Celanese
The chemistry inside innovation™

CELANEX® 3400

CELANEX® PBT

Celanex 3400 is a general purpose, 40% glass reinforced polybutylene terephthalate that offers a good combination of mechanical, electrical, and thermal properties. This grade provides outstanding processability and good chemical resistance. Celanex 3400 is a high flow material.

Product information

Resin Identification	PBT-GF40		ISO 1043
Part Marking Code	>PBT-GF40<		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	0.3 - 0.5	%	ISO 294-4, 2577
Moulding shrinkage range, normal	0.7	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	12100	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	140	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.4	%	ISO 527-1/-2
Flexural modulus	11000	MPa	ISO 178
Flexural strength	220	MPa	ISO 178
Charpy impact strength, 23°C	47	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	45	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	11	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	9.5	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	10	kJ/m²	ISO 180/1A
Hardness, Rockwell, M-scale	93		ISO 2039-2
Poisson's ratio	0.33[C]		
Shore D hardness, 15s	85		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	45	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	212	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	225	°C	ISO 75-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	15	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	101	E-6/K	ISO 11359-1/-2

Flammability

Burning Behav. at thickness h	HB	class	IEC 60695-11-10
Thickness tested	0.71	mm	IEC 60695-11-10

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Electrical properties

Relative permittivity, 100Hz	3.5		IEC 62631-2-1
Relative permittivity, 1MHz	3.4		IEC 62631-2-1
Dissipation factor, 1MHz	130	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	19	kV/mm	IEC 60243-1
Comparative tracking index	350		IEC 60112
Arc Resistance	127	s	UL 746B

Physical/Other properties

Humidity absorption, 2mm	0.15	%	Sim. to ISO 62
Water absorption, 2mm	0.05	%	Sim. to ISO 62
Water absorption, Immersion 24h	0.07	%	Sim. to ISO 62
Density	1610	kg/m^3	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	120	°C
Drying Time, Dehumidified Dryer	4	h
Processing Moisture Content	≤0.02	%
Melt Temperature Optimum	250	°C
Min. melt temperature	240	°C
Max. melt temperature	260	°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

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.