ACUMER™ 9460 High Performance Dispersant for Fine CaCO₃ Slurry

Typical Properties
These properties are typical but do not constitute specifications.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear, light amber solution*</td>
</tr>
<tr>
<td>Chemical nature</td>
<td>Polycarboxylate</td>
</tr>
<tr>
<td>Grade</td>
<td>Partial sodium salt</td>
</tr>
<tr>
<td>Average molecular weight (Mw)</td>
<td>3600</td>
</tr>
<tr>
<td>Total solids (%)</td>
<td>~ 42</td>
</tr>
<tr>
<td>pH as is (at 25°C)</td>
<td>~ 5.5</td>
</tr>
<tr>
<td>Bulk density (at 25°C)</td>
<td>~ 1.3</td>
</tr>
<tr>
<td>Brookfield Viscosity (mPa.s/cps at 25°C)</td>
<td>~ 500</td>
</tr>
</tbody>
</table>

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

Use and Properties
ACUMER 9400 products (9400, 9410, 9420, and 9460) are a family of water-soluble polymers supplied in water. Some pH versions are available in only selected geographical regions. Check with your local Rohm and Haas representative for the availability.

<table>
<thead>
<tr>
<th>ACUMER</th>
<th>pH</th>
</tr>
</thead>
<tbody>
<tr>
<td>9410</td>
<td>4</td>
</tr>
<tr>
<td>9460</td>
<td>5.5</td>
</tr>
<tr>
<td>9400</td>
<td>7</td>
</tr>
<tr>
<td>9420</td>
<td>8</td>
</tr>
</tbody>
</table>

Chemistry and Mechanism of Action
ACUMER 9460 is the sodium salt of a modified acrylic acid polymer specially designed to enhance dispersancy for mineral slurries in optimizing the different factors affecting dispersancy:

- Polymer molecular weight.
- Polymer composition.
- Polymer structure.

Performance Properties
ACUMER 9460 dispersant improves the efficiency of secondary grinding in fine ground calcium carbonate production by providing lower viscosity than other comparable dispersants. It also provides better storage viscosity stability of mineral slurries at acceptable levels under heat aged and room temperature conditions.

For more technical details, contact your local Rohm and Haas sales representative.

Dispersion Performance
Without dispersant, the particles in a slurry aggregate resulting in an unstable dispersion with unacceptable high viscosity.
ACUMER 9460, high performance mining polymer, is efficient to stabilize mineral slurries and to minimize the viscosity to low level at the time of initial formulation and to maintain a low viscosity during storage. It exhibits superiority for the lowest viscosities in high solids mineral slurries, even under the most extreme conditions (such as under elevated heat conditions).

**Recommended Dosage**

**Kaolin**

(hydrated, calcined, delaminated)
70-75% slurries 0.2-0.5% w/w Dry ACUMER 9460

**Calcium Carbonate**

Course ground
71-76% solids, 60% <2 micron 0.2-1.0% w/w ACUMER 9460
Fine ground
71-78% solids, 90% <2 micron 0.4-1.2% w/w ACUMER 9460

For fine ground calcium carbonate (FGCC), a fully neutralized product (ACUMER 9400) is sometimes used in conjunction with a partially neutralized one (ACUMER 9410 or ACUMER 9460).

**Applications**

ACUMER 9460 has been specially designed for the grinding of ground calcium carbonate to get very fine particle slurries (90% < 2 µm). With the use of ACUMER 9460, viscosity remains stable in time and no gel formation occurs.

**Ground Calcium Carbonate Grinding - Slurry Viscosity**

![Graph showing the performance of ACUMER 9460 compared to a standard polyacrylate.](image)

The above graph shows the very good performance of ACUMER 9460 in comparison with a standard polyacrylate.
FDA Clearance

ACUMER 9460 dispersant polymer complies with the FDA Food Additives regulations indicated below, provided that the final formulation meets the limitations and other conditions prescribed by the regulation.

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

As a pigment dispersant in coatings at a level not to exceed 0.25% by weight of the pigment.

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

21 CFR 176.110 Not to exceed 2% of paper or paperboard weight (based upon solids of product).

For specifics on any limitations, please contact your local Rohm and Haas sales representative.

Material Safety Data Sheets

Rohm and Haas Company maintains Material Safety Data Sheets (MSDS) on all of its products. These contain pertinent information that you may need to protect your employees and customers against any know health and safety hazards associated with our products.

Rohm and Haas Company recommends that you obtain copies of our Material Safety Data Sheets from your local representative on our products before using them in your facilities. We also suggest that you contact your supplier of other materials recommended for use with our products for appropriate health and safety precautions before using them.

ACUMER is a trademark of Rohm and Haas Company, or of its subsidiaries or affiliates. The company’s policy is to register its trademarks where products designated thereby are marketed by the company, 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.