DuPont™ Delrin® 500CPE

Combining the industry standard properties of a Delrin® 500P with state-of-the-art low emission technology

General Information
DuPont™ Delrin® 500CPE is a new medium-viscosity low-emission grade from the DuPont™ Delrin® acetal resin family, part of the low-emission CPE group.

Excellent Balance of Properties
- Tensile modulus (stiff without the use of fibers)
- Yield Strength
- Impact Strength (including low temperatures)
- Creep resistance
- Fatigue resistance

Without compromising performance, the new DuPont™ Delrin® 500CPE adds:
- Low emission (below 2 ppm in VDA 275)

Customer Benefits
- More design flexibility and freedom
- Consistent performance over wide temperature range
- Lower part cost
- No need for additional processing equipment (dryer)

Properties Overview

<table>
<thead>
<tr>
<th>Properties</th>
<th>Unit</th>
<th>Test method</th>
<th>500 NC010 (reference)</th>
<th>500P NC010 (reference)</th>
<th>500CPE NC010 (low-VOC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melt mass-flow rate (MFR 190°C, 2.16kg)</td>
<td>g/10min</td>
<td>ISO 1133</td>
<td>14</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Mold shrinkage (parallel / normal)</td>
<td>%</td>
<td>ISO 294-4</td>
<td>2.1 / 2.0</td>
<td>2.0 / 1.9</td>
<td>2.0 / 1.9</td>
</tr>
<tr>
<td>Density</td>
<td>g/cm³</td>
<td>ISO 1183</td>
<td>1.42</td>
<td>1.42</td>
<td>1.42</td>
</tr>
<tr>
<td>Melting temperature, 10°C/min</td>
<td>°C</td>
<td>ISO 11357-1/-3</td>
<td>178</td>
<td>178</td>
<td>178</td>
</tr>
<tr>
<td>Notched Charpy at 23°C</td>
<td>kJ/m²</td>
<td>ISO 179/1eA</td>
<td>9</td>
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</tr>
<tr>
<td>Notched Charpy at -30°C</td>
<td>kJ/m²</td>
<td>ISO 179/1eA</td>
<td>8</td>
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<td>8</td>
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<tr>
<td>Tensile strength at yield</td>
<td>MPa</td>
<td>ISO 527-1/-2</td>
<td>72</td>
<td>71</td>
<td>72</td>
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<tr>
<td>Yield strain</td>
<td>%</td>
<td>ISO 527-1/-2</td>
<td>15</td>
<td>17</td>
<td>18</td>
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<tr>
<td>Nominal strain at break</td>
<td>%</td>
<td>ISO 527-1/-2</td>
<td>30</td>
<td>30</td>
<td>27</td>
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<tr>
<td>Tensile modulus</td>
<td>MPa</td>
<td>ISO 527-1/-2</td>
<td>3200</td>
<td>3100</td>
<td>3100</td>
</tr>
</tbody>
</table>
DuPont™ Delrin® 500CPE
Outperforms Medium and High Molecular Weight Acetal Copolymers

DuPont™ Delrin® 500CPE delivers superior performance compared to competitive medium molecular weight (MMW) copolymers, as well as competitive high molecular weight (HMW) copolymers:

Performance Advantages
- >10% higher tensile properties
- Impact resistance (>25% higher vs. MMW) over a large temperature range
- Significantly better flow, which permits:
  - better fill of thinner-wall cavities
  - more effective design of thin-wall parts
- Superior fatigue resistance
- Higher HDT (heat deflection temperature)
- Retention of all the other typical properties of Delrin®:
  - low wear and friction, resiliency, chemical and solvent resistance, low-temperature toughness and more

Plus, Delrin® 500CPE offers low VOC emissions (below 2 ppm in VDA 275).

Customer Benefits
- Greater design flexibility to use lower wall thicknesses through easier tool filling, compared to high viscosity and medium viscosity grades
- Ability to make durable parts at possibly higher production rates (faster molding cycle time)
- Greater safety factor in impact resistance especially at low temperature
- Higher part performance and reliability
- Consistent part performance over wide operating temperature range

When all these benefits are taken into account, designing with Delrin® 500CPE will lead to lower cost per part.

DuPont™ Delrin® design, technical, and processing support to ensure production of a high quality part that delivers on its promise.

Potential applications
A wide range of potential applications including:
- Automotive components: fasteners, seatbelt components, levers, brackets, switches, gears
- Sporting goods: buckles, latches, surface parts
- Window hardware: clips, housings
- Irrigation components: automatic sprinklers, commercial irrigation systems

Properties

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