RHEOLATE® FX 1070

Associative Thickening Agent

GENERAL INFORMATION
RHEOLATE® FX 1070 is a no-VOC liquid rheology modifier for aqueous coatings. RHEOLATE® FX 1070 increases primarily the high-shear viscosity, resulting in a nearly Newtonian flow behaviour for e.g. dispersion paints.

Excellent results have been obtained using RHEOLATE® FX 1070 in conjunction with our low shear PUR-thickeners like RHEOLATE® FX 1010 or 655. In this way the right balance between medium- and high-shear viscosity can be reached.

RHEOLATE® FX 1070 belongs to the class of associative polyurethane thickeners. Unlike the first generation of these thickeners, RHEOLATE® FX 1070 forms strong associations with the surface of the polymeric binder particles. It is assumed that these interactions are not destroyed even when applying high mechanical forces, for example during brush or roller application of the paint. The unique structure of RHEOLATE® FX 1070, however, avoids the building of a rigid network, even if no or low shear forces are being applied. Therefore RHEOLATE® FX 1070 has only a limited influence on the low- and medium-shear viscosity of the paint.

APPLICATION AND PROPERTIES
RHEOLATE® FX 1070 is a typical “high-shear thickener”. This results in optimized rheological properties. Film-build, brushing characteristics, edge covering and appearance are improved compared to conventionally-thickened aqueous coatings. The low- and medium-shear viscosity is less influenced. This means that the “appearance viscosity” of the paint changes little, as do the anti-sagging properties as such, after the addition of RHEOLATE® FX 1070.

PHYSICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance 20 °C</td>
<td>clear liquid</td>
</tr>
<tr>
<td>Active content</td>
<td>40%</td>
</tr>
<tr>
<td>Density, 20°C (ISO 2811-2)</td>
<td>approx. 1070 kg/m3</td>
</tr>
<tr>
<td>Viscosity, 23°C (ASTM D 2196)</td>
<td>approx. 10-20 Pa.s</td>
</tr>
<tr>
<td>Colour 50% in 50% IPA (DIN-EN 1557)</td>
<td>max. 250 Alpha</td>
</tr>
<tr>
<td>Solubility</td>
<td>soluble in water and water/glycol mixtures</td>
</tr>
<tr>
<td>Composition</td>
<td>hydrophobic urethane polymer in water</td>
</tr>
</tbody>
</table>

Feature                          | Consequence                        |
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- Based on polyether polyurethane | - provides long term viscosity stability |
- Does not contain organic solvents | - improves weathering                  |
- Increases high shear viscosity without affecting low shear viscosity | - less sensitive to hydrolysis |
- Low poly-dispersibility         | - ideal for NO-VOC and low odour paints |
                                 | - improved brushability               |
                                 | - higher film build                   |
                                 | - improved flow and leveling          |
                                 | - less syneresis effects              |
RHEOLATE® FX 1070

RHEOLATE® FX 1070 is applicable in a wide variety of aqueous paints based on e.g. polymeric dispersions, alkyd emulsions, hybrid emulsions. The thickening properties being obtained are a result of the interaction of RHEOLATE® FX 1070 molecules and the binder particle surfaces, therefore the efficiency is largely determined by, and is dependent upon, the binder surface characteristics.

**INCORPORATION**

RHEOLATE® FX 1070 is preferably added to the milling paste. However, good results are obtained with post-addition of RHEOLATE® FX 1070 during the let-down stage. In this case the compatibility with the paint system should be checked carefully. The high affinity of RHEOLATE® FX 1070 to the surface of the polymeric particles might result in a local too aggressive inter-action followed by coagulation or flocculation. If this effect occurs, we recommend to pre-dilute RHEOLATE® FX 1070 with water, e.g. to a 10% solids solution.

The increase of the high-shear viscosity is in relation to the amount of RHEOLATE® FX 1070 used. The quantity of RHEOLATE® FX 1070 to be used is also strongly dependent on the required rheology for the particular paint. In most cases a concentration of 0.5 – 3.0% RHEOLATE® FX 1070 is sufficient. However, it is recommended to check the optimum dosage and compatibility for each case individually.

In most formulations RHEOLATE® FX 1070 will be used in combination with a second thickener (e.g. RHEOLATE® 655) to obtain the desired balance for the total rheology profile. In those cases, RHEOLATE® FX 1070 should be added to the paint as a second thickener to reach the desired high-shear viscosity (ICI-viscosity).

**HEALTH AND SAFETY DATA**

Before using this product please consult our Material Safety Data Sheet (MSDS) for information on safe handling and storage. MSDS' can be found on the company website at www.elementis-specialties.com.

**SHELF LIFE**

RHEOLATE® FX 1070 has a shelf life of 3 (three) years from date of manufacture.

**QUALITY ASSURANCE**

Since 1992 the company is a holder of the ISO 9001 / ISO 9002 certificates, which guarantees that all operations are conducted according to the stipulated standards.

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