



DuPont™ Delrin® 500P BK602

DuPont Engineering Polymers - Acetal (POM) Homopolymer

Thursday, July 24, 2008

General Information

Product Description

Delrin® 500P BK602 is a general purpose medium viscosity black acetal homopolymer resin for injection molding. Delrin® 500P has improved processing thermal stability compared to Delrin® 500.

General

| | | | |
|-------------------------------|--|---|--|
| Material Status | • Commercial: Active | | |
| Availability | • Asia Pacific | • Europe | • North America |
| Features | • Fatigue Resistant • Good Creep Resistance • Good Dimensional Stability | • Good Impact Resistance • High Stiffness • High Strength | • Homopolymer • Medium Viscosity • Ultrasonic Weldable |
| Uses | • Automotive Applications • Cast Film • Engineering Parts | • Fasteners • Gears • General Purpose | • Sheet • Tubing • Wire & Cable Applications |
| RoHS Compliance | • Contact Manufacturer | | |
| Appearance | • Black | | |
| Forms | • Pellets | | |
| Processing Method | • Cast Film • Extrusion | • Injection Molding • Profile Extrusion | • Sheet Extrusion |
| Part Marking Code (ISO 11469) | • >POM< | | |
| Resin ID (ISO 1043) | • POM | | |

ASTM and ISO Properties ¹

| Physical | Nominal Value (English) | Nominal Value (SI) | Test Method |
|--|----------------------------|------------------------|-------------|
| Density | 1.42 g/cm ³ | 1.42 g/cm ³ | ISO 1183 |
| Melt Mass-Flow Rate (MFR) (190°C/2.16 kg) | 15 g/10 min | 15 g/10 min | ISO 1133 |
| Mechanical | Nominal Value (English) | Nominal Value (SI) | Test Method |
| Tensile Modulus (73 °F (23 °C)) | 450000 psi | 3100 MPa | ISO 527-2 |
| Tensile Stress (Yield, 73 °F (23 °C)) | 10300 psi | 71.0 MPa | ISO 527-2 |
| Tensile Strain (Yield, 73 °F (23 °C)) | 14 % | 14 % | ISO 527-2 |
| Tensile Strain (Break, 73 °F (23 °C)) | 35 % | 35 % | ISO 527-2 |
| Nominal Tensile Strain at Break 73 °F (23 °C) | 25 % | 25 % | ISO 527-2 |
| Flexural Modulus (73 °F (23 °C)) | 435000 psi | 3000 MPa | ISO 178 |
| Impact | Nominal Value (English) | Nominal Value (SI) | Test Method |
| Charpy Notched Impact Strength | | | ISO 179/1eA |
| -40 °F (-40 °C) | 4.28 ft-lb/in ² | 9.00 kJ/m ² | |
| -22 °F (-30 °C) | 3.33 ft-lb/in ² | 7.00 kJ/m ² | |
| 73 °F (23 °C) | 3.81 ft-lb/in ² | 8.00 kJ/m ² | |
| Charpy Unnotched Impact Strength | | | ISO 179/1eU |
| 73 °F (23 °C) | 85.7 ft-lb/in ² | 180 kJ/m ² | |
| Notched Izod Impact Strength | | | ISO 180/1A |
| -40 °F (-40 °C) | 3.81 ft-lb/in ² | 8.00 kJ/m ² | |
| 73 °F (23 °C) | 3.81 ft-lb/in ² | 8.00 kJ/m ² | |

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The information presented on this data sheet was acquired by IDES from the producer of the material. IDES makes substantial efforts to assure the accuracy of this data. However, IDES assumes no responsibility for the data values and strongly encourages that upon final material selection, data points are validated with the material supplier.

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| Thermal | Nominal Value (English) | Nominal Value (SI) | Test Method |
|--|--|--|-------------------------|
| Heat Deflection Temperature 66 psi (0.45 MPa), Unannealed | 324 °F | 162 °C | ISO 75-2/B |
| Heat Deflection Temperature 264 psi (1.8 MPa), Unannealed | 205 °F | 96.0 °C | ISO 75-2/A |
| Melting Temperature (DSC) ² | 352 °F | 178 °C | ISO 11357-3 |
| Coefficient of Linear Thermal Expansion, Flow | | | ISO 11359-2 |
| -40 to 73 °F (-40 to 23 °C) | 0.000052 in/in/°F | 0.000094 cm/cm/°C | |
| 73 to 131 °F (23 to 55 °C) | 0.000061 in/in/°F | 0.00011 cm/cm/°C | |
| 131 to 212 °F (55 to 100 °C) | 0.000082 in/in/°F | 0.00015 cm/cm/°C | |
| Coefficient of Linear Thermal Expansion, Transverse | | | ISO 11359-2 |
| -40 to 73 °F (-40 to 23 °C) | 0.000054 in/in/°F | 0.000098 cm/cm/°C | |
| 73 to 131 °F (23 to 55 °C) | 0.000064 in/in/°F | 0.00012 cm/cm/°C | |
| 131 to 212 °F (55 to 100 °C) | 0.000093 in/in/°F | 0.00017 cm/cm/°C | |
| Electrical | Nominal Value (English) | Nominal Value (SI) | Test Method |
| Comparative Tracking Index | 600 V | 600 V | IEC 60112 |
| Flammability | Nominal Value (English) | Nominal Value (SI) | Test Method |
| Flame Rating - UL | | | UL 94 |
| 0.0295 in (0.750 mm) | HB | HB | |
| 0.0315 in (0.800 mm) | HB | HB | |
| 0.0591 in (1.50 mm) | HB | HB | |
| 0.118 in (3.00 mm) | HB | HB | |
| Flammability Classification | | | IEC 60695-11-10, -20 |
| 0.0295 in (0.750 mm) | HB | HB | |
| 0.0591 in (1.50 mm) | HB | HB | |
| 0.118 in (3.00 mm) | HB | HB | |
| UL 746 | Nominal Value (English) | Nominal Value (SI) | Test Method |
| RTI Str | | | UL 746 |
| 0.0295 in (0.750 mm) | 122 °F | 50.0 °C | |
| 0.0591 in (1.50 mm) | 194 °F | 90.0 °C | |
| 0.118 in (3.00 mm) | 203 °F | 95.0 °C | |
| RTI Imp | | | UL 746 |
| 0.0295 in (0.750 mm) | 122 °F | 50.0 °C | |
| 0.0591 in (1.50 mm) | 185 °F | 85.0 °C | |
| 0.118 in (3.00 mm) | 194 °F | 90.0 °C | |
| RTI Elec | | | UL 746 |
| 0.0295 in (0.750 mm) | 122 °F | 50.0 °C | |
| 0.0591 in (1.50 mm) | 230 °F | 110 °C | |
| 0.118 in (3.00 mm) | 230 °F | 110 °C | |
| Additional Information | Nominal Value (English) | Nominal Value (SI) | |
| Additional Properties (Drying Recommended) | Not normally required unless moisture content of resin exceeds recommended level | Not normally required unless moisture content of resin exceeds recommended level | |

| Processing Information | | |
|-------------------------------|--------------------------------|---------------------------|
| Injection | Nominal Value (English) | Nominal Value (SI) |
| Drying Temperature | 176 °F | 80.0 °C |
| Drying Time | 2.0 to 4.0 hr | 2.0 to 4.0 hr |
| Suggested Max Moisture | 0.20 % | 0.20 % |
| Processing (Melt) Temp | 410 to 428 °F | 210 to 220 °C |
| Mold Temperature | 176 to 212 °F | 80.0 to 100 °C |
| Melt Temperature, Optimum | 215 °C | 215 °C |
| Mold Temperature, Optimum | 90.0 °C | 90.0 °C |

Notes

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

² 10°C/min