CELANEX® 2302 GV1/30 ECO-R

CELANEX® PBT

Chemical abbreviation according ISO 1043-1: PBT+PET Moulding compound ISO 7792- PBT/PET, MGHR, 08-110N, GF30. Polybutylene terephthalate (PBT) / recycled Polyethylene terephthalate (R-PET) polymer blend, 30% glass fiber reinforced, for injection molded parts with superior gloss.
Celanex® 2302 GV1/30 ECO-R incorporates 25% of post-consumer recycled Polyethylene terephthalate (PCR-PET) by weight in the finished product.

Product information

Resin Identification	(PBT+PET)-GF30		ISO 1043
Part Marking Code	>(PBT+PET)-GF30<		ISO 11469

Rheological properties

Melt volume-flow rate	14	cm^3/10min	ISO 1133
Temperature	509	°F	
Load	4.76	lb	
Molding shrinkage range, parallel	0.2 - 0.3	%	ISO 294-4, 2577
Molding shrinkage range, normal	0.6 - 0.8	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	1.45E6	psi	ISO 527-1/-2
Tensile stress at break, 5mm/min	21000	psi	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.2	%	ISO 527-1/-2
Flexural modulus	1.25E6	psi	ISO 178
Flexural strength	31900	psi	ISO 178
Flexural strain at failure	2.9	%	ISO 178
Charpy notched impact strength, 23°C	4.04	$ftlb/in^2$	ISO 179/1eA

Thermal properties

Melting temperature, 10°C/min	482	°F	ISO 11357-1/-3

Flammability

Oxygen index	20	%	ISO 4589-1/-2
Glow Wire Flammability Index, 1.0mm	1250	°F	IEC 60695-2-12
Glow Wire Ignition Temperature, 1.0mm	1290	°F	IEC 60695-2-13
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	2.72	in/min	ISO 3795 (FMVSS 302)

Electrical properties

Comparative tracking index	250		IEC 60112

Physical/Other properties

Density	0.056	lb/in^3	ISO 1183

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Injection

Drying Recommended	yes	
Drying Temperature	248	°F
Drying Time, Dehumidified Dryer	4 - 6	h
Processing Moisture Content	≤0.02	%
Melt Temperature Optimum	509	°F
Min. melt temperature	491	°F
Max. melt temperature	527	°F
Max. screw tangential speed	0.1 - 0.3	m/s
Mold Temperature Optimum	212	°F
Min. mold temperature	194	°F
Max. mold temperature	266	°F

Characteristics

Processing	Injection Molding
Additives	Antioxidant, Release agent
Special characteristics	Heat stabilized or stable to heat, High Gloss
Sustainability	Recycled Content

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.

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.

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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° 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° C.

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