AEROSIL® fumed silica for dental composites

AEROSIL® fumed silica increase the hardness and abrasivity resistance of dental composites. In addition, they reduce the edge gap that can occur when the composite is cured.

A high filler content can be achieved with unmodified hydrophilic AEROSIL® fumed silica grades as well as by surface modified types. AEROSIL® fumed silica are white powders with high purity, which do not impair the optical properties of the resulting dental composites.

<table>
<thead>
<tr>
<th>Characteristic physico-chemical data</th>
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<tr>
<td>Properties and test method</td>
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<tr>
<td>Specific surface area (BET)</td>
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<tr>
<td>pH value in 4% dispersion</td>
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<tr>
<td>Loss on drying</td>
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<tr>
<td>Carbon content</td>
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<tr>
<td>Tamped density</td>
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<td>SiO₂ content based on ignited material</td>
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</table>

The given values are typical data, specifications on request.
Benefits of AEROSIL® fumed silica in dental composites

AEROSIL® OX 50 is a hydrophilic silica, consisting of particles with low surface area and thereby barely affects the rheology of the composite.

AEROSIL® fumed silica can be functionalized by a treatment of the hydrophilic surface. One class of these AEROSIL® fumed silica grades with modified surface chemistry bears methacrylate groups. These functional groups are ideal to crosslink in the polymerization reaction of the composite.

AEROSIL® R 709 has a marginal influence on the rheology due to its low surface area.

AEROSIL® R 711 has a thickening effect. The rheology of the monomer solution may be adjusted by adding this product.

AEROSIL® R 7200 can control the rheology of the formulation. It has an improved incorporation behavior and increased processability.

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