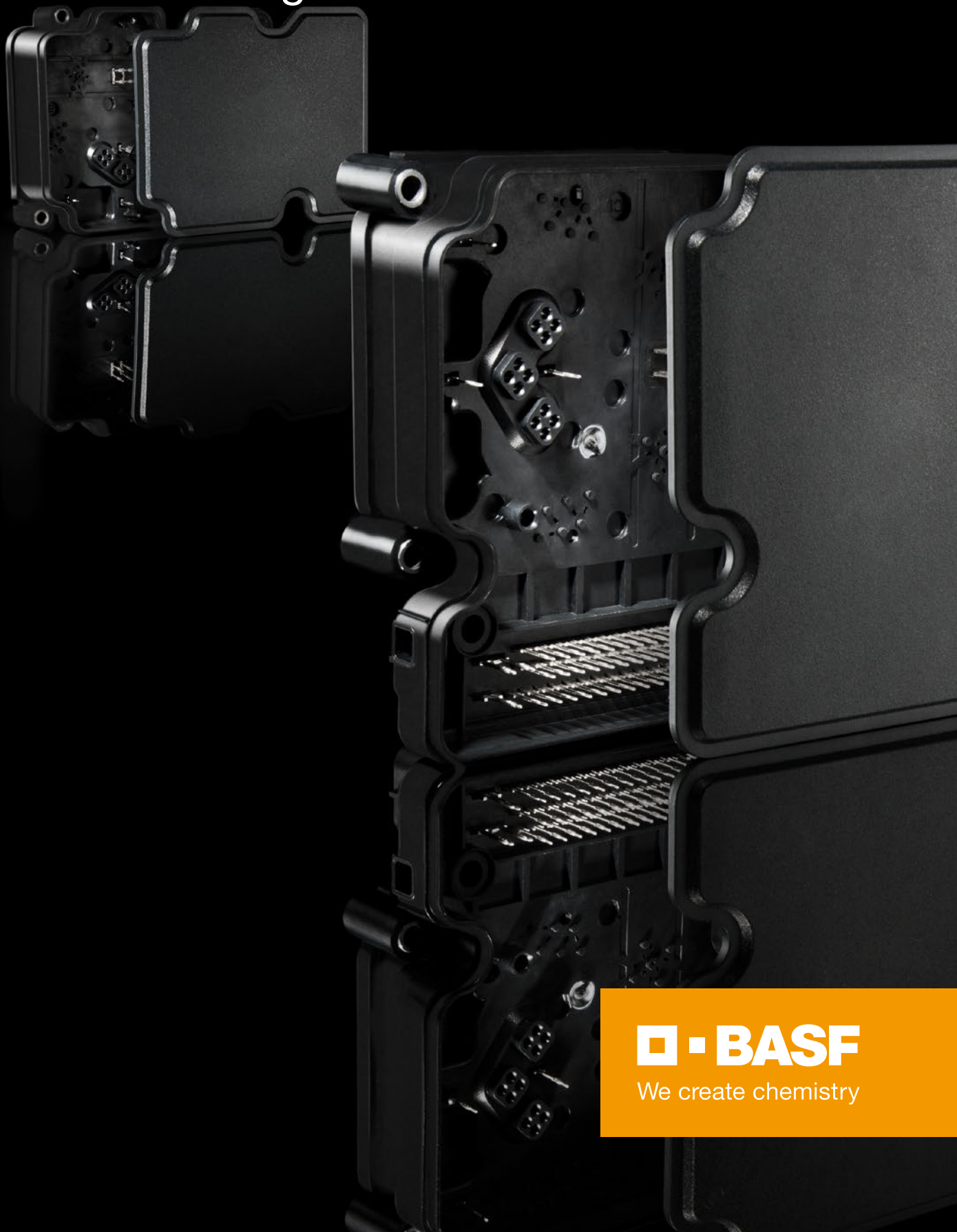


Ultradur® (PBT)

Product Range



 **BASF**

We create chemistry

Ultradur® (PBT)

Ultradur® is BASF's trade name for its line of partially crystalline saturated polyesters. This line is based on polybutylene terephthalate and is employed in applications demanding a high performance level such as load bearing parts in different industrial sectors. Ultradur® is outstanding for its high rigidity and strength, very good dimensional stability, low water absorption and high resistance to many chemicals. Moreover, Ultradur® exhibits exceptional resistance to weathering and excellent heat aging behavior.

Ultradur® (PBT)

| | |
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Overview Product Portfolio

Unreinforced grades

| | |
|---|---|
| B1520 FC R01 B1523 FC R01 | Very easy-flowing injection-molding grade for thin-walled packaging with food contact and reduced THF emission. |
| B2550/B2550 FC | Easy-flowing grade for coating paper and board with high heat resistance, for example for packaging of frozen goods and ready-prepared meals. Also suitable for injection-molding applications with demands on the flowability and for the manufacture of fibers in the spinning process. |
| B4500/B4500 FC B4520 B4520 FC Aqua® | Medium-viscosity grade for manufacturing thin-walled profiles and pipes. The grade is also suitable for the manufacture of industrial functional parts in injection-molding. |
| B4560 | Medium viscosity injection-molding grade with good processability for technical components in the automotive sector, such as headlamp housings. Suitable for direct metallizing. |

Grades with high viscosity

| | |
|--|---|
| B6550/B6550 FC B6550 L/B6550 LN B6550 LNX B6551 LNI | Unreinforced, highly viscous grades for extrusion of jacketing of fiber optic cables as well as plates, semi-finished products for shape-cutting, profiles and tubes. |
| B6560M2 FC TF | Highly viscous grade with 10% mineral content, suitable for the production of films which can be processed via thermoforming. |

Reinforced grades

| | |
|-----------------------|---|
| B4300 G2/G4/G6/G10 | Injection-molding grades with 10% to 50% glass fibers, for industrial parts, rigid, tough and dimensionally stable, for example for thermostat parts, small-motor housings for vehicles, headlamp frames, cams, windshield wiper arms, plug-in connectors, housings, consoles, contact mounts and covers. |
| B4040G4/G6/G10 | Injection-molding grades with 10% to 50% glass fibers for industrial parts with excellent surface quality, for example for door handles in vehicles, sunroof frames, oven door handles, toaster casings, exterior mirrors, rear screen wiper arms in vehicles and sunroof wind deflectors. |
| B4300C3 | Injection-molding grade with 15% carbon fiber content, for technical components, durably antistatic, electrically conductive, e.g. for components of measurement and control devices, components in explosion-proof areas, automotive sensors. |
| S4090G2/G4/G6 | Low-warpage, easy flowing injection-molding grades with 10% to 30% glass fibers for industrial parts with high dimensional stability requirements, for example for plug-in connectors and housings. |
| S4090GX/G4X/G6X | Low-warpage, easy-flowing injection-molding grades with very good processing properties, with 14% to 30% glass fibers, for industrial parts with high dimensional stability requirements, for example for internal applications for vehicles, plug-in connectors and housings. |

Grades with excellent flowability

| | |
|--|---|
| B4520 High Speed B4300G2/G3/G4/G6 High Speed | Easy-flowing injection-molding grades with 10% to 30% glass fibers, for industrial parts, rigid, tough and dimensionally stable, for example for housings, consoles, plug-in connectors, contact carriers and covers. |
| S4090G4/G6 High Speed | Low-warpage, easy-flowing injection-molding grades with 20% or 30% glass fibers for industrial parts with high dimensional stability requirements, for example for internal applications for vehicles, plug-in connectors and housings. |

Impact-modified grades

| | |
|---------------------------------|--|
| B4340ZG2 High Speed B4340ZG3 | Impact-modified injection-molding grade with 10% or 15% glass fibers and high creep resistance. For technical parts such as automotive connectors. |
|---------------------------------|--|

Grades with very low distortion

| | |
|------------|--|
| B4300K4/K6 | Injection-molding grades with 20% to 30% glass beads for industrial parts with low warpage, for example precision parts for optical instruments, chassis, housings (including gas meter housings). |
|------------|--|

| | |
|--|---|
| B4300M5 | Mineral-reinforced injection-molding grades for rigid parts with good surface quality and low warpage, for example central automotive door locks, housings and visible parts of domestic appliances. |
| B4300GM42 | Mixed glass-fiber reinforced and mineral-reinforced injection-molding grade with good surface quality and rigidity and with low warpage for parts such as housings and printed circuit boards. |
| Flame-retardant grades | |
| B4406 unreinforced B4406G2/G4/G6 | Flame-retardant injection-molding grades, unreinforced or with 10 % to 30 % glass fibers, for parts requiring enhanced flame-retardance, for example plug-in connectors and housings, coil formers and lighting components. |
| B4406G6 High Speed | Easy-flowing injection-molding grade with 30 % glass-fiber content, with flame-retardant properties, for components that require enhanced flame-retardance, e.g. plug-in connectors and housings, coil formers and lighting components. |
| B4441G5 | Halogen-free flame-retardant injection-molding grade with 25 % of glass fibers for parts requiring enhanced flame-retardance. Specially optimized for the filament requirements of IEC 60335 for increased tracking resistance, for example for plug-in connectors, switch parts and housings for domestic appliances. |
| B4450G5 | Halogen-free flame-retardant injection-molding grade with 25 % glass fibers for parts requiring enhanced flame-retardance as well as maximum tracking resistance, for example for plug-in connectors, switch parts or housings for power electronics. |
| B4450G5 HR | Halogen-free flame-retardant injection-molding grade with 25 % glass fibers for parts requiring enhanced flame-retardance as well as maximum tracking resistance and additionally meeting the requirements in terms of hydrolysis stability. |
| Reinforced grades with outstanding hydrolysis resistance | |
| B4330G3 HR B4335G3 HR High Speed B4330G6 HR B4330G6 HR High Speed | Impact-modified injection-molding grade with 15 % or 30 % glass fibers, for industrial parts with increased demands on the hydrolysis stability with increased resistance to alkaline solutions, for example for housings and plug-in connectors in the engine compartment. |
| B4331G6 HR | Impact-modified injection-molding grade with 30 % glass fibers and optimized processing behavior. For technical components with increased hydrolysis stability requirements and increased resistance to alkaline solutions, for example for housings and plug-in connectors in the engine compartment. |
| B4300G6 HR LT | Injection-molding grade with 30 % glass fibers, for industrial parts with increased demands on the hydrolysis stability, for example for housings and plug-in connectors in the engine compartment. Laser-weldable grades with 20 % or 30 % glass fibers; specified transparency for radiation in the near infrared area (800-1100 nm), e.g. of Nd:YAG or diode lasers. |
| B4331C3 HR | Impact-modified injection-molding grade with 15 % carbon fiber content, for technical components with increased hydrolysis-stability requirements, durably antistatic, electrically conductive, e.g. for components of measurement and control devices, components in explosion-proof areas, automotive sensors. |
| Reinforced grades with particularly high laser transparency for laser welding | |
| LUX B4300G4/G6 | Highly laser-weldable grades with 20 % or 30 % glass fibers; particularly high specified transparency for radiation in the near infrared area (800-1100 nm), e.g. of Nd:YAG or diode lasers. |
| Grades with special properties | |
| LS | Laser-markable products; can be marked with a Nd:YAG laser (1064 nm). |
| LT | Laser-transparent grades with specified laser transparency; for radiation in the near infrared area (800-1100 nm), e.g. of Nd:YAG or diode lasers. |
| FC/FC Aqua® | Products suitable for use in drinking water and/or food contact. They meet the regulatory requirements for the corresponding areas of use. |
| PRO | Products which meet the regulatory requirements in particular in the area of medical devices, such as insulin pens or inhalers. |

We also offer further products with special properties or for special applications. For more information on products with a special finish, please contact the Ultra-Infopoint.

Ultradur® Grades

Unreinforced grades

| Typical values at 23 °C for uncolored products | Unit | Test method | B1520 FC R01 |
|--|-------------------------|-------------------|--------------|
| Product Features | | | |
| Symbol | – | ISO 1043 | PBT |
| Colors: uncolored (UN), black (BK) | – | – | UN |
| Density | kg/m ³ | ISO 1183 | 1,310 |
| Viscosity number, solution 0.005g/ml phenol/1.2-dichloro benzene (1:1) | cm ³ /g | ISO 1628 | 88 |
| Water absorption, saturation in water at 23 °C | % | similar to ISO 62 | 0.5 |
| Moisture absorption, saturation in standard atmosphere 23 °C/50 % r.h. | % | similar to ISO 62 | 0.25 |
| Processing methods | | | |
| Melting temperature, DSC | °C | ISO 11357-1/-3 | 223 |
| Melt volume rate MVR 250/2.16 | cm ³ /10 min | ISO 1133 | 110 |
| Melt volume rate MVR 275/2.16 | cm ³ /10 min | ISO 1133 | |
| Melt volume rate MVR 260/5 | cm ³ /10 min | ISO 1133 | |
| Melt temperature range, injection-molding | °C | – | 260-280 |
| Mold temperature range, injection-molding | °C | – | 20-60 |
| Melt temperature range, extrusion | °C | – | |
| Molding shrinkage, free, longitudinal/transversal | % | ISO 2577, 294-4 | 1.90/1.80 |
| Fire behavior | | | |
| Flammability according to UL94 (thickness) ¹⁾ | class (mm) | UL94 | |
| Flammability (thickness) | class (mm) | IEC 60695-11-10 | |
| Flammability of materials in cars at d ≥ 1 mm thickness ²⁾ | – | FMVSS 302 | |
| Mechanical properties | | | |
| Tensile modulus of elasticity | MPa | ISO 527-1/-2 | 2,500 |
| Tensile stress at yield (v=50 mm/min), stress at break* (v=5 mm/min) | MPa | ISO 527-1/-2 | 58 |
| Strain at yield (v=50 mm/min) | % | ISO 527-1/-2 | 4 |
| Nominal strain at break (v=50 mm/min), strain at break* (v=5 mm/min) | % | ISO 527-1/-2 | 12 |
| Tensile creep modulus, 1.000h, elongation ≤ 0.5 %, +23 °C | MPa | ISO 899-1 | |
| Flexural modulus | MPa | ISO 178 | |
| Flexural strength | MPa | ISO 178 | |
| Charpy impact strength (23 °C) ³⁾ | kJ/m ² | ISO 179/1eU | 130 |
| Charpy impact strength (-30 °C) ³⁾ | kJ/m ² | ISO 179/1eU | |
| Charpy notched impact strength (23 °C) ³⁾ | kJ/m ² | ISO 179/1eA | 3 |
| Charpy notched impact strength (-30 °C) ³⁾ | kJ/m ² | ISO 179/1eA | |
| Ball indentation hardness H 358 N/30 sec, H 961 N/30 sec* | MPa | ISO 2039-1 | |
| Thermal properties | | | |
| Heat deflection temperature under 1.8 MPa (HDT/A) | °C | ISO 75-1/-2 | 55 |
| Heat deflection temperature under 0.45 MPa (HDT/B) | °C | ISO 75-1/-2 | 150 |
| Max. service temperature (short cycle operation) ⁴⁾ | °C | – | |
| Temperature index, at 50 % loss of tensile strength after 20,000h/5.000h | °C | IEC 60216-1 | |
| Thermal coefficient of linear expansion, longitudinal/perpendicular (23-55) °C | 10 ⁻⁶ /K | ISO 11359-1/-2 | |
| Thermal conductivity (23 °C) | W/(m·K) | DIN 52 612-1 | |
| Specific heat capacity (23 °C) | J/(kg·K) | | 1,150 |
| Electrical properties | | | |
| Dielectric constant at 100 Hz/1 MHz | – | IEC 60250 | |
| Dissipation factor at 100 Hz/1 MHz | 10 ⁻⁴ | IEC 60250 | |
| Volume resistivity | Ω·m | IEC 60093 | |
| Surface resistivity | Ω | IEC 60093 | |
| Comparative tracking index CTI, test solution A | – | IEC 60112 | |
| Available versions | | | |
| Laser-markable (LS)/Laser-transparent (LT) | – | – | |

¹⁾ yellow card available

²⁾ + = passed

³⁾ NB = no break

⁴⁾ Typical values for parts required to withstand repeated exposure to this temperature for several hours over years of use, assuming appropriate shaping and processing for the material.

| B1523 FC R01 | B2500 | B4500 | B4520 | B4560 |
|--------------|------------------|------------------|------------------|------------------|
| PBT | PBT | PBT | PBT | PBT |
| UN | UN | UN | UN/SW | SW |
| 1,300 | 1,300 | 1,300 | 1,300 | 1,300 |
| 100 | 107 | 130 | 130 | 112 |
| | 0.5 | 0.5 | 0.5 | 0.5 |
| | 0.25 | 0.25 | 0.25 | 0.25 |
| 224 | 223 | 223 | 223 | 223 |
| 90 | 45 | 21 | 21 | 35 |
| 260-280 | 245-275 | 250-275 | 250-275 | 230-275 |
| 20-60 | 40-70 | 40-70 | 40-70 | 40-70 |
| | | 230-260 | | |
| 2.04/2.22 | 1.60/1.90 | 1.60/1.90 | 1.50/1.70 | 1.31/1.64 |
| | | HB (≥ 0.8mm) | HB (≥ 0.8mm) | |
| | HB (≥ 0.8mm) | | | HB (≥ 1.5mm) |
| 1,600 | 2,500 | 2,500 | 2,500 | 2,600 |
| 43 | 57 | 55 | 55 | 60 |
| 10 | 3.7 | 3.7 | 3.7 | 3.7 |
| 20 | 35 | >50 | >50 | 30 |
| | 1,100 | 1,200 | 1,200 | |
| 1,650 | | 2,300 | 2,400 | 2,600 |
| 60 | | 85 | 85 | 90 |
| 225 | 250 | N | N | 140 |
| | 120 | 180 | 180 | 85 |
| 5 | 4.1 | 5.2 | 5 | 3.8 |
| | 4 | 4 | 3 | 4.9 |
| | 130 | 130 | 130 | |
| 53 | 65 | 65 | 55 | 60 |
| 145 | 165 | 165 | 165 | 135 |
| | 200 | 200 | 200 | 160 |
| | | | 135/145 | |
| | 110/110 | | 110/ – | 115/115 |
| | 0.27 | 0.27 | 0.27 | 0.27 |
| 1,450 | 1,250 | 1,250 | 1,250 | |
| | 3.3/3.3 | 3.3/3.3 | 3.4/3.3 | 3.4/3.3 |
| | 13/200 | 10/200 | 20/200 | 20/200 |
| | 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ |
| | 10 ¹³ | 10 ¹³ | 10 ¹³ | 10 ¹³ |
| | 500 | 550 | 550 | 550 |

Ultradur® Grades

Grades with high viscosity

| Typical values at 23 °C for uncolored products | Unit | Test method | B6550 |
|--|-------------------------|-------------------|------------------|
| Product Features | | | |
| Symbol | – | ISO 1043 | PBT |
| Colors: uncolored (UN), black (BK) | – | – | UN |
| Density | kg/m ³ | ISO 1183 | 1,300 |
| Viscosity number, solution 0.005g/ml phenol/1.2-dichloro benzene (1:1) | cm ³ /g | ISO 1628 | 160 |
| Water absorption, saturation in water at 23 °C | % | similar to ISO 62 | 0.5 |
| Moisture absorption, saturation in standard atmosphere 23 °C/50 % r.h. | % | similar to ISO 62 | 0.25 |
| Processing methods | | | |
| Melting temperature, DSC | °C | ISO 11357-1/-3 | 223 |
| Melt volume rate MVR 250 / 2.16 | cm ³ /10 min | ISO 1133 | 9.5 |
| Melt volume rate MVR 275 / 2.16 | cm ³ /10 min | ISO 1133 | |
| Melt volume rate MVR 260 / 5 | cm ³ /10 min | ISO 1133 | |
| Melt temperature range, injection-molding | °C | – | 250-275 |
| Mold temperature range, injection-molding | °C | – | 40-80 |
| Melt temperature range, extrusion | °C | – | 230-260 |
| Molding shrinkage, free, longitudinal/transversal | % | ISO 2577, 294-4 | 1.70/2.10 |
| Fire behavior | | | |
| Flammability according to UL94 (thickness) ¹⁾ | class (mm) | UL94 | |
| Flammability (thickness) | class (mm) | IEC 60695-11-10 | HB (≥ 0.8 mm) |
| Flammability of materials in cars at d ≥ 1 mm thickness ²⁾ | – | FMVSS 302 | |
| Mechanical properties | | | |
| Tensile modulus of elasticity | MPa | ISO 527-1/-2 | 2,400 |
| Tensile stress at yield (v=50 mm/min), stress at break* (v=5 mm/min) | MPa | ISO 527-1/-2 | 54 |
| Strain at yield (v=50 mm/min) | % | ISO 527-1/-2 | 3.5 |
| Nominal strain at break (v=50 mm/min), strain at break* (v=5 mm/min) | % | ISO 527-1/-2 | >50 |
| Tensile creep modulus, 1.000h, elongation ≤ 0.5 %, +23 °C | MPa | ISO 899-1 | 1,100 |
| Flexural modulus | MPa | ISO 178 | 2,500 |
| Flexural strength | MPa | ISO 178 | 85 |
| Charpy impact strength (23 °C) ³⁾ | kJ/m ² | ISO 179/1eU | N |
| Charpy impact strength (-30 °C) ³⁾ | kJ/m ² | ISO 179/1eU | 250 |
| Charpy notched impact strength (23 °C) ³⁾ | kJ/m ² | ISO 179/1eA | 6.1 |
| Charpy notched impact strength (-30 °C) ³⁾ | kJ/m ² | ISO 179/1eA | |
| Ball indentation hardness H 358 N/30 sec, H 961 N/30 sec* | MPa | ISO 2039-1 | 130 |
| Thermal properties | | | |
| Heat deflection temperature under 1.8 MPa (HDT/A) | °C | ISO 75-1/-2 | 55 |
| Heat deflection temperature under 0.45 MPa (HDT/B) | °C | ISO 75-1/-2 | 135 |
| Max. service temperature (short cycle operation) ⁴⁾ | °C | – | 200 |
| Temperature index, at 50 % loss of tensile strength after 20,000h/5.000h | °C | IEC 60216-1 | |
| Thermal coefficient of linear expansion, longitudinal/perpendicular (23-55) °C | 10 ⁻⁶ /K | ISO 11359-1/-2 | |
| Thermal conductivity (23 °C) | W/(m·K) | DIN 52 612-1 | 0.27 |
| Specific heat capacity (23 °C) | J/(kg·K) | | 1,250 |
| Electrical properties | | | |
| Dielectric constant at 100 Hz/1 MHz | – | IEC 60250 | 3.3/3.3 |
| Dissipation factor at 100 Hz/1 MHz | 10 ⁻⁴ | IEC 60250 | 10/200 |
| Volume resistivity | Ω·m | IEC 60093 | 10 ¹⁴ |
| Surface resistivity | Ω | IEC 60093 | 10 ¹³ |
| Comparative tracking index CTI, test solution A | – | IEC 60112 | 600 |
| Available versions | | | |
| Laser-markable (LS)/Laser-transparent (LT) | – | – | |

¹⁾ yellow card available

²⁾ + = passed

³⁾ NB = no break

⁴⁾ Typical values for parts required to withstand repeated exposure to this temperature for several hours over years of use, assuming appropriate shaping and processing for the material.

| B6550 L | B6550 LN | B6550 LNX | B6550 LNI | B6560M2 FC TF |
|------------------|------------------|-----------|-------------------|---------------|
| PBT | PBT | PBT | PBT | PBT M10 |
| UN | UN | UN | UN | UN |
| 1,300 | 1,300 | 1,300 | 1,300 | 1,360 |
| 160 | 160 | 144 | 180 | 150 |
| 0.5 | 0.4 | 0.4 | 0.4 | |
| 0.25 | 0.25 | 0.25 | 0.25 | |
| 223 | 223 | 222 | 223 | 223 |
| 9.5 | 9.5 | 8 | 90 | 8.5 |
| 250-275 | 260-270 | 260-270 | 260-270 | |
| 40-80 | 40-80 | 40-80 | | |
| 230-260 | 250-270 | 250-270 | 250-270 | 250-280 |
| | | | | 2.18 / 2.12 |
| HB (≥ 0.8mm) | HB (≥ 0.8mm) | | HB (≥ 1.5mm) | |
| 2,500 | 2,600 | 2,600 | 2,600 | 2,000 |
| 55 | 56 | 53 | 55 | 40 |
| 3.5 | 3.5 | 3 | 3.2 | 10 |
| >50 | >50 | >50 | >50 | 33 |
| 2,030 | 2,700 | 2,500 | 2,500 | 2,000 |
| 76 | 85 | 80 | 80 | 60 |
| N | N | N | N | N |
| 220 | 220 | 215 | 280 | |
| 5.8 | 5.2 | 3.4 | 6 | 6.3 |
| | 5.3 | | 4 | |
| 55 | 50 | 60 | 60 | 60 |
| 135 | 135 | 150 | 140 | 150 |
| | 135/145 | | | |
| | 110/110 | | | |
| 3.4/3.2 | 3.4/3.2 | | | |
| 13/221 | 19/219 | | | |
| 10 ¹⁴ | 10 ¹⁴ | | >10 ¹⁴ | |
| 10 ¹³ | 10 ¹³ | | >10 ¹⁵ | |
| 600 | 600 | | | 550 |

Ultradur® Grades

Reinforced grades

| Typical values at 23 °C for uncolored products | Unit | Test method | B4300G2 |
|--|-------------------------|-------------------|------------------|
| Product Features | | | |
| Symbol | – | ISO 1043 | PBT GF10 |
| Colors: uncolored (UN), black (BK) | – | – | UN/SW |
| Density | kg/m ³ | ISO 1183 | 1,370 |
| Viscosity number, solution 0.005g/ml phenol/1.2-dichloro benzene (1:1) | cm ³ /g | ISO 1628 | 115 |
| Water absorption, saturation in water at 23 °C | % | similar to ISO 62 | 0.4 |
| Moisture absorption, saturation in standard atmosphere 23 °C/50 % r.h. | % | similar to ISO 62 | 0.2 |
| Processing methods | | | |
| Melting temperature, DSC | °C | ISO 11357-1/-3 | 223 |
| Melt volume rate MVR 250 / 2.16 | cm ³ /10 min | ISO 1133 | 16 |
| Melt volume rate MVR 275 / 2.16 | cm ³ /10 min | ISO 1133 | |
| Melt volume rate MVR 260 / 5 | cm ³ /10 min | ISO 1133 | |
| Melt temperature range, injection-molding | °C | – | 250-275 |
| Mold temperature range, injection-molding | °C | – | 60-100 |
| Melt temperature range, extrusion | °C | – | |
| Molding shrinkage, free, longitudinal/transversal | % | ISO 2577, 294-4 | 1.22/1.38 |
| Fire behavior | | | |
| Flammability according to UL94 (thickness) ¹⁾ | class (mm) | UL94 | HB (≥ 0.8 mm) |
| Flammability (thickness) | class (mm) | IEC 60695-11-10 | |
| Flammability of materials in cars at d ≥ 1 mm thickness ²⁾ | – | FMVSS 302 | |
| Mechanical properties | | | |
| Tensile modulus of elasticity | MPa | ISO 527-1/-2 | 4,400 |
| Tensile stress at yield (v=50 mm/min), stress at break* (v=5 mm/min) | MPa | ISO 527-1/-2 | 80* |
| Strain at yield (v=50 mm/min) | % | ISO 527-1/-2 | |
| Nominal strain at break (v=50 mm/min), strain at break* (v=5 mm/min) | % | ISO 527-1/-2 | 4.5* |
| Tensile creep modulus, 1.000h, elongation ≤ 0.5 %, +23 °C | MPa | ISO 899-1 | |
| Flexural modulus | MPa | ISO 178 | 4,100 |
| Flexural strength | MPa | ISO 178 | 140 |
| Charpy impact strength (23 °C) ³⁾ | kJ/m ² | ISO 179/1eU | 37 |
| Charpy impact strength (-30 °C) ³⁾ | kJ/m ² | ISO 179/1eU | 38 |
| Charpy notched impact strength (23 °C) ³⁾ | kJ/m ² | ISO 179/1eA | 3.5 |
| Charpy notched impact strength (-30 °C) ³⁾ | kJ/m ² | ISO 179/1eA | |
| Ball indentation hardness H 358 N/30 sec, H 961 N/30 sec* | MPa | ISO 2039-1 | 160* |
| Thermal properties | | | |
| Heat deflection temperature under 1.8 MPa (HDT/A) | °C | ISO 75-1/-2 | 175 |
| Heat deflection temperature under 0.45 MPa (HDT/B) | °C | ISO 75-1/-2 | 210 |
| Max. service temperature (short cycle operation) ⁴⁾ | °C | – | 210 |
| Temperature index, at 50 % loss of tensile strength after 20,000h/5.000h | °C | IEC 60216-1 | 130/150 |
| Thermal coefficient of linear expansion, longitudinal/perpendicular (23-55) °C | 10 ⁻⁶ /K | ISO 11359-1/-2 | 60/125 |
| Thermal conductivity (23 °C) | W/(m·K) | DIN 52 612-1 | 0.23 |
| Specific heat capacity (23 °C) | J/(kg·K) | | 1,200 |
| Electrical properties | | | |
| Dielectric constant at 100 Hz/1 MHz | – | IEC 60250 | 3.6/3.6 |
| Dissipation factor at 100 Hz/1 MHz | 10 ⁻⁴ | IEC 60250 | 12/150 |
| Volume resistivity | Ω·m | IEC 60093 | 10 ¹⁴ |
| Surface resistivity | Ω | IEC 60093 | 10 ¹³ |
| Comparative tracking index CTI, test solution A | – | IEC 60112 | 300 |
| Available versions | | | |
| Laser-markable (LS)/Laser-transparent (LT) | – | – | |

¹⁾ yellow card available

²⁾ + = passed

³⁾ NB = no break

⁴⁾ Typical values for parts required to withstand repeated exposure to this temperature for several hours over years of use, assuming appropriate shaping and processing for the material.

| B4300G4 | B4300G6 | B4300G10 | B4040G4 | B4040G6 | B4040G10 |
|------------------|------------------|------------------|------------------|------------------|------------------|
| PBT GF20 | PBT GF30 | PBT GF50 | PBT+PET GF20 | PBT+PET GF30 | PBT+PET GF50 |
| UN/SW | UN/SW | UN/SW | SW | SW | SW |
| 1,450 | 1,530 | 1,730 | 1,470 | 1,550 | 1,730 |
| 107 | 105 | 97 | 105 | 105 | 90 |
| 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 223 | 223 | 223 | 223 | 223 | 223 |
| 15 | 11 | 3.5 | 22 | 15 | 1.8 |
| 250-275 | 250-275 | 260-275 | 250-280 | 250-280 | 250-280 |
| 60-100 | 60-100 | 80-120 | 60-100 | 60-100 | 60-100 |
| 0.43/1.16 | 0.34/1.07 | | 0.40/0.90 | 0.30/0.90 | 0.24/0.77 |
| HB (≥ 0.8mm) | HB (≥ 0.8mm) | HB (≥ 0.8mm) | HB (≥ 0.8mm) | HB (≥ 0.8mm) | HB (≥ 0.8mm) |
| 7,000 | 9,800 | 16,500 | 7,500 | 10,500 | 18,000 |
| 115* | 137* | 160* | 120* | 145* | 170* |
| 3.5* | 3* | 1.7* | 2.8* | 2.6* | 1.6* |
| | 7,500 | | | | |
| 6,570 | 9,460 | 15,000 | 7,010 | | 17,700 |
| 170 | 210 | | 190 | | 270 |
| 54 | 70 | 60 | 40 | 60 | 60 |
| 50 | 68 | 70 | 40 | 55 | 70 |
| 6.5 | 9 | 11 | 5.5 | 8 | 10 |
| 6 | 8.5 | 10 | | | |
| 180* | 190* | 220* | 190 | | |
| 205 | 215 | 215 | 180 | 200 | 205 |
| 220 | 220 | 220 | 215 | 220 | 221 |
| 210 | 210 | 210 | 210 | 210 | 210 |
| 140/160 | 150/165 | 150/170 | | | |
| 35/125 | 25/115 | 20/95 | 35/105 | 25/110 | 15/80 |
| 0.25 | 0.27 | 0.36 | | | |
| 1,150 | 1,050 | 950 | 1,100 | 1,050 | 950 |
| 3.7/3.7 | 4/3.8 | 4/4 | 3.7/3.5 | 4/3.8 | 4.7/4.5 |
| 12/150 | 25/170 | 12/150 | 14/180 | 16/170 | 20/150 |
| 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ |
| 10 ¹³ | 10 ¹³ | 10 ¹³ | 10 ¹³ | 10 ¹³ | 10 ¹³ |
| 300 | 375 | 425 | 300 | 250 | 225 |
| | LS/LT | LS | | | |

Ultradur® Grades

Reinforced grades

| Typical values at 23 °C for uncolored products | Unit | Test method | B4300C3 |
|--|-------------------------|-------------------|------------------|
| Product Features | | | |
| Symbol | – | ISO 1043 | PBT CF15 |
| Colors: uncolored (UN), black (BK) | – | – | SW |
| Density | kg/m ³ | ISO 1183 | 1,360 |
| Viscosity number, solution 0.005g/ml phenol/1.2-dichloro benzene (1:1) | cm ³ /g | ISO 1628 | 118 |
| Water absorption, saturation in water at 23 °C | % | similar to ISO 62 | 0.4 |
| Moisture absorption, saturation in standard atmosphere 23 °C/50 % r.h. | % | similar to ISO 62 | 0.2 |
| Processing methods | | | |
| Melting temperature, DSC | °C | ISO 11357-1/-3 | 223 |
| Melt volume rate MVR 250 / 2.16 | cm ³ /10 min | ISO 1133 | 9 |
| Melt volume rate MVR 275 / 2.16 | cm ³ /10 min | ISO 1133 | |
| Melt volume rate MVR 260 / 5 | cm ³ /10 min | ISO 1133 | |
| Melt temperature range, injection-molding | °C | – | 250-275 |
| Mold temperature range, injection-molding | °C | – | 60-100 |
| Melt temperature range, extrusion | °C | – | |
| Molding shrinkage, free, longitudinal/transversal | % | ISO 2577, 294-4 | 0.34/0.75 |
| Fire behavior | | | |
| Flammability according to UL94 (thickness) ¹⁾ | class (mm) | UL94 | |
| Flammability (thickness) | class (mm) | IEC 60695-11-10 | HB (≥ 0.8 mm) |
| Flammability of materials in cars at d ≥ 1 mm thickness ²⁾ | – | FMVSS 302 | |
| Mechanical properties | | | |
| Tensile modulus of elasticity | MPa | ISO 527-1/-2 | 12,900 |
| Tensile stress at yield (v=50 mm/min), stress at break* (v=5 mm/min) | MPa | ISO 527-1/-2 | 150* |
| Strain at yield (v=50 mm/min) | % | ISO 527-1/-2 | |
| Nominal strain at break (v=50 mm/min), strain at break* (v=5 mm/min) | % | ISO 527-1/-2 | 2.4* |
| Tensile creep modulus, 1.000h, elongation ≤ 0.5 %, +23 °C | MPa | ISO 899-1 | |
| Flexural modulus | MPa | ISO 178 | 12,000 |
| Flexural strength | MPa | ISO 178 | 225 |
| Charpy impact strength (23 °C) ³⁾ | kJ/m ² | ISO 179/1eU | 50 |
| Charpy impact strength (-30 °C) ³⁾ | kJ/m ² | ISO 179/1eU | 45 |
| Charpy notched impact strength (23 °C) ³⁾ | kJ/m ² | ISO 179/1eA | 5.5 |
| Charpy notched impact strength (-30 °C) ³⁾ | kJ/m ² | ISO 179/1eA | 4.2 |
| Ball indentation hardness H 358 N/30 sec, H 961 N/30 sec* | MPa | ISO 2039-1 | |
| Thermal properties | | | |
| Heat deflection temperature under 1.8 MPa (HDT/A) | °C | ISO 75-1/-2 | 200 |
| Heat deflection temperature under 0.45 MPa (HDT/B) | °C | ISO 75-1/-2 | 220 |
| Max. service temperature (short cycle operation) ⁴⁾ | °C | – | 210 |
| Temperature index, at 50 % loss of tensile strength after 20,000h/5.000h | °C | IEC 60216-1 | |
| Thermal coefficient of linear expansion, longitudinal/perpendicular (23-55) °C | 10 ⁻⁶ /K | ISO 11359-1/-2 | 10/120 |
| Thermal conductivity (23 °C) | W/(m·K) | DIN 52 612-1 | |
| Specific heat capacity (23 °C) | J/(kg·K) | | |
| Electrical properties | | | |
| Dielectric constant at 100 Hz/1 MHz | – | IEC 60250 | |
| Dissipation factor at 100 Hz/1 MHz | 10 ⁻⁴ | IEC 60250 | |
| Volume resistivity | Ω·m | IEC 60093 | 10 ²³ |
| Surface resistivity | Ω | IEC 60093 | 10 ²⁵ |
| Comparative tracking index CTI, test solution A | – | IEC 60112 | |
| Available versions | | | |
| Laser-markable (LS)/Laser-transparent (LT) | – | – | LS |

¹⁾ yellow card available²⁾ + = passed³⁾ NB = no break⁴⁾ Typical values for parts required to withstand repeated exposure to this temperature for several hours over years of use, assuming appropriate shaping and processing for the material.

| S4090G2 | S4090G4 | S4090G6 | S4090GX | S4090G4X | S4090G6X |
|------------------|------------------|------------------|------------------|------------------|------------------|
| PBT+ASA+PET GF10 | PBT+ASA+PET GF20 | PBT+ASA+PET GF30 | PBT+ASA GF14 | PBT+ASA GF20 | PBT+ASA GF30 |
| SW | UN/SW | UN/SW | UN/SW | SW | SW |
| 1,310 | 1,390 | 1,470 | 1,330 | 1,390 | 1,470 |
| 105 | 105 | 105 | 110 | 104 | 104 |
| 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 223 | 223 | 223 | 223 | 223 | 223 |
| 20 | 20 | 20 | 23 | 30 | 20 |
| 250-275 | 250-275 | 250-275 | 250-275 | 250-275 | 250-275 |
| 60-100 | 60-100 | 60-100 | 60-100 | 60-100 | 60-100 |
| | 0.43/0.74 | 0.29/0.75 | 0.54/0.83 | 0.46/0.91 | 0.29/0.82 |
| HB (≥ 0.8mm) | HB (≥ 0.8mm) | HB (≥ 0.8mm) | HB (≥ 0.8mm) | | HB (≥ 0.8mm) |
| 4,500 | 6,900 | 9,700 | 5,500 | 6,600 | 9,600 |
| 75* | 105* | 125* | 95* | 100* | 128* |
| 2.9* | 2.4* | 2.2* | 3.2* | 2.6* | 2.5* |
| 3,300 | 4,700 | 6,700 | | | |
| 4,100 | 6,400 | 8,700 | | | |
| 119 | 151 | 183 | 140 | | 190 |
| 37 | 50 | 58 | 52 | 49 | 61 |
| 24 | 40 | 50 | 43 | – | 52 |
| 4 | 5.5 | 7 | 7 | 5.5 | 7.5 |
| 3.2 | 5.3 | | | | |
| 140* | 153* | 164* | | | |
| 105 | 160 | 175 | 170 | 185 | 205 |
| 190 | 205 | 210 | 210 | 210 | 220 |
| 170 | 170 | 170 | | | |
| | | 145/– | | | 145/– |
| 50/– | 35/110 | 25/105 | 45/120 | | 25/115 |
| 0.27 | 0.28 | 0.29 | | | |
| 1,200 | 1,150 | 1,100 | 1,070 | | 1,150 |
| 3.6/3.4 | 3.7/3.6 | 3.8/3.7 | 3.6/ 3.4 | | 3.9/3.7 |
| 31/205 | 30/190 | 30/180 | 39/208 | | 46/202 |
| 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ |
| 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ |
| 375 | 450 | 500 | 375 | | 425 |
| | LS | LS | | | LS |

Ultradur® Grades

Grades with excellent flowability

| Typical values at 23 °C for uncolored products | Unit | Test method | B4520 High Speed |
|--|------------------------|-------------------|------------------|
| Product Features | | | |
| Symbol | – | ISO 1043 | PBT |
| Colors: uncolored (UN), black (BK) | – | – | UN/SW |
| Density | kg/m ³ | ISO 1183 | 1,300 |
| Viscosity number, solution 0.005g/ml phenol/1.2-dichloro benzene (1:1) | cm ³ /g | ISO 1628 | 115 |
| Water absorption, saturation in water at 23 °C | % | similar to ISO 62 | 0.5 |
| Moisture absorption, saturation in standard atmosphere 23 °C/50 % r.h. | % | similar to ISO 62 | 0.25 |
| Processing methods | | | |
| Melting temperature, DSC | °C | ISO 11357-1/-3 | 223 |
| Melt volume rate MVR 250 / 2.16 | cm ³ /10min | ISO 1133 | 50 |
| Melt volume rate MVR 275 / 2.16 | cm ³ /10min | ISO 1133 | |
| Melt volume rate MVR 260 / 5 | cm ³ /10min | ISO 1133 | |
| Melt temperature range, injection-molding | °C | – | 250-275 |
| Mold temperature range, injection-molding | °C | – | 40-70 |
| Melt temperature range, extrusion | °C | – | |
| Molding shrinkage, free, longitudinal/transversal | % | ISO 2577, 294-4 | |
| Fire behavior | | | |
| Flammability according to UL94 (thickness) ¹⁾ | class (mm) | UL94 | HB (≥ 0.8mm) |
| Flammability (thickness) | class (mm) | IEC 60695-11-10 | |
| Flammability of materials in cars at d ≥ 1 mm thickness ²⁾ | – | FMVSS 302 | |
| Mechanical properties | | | |
| Tensile modulus of elasticity | MPa | ISO 527-1/-2 | 2,200 |
| Tensile stress at yield (v=50mm/min), stress at break* (v=5mm/min) | MPa | ISO 527-1/-2 | 53 |
| Strain at yield (v=50mm/min) | % | ISO 527-1/-2 | 3.5 |
| Nominal strain at break (v=50mm/min), strain at break* (v=5mm/min) | % | ISO 527-1/-2 | >50 |
| Tensile creep modulus, 1.000h, elongation ≤ 0.5 %, +23 °C | MPa | ISO 899-1 | |
| Flexural modulus | MPa | ISO 178 | |
| Flexural strength | MPa | ISO 178 | |
| Charpy impact strength (23 °C) ³⁾ | kJ/m ² | ISO 179/1eU | 190 |
| Charpy impact strength (-30 °C) ³⁾ | kJ/m ² | ISO 179/1eU | |
| Charpy notched impact strength (23 °C) ³⁾ | kJ/m ² | ISO 179/1eA | 4 |
| Charpy notched impact strength (-30 °C) ³⁾ | kJ/m ² | ISO 179/1eA | |
| Ball indentation hardness H 358 N/30sec, H 961 N/30sec* | MPa | ISO 2039-1 | |
| Thermal properties | | | |
| Heat deflection temperature under 1.8MPa (HDT/A) | °C | ISO 75-1/-2 | 55 |
| Heat deflection temperature under 0.45MPa (HDT/B) | °C | ISO 75-1/-2 | 130 |
| Max. service temperature (short cycle operation) ⁴⁾ | °C | – | 200 |
| Temperature index, at 50 % loss of tensile strength after 20,000h/5.000h | °C | IEC 60216-1 | |
| Thermal coefficient of linear expansion, longitudinal/perpendicular (23-55) °C | 10 ⁻⁶ /K | ISO 11359-1/-2 | |
| Thermal conductivity (23 °C) | W/(m·K) | DIN 52 612-1 | |
| Specific heat capacity (23 °C) | J/(kg·K) | | |
| Electrical properties | | | |
| Dielectric constant at 100Hz/1MHz | – | IEC 60250 | |
| Dissipation factor at 100Hz/1MHz | 10 ⁻⁴ | IEC 60250 | |
| Volume resistivity | Ω·m | IEC 60093 | |
| Surface resistivity | Ω | IEC 60093 | |
| Comparative tracking index CTI, test solution A | – | IEC 60112 | |
| Available versions | | | |
| Laser-markable (LS)/Laser-transparent (LT) | – | – | |

¹⁾ yellow card available

²⁾ + = passed

³⁾ NB = no break

⁴⁾ Typical values for parts required to withstand repeated exposure to this temperature for several hours over years of use, assuming appropriate shaping and processing for the material.

| B4300G2 High Speed | B4300G3 High Speed | B4300G4 High Speed | B4300G6 High Speed | S4090G4 High Speed | S4090G6 High Speed |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| PBT GF10 | PBT GF15 | PBT GF20 | PBT GF30 | PBT+ASA+PET GF20 | PBT+ASA+PET GF30 |
| UN/SW | UN/SW | UN/SW | UN/SW | SW | SW |
| 1,374 | 1,410 | 1,450 | 1,530 | 1,390 | 1,480 |
| 105 | 100 | 100 | 90 | 105 | 100 |
| 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 223 | 223 | 223 | 223 | 223 | 223 |
| 28 | 24 | 22 | 23 | 35 | 25 |
| 230-275 | 230-275 | 230-275 | 230-275 | 250-275 | 250-275 |
| 60-100 | 60-100 | 60-100 | 60-100 | 60-100 | 60-100 |
| 0.90/1.10 | 0.70/1.10 | 0.47/1.10 | 0.35/1.10 | 0.40/0.80 | 0.27/0.80 |
| HB (≥ 1.5 mm) | HB (≥ 0.8 mm) | HB (≥ 0.8 mm) | HB (≥ 1.5 mm) | HB (≥ 1.5 mm) | HB (≥ 1.5 mm) |
| 4,400 | 5,600 | 7,000 | 9,700 | 6,900 | 9,600 |
| 85* | 100* | 115* | 140* | 100* | 120* |
| 3.9* | 3.7* | 3.3* | 2.7* | 2.4* | 2.1* |
| | | | 10,000 | 6,800 | |
| | | | 210 | 155 | |
| 25 | 30 | 45 | 60 | 43 | 50 |
| 26 | 30 | 40 | 50 | 30 | 44 |
| 3.5 | 5 | 6 | 7.5 | 5.5 | 7 |
| 165 | 185 | 195 | 200 | 180 | 187 |
| 210 | 215 | 220 | 220 | 210 | 215 |
| 210 | 210 | 210 | 210 | 170 | 170 |
| | 140/160 | | 150/170 | | |
| | | 30/145 | 25/110 | 35/120 | 25/115 |
| 3.6/3.6 | 3.7/3.7 | 3.7/3.7 | 4/3.8 | 3.7/3.6 | 3.8/3.7 |
| 12/150 | 12/150 | 12/150 | 25/170 | 30/190 | 30/180 |
| 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ |
| 10 ¹³ | 10 ¹³ | 10 ¹³ | 10 ¹³ | 10 ¹⁴ | 10 ¹⁴ |
| 300 | 300 | 300 | 350 | 325 | 325 |
| LS | LS | LS | LS | LS | LS |

Ultradur® Grades

Impact-modified grades/grades with very low distortion

| Typical values at 23 °C for uncolored products | Unit | Test method | B4340ZG2 High Speed |
|--|-------------------------|-------------------|------------------------|
| Product Features | | | |
| Symbol | – | ISO 1043 | PBT-I GF10 |
| Colors: uncolored (UN), black (BK) | – | – | UN/SW |
| Density | kg/m ³ | ISO 1183 | 1,335 |
| Viscosity number, solution 0.005 g/ml phenol/1.2-dichloro benzene (1:1) | cm ³ /g | ISO 1628 | 100 |
| Water absorption, saturation in water at 23 °C | % | similar to ISO 62 | |
| Moisture absorption, saturation in standard atmosphere 23 °C/50 % r.h. | % | similar to ISO 62 | |
| Processing methods | | | |
| Melting temperature, DSC | °C | ISO 11357-1/-3 | 223 |
| Melt volume rate MVR 250 / 2.16 | cm ³ /10 min | ISO 1133 | 30 |
| Melt volume rate MVR 275 / 2.16 | cm ³ /10 min | ISO 1133 | |
| Melt volume rate MVR 260 / 5 | cm ³ /10 min | ISO 1133 | |
| Melt temperature range, injection-molding | °C | – | 250-275 |
| Mold temperature range, injection-molding | °C | – | 60-100 |
| Melt temperature range, extrusion | °C | – | |
| Molding shrinkage, free, longitudinal/transversal | % | ISO 2577, 294-4 | 1.07/1.05 |
| Fire behavior | | | |
| Flammability according to UL94 (thickness) ¹⁾ | class (mm) | UL94 | |
| Flammability (thickness) | class (mm) | IEC 60695-11-10 | HB (≥ 0.8 mm) |
| Flammability of materials in cars at d ≥ 1 mm thickness ²⁾ | – | FMVSS 302 | |
| Mechanical properties | | | |
| Tensile modulus of elasticity | MPa | ISO 527-1/-2 | 4,100 |
| Tensile stress at yield (v=50 mm/min), stress at break* (v=5 mm/min) | MPa | ISO 527-1/-2 | 79* |
| Strain at yield (v=50 mm/min) | % | ISO 527-1/-2 | |
| Nominal strain at break (v=50 mm/min), strain at break* (v=5 mm/min) | % | ISO 527-1/-2 | 3.8* |
| Tensile creep modulus, 1.000 h, elongation ≤ 0.5 %, +23 °C | MPa | ISO 899-1 | |
| Flexural modulus | MPa | ISO 178 | 3,700 |
| Flexural strength | MPa | ISO 178 | 128 |
| Charpy impact strength (23 °C) ³⁾ | kJ/m ² | ISO 179/1eU | 49 |
| Charpy impact strength (-30 °C) ³⁾ | kJ/m ² | ISO 179/1eU | 30 |
| Charpy notched impact strength (23 °C) ³⁾ | kJ/m ² | ISO 179/1eA | 8 |
| Charpy notched impact strength (-30 °C) ³⁾ | kJ/m ² | ISO 179/1eA | 5 |
| Ball indentation hardness H 358 N/30 sec, H 961 N/30 sec* | MPa | ISO 2039-1 | |
| Thermal properties | | | |
| Heat deflection temperature under 1.8 MPa (HDT/A) | °C | ISO 75-1/-2 | 180 |
| Heat deflection temperature under 0.45 MPa (HDT/B) | °C | ISO 75-1/-2 | 218 |
| Max. service temperature (short cycle operation) ⁴⁾ | °C | – | |
| Temperature index, at 50 % loss of tensile strength after 20,000 h/5.000 h | °C | IEC 60216-1 | |
| Thermal coefficient of linear expansion, longitudinal/perpendicular (23-55) °C | 10 ⁻⁶ /K | ISO 11359-1/-2 | 55/175 |
| Thermal conductivity (23 °C) | W/(m·K) | DIN 52 612-1 | |
| Specific heat capacity (23 °C) | J/(kg·K) | | |
| Electrical properties | | | |
| Dielectric constant at 100 Hz/1 MHz | – | IEC 60250 | |
| Dissipation factor at 100 Hz/1 MHz | 10 ⁻⁴ | IEC 60250 | |
| Volume resistivity | Ω·m | IEC 60093 | |
| Surface resistivity | Ω | IEC 60093 | |
| Comparative tracking index CTI, test solution A | – | IEC 60112 | 600 |
| Available versions | | | |
| Laser-markable (LS)/Laser-transparent (LT) | – | – | LS |

¹⁾ yellow card available

²⁾ + = passed

³⁾ NB = no break

⁴⁾ Typical values for parts required to withstand repeated exposure to this temperature for several hours over years of use, assuming appropriate shaping and processing for the material.

| B4340ZG3 | B4300K4 | B4300K6 | B4300M5 | B4300GM42 |
|--------------|------------------|------------------|------------------|------------------|
| PBT-I GF15 | PBT GB20 | PBT GB30 | PBT M25 | PBT (GF20+M10) |
| UN/SW | UN/SW | UN/SW | UN | UN |
| 1,360 | 1,450 | 1,530 | 1,510 | 1,550 |
| 106 | 115 | 113 | 117 | 101 |
| | 0.4 | 0.4 | 0.4 | 0.4 |
| | 0.2 | 0.2 | 0.2 | 0.2 |
| 223 | 223 | 223 | 223 | 223 |
| 17 | 16 | 9 | 14 | 17 |
| 250-275 | 250-275 | 250-275 | 250-275 | 250-275 |
| 60-100 | 40-80 | 40-80 | 40-80 | 60-90 |
| 0.82/1.02 | 1.90/1.90 | | 1.80/1.68 | |
| | | | HB (≥ 0.8mm) | HB (≥ 0.8mm) |
| HB (≥ 0.8mm) | HB (≥ 1.5mm) | HB (≥ 1.5mm) | | |
| 5,300 | 3,500 | 4,000 | 4,000 | 7,900 |
| 90* | 48* | 50* | 56* | 105* |
| 3.6* | 6* | 5* | 7.5* | 2.7* |
| | 1,300 | 2,200 | 2,000 | 4,500 |
| 4,700 | 3,400 | | | |
| 145 | 100 | | | |
| 60 | 35 | 35 | 100 | 45 |
| 50 | 26 | 24 | 80 | 43 |
| 12 | 3 | 3 | 4 | 4.5 |
| - | 150 | 165 | 170 | 195* |
| 186 | 65 | 75 | 70 | 210 |
| 219 | 170 | 175 | 170 | 220 |
| | 200 | 200 | 200 | 200 |
| 45/185 | 100/100 | | | |
| | 0.27 | 0.27 | | |
| | 1,150 | 1,500 | 1,100 | 1,000 |
| | 4/3.7 | 3.8/3.8 | 3.6/3.6 | 3.8/3.8 |
| | 12/190 | 12/190 | 12/150 | 12/150 |
| | 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ |
| | 10 ¹³ | 10 ¹³ | 10 ¹³ | 10 ¹³ |
| 600 | 250 | 225 | 225 | 300 |
| LS | | | | |

Ultradur® Grades

Flame-retardant grades

| Typical values at 23 °C for uncolored products | Unit | Test method | B4406 |
|--|-------------------------|-------------------|------------------|
| Product Features | | | |
| Symbol | – | ISO 1043 | PBT FR(17) |
| Colors: uncolored (UN), black (BK) | – | – | UN |
| Density | kg/m ³ | ISO 1183 | 1,450 |
| Viscosity number, solution 0.005 g/ml phenol/1.2-dichloro benzene (1:1) | cm ³ /g | ISO 1628 | 123 |
| Water absorption, saturation in water at 23 °C | % | similar to ISO 62 | 0.4 |
| Moisture absorption, saturation in standard atmosphere 23 °C/50 % r.h. | % | similar to ISO 62 | 0.25 |
| Processing methods | | | |
| Melting temperature, DSC | °C | ISO 11357-1/-3 | 223 |
| Melt volume rate MVR 250 / 2.16 | cm ³ /10 min | ISO 1133 | 23 |
| Melt volume rate MVR 275 / 2.16 | cm ³ /10 min | ISO 1133 | |
| Melt volume rate MVR 260 / 5 | cm ³ /10 min | ISO 1133 | |
| Melt temperature range, injection-molding | °C | – | 245-270 |
| Mold temperature range, injection-molding | °C | – | 40-70 |
| Melt temperature range, extrusion | °C | – | |
| Molding shrinkage, free, longitudinal/transversal | % | ISO 2577, 294-4 | |
| Fire behavior | | | |
| Flammability according to UL94 (thickness) ¹⁾ | class (mm) | UL94 | V0 (≥ 0.4 mm) |
| Flammability (thickness) | class (mm) | IEC 60695-11-10 | |
| Flammability of materials in cars at d ≥ 1 mm thickness ²⁾ | – | FMVSS 302 | |
| Mechanical properties | | | |
| Tensile modulus of elasticity | MPa | ISO 527-1/-2 | 3,000 |
| Tensile stress at yield (v=50 mm/min), stress at break* (v=5 mm/min) | MPa | ISO 527-1/-2 | 65 |
| Strain at yield (v=50 mm/min) | % | ISO 527-1/-2 | 3.9 |
| Nominal strain at break (v=50 mm/min), strain at break* (v=5 mm/min) | % | ISO 527-1/-2 | 5.3 |
| Tensile creep modulus, 1.000 h, elongation ≤ 0.5 %, +23 °C | MPa | ISO 899-1 | |
| Flexural modulus | MPa | ISO 178 | |
| Flexural strength | MPa | ISO 178 | |
| Charpy impact strength (23 °C) ³⁾ | kJ/m ² | ISO 179/1eU | 50 |
| Charpy impact strength (-30 °C) ³⁾ | kJ/m ² | ISO 179/1eU | |
| Charpy notched impact strength (23 °C) ³⁾ | kJ/m ² | ISO 179/1eA | 4 |
| Charpy notched impact strength (-30 °C) ³⁾ | kJ/m ² | ISO 179/1eA | 4 |
| Ball indentation hardness H 358 N/30 sec, H 961 N/30 sec* | MPa | ISO 2039-1 | 120 |
| Thermal properties | | | |
| Heat deflection temperature under 1.8 MPa (HDT/A) | °C | ISO 75-1/-2 | 60 |
| Heat deflection temperature under 0.45 MPa (HDT/B) | °C | ISO 75-1/-2 | 170 |
| Max. service temperature (short cycle operation) ⁴⁾ | °C | – | 200 |
| Temperature index, at 50 % loss of tensile strength after 20,000 h/5.000 h | °C | IEC 60216-1 | |
| Thermal coefficient of linear expansion, longitudinal/perpendicular (23-55) °C | 10 ⁻⁶ /K | ISO 11359-1/-2 | |
| Thermal conductivity (23 °C) | W/(m·K) | DIN 52 612-1 | 0.27 |
| Specific heat capacity (23 °C) | J/(kg·K) | | 1,200 |
| Electrical properties | | | |
| Dielectric constant at 100 Hz/1 MHz | – | IEC 60250 | 3.3/3.3 |
| Dissipation factor at 100 Hz/1 MHz | 10 ⁻⁴ | IEC 60250 | 110/170 |
| Volume resistivity | Ω·m | IEC 60093 | 10 ¹⁴ |
| Surface resistivity | Ω | IEC 60093 | 10 ¹³ |
| Comparative tracking index CTI, test solution A | – | IEC 60112 | 250 |
| Available versions | | | |
| Laser-markable (LS)/Laser-transparent (LT) | – | – | |

¹⁾ yellow card available²⁾ + = passed³⁾ NB = no break⁴⁾ Typical values for parts required to withstand repeated exposure to this temperature for several hours over years of use, assuming appropriate shaping and processing for the material.

| B4406G2 | B4406G4 | B4406G6 | B4406G6 High Speed | B4441G5 | B4450G5 | B4450G5 HR |
|------------------|------------------|------------------|-----------------------|-------------------|-------------------|------------------|
| PBT FR(17) | PBT FR(17) | PBT FR(17) | PBT FR(17) | PBT FR(40) | PBT FR(5x) | PBT FR(5x) |
| UN | UN/SW | UN/SW | UN/SW | UN/SW | UN/SW | SW |
| 1,520 | 1,600 | 1,650 | 1,700 | 1,530 | 1,600 | 1,580 |
| 120 | 116 | 108 | 90 | 105 | 100 | 110 |
| 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 223 | 223 | 223 | 223 | 223 | 223 | 223 |
| 15 | 11 | 8 | 12 | 15 | 17 | 10 |
| 250-275 | 250-275 | 250-275 | 250-280 | 260-280 | 250-280 | 250-270 |
| 60-100 | 60-100 | 60-100 | 60-100 | 60-100 | 60-100 | 60-100 |
| | | | 0.30/1.10 | 0.44/1.24 | 0.50/1.30 | 0.50/1.30 |
| V0 (≥ 0.4 mm) | V0 (≥ 0.4 mm) | V0 (≥ 0.4 mm) | V0 (≥ 0.4 mm) | V0 (≥ 0.4 mm) | V0 (≥ 0.4 mm) | V0 (≥ 0.4 mm) |
| 5,500 | 8,200 | 11,300 | 11,700 | 9,800 | 10,000 | 8,700 |
| 95* | 125* | 145* | 140* | 100* | 110* | 120* |
| 3.3* | 2.6* | 2.3* | 1.9* | 2.3* | 2.2* | 2.6* |
| | | 7,500 | 11,300 | 10,000 | 9,700 | 8,700 |
| | | | 200 | 180 | 180 | 210 |
| 40 | 48 | 60 | 50 | 45 | 45 | 50 |
| 40 | 50 | 55 | | 47 | 45 | 40 |
| 5 | 8 | 10 | 7 | 7 | 6 | 6 |
| | 190* | 220* | | | | |
| 190 | 200 | 205 | 205 | 210 | 210 | 210 |
| 215 | 220 | 220 | 220 | 220 | 220 | 220 |
| 210 | 210 | 210 | | 210 | | 210 |
| | 30/100 | 25/95 | 20/100 | | 35/120 | 30/160 |
| | | 0.32 | | | | |
| 1,100 | 1,000 | 900 | 900 | 1,000 | 1,000 | 1,000 |
| 3.5/3.5 | 3.8/3.6 | 3.9/3.9 | | 3.7/3.6 | 4/3.8 | 4.1/3.9 |
| 80/150 | 70/170 | 20/150 | | 35/137 | 40/140 | 90/150 |
| 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ | >10 ¹⁵ | 10 ¹⁴ | 10 ¹⁴ | 10 ¹⁴ |
| 10 ¹³ | 10 ¹³ | 10 ¹³ | >10 ¹⁵ | >10 ¹⁶ | >10 ¹⁶ | 10 ¹⁵ |
| 225 | 200 | 200 | 175 | 525 | 600 | 600 |
| | | | | LS | LS | LS |

Ultradur® Grades

Reinforced grades with outstanding hydrolysis resistance

| Typical values at 23 °C for uncolored products | Unit | Test method | B4330G3 HR |
|--|-------------------------|-------------------|------------------|
| Product Features | | | |
| Symbol | – | ISO 1043 | PBT-I GF15 |
| Colors: uncolored (UN), black (BK) | – | – | UN/SW |
| Density | kg/m ³ | ISO 1183 | 1,390 |
| Viscosity number, solution 0.005 g/ml phenol/1.2-dichloro benzene (1:1) | cm ³ /g | ISO 1628 | 106 |
| Water absorption, saturation in water at 23 °C | % | similar to ISO 62 | 0.4 |
| Moisture absorption, saturation in standard atmosphere 23 °C/50 % r.h. | % | similar to ISO 62 | 0.2 |
| Processing methods | | | |
| Melting temperature, DSC | °C | ISO 11357-1/-3 | 223 |
| Melt volume rate MVR 250 / 2.16 | cm ³ /10 min | ISO 1133 | 12 |
| Melt volume rate MVR 275 / 2.16 | cm ³ /10 min | ISO 1133 | |
| Melt volume rate MVR 260 / 5 | cm ³ /10 min | ISO 1133 | |
| Melt temperature range, injection-molding | °C | – | 250-275 |
| Mold temperature range, injection-molding | °C | – | 60-100 |
| Melt temperature range, extrusion | °C | – | |
| Molding shrinkage, free, longitudinal/transversal | % | ISO 2577, 294-4 | 0.90/1.15 |
| Fire behavior | | | |
| Flammability according to UL94 (thickness) ¹⁾ | class (mm) | UL94 | |
| Flammability (thickness) | class (mm) | IEC 60695-11-10 | HB (≥ 0.8 mm) |
| Flammability of materials in cars at d ≥ 1 mm thickness ²⁾ | – | FMVSS 302 | |
| Mechanical properties | | | |
| Tensile modulus of elasticity | MPa | ISO 527-1/-2 | 5,300 |
| Tensile stress at yield (v=50 mm/min), stress at break* (v=5 mm/min) | MPa | ISO 527-1/-2 | 100* |
| Strain at yield (v=50 mm/min) | % | ISO 527-1/-2 | |
| Nominal strain at break (v=50 mm/min), strain at break* (v=5 mm/min) | % | ISO 527-1/-2 | 3.5* |
| Tensile creep modulus, 1.000 h, elongation ≤ 0.5 %, +23 °C | MPa | ISO 899-1 | |
| Flexural modulus | MPa | ISO 178 | 4,900 |
| Flexural strength | MPa | ISO 178 | 160 |
| Charpy impact strength (23 °C) ³⁾ | kJ/m ² | ISO 179/1eU | 62 |
| Charpy impact strength (-30 °C) ³⁾ | kJ/m ² | ISO 179/1eU | 35 |
| Charpy notched impact strength (23 °C) ³⁾ | kJ/m ² | ISO 179/1eA | 10 |
| Charpy notched impact strength (-30 °C) ³⁾ | kJ/m ² | ISO 179/1eA | 6 |
| Ball indentation hardness H 358 N/30 sec, H 961 N/30 sec* | MPa | ISO 2039-1 | |
| Thermal properties | | | |
| Heat deflection temperature under 1.8 MPa (HDT/A) | °C | ISO 75-1/-2 | 200 |
| Heat deflection temperature under 0.45 MPa (HDT/B) | °C | ISO 75-1/-2 | 220 |
| Max. service temperature (short cycle operation) ⁴⁾ | °C | – | 210 |
| Temperature index, at 50 % loss of tensile strength after 20,000 h/5.000 h | °C | IEC 60216-1 | |
| Thermal coefficient of linear expansion, longitudinal/perpendicular (23-55) °C | 10 ⁻⁶ /K | ISO 11359-1/-2 | 50/225 |
| Thermal conductivity (23 °C) | W/(m·K) | DIN 52 612-1 | |
| Specific heat capacity (23 °C) | J/(kg·K) | | |
| Electrical properties | | | |
| Dielectric constant at 100 Hz/1 MHz | – | IEC 60250 | |
| Dissipation factor at 100 Hz/1 MHz | 10 ⁻⁴ | IEC 60250 | |
| Volume resistivity | Ω·m | IEC 60093 | 10 ¹⁴ |
| Surface resistivity | Ω | IEC 60093 | 10 ¹⁵ |
| Comparative tracking index CTI, test solution A | – | IEC 60112 | 500 |
| Available versions | | | |
| Laser-markable (LS)/Laser-transparent (LT) | – | – | LS |

¹⁾ yellow card available

²⁾ + = passed

³⁾ NB = no break

⁴⁾ Typical values for parts required to withstand repeated exposure to this temperature for several hours over years of use, assuming appropriate shaping and processing for the material.

| B4335G3 HR High Speed | B4330G6 HR | B4330G6 HR High Speed | B4331G6 HR | B4300G6 HR | B4331C3 HR |
|--------------------------|------------------|--------------------------|--------------|------------|------------------|
| PBT-I GF15 | PBT-I GF30 | PBT-I GF30 | PBT-I GF30 | PBT GF30 | PBT-I CF15 |
| SW | UN/SW | SW | UN/SW | UN/SW | SW |
| 1,360 | 1,490 | 1,500 | 1,490 | 1,510 | 1,320 |
| 90 | 108 | 85 | 100 | 108 | 103 |
| | 0.4 | | 0.4 | 0.4 | 0.4 |
| | 0.2 | | 0.2 | 0.2 | 0.2 |
| 223 | 223 | 223 | 222 | 223 | 222 |
| 25 | 4 | 16 | 7 | 5.5 | 10 |
| | 19 | | | | |
| 250-280 | 250-280 | 250-280 | 250-280 | 250-275 | 250-275 |
| 60-100 | 60-100 | 60-100 | 60-100 | 60-100 | 60-100 |
| 0.70/1.00 | 0.50/1.10 | 0.43/1.00 | 0.40/1.01 | 0.45/1.30 | 0.37/0.71 |
| | HB (≥ 0.8mm) | | | | |
| HB (≥ 0.8mm) | | HB (≥ 0.8mm) | HB (≥ 0.8mm) | | HB (≥ 0.8mm) |
| 4,700 | 8,500 | 8,880 | 8,400 | 8,700 | 11,600 |
| 90* | 120* | 130* | 115* | 130* | 130* |
| 3.5* | 3.4* | 2.6* | 3.6* | 3.3* | 3.2* |
| 4,300 | 7,860 | 8,700 | 8,100 | | 10,100 |
| 135 | 190 | 205 | 190 | | 205 |
| 55 | 74 | 68 | 75 | 70 | 60 |
| 32 | 65 | | 70 | | 48 |
| 11 | 14 | 9 | 14 | 12 | 9 |
| 7 | 8 | | 8.8 | | 4.8 |
| 200 | 205 | 208 | 205 | 205 | 200 |
| 220 | 220 | 223 | 220 | 220 | 220 |
| | 210 | | 210 | 210 | |
| 45/240 | 25/215 | 20/200 | 20/215 | | |
| | 1,250 | | | | |
| | 10 ¹⁴ | | | | 10 ⁰³ |
| | 10 ¹⁵ | | | | 10 ⁰⁵ |
| | 400 | | 500 | 400 | |
| LS | LS | LS | LS | LT | LS |

Ultradur® Grades

Reinforced grades with particularly high laser transparency for laser welding

| Typical values at 23 °C for uncolored products | Unit | Test method | LUX B4300G4 |
|--|-------------------------|-------------------|------------------|
| Product Features | | | |
| Symbol | – | ISO 1043 | PBT GF20 |
| Colors: uncolored (UN), black (BK) | – | – | UN/SW |
| Density | kg/m ³ | ISO 1183 | 1,460 |
| Viscosity number, solution 0.005g/ml phenol/1.2-dichloro benzene (1:1) | cm ³ /g | ISO 1628 | 100 |
| Water absorption, saturation in water at 23 °C | % | similar to ISO 62 | 0.4 |
| Moisture absorption, saturation in standard atmosphere 23 °C/50 % r.h. | % | similar to ISO 62 | 0.2 |
| Processing methods | | | |
| Melting temperature, DSC | °C | ISO 11357-1/-3 | 220 |
| Melt volume rate MVR 250 / 2.16 | cm ³ /10 min | ISO 1133 | |
| Melt volume rate MVR 275 / 2.16 | cm ³ /10 min | ISO 1133 | |
| Melt volume rate MVR 260 / 5 | cm ³ /10 min | ISO 1133 | 9 |
| Melt temperature range, injection-molding | °C | – | 250-270 |
| Mold temperature range, injection-molding | °C | – | 60-100 |
| Melt temperature range, extrusion | °C | – | |
| Molding shrinkage, free, longitudinal/transversal | % | ISO 2577, 294-4 | 0.75/1.25 |
| Fire behavior | | | |
| Flammability according to UL94 (thickness) ¹⁾ | class (mm) | UL94 | HB (≥ 0.8 mm) |
| Flammability (thickness) | class (mm) | IEC 60695-11-10 | |
| Flammability of materials in cars at d ≥ 1 mm thickness ²⁾ | – | FMVSS 302 | |
| Mechanical properties | | | |
| Tensile modulus of elasticity | MPa | ISO 527-1/-2 | 7,300 |
| Tensile stress at yield (v=50 mm/min), stress at break* (v=5 mm/min) | MPa | ISO 527-1/-2 | 125* |
| Strain at yield (v=50 mm/min) | % | ISO 527-1/-2 | |
| Nominal strain at break (v=50 mm/min), strain at break* (v=5 mm/min) | % | ISO 527-1/-2 | 3.5* |
| Tensile creep modulus, 1.000h, elongation ≤ 0.5 %, +23 °C | MPa | ISO 899-1 | |
| Flexural modulus | MPa | ISO 178 | 6,800 |
| Flexural strength | MPa | ISO 178 | 195 |
| Charpy impact strength (23 °C) ³⁾ | kJ/m ² | ISO 179/1eU | 40 |
| Charpy impact strength (-30 °C) ³⁾ | kJ/m ² | ISO 179/1eU | 35 |
| Charpy notched impact strength (23 °C) ³⁾ | kJ/m ² | ISO 179/1eA | 6.5 |
| Charpy notched impact strength (-30 °C) ³⁾ | kJ/m ² | ISO 179/1eA | 6.3 |
| Ball indentation hardness H 358 N/30 sec, H 961 N/30 sec* | MPa | ISO 2039-1 | |
| Thermal properties | | | |
| Heat deflection temperature under 1.8 MPa (HDT/A) | °C | ISO 75-1/-2 | 200 |
| Heat deflection temperature under 0.45 MPa (HDT/B) | °C | ISO 75-1/-2 | 220 |
| Max. service temperature (short cycle operation) ⁴⁾ | °C | – | 210 |
| Temperature index, at 50 % loss of tensile strength after 20,000h/5.000h | °C | IEC 60216-1 | |
| Thermal coefficient of linear expansion, longitudinal/perpendicular (23-55) °C | 10 ⁻⁶ /K | ISO 11359-1/-2 | 35/125 |
| Thermal conductivity (23 °C) | W/(m·K) | DIN 52 612-1 | |
| Specific heat capacity (23 °C) | J/(kg·K) | | |
| Electrical properties | | | |
| Dielectric constant at 100 Hz/1 MHz | – | IEC 60250 | |
| Dissipation factor at 100 Hz/1 MHz | 10 ⁻⁴ | IEC 60250 | |
| Volume resistivity | Ω·m | IEC 60093 | 10 ¹⁴ |
| Surface resistivity | Ω | IEC 60093 | 10 ¹⁵ |
| Comparative tracking index CTI, test solution A | – | IEC 60112 | 300 |
| Available versions | | | |
| Laser-markable (LS)/Laser-transparent (LT) | – | – | LT |

¹⁾ yellow card available

²⁾ + = passed

³⁾ NB = no break

⁴⁾ Typical values for parts required to withstand repeated exposure to this temperature for several hours over years of use, assuming appropriate shaping and processing for the material.

LUX B4300G6

PBT GF30

UN/SW

1,540

105

0.4

0.2

220

7

250-270

60-100

0.55/1.20

HB (≥ 0.8mm)

10,000

145*

3.2*

9,300

235

65

45

8.5

7.5

205

220

210

25/125

3.8/3.6

27/170

10¹⁴

10¹⁵

300

LT

Nomenclature

Structure

The name of Ultradur® commercial products generally follows the scheme below:



Subnames

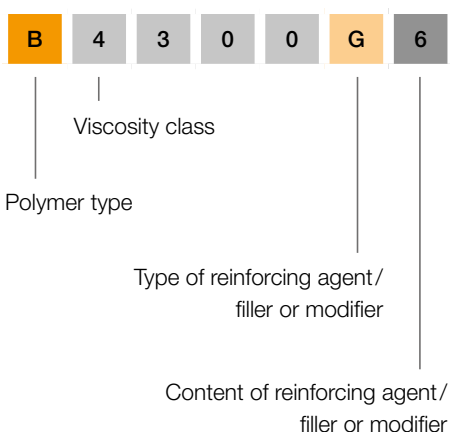
Subnames are optionally used in order to particularly emphasize a product feature that is characteristic of part of a range.

Examples of subnames:

LUX Particularly high transparency to the radiation from Nd:YAG lasers and lasers of a similar wavelength, e. g. diode lasers

Technical ID

The technical ID is made up of a series of letters and numbers which give hints about the polymer type, the melt viscosity and the finish with reinforcing agents, fillers or modifiers. The following classification scheme is found with most products:



Letters for identifying polymer types

- B Polybutylene terephthalate (PBT) or polybutylene terephthalate + polyethylene terephthalate (PET)
- S Polybutylene terephthalate + acrylonitrile styrene acrylate polymer (ASA)

Numbers for identifying viscosity classes

- 1 very low viscosity
- 2 Low viscosity
- 4 Medium viscosity
- 6 High viscosity

Letters for identifying reinforcing agents, fillers and modifiers

- G Glass fibers
- C Carbon fibers
- K Glass beads
- M Minerals
- Z Impact modifiers
- GM Glass fibers in combination with minerals

Key numbers for describing the content of reinforcing agents and fillers

- 2 approx. 10% by mass
- 3 approx. 15% by mass
- 4 approx. 20% by mass
- 6 approx. 30% by mass
- 10 approx. 50% by mass
- 12 approx. 60% by mass

In the case of combinations of glass fibers with minerals, the respective contents are indicated by two numbers, e. g.

- GM13 approx. 5% by mass of glass fibers and approx. 15% by mass of minerals

Suffixes

Suffixes are optionally used in order to indicate specific processing or application-related properties. They are frequently acronyms whose letters are derived from the English term.

Examples of suffixes:

| | |
|------------|--|
| Aqua® | suitable for drinking water applications |
| FC | Food Contact; meets specific regulatory requirements for applications in contact with food |
| High Speed | High flowability of the melt |
| HR | Hydrolysis Resistant, increased hydrolysis resistance |
| LS | Laser Sensitive, can be marked with Nd:YAG laser |
| LT | Laser Transparent, can be penetrated well with Nd:YAG lasers and lasers of a similar wavelength |
| PRO | Profile Covered Raw Materials Only; fulfill specific regulatory requirements and demands for medical device applications |

Color

The color is generally made up of a color name and a color number.

Examples of colors:

Uncolored
Black 00110
Black 05110

For your notes

Selected Product Literature for Ultradur®:

- Ultradur® – Product Brochure
- Ultradur® – Product Range
- Ultramid®, Ultradur® and Ultraform® – Resistance to Chemicals

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed. (March 2020)

Further information on Ultradur® (PBT)

Product Range can be found on the internet:

www.ultradur.basf.com

Please visit our websites:

www.plastics.basf.com

www.plastics.basf.de

Request of brochures:

plas.com@basf.com

If you have any technical questions about the products, please contact the Infopoints:

