

Product description

Injection molding grade with 20 % glass fibers for parts requiring enhanced fire resistance (eg relay housings, plug-and-socket connectors, switches, lighting components).

Abbreviated designation according to ISO 1043-1: PBT FR(17)
CLASSIFICATION ACCORDING TO ISO 7792-1:
Moulding Compound ISO 7792-PBT, MFGHLNR, 11-080, GF20

Physical form and storage

Standard packaging includes the 25-kg-bag and the 1000 kg octabin (octagonal container). Other forms of packaging are possible subject to agreement. All containers are tightly sealed and should be opened only immediately prior to processing. Further precautions for preliminary treatment and drying are described in the processing section of the brochure. The bulk density is about 0,7 to 0,8g/cm³.

Ultradur® can be stored for a longer period of time in dry, well vented rooms without causing problems in processing. Ultradur® should generally have a moisture content of less than 0,04% when being processed.

In order to ensure reliable production, therefore, pre-drying should generally be the rule and the machine should be loaded via a closed conveyor system. Appropriate equipment is commercially available. Pre-drying is also for the addition of batches, e.g. in the case of inhouse pigmentation.

In order to prevent the formation of condensed water, containers stored in unheated rooms must only be opened when they have attained the temperature prevailing in the processing area. This can possibly take a very long time.

Measurements have shown that the interior of a 25-kg bag originally at 5°C had reached the temperature of 20°C in the processing area only after 48 hours.

Product safety

Ultradur® melts are stable at temperatures up to 280°C and do not give rise to hazards due to molecular degradation or the evolution of gases and vapors. Like all thermoplastic polymers, however, Ultradur decomposes on exposure to excessive thermal stresses, e.g. when it is overheated or as a result of cleaning by burning off. In such cases gaseous decomposition products are formed. Decomposition accelerates above 350°C small quantities of aldehydes and saturated and unsaturated hydrocarbons are also formed. When Ultradur® is properly processed and there is adequate suction at the die no risks to health are to be expected.

Further safety information see safety data sheet of individual product.

Safety data sheet could be ask for at the Ultra-Infopoint under tel: 0621/60-78780 or fax:0621/60-78730.

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 their 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. In order to check the availability of products please contact us or our sales agency.

Product Information

| Typical values for uncoloured product at 23 °C ¹⁾ | Test method | Unit | Values ²⁾ |
|--|---------------------|------------------------|----------------------|
| Properties | | | |
| Polymer abbreviation | - | - | PBT-GF20 FR |
| Density | ISO 1183 | kg/m ³ | 1600 |
| Viscosity number (solution 0,005 g/ml Phenole/1,2 Dichlorbenzol 1:1) | ISO 307, 1157, 1628 | cm ³ /g | 116 |
| Water absorption, saturation in water at 23°C | similar to ISO 62 | % | 0.4 |
| Moisture absorption, equilibrium 23°C/50% r.h. | similar to ISO 62 | % | 0.20 |
| Processing | | | |
| Melting temperature, DSC | ISO 11357-1/-3 | °C | 223 |
| MVR 275 °C/2.16 kg | ISO 1133 | cm ³ /10min | 11 |
| Melt temperature, injection moulding/extrusion | - | °C | 250 - 275 |
| Mould temperature, injection moulding | - | °C | 60 - 100 |
| Molding shrinkage, model-housing 1.5 mm | - | % | 0.7 - 0.9 |
| Thermal properties | | | |
| Deflection temp. 1.8 (HDT A) | ISO 75-1/-2 | °C | 200 |
| Deflection temp. under load 0.45 MPa (HDT B) | ISO 75-1/-2 | °C | 220 |
| Flammability (UL yellow card see attachment) | | | |
| GWFI (thickness) | IEC 60695-2-12 | °C (mm) | 960 (1) |
| Limiting Oxygen Index (LOI) | ISO 4589-1/-2 | % | 30 |
| Electrical properties | | | |
| Relative permittivity (1 MHz) | IEC 60250 | - | 3.6 |
| Dissipation factor (1 MHz) | IEC 60250 | E-4 | 170 |
| Volume resistivity | IEC 60093 | Ohm*m | 1E14 |
| Surface resistivity | IEC 60093 | Ohm | 1E13 |
| CTI, solution A | IEC 60112 | - | 200 |
| Mechanical properties | | | |
| Tensile modulus | ISO 527-1/-2 | MPa | 8200 |
| Stress at break | ISO 527-1/-2 | MPa | 125 |
| Strain at break | ISO 527-1/-2 | % | 2.6 |
| Charpy unnotched impact strength, 23°C | ISO 179/1eU | kJ/m ² | 48 |
| Charpy unnotched impact strength, -30°C | ISO 179/1eU | kJ/m ² | 50 |
| Charpy notched impact strength, 23°C | ISO 179/1eA | kJ/m ² | 8 |

Footnotes

1) If product name or properties don't state otherwise.

2) The asterisk symbol "*" signifies inapplicable properties.

BASF SE

67056 Ludwigshafen, Germany

UL - Yellow Card

Component - Plastics E41871

BASF SE

Performance Materials Europe, E-PME/NQ - H201, Ludwigshafen 67056 DE

B4406 G4(a2), B4406 G4 (o) Q717(a2)

Polybutylene Terephthalate (PBT), "Ultradur", furnished as pellets

| Color | Min Thk (mm) | Flame Class | HWI | HAI | RTI Elec | RTI Imp | RTI Str |
|-------|--------------|-------------|-----|-----|----------|---------|---------|
| ALL | 0.40 | V-0 | 4 | 0 | 140 | 115 | 125 |
| | 0.75 | V-0 | 3 | 0 | 140 | 120 | 125 |
| | 1.5 | V-0 | 3 | 0 | 140 | 120 | 130 |
| | 3.0 | V-0 | 2 | 0 | 140 | 120 | 130 |

Comparative Tracking Index (CTI): **3** Inclined Plane Tracking (IPT): -

Dielectric Strength (kV/mm): **23** Volume Resistivity (10⁹ohm-cm) : -

High-Voltage Arc Tracking Rate (HVTR): **3** High Volt, Low Current Arc Resis (D495): **7**

Dimensional Stability (%): 0

(a2) - Virgin and regrind up to 50% by weight have the same basic characteristics excluding the Electrical RTI values below 0.75 mm.

(o) - May be replaced by a word indicating color or a word followed with a three to five digit number indicating color.

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.

Report Date: 1985-11-06 © 2016 UL LLC
 Last Revised: 2014-06-05

IEC and ISO Test Methods

| Test Name | Test Method | Units | Thickness Tested (mm) | Value |
|--------------------------------|-----------------|-------------------|-----------------------|-----------|
| Flammability | IEC 60695-11-10 | Class (color) | 0.40 | V-0 (ALL) |
| | | | 0.75 | V-0 (ALL) |
| | | | 1.5 | V-0 (ALL) |
| | | | 3.0 | V-0 (ALL) |
| Glow-Wire Flammability (GWFI) | IEC 60695-2-12 | C | - | - |
| Glow-Wire Ignition (GWIT) | IEC 60695-2-13 | C | - | - |
| IEC Comparative Tracking Index | IEC 60112 | Volts (Max) | - | - |
| IEC Ball Pressure | IEC 60695-10-2 | C | - | - |
| ISO Heat Deflection (1.80 MPa) | ISO 75-2 | C | - | - |
| ISO Tensile Strength | ISO 527-2 | MPa | - | - |
| ISO Flexural Strength | ISO 178 | MPa | - | - |
| ISO Tensile Impact | ISO 8256 | kJ/m ² | - | - |
| ISO Izod Impact | ISO 180 | kJ/m ² | - | - |
| ISO Charpy Impact | ISO 179-2 | kJ/m ² | - | - |

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UL - Yellow Card

Component - Plastics

E41871

BASF SE

Performance Materials Europe, E-PME/NQ - H201, Ludwigshafen 67056 DE

B4406 G4(a)(f1), B4406 G4 (o) Q717(a)(f1)

Polybutylene Terephthalate (PBT), "Ultradur", furnished as pellets

| Color | Min Thk (mm) | Flame Class | HWI | HAI | RTI Elec | RTI Imp | RTI Str |
|-------|--------------|-------------|-----|-----|----------|---------|---------|
| BK | 0.75 | V-0 | 3 | 0 | 140 | 120 | 125 |
| | 1.5 | V-0 | 3 | 0 | 140 | 120 | 130 |
| | 3.0 | V-0 | 2 | 0 | 140 | 120 | 130 |

Comparative Tracking Index (CTI): **3**

Inclined Plane Tracking (IPT): -

Dielectric Strength (kV/mm): **23**

Volume Resistivity (10¹⁴ohm-cm) : **17**

High-Voltage Arc Tracking Rate (HVTR): **3**

High Volt, Low Current Arc Resis (D495): **7**

Dimensional Stability (%): 0

(a) - Virgin and regrind up to 50% by weight have the same basic characteristics.

(f1) - Suitable for outdoor use with respect to exposure to Ultraviolet Light, Water Exposure and Immersion in accordance with UL 746C.

(o) - May be replaced by a word indicating color or a word followed with a three to five digit number indicating color.

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.

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|--------------------------------|-----------------|-------------------|-----------------------|----------|
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| | | | 1.5 | V-0 (BK) |
| | | | 3.0 | V-0 (BK) |
| Glow-Wire Flammability (GWFI) | IEC 60695-2-12 | C | - | - |
| Glow-Wire Ignition (GWIT) | IEC 60695-2-13 | C | - | - |
| IEC Comparative Tracking Index | IEC 60112 | Volts (Max) | - | - |
| IEC Ball Pressure | IEC 60695-10-2 | C | - | - |
| ISO Heat Deflection (1.80 MPa) | ISO 75-2 | C | - | - |
| ISO Tensile Strength | ISO 527-2 | MPa | - | - |
| ISO Flexural Strength | ISO 178 | MPa | - | - |
| ISO Tensile Impact | ISO 8256 | kJ/m ² | - | - |
| ISO Izod Impact | ISO 180 | kJ/m ² | - | - |
| ISO Charpy Impact | ISO 179-2 | kJ/m ² | - | - |

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