AEROSIL® – At a glance
AEROSIL® fumed silica can be used in coatings to improve rheological performance as well as a variety of other attributes like improved corrosion resistance, reinforcement, and scratch resistance. The AEROSIL® product line offers a wide array of custom tailored products to meet your needs.

AEROSIL® – Improving rheology
Both hydrophilic fumed silica and hydrophobically modified fumed silica can be used to improve rheology. Choosing the correct silica to build rheology depends on the coatings system’s overall polarity. The relationship between the hydrophobicity of the silica and the polarity of the system is described in the diagram below indicating which product would be preferred for thickening.

AEROSIL® – Product selector by polarity

<table>
<thead>
<tr>
<th>Resin type</th>
<th>Silicone</th>
<th>Polyurethane</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alkyd</td>
<td>Polyurethane</td>
</tr>
<tr>
<td></td>
<td>Polyester Acrylic</td>
<td>Epoxy</td>
</tr>
</tbody>
</table>

When thickening and rheology are desired – the more polar the coating system, the more hydrophobic the silica needs to be.

When other attributes are desired – the opposite principle applies to achieve the highest silica loading level with the least impact on viscosity.
AEROSIL® – Fundamentals for enhancing other coatings attributes

AEROSIL® fumed silica can improve a variety of non-rheological attributes in coatings including improved mechanical reinforcement, scratch resistance, and increased hydrophobicity which assists in improving corrosion resistance. Typically the higher the loading level of AEROSIL® used, the more noticeable these attributes can be improved.

Products optimized for water-based coatings

- Ongoing shift from solvent-based to eco-friendly coatings systems
- Water-based Industrial coating systems need rheology control agents
- Often used for Industrial water-based spray applications due to excellent anti-sagging properties and chemical resistance

VP Disp. WF 7620 – Dispersion based on functionalized AEROSIL® fumed silica – highest rheological efficiency and easy handling properties

AEROSIL® R 972 – Hydrophobic AEROSIL® fumed silica with general purpose and wide compatibility

AEROSIL® R 974 – Hydrophobic AEROSIL® fumed silica with general purpose and wide compatibility

AEROSIL® 200 – Hydrophilic AEROSIL® fumed silica with general purpose and wide compatibility

For increasing hydrophobicity and corrosion resistance

Within the AEROSIL® product line are a variety of hydrophobically modified fumed silica products which can increase a coatings resistance to water and moisture, as well as improve corrosion resistance by enhancing the performance of corrosion inhibiting pigments.

AEROSIL® R 972 – Hydrophobic AEROSIL® fumed silica with general purpose and wide compatibility

AEROSIL® R 805 – Highest anti-sagging efficiency in 2K clear coat systems and preferred for silicone oil sensitive systems (e.g. OEM coatings)

AEROSIL® R 812 / AEROSIL® R 812 S

AEROSIL® R 202 – Most hydrophobic AEROSIL® fumed silica for systems sensitive to moisture – preferred for maritime & heavy duty protection applications

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