Product Information **Ultradur®**

B 4406 G4

09/2025

PBT-GF20 FR(17)

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Product Information

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: PBT-GF20 FR(17)

Physical form and storage

Standard packaging includes the 25-kg-bag, the 1000 kg octabin (octagonal container) or the 1000 kg big bag. 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. At temperatures of > 290 °C can be emitted: carbon monoxide, tetrahydrofuran.
Under special fire conditions traces of other toxic substances are possible. Formation of further decomposition and oxidation products depends upon the fire conditions.
When Ultradur® is properly processed and there is adequate suction at the die no risks to health are to be expected.
Additional safety information can be found in the safety data sheets of the individual products.
Safety data sheets can be requested from the Ultraplaste Infopoint at ultraplaste.infopoint@basf.com.

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.

BASF SE
67056 Ludwigshafen, Germany

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Product Information

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Typical values for uncoloured product at 23 °C[1)]	Test method	Unit	Values[2)]
Properties			
Polymer abbreviation	-	-	**PBT-GF20 FR(17)**
Density	ISO 1183	kg/m³	**1600**
Viscosity number (solution 0,005 g/ml Phenole/1,2 Dichlorbenzol 1:1)	ISO 307, 1157, 1628	cm³/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	%	**0.2**
Processing			
Melting temperature, DSC	ISO 11357-1/-3	°C	**223**
MVR 275 °C/2.16 kg	ISO 1133	cm³/10min	**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**
Molding shrinkage (parallel)	ISO 294-4	%	**0.50**
Molding shrinkage (normal)	ISO 294-4	%	**1.30**
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**
Coefficient of linear thermal expansion, longitudinal (23-55)°C	ISO 11359-1/-2	E-6/K	**31**
Coefficient of linear thermal expansion, transverse (23-55)°C	ISO 11359-1/-2	E-6/K	**105**
Flammability (UL yellow card see attachment)			
GWFI (thickness)	IEC 60695-2-12	°C (mm)	**960 (1)**
Electrical properties			
Relative permittivity (1 MHz)	IEC 62631-2-1	-	**3.6**
Dissipation factor (1 MHz)	IEC 62631-2-1	E-4	**170**
Volume resistivity	IEC 62631-3-1	Ohm*m	**1E13**
Surface resistivity	IEC 62631-3-2	Ohm	**1E14**
CTI, solution A	IEC 60112	-	**200**
Electric strength K20/K20, (60*60*1 mm³)	IEC 60243-1	kV/mm	**40**
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/m²	**48**
Charpy unnotched impact strength, -30°C	ISO 179/1eU	kJ/m²	**50**
Charpy notched impact strength, 23°C	ISO 179/1eA	kJ/m²	**8**

Footnotes
1) If product name or properties don't state otherwise.
2) The asterisk symbol '*' signifies inapplicable properties.

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Ultradur® B 4406 G4

UL - Yellow Card

Component - Plastics E41871

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Performance Materials Europe, PMD/EX - 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 (°C)	RTI Imp (°C)	RTI Str (°C)
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) kV:	-
Dielectric Strength (kV/mm):	23	Volume Resistivity (10^xohm-cm):	-
High-Voltage Arc Tracking Rate (HVTR):	3	Surface Resistivity (10^xohms/square):	-
Dimensional Change (%):	0	High Volt, Low Current Arc Resis (D495):	7

(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

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IEC and ISO Test Methods

Test Name	Test Method	Units	Thk (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 AC Dielectric Strength (AC DS)	IEC 60243-1	kV/mm	-	-
IEC DC Dielectric Strength (DC DS)	IEC 60243-2	kV/mm	-	-
IEC Volume Resistivity (VR)	IEC 62631-3-1	10x ohm-m	-	-
IEC Surface Resistivity (SR)	IEC 62631-3-2	10x ohms	-	-
IEC Inclined Plane Tracking (IPT)	IEC 60587	kV	-	-
IEC Ball Pressure	IEC 60695-10-2	°C	-	-

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UL - Yellow Card

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/m2	-	-
ISO Izod Impact	ISO 180	kJ/m2	-	-
ISO Charpy Impact	ISO 179-1	kJ/m2	-	-

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UL - Yellow Card

Component - Plastics E41871

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Performance Materials Europe, PMD/EX - 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 (°C)	RTI Imp (°C)	RTI Str (°C)
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) kV:	-
Dielectric Strength (kV/mm):	23	Volume Resistivity (10^Xohm-cm):	17
High-Voltage Arc Tracking Rate (HVTR):	3	Surface Resistivity (10^Xohms/square):	-
Dimensional Change (%):	0	High Volt, Low Current Arc Resis (D495):	7

(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.

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IEC and ISO Test Methods

Test Name	Test Method	Units	Thk (mm)	Value
Flammability	IEC 60695-11-10	Class (color)	0.75	V-0 (BK)
			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 AC Dielectric Strength (AC DS)	IEC 60243-1	kV/mm	-	-
IEC DC Dielectric Strength (DC DS)	IEC 60243-2	kV/mm	-	-
IEC Volume Resistivity (VR)	IEC 62631-3-1	10x ohm-m	-	-
IEC Surface Resistivity (SR)	IEC 62631-3-2	10x ohms	-	-
IEC Inclined Plane Tracking (IPT)	IEC 60587	kV	-	-
IEC Ball Pressure	IEC 60695-10-2	°C	-	-
ISO Heat Deflection (1.80 MPa)	ISO 75-2	°C	-	-

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ISO Tensile Strength	ISO 527-2	MPa	-	-
ISO Flexural Strength	ISO 178	MPa	-	-
ISO Tensile Impact	ISO 8256	kJ/m2	-	-
ISO Izod Impact	ISO 180	kJ/m2	-	-
ISO Charpy Impact	ISO 179-1	kJ/m2	-	-

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