TECHNICAL DATA SHEET

Engineering plastic type CF

ESD safe replaceable fiber tip tweezers provide durable tip materials with self-aligning replacement tips and anti-magnetic stainless steel handles for precision handling applications.

General notes:
- **PA66/CF30** polyamide 66 reinforced with 30 wt% carbon fibre
- ESD safe material
- Low friction, self lubricating properties
- Excellent wear and abrasion resistance
- High mechanical strength and toughness
- Very high rigidity, excellent tensile and flexural strength (bend strength), fatigue and creep resistance
- Heat stabilized, 130°C (continuous use) - 190°C (short time)
- Very low coefficient of linear thermal expansion
- Good chemical resistance (oils, grease, fuels, non polar solvents)
- Lead-free

Applications include handling of sensitive components and devices (electronic components, micro-mechanical parts, glass and ceramic substrates, etc.) where non-scratching is critical. Popular in standard ESD and general electronics assembly and lab applications.

**NOTE:** Not resistant to strong acids, alkalis, hot water or steam.

### Mechanical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexural modulus +23°C</td>
<td>17000 MPa</td>
<td>ASTM D 790</td>
</tr>
<tr>
<td>Flexural modulus +60°C</td>
<td>12000 MPa</td>
<td>ASTM D 790</td>
</tr>
<tr>
<td>Flexural modulus +90°C</td>
<td>9800 MPa</td>
<td>ASTM D 790</td>
</tr>
<tr>
<td>Flexural modulus +120°C</td>
<td>8000 MPa</td>
<td>ASTM D 790</td>
</tr>
<tr>
<td>Tensile strength +23°C</td>
<td>210 MPa</td>
<td>ISO 527</td>
</tr>
<tr>
<td>Tensile strength +60°C</td>
<td>159 MPa</td>
<td>ISO 527</td>
</tr>
<tr>
<td>Tensile strength +90°C</td>
<td>134 MPa</td>
<td>ISO 527</td>
</tr>
<tr>
<td>Tensile strength +120°C</td>
<td>117 MPa</td>
<td>ISO 527</td>
</tr>
<tr>
<td>Rockwell hardness M</td>
<td>&gt;100</td>
<td>ASTM D 785</td>
</tr>
<tr>
<td>Izod-Impact strength (notched) +23°C</td>
<td>70 J/m</td>
<td>ASTM D 256</td>
</tr>
<tr>
<td>Charpy-Impact strength (unnotched) +23°C</td>
<td>30 kJ/m²</td>
<td>DIN 53453</td>
</tr>
</tbody>
</table>

### Thermal properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temp. of defl. under load (1.80 MPa)</td>
<td>256 °C</td>
<td>ASTM D648</td>
</tr>
<tr>
<td>Temp. of defl. under load (0.45 MPa)</td>
<td>260 °C</td>
<td>ASTM D648</td>
</tr>
<tr>
<td>Vicat softening temperature (50°C/h 50N)</td>
<td>254 °C</td>
<td>ISO 306</td>
</tr>
<tr>
<td>Coef. of lin. therm expansion, normal</td>
<td>2,80 E-5/°C</td>
<td>ASTM D 696</td>
</tr>
<tr>
<td>Continuous Use Temperature</td>
<td>130°C</td>
<td></td>
</tr>
<tr>
<td>Short Time Temperature</td>
<td>190°C</td>
<td></td>
</tr>
</tbody>
</table>

This document contains information based on average values as obtained from the results of laboratory tests and observations made on the material. Ideal-tek SA declines all responsibility from an improper use of the product described in this document.
### Electrical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface resistivity</td>
<td>$10^2$ Ohm</td>
<td>100V</td>
</tr>
<tr>
<td>Comparative tracking index</td>
<td>&lt;100 Volts</td>
<td>IEC 112</td>
</tr>
<tr>
<td>Decay time</td>
<td>&lt; 0.1 sec</td>
<td>1000-10 V</td>
</tr>
</tbody>
</table>

### Other properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>1.28 g/ccm</td>
<td>ISO 1183</td>
</tr>
<tr>
<td>Water absorption in water 23°C (24h)</td>
<td>0.60%</td>
<td>ISO 62</td>
</tr>
</tbody>
</table>