CFRTP/CFRP
improved by Functionalized Fluoropolymers
A ground-breaking development for composite design

Benefits

- Universal fiber-matrix adhesion
- Wide temperature range (-200°C up to 260°C)
- Impact strength improvement
- Excellent dielectric properties
- Vibration damping
- Almost zero water absorption
- High temperature adhesive
- Flame retardancy
- Reduction of micro cracking
- Prevention of galvanic corrosion
- Superior chemical resistance
- Low friction surface

Fiber-Matrix Adhesion with Base Polymer

Modification of base polymer of CFRTP

Carbon fiber in Functionalized Fluoropolymer Matrix
Compatibility was improved

Surface modification of CFRTP

Carbon fiber in Standard Fluoropolymer Matrix
Physical Properties of CFRTP Modified by Fluoropolymer

<table>
<thead>
<tr>
<th>Modified - Plastics</th>
<th>Impregnation</th>
<th>Carbon Fiber</th>
<th>Vf (%) Fiber volume content</th>
<th>Physical Property of CFRTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modified-PA6 CFRTP</td>
<td>Powder</td>
<td>Yarn Spreading Cloth</td>
<td>SD</td>
<td>Improved, Same, Same, Ultra-low</td>
</tr>
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<td>Modified-PA6 CFRTP</td>
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</tr>
</tbody>
</table>

Other modified plastics (mPPS, mPEI, mPEEK, mPA12, mPAMXD6) were also verified to be improved in their impact strength.

Design Examples

**Modification of base polymer of CFRTP**
- CFRTP modified by Functionalized Fluoropolymer
  - Wear performance
  - Chemical resistance
  - Impact strength
  - Low water absorption

**Surface modification of CFRTP**
- Functionalized Fluoropolymer CFRTP
  - Wear performance
  - Chemical resistance
  - Flame retardance
  - Low water absorption

**Primary base polymer of CFRTP**
- CFRTP made of Functionalized Fluoropolymer
  - Wear performance
  - Chemical resistance
  - Flame retardance
  - Low water absorption
  - Vibration damping

**Adhesion of multi-material**
- Metal
- Functionalized Fluoropolymer
- CFRTP/CFRP
- Resin part
  - Chemical resistance
  - Prevent galvanic corrosion

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