Advanced Materials

Araldite® S-HCEP Systems

Semiflexible hydrophobic epoxy
for composite insulators
Araldite® S-HCEP Systems are new epoxy-based shed materials for composite insulators. They deliver intrinsic hydrophobicity, hydrophobicity transfer and recovery similar to the well-known Araldite® HCEP Systems.

Benefits for the manufacturer

**Material and processing cost savings**
Araldite® S-HCEP (Semiflexible Hydrophobic Cycloaliphatic Epoxy) Systems are suitable for medium to high voltage insulation applications offering manufacturers substantial material and processing cost savings. The system has a mix ratio of 1:1 volume which makes it suitable for standard two-component meter mix equipment.

**High performance**
Araldite® S-HCEP Systems are new epoxy-based shed materials for composite insulators. They deliver intrinsic hydrophobic properties after losses, e.g. from electrical discharging.

**Easy processing on standard equipment**
- No premixing
- No vacuum preparation
- No degassing
- No heating
- No primer treatment
- No mold cooling
- Quick mold filling
- Low clamping forces
- No posture
- Light and cheap equipment
- Low pump pressure

**Hydrophobicity recovery**
Araldite® S-HCEP Systems are able to recover their hydrophobic properties after losses, e.g. from electrical discharging.

Untreated sample: hydrophobic surface
After plasma treatment: hydrophilic surface
After 1 day: complete recovery of hydrophobic surface
Araldite® S-HCEP adheres well to the glass fibre epoxy rod and to metal without primer application.

Araldite® S-HCEP Systems

Glass fibre reinforced rod made of Araldite® Pultrusion Systems
Key advantages

<table>
<thead>
<tr>
<th></th>
<th>Araldite®-S-HCEP Systems</th>
<th>Liquid silicone rubber</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity</td>
<td>low</td>
<td>high</td>
</tr>
<tr>
<td>Primer treatment</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Flexibility</td>
<td>semiflexible</td>
<td>high</td>
</tr>
<tr>
<td>Hydrophobicity</td>
<td>good</td>
<td>very good</td>
</tr>
<tr>
<td>Tracking and erosion resistance</td>
<td>high</td>
<td>high</td>
</tr>
<tr>
<td>Bird attack resistance</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Leakage current</td>
<td>low</td>
<td>medium</td>
</tr>
<tr>
<td>Tear strength</td>
<td>high</td>
<td>low</td>
</tr>
<tr>
<td>Material cost</td>
<td>medium</td>
<td>high</td>
</tr>
</tbody>
</table>

220 kV hollow insulator made by Hübers – with courtesy of Hübers, Germany

Composite bushing 72 kV made by Huntsman, Switzerland – with courtesy of Lapp, Germany
Araldite® S-HCEP Systems used for composite insulators have fully passed one of the most stringent natural aging tests for outdoor applications: KIPTS test (Koeberg Insulator Pollution Test Station) in South Africa.

Insulators made from Araldite® S-HCEP Systems have passed the 1000 hours salt fog test according to IEC 61109 (FGH Mannheim, Germany) and showed extremely low leakage current.

Araldite® S-HCEP Systems provide excellent tracking and erosion resistance and good water diffusion break-down strength. Insulators made from Araldite® S-HCEP Systems have passed the 1000 hours salt fog test according to IEC 61109 (FGH Mannheim, Germany) and showed extremely low leakage current.

Standard cycloaliphatic epoxies lose hydrophobicity after 5000 hours during accelerated fluorescent UV and weathering test whereas Araldite® S-HCEP Systems keep their hydrophobicity even after extended UV and weathering times. 1000 standard sun hours fluorescent UV correspond to 1 year in nature.

Long-term stability of hydrophobicity

Track record, tests and approvals

- Araldite® S-HCEP Systems
- Araldite® HCEP Systems
- Standard cycloaliphatic epoxy system
Huntsman Advanced Materials

We are a leading global supplier of synthetic and formulated polymer systems for customers requiring high-performance materials which outperform the properties, functionality and durability of traditional materials. Over 2,300 associates at 13 locations worldwide work to fulfill this promise day by day.

More than 9,000 companies around the world use Huntsman Advanced Materials technologies in key markets such as adhesives and inks, aerospace, automotive, coatings, construction, electronics, medical, marine, power transmission and distribution, sports equipment and wind power generation.

Energy Market

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Global presence – 13 manufacturing sites