

Ultradur® B 4520

PBT (Polybutylene Terephthalate)



Product Description

Ultradur B 4520 is a medium viscosity, rapidly freezing injection molding grade.

Applications

Typical applications include chassis and housings for home appliances, office and sewing machines, and coil formers.

| PHYSICAL | ISO Test Method | Property Value |
|------------------------------------------------------|-----------------|----------------|
| Density, g/cm | 1183 | 1.3 |
| Viscosity Number, cm/g | 1628 | 130 |
| Moisture, % | 62 | |
| (50% RH) | | 0.25 |
| (Saturation) | | 0.5 |
| RHEOLOGICAL | ISO Test Method | Property Value |
| Melt Volume Rate (250 C/2.16 Kg), cc/10min. | 1133 | 19 |
| MECHANICAL | ISO Test Method | Property Value |
| Tensile Modulus, MPa | 527 | |
| 23C | | 2,500 |
| Tensile stress at yield, MPa | 527 | |
| -40C | | 94 |
| 23C | | 60 |
| 80C | | 22 |
| 121C | | 18 |
| Tensile strain at yield, % | 527 | |
| 23C | | 3.7 |
| Nominal strain at break, % | 527 | |
| 23C | | >50 |
| Flexural Modulus, MPa | 178 | |
| 23C | | 2,400 |
| Tensile Creep Modulus (1000h), MPa | 899 | 1,200 |
| Tensile Creep Modulus (1h), MPa | 899 | 1,800 |
| IMPACT | ISO Test Method | Property Value |
| Charpy Notched, kJ/m ² | 179 | |
| 23C | | 6 |
| -30C | | 3 |
| Charpy Unnotched, kJ/m ² | 179 | |
| 23C | | N |
| THERMAL | ISO Test Method | Property Value |
| Melting Point, C | 3146 | 223 |
| HDT A, C | 75 | 60 |
| Coef. of Linear Thermal Expansion, Parallel, mm/mm C | | 1.45 X10-4 |
| ELECTRICAL | ISO Test Method | Property Value |



| | | |
|------------------------------|-----------|-------|
| Comparative Tracking Index | IEC 60112 | 550 |
| Volume Resistivity | IEC 60093 | >1E13 |
| Surface Resistivity | IEC 60093 | 1E13 |
| Dielectric Constant (100 Hz) | IEC 60250 | 3.4 |
| Dielectric Constant (1 MHz) | IEC 60250 | 3.3 |
| Dissipation Factor (100 Hz) | IEC 60250 | 20 |
| Dissipation Factor (1 MHz) | IEC 60250 | 200 |

| UL RATINGS | UL Test Method | Property Value |
|-----------------------------------|----------------|----------------|
| Flammability Rating, 1.5mm | UL94 | HB |
| Relative Temperature Index, 1.5mm | UL746B | |
| Mechanical w/o Impact, C | | 140 |
| Mechanical w/ Impact, C | | 130 |
| Electrical, C | | 130 |

Processing Guidelines

Material Handling

Max. Water content: 0.04%

To ensure optimum part performance, this product must be dried prior to molding and maintained at a moisture level of less than 0.04%. Dehumidifying or desiccant dryers operating at 100-120 degC (212-248 degF) at 4 hours drying time is recommended. Further information concerning safe handling procedures can be obtained from the Material Safety Data Sheet. Alternatively, please contact your BASF representative.

Typical Profile

Melt Temperature 250-270 degC (482-518 degF)

Mold Temperature 40-80 degC (104-176 degF)

Injection and Packing Pressure 35-125 bar (500-1500 psi)

Mold Temperatures

This product can be processed over mold temperatures of 40-80 degC (104-176 degF), although 80 degC (176 deg F) will result the best surface.

Pressures

Injection pressure controls the filling of the part and should be applied for 90% of ram travel.

Packing pressure affects the final part and can be used effectively in controlling sink marks and shrinkage. It should be applied and maintained until the gate area is completely frozen off.

Back pressure can be utilized to provide uniform melt consistency and reduce trapped air and gas. A maximum of 10 bar (145 psi) is recommended due to the risk of excessive shear.

Fill Rate

Fast fill rates are recommended to ensure uniform melt delivery to the cavity and prevent premature freezing. Surface appearance is directly affected by injection rate.

