



Crastin® S600F20 NC010

Celanese Corporation - THERMOPLASTIC POLYESTER RESIN

Thursday, January 23, 2025

General Information

Product Description

Unreinforced, Lubricated, Medium Viscosity Polybutylene Terephthalate

General

| | | | |
|-------------------------------|--|-----------------------------|-----------------|
| Material Status | • Commercial: Active | | |
| Regional Availability | • Africa & Middle East • Asia Pacific | • Europe • Latin America | • North America |
| Additive | • Mold Release | | |
| Automotive Specifications | • GM QK 006511 | | |
| Forms | • Pellets | | |
| Processing Method | • Injection Molding | | |
| Part Marking Code (ISO 11469) | • >PBT< | | |
| Resin ID (ISO 1043) | • PBT | | |
| ISO Designation | • ISO 7792-PBT,MG NR,11-030 | | |

ASTM & ISO Properties ¹

| Physical | Typical Value (English) | Typical Value (SI) | Test Method |
|---|---------------------------|---------------------------|---------------|
| Density | 1.31 g/cm ³ | 1.31 g/cm ³ | ISO 1183 |
| Melt Mass-Flow Rate (MFR) (250°C/2.16 kg) | 19 g/10 min | 19 g/10 min | ISO 1133 |
| Melt Volume-Flow Rate (MVR) (250°C/2.16 kg) | 17 cm ³ /10min | 17 cm ³ /10min | ISO 1133 |
| Molding Shrinkage | | | ISO 294-4 |
| Across Flow | 1.6 % | 1.6 % | |
| Across Flow : 176°F (80°C), 48 hr | 0.50 % | 0.50 % | |
| Flow | 1.7 % | 1.7 % | |
| Flow : 176°F (80°C), 48 hr | 0.30 % | 0.30 % | |
| Water Absorption | | | ISO 62 |
| Saturation, 73°F (23°C), 0.0787 in (2.00 mm) | 0.40 % | 0.40 % | |
| Equilibrium, 73°F (23°C), 0.0787 in (2.00 mm), 50% RH | 0.20 % | 0.20 % | |
| Viscosity Number | 130 cm ³ /g | 130 cm ³ /g | ISO 307, 1628 |
| Intrinsic Viscosity | 1.1 | 1.1 | ISO 307, 1628 |
| Mechanical | Typical Value (English) | Typical Value (SI) | Test Method |
| Tensile Modulus | 363000 psi | 2500 MPa | ISO 527-1 |
| Tensile Stress (Yield) | 7980 psi | 55.0 MPa | ISO 527-2/50 |
| Tensile Strain (Yield) | 4.0 % | 4.0 % | ISO 527-2/50 |
| Nominal Tensile Strain at Break | 40 % | 40 % | ISO 527-2 |

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| Mechanical | Typical Value (English) | Typical Value (SI) | Test Method |
|---|-----------------------------------|-----------------------|-------------|
| Tensile Creep Modulus | | | ISO 899-1 |
| 1 hr | 377000 psi | 2600 MPa | |
| 1000 hr | 261000 psi | 1800 MPa | |
| Flexural Modulus | 319000 psi | 2200 MPa | ISO 178 |
| Flexural Stress | 12300 psi | 85.0 MPa | ISO 178 |
| Poisson's Ratio | 0.38 | 0.38 | |
| Coefficient of Friction | | | ISO 8295 |
| vs. Itself - Static | 0.40 | 0.40 | |
| vs. Steel - Static | 0.40 | 0.40 | |
| Impact | Typical Value (English) | Typical Value (SI) | Test Method |
| Charpy Notched Impact Strength | | | ISO 179/1eA |
| -22°F (-30°C) | 1.9 ft-lb/in ² | 4.0 kJ/m ² | |
| 73°F (23°C) | 2.4 ft-lb/in ² | 5.0 kJ/m ² | |
| Charpy Unnotched Impact Strength | | | ISO 179/1eU |
| -22°F (-30°C) | No Break | No Break | |
| 73°F (23°C) | No Break | No Break | |
| Notched Izod Impact Strength (73°F (23°C)) | 2.1 ft-lb/in ² | 4.5 kJ/m ² | ISO 180/1A |
| Unnotched Izod Impact Strength (73°F (23°C)) | No Break | No Break | ISO 180/1U |
| Hardness | Typical Value (English) | Typical Value (SI) | Test Method |
| Ball Indentation Hardness (H 961/30) | 20200 psi | 139 MPa | ISO 2039-1 |
| Thermal | Typical Value (English) | Typical Value (SI) | Test Method |
| Deflection Temperature Under Load | | | |
| 66 psi (0.45 MPa), Unannealed | 239 °F | 115 °C | ISO 75-2/B |
| 66 psi (0.45 MPa), Annealed | 356 °F | 180 °C | ISO 75-2/B |
| 264 psi (1.8 MPa), Unannealed | 122 °F | 50.0 °C | ISO 75-2/A |
| 264 psi (1.8 MPa), Annealed | 140 °F | 60.0 °C | ISO 75-2/A |
| Glass Transition Temperature ² | 131 °F | 55.0 °C | ISO 11357-3 |
| Vicat Softening Temperature | 347 °F | 175 °C | ISO 306/B50 |
| Melting Temperature ² | 437 °F | 225 °C | ISO 11357-3 |
| Peak Crystallization Temperature ² | 378 °F | 192 °C | ISO 11357-3 |
| CLTE | | | ISO 11359-2 |
| Flow | 6.1E-5 in/in/°F | 1.1E-4 cm/cm/°C | |
| Flow : -40 to 73°F (-40 to 23°C) | 4.4E-5 in/in/°F | 8.0E-5 cm/cm/°C | |
| Flow : 131 to 320°F (55 to 160°C) | 1.1E-4 in/in/°F | 1.9E-4 cm/cm/°C | |
| Transverse | 6.7E-5 in/in/°F | 1.2E-4 cm/cm/°C | |
| Transverse : -40 to 73°F (-40 to 23°C) | 5.0E-5 in/in/°F | 9.0E-5 cm/cm/°C | |
| Transverse : 131 to 320°F (55 to 160°C) | 1.1E-4 in/in/°F | 2.0E-4 cm/cm/°C | |
| Thermal Conductivity ³ | 2.0 Btu·in/hr/ft ² /°F | 0.29 W/m/K | ISO 22007-2 |
| TGA Curve | available | available | ISO 11359-2 |

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| Electrical | Typical Value (English) | Typical Value (SI) | Test Method |
|---|-----------------------------------|------------------------|----------------------------------|
| Surface Resistivity | 1.0E+12 ohms | 1.0E+12 ohms | IEC 62631-3-2 |
| Volume Resistivity | > 1.0E+13 ohms·m | > 1.0E+13 ohms·m | IEC 62631-3-1 |
| Electric Strength | 660 V/mil | 26 kV/mm | IEC 60243-1 |
| Relative Permittivity | | | IEC 62631-2-1 |
| 100 Hz | 3.60 | 3.60 | |
| 1 MHz | 3.20 | 3.20 | |
| Dissipation Factor | | | IEC 62631-2-1 |
| 100 Hz | 7.9E-4 | 7.9E-4 | |
| 1 MHz | 0.020 | 0.020 | |
| Comparative Tracking Index | | | IEC 60112 |
| -- ⁴ | 575 V | 575 V | |
| -- | 600 V | 600 V | |
| Flammability | Typical Value (English) | Typical Value (SI) | Test Method |
| Flame Rating | | | |
| 0.031 in (0.8 mm) | HB | HB | UL 94 |
| 0.06 in (1.5 mm) | HB | HB | UL 94 IEC 60695-11-10, -20 |
| 0.03 in (0.8 mm) | HB | HB | IEC 60695-11-10, -20 |
| Glow Wire Ignition Temperature | | | IEC 60695-2-13 |
| 0.030 in (0.75 mm) | 1380 °F | 750 °C | |
| 0.04 in (1.0 mm) | 1380 °F | 750 °C | |
| 0.06 in (1.5 mm) | 1380 °F | 750 °C | |
| 0.08 in (2.0 mm) | 1380 °F | 750 °C | |
| 0.12 in (3.0 mm) | 1340 °F | 725 °C | |
| Oxygen Index | 22 % | 22 % | ISO 4589-2 |
| FMVSS Flammability | SE | SE | FMVSS 302 |
| Fill Analysis | Typical Value (English) | Typical Value (SI) | Test Method |
| Melt Density | 1.11 g/cm ³ | 1.11 g/cm ³ | |
| Ejection Temperature | 324 °F | 162 °C | |
| Specific Heat Capacity of Melt | 0.504 Btu/lb/°F | 2110 J/kg/°C | ISO 22007-4 |
| Thermal Conductivity of Melt | 1.5 Btu·in/hr/ft ² /°F | 0.21 W/m/K | ISO 22007-2 |
| Additional Information | Typical Value (English) | Typical Value (SI) | Test Method |
| Fogging - G-value (condensate) | 0.0 mg | 0.0 mg | ISO 6452 |
| Odor ⁵ | 3.00 | 3.00 | VDA 270 |
| Thermal Desorption Analysis of Organic Emissions ⁶ | 1.00 µg/g | 1.00 µg/g | VDA 278 |

Processing Information

| Injection | Typical Value (English) | Typical Value (SI) |
|-------------------------------|-------------------------|--------------------|
| Drying Temperature | 248 °F | 120 °C |
| Drying Time - Desiccant Dryer | 2.0 to 4.0 hr | 2.0 to 4.0 hr |
| Suggested Max Moisture | < 0.040 % | < 0.040 % |
| Processing (Melt) Temp | 464 to 500 °F | 240 to 260 °C |

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| Injection | Typical Value (English) | Typical Value (SI) |
|---------------------------|-------------------------|--------------------|
| Melt Temperature, Optimum | 482 °F | 250 °C |
| Mold Temperature | 140 to 266 °F | 60 to 130 °C |
| Mold Temperature, Optimum | 176 °F | 80 °C |
| Holding Pressure | > 8700 psi | > 60.0 MPa |
| Back Pressure | As low as possible | As low as possible |
| Drying Recommended | yes | yes |
| Hold Pressure Time | 4.00 s/mm | 4.00 s/mm |

Notes

¹ Typical properties: these are not to be construed as specifications.

² 10°C/min

³ Flow

⁴ 100 Drop Voltage

⁵ Derived from Similar Grade

⁶ Assessed (Max)

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