



# **CELANEX**<sup>®</sup> 2302 GV1/20

#### **CELANEX® PBT**

Chemical abbreviation according to ISO 1043-1: PBT Moulding compound ISO 7792- PBT+PET, MGHR, 08-080N, GF20; Polybutylene terephthalate polymer blend with PET, 20 % glass fibre reinforced, injection molded parts with superior gloss. Flammability UL 94 HB minimum thickness 0.8 mm. Recognition by Underwriters Laboratories, USA (UL)

#### **Product information**

1 Todact information			
Resin Identification	(PBT+PET)-GF2		ISO 1043
Part Marking Code	>(PBT+PET)-GF2	20<	ISO 11469
Rheological properties			
Melt volume-flow rate Temperature Load	18 265 2.16		ISO 1133
Viscosity number Moulding shrinkage range, parallel Moulding shrinkage range, normal	100 0.3 - 0.5 0.8 - 1		ISO 307, 1628 ISO 294-4, 2577 ISO 294-4, 2577
Typical mechanical properties			
Tensile modulus Tensile stress at break, 5mm/min Tensile strain at break, 5mm/min Flexural strength Flexural strain at failure Charpy impact strength, 23°C Charpy impact strength, -30°C Charpy notched impact strength, 23°C Charpy notched impact strength, -30°C Ball indentation hardness, H 961/30 Poisson's ratio [C]: Calculated	133 3 180 3 43 43 8.5	MPa MPa % MPa % kJ/m² kJ/m² kJ/m² kJ/m²	ISO 527-1/-2 ISO 527-1/-2 ISO 527-1/-2 ISO 178 ISO 179/1eU ISO 179/1eU ISO 179/1eA ISO 179/1eA ISO 2039-1
Thermal properties  Melting temperature, 10°C/min Temperature of deflection under load, 1.8 MPa Temperature of deflection under load, 0.45 MPa Temperature of deflection under load, 8 MPa Vicat softening temperature, 50°C/h 50N Coefficient of linear thermal expansion (CLTE), parallel Flammability	220 35	°C °C °C °C E-6/K	ISO 11357-1/-3 ISO 75-1/-2 ISO 75-1/-2 ISO 75-1/-2 ISO 306 ISO 11359-1/-2
Burning Behav. at 1.5mm nom. thickn. Thickness tested Burning Behav. at thickness h Thickness tested Oxygen index	1.6 HB	class mm class mm %	IEC 60695-11-10 IEC 60695-11-10 IEC 60695-11-10 IEC 60695-11-10 ISO 4589-1/-2

Printed: 2025-05-30 Page: 1 of 3

Revised: 2025-05-16 Source: Celanese Materials Database





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### Electrical properties

Relative permittivity, 100Hz	4.4		IEC 62631-2-1
Relative permittivity, 1MHz	4.1		IEC 62631-2-1
Dissipation factor, 100Hz	13	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	180	E-4	IEC 62631-2-1
Volume resistivity	>1E13	Ohm.m	IEC 62631-3-1
Surface resistivity	>1E15	Ohm	IEC 62631-3-2
Electric strength	29	kV/mm	IEC 60243-1
Comparative tracking index	250		IEC 60112

#### Physical/Other properties

Humidity absorption, 2mm	0.15 %	Sim. to ISO 62
Water absorption, 2mm	0.4 %	Sim. to ISO 62
Density	1470 kg/m³	ISO 1183

### Injection

Drying Recommended	yes	
Drying Temperature	120	°C
Drying Time, Dehumidified Dryer	4	h
Processing Moisture Content	≤0.02	%
Melt Temperature Optimum	265	°C
Min. melt temperature	255	°C
Max. melt temperature	275	°C
Screw tangential speed	0.1 - 0.3	m/s
Mold Temperature Optimum	100	°C
Min. mould temperature	90	°C
Max. mould temperature	130	°C

#### Characteristics

Processing Injection Moulding

Delivery form Pellets

Additives Release agent

Special characteristics Heat stabilised or stable to heat, High Gloss

#### Additional information

Injection molding Preprocessing

To avoid hydrolytic degradation during processing, CELANEX resins have to be dried to a moisture level equal to or less than 0,02%. The drying should be done in a dry-air dryer (dew point < -30 °C) with a temperature of 120 to 140 °C and a drying time of 2 to 4 hours. In case of longer residence times in the dry-air dryer, the temperature should be reduced to 100 °C.

The time between drying and processing should be kept as short as possible. The processing machine feed hopper should be closed during the processing operation.

Printed: 2025-05-30 Page: 2 of 3

Revised: 2025-05-16 Source: Celanese Materials Database





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#### **Processing**

Melt Temperature 265-275 °C
Mold Temperature \*) 90-100 °C
Maximum Barrel Residence Time \*\*) 5-10 min
Injection Speed fast
Peripheral screw speed max.0,3 m/sec
Back Pressure 10-30 bar
Injection Pressure 600-1000 bar
Holding Pressure 400-800 bar
Nozzle Design open design preferred

Injection speed, injection pressure and holding pressure have to be optimized to the individual article geometry. To avoid material degradation during processing low back pressure and minimum screw speed have to be used. Overheating of the material has to be avoided.

Celanese recommends only externally heated hot runner systems.

- \*) For moulded parts with especially high requirements to the surface quality or dimensional stability, a mold temperature of up to 110 °C can be advantageous.
- \*\*) If the cylinder temperatures are higher than the recommended maximum temperatures, the max. residence time in the barrel has to be reduced.

**Processing Notes** 

#### **Pre-Drying**

CELANEX should in principle be predried. Because of the necessary low maximum residual moisture content the use of dry air dryers is recommended. The dew point should be =< -  $30^{\circ}$  C. The time between drying and processing should be as short as possible.

#### Storage

For subsequent storage of the material in the dryer until processed (<=60 h) it is necessary to lower the temperature to  $100^{\circ}$  C.

Printed: 2025-05-30 Page: 3 of 3

Revised: 2025-05-16 Source: Celanese Materials Database

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