Celanese
The chemistry inside innovation™

CELANEX® 4302

CELANEX® PBT

Celanex 4302 is a 30% glass reinforced PBT designed for improved mold flow, warp resistance and surface appearance.

Product information

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

Rheological properties

Melt mass-flow rate	8	g/10min	ISO 1133
Melt mass-flow rate, Temperature	250	°C	
Melt mass-flow rate, Load	2.16	kg	
Moulding shrinkage range, parallel	0.2 - 0.4	%	ISO 294-4, 2577
Moulding shrinkage range, normal	0.4 - 0.6	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	8900	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	120	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	3	%	ISO 527-1/-2
Flexural modulus	8700	MPa	ISO 178
Flexural strength	190	MPa	ISO 178
Charpy impact strength, 23°C	55	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	40	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	10	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	8.5	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	14	kJ/m²	ISO 180/1A
Poisson's ratio	0.34[C]		
Shore D hardness, 15s	81		ISO 48-4 / ISO 868

[C]: Calculated

Thermal properties

Melting temperature, 10°C/min	225	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	55	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	173	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	218	°C	ISO 75-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	18	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	125	E-6/K	ISO 11359-1/-2

Physical/Other properties

Humidity absorption, 2mm	0.15	%	Sim. to ISO 62
Density	1490	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

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Min. melt temperature	255	°C
Max. melt temperature	275	°C
Screw tangential speed	0.1 - 0.3	m/s
Mold Temperature Optimum	80	°C
Min. mould temperature	60	°C
Max. mould temperature	130	°C

Characteristics

Processing	Injection Moulding
Delivery form	Pellets

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%. Drying should be done in a dehumidifying hopper dryer capable of dewpoints <-30°F (-34°C) at 250°F (121°C) for 4 hours.

Processing

Rear Temperature 450-470(230-240) deg F (deg C)
Center Temperature 460-480(235-250) deg F (deg C)
Front Temperature 470-500(240-260) deg F (deg C)
Nozzle Temperature 480-500(250-260) deg F (deg C)
Melt Temperature 460-500(235-260) deg F (deg C)
Mold Temperature 150-200(65-93) deg F (deg C)
Back Pressure 0-50 psi
Screw Speed Medium
Injection Speed Fast

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, in particular for flame retardant grades. Up to 25% clean and dry regrind may be used.

Processing Notes

Pre-Drying

To avoid hydrolytic degradation during processing, CELANEX resins have to be dried to a moisture level equal to or less than 0.02%. Drying should be done in a dehumidifying hopper dryer capable of dewpoints <-40°F (-40°C) at 250°F (121°C) for 4 hours.

Storage

For subsequent storage of the material in the dryer until processed (<= 60 h) it is necessary to lower the temperature to 100° C.