatings.

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

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

- ACUMER 1850 may be used as coating adjuvant for controlling viscosity when used at level not to exceed 0.3% by weight of coating solids.

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.
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.
Chemical Registration	Many countries require the registration of chemicals, either imported or produced locally, prior to their commercial use. Violation of these regulations may lead to substantial penalties imposed upon the user, the importer or manufacturer, and/or cessation of supply. Ensure that all chemicals are registered as required before use.
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>

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