

ACUMER™ 1000 Scale Inhibitor

Typical Properties

These properties are typical but do not constitute specifications.

Appearance	Clear to slightly hazy
Chemical nature	Acrylic homopolymer
Grade	Partial Na salt (20% neutralized)
Average molecular weight	2000 (Mw)
Total solids (%)	48
pH as is (at 25°C)	3.6
Bulk density (at 25°C)	1.25
Viscosity Brookfield (mPa.s/cps at 25°C)	200

Chemistry and Mode of Action

ACUMER 1000 is a low molecular weight polyacrylate with a selected molecular weight around 2000 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 1000 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.

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.

Benefits of ACUMER 1000

- Contain no phosphorus, making its use acceptable where legislation requires that discharge waters contain low or no phosphorus.
- Exhibit exceptional stability in the presence of hypochlorite.
- Show good anti-scaling efficiency at low dosage over a wide range of pH, water hardness and temperature conditions.
- Show a higher degree of solubility in presence of Ca²⁺ than other higher molecular weight homopolymers.
- Offer a strong dispersant activity contrarily to phosphonates.

Storage Recommendation

Freezing or long term cold storage of ACUMER 1000 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 1000 from freezing.

FDA Clearance

ACUMER 1000 complies with the 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.

Material Safety Data Sheets

Rohm and Haas Company maintains Material Safety Data Sheet (MSDS) on all of its products. These contain important information that you may need to protect your employees and customers against any known health and safety hazards associated with our products. We recommend you obtain copies of MSDS for our products from your local Rohm and Haas technical representative or the Rohm and Haas Company. In addition, we recommend you obtain copies of MSDS from your suppliers of other raw materials used with our products.

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