

## ACUMER™ 1100 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<br>(20% neutralized) |
| Average molecular weight                    | 4500 (Mw)                            |
| Total solids (%)                            | 48                                   |
| pH as is (at 25°C)                          | 3.6                                  |
| Bulk density (at 25°C)                      | 1.24                                 |
| Viscosity Brookfield<br>(mPa.s/cps at 25°C) | 800                                  |

### Chemistry and Mode of Action

ACUMER 1100 is a low molecular weight polyacrylate with a selected molecular weight around 4500 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 1100 polymer is a general purpose scale inhibitor as it is effective to prevent scale building in inhibiting precipitation and deposition 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 (CaCO<sub>3</sub> scale in particular).
  - Dispersant for all types of cooling circuits.
  - Dispersant for boiler sludge control.

### Benefits of ACUMER 1100

- 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.
- Offers a strong dispersant activity contrarily to phosphonates.

### Storage Recommendation

Freezing or long term cold storage of ACUMER 1100 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 1100 from freezing.

### **FDA Clearance**

ACUMER 1100 comply 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 Sheet**

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.

---

ACUMER is a trademarks of Rohm and Haas Company or of its subsidiaries or affiliates.

These suggestions and data are based on information we believe to be reliable. They are offered in good faith, but without guarantee, as conditions and methods of use of our products are beyond our control. We recommend that the prospective user determines the suitability of our materials and suggestions before adopting them on a commercial scale.

Suggestions for uses of our products or the inclusion of descriptive material from patents and the citation of specific patents in this publication should not be understood as recommending the use of our products in violation of any patent or as permission or license to use any patents of the Rohm and Haas Company.



©Rohm and Haas, 2008. All rights reserved.

April 2002  
ACUMER 1100.PDS.E.ER.04/2002