

CELANEX® 1700FC

high molecular weight, unfilled PBT polymer grade, for use in food contact applications

Celanex 1700FC is a very high molecular weight extrusion grade of unreinforced polybutylene terephthalate for use in food contact applications.

Product information

Part Marking Code	> PBT <	ISO 11469
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Rheological properties

Melt volume-flow rate	4.5 cm ³ /10min	ISO 1133
Melt mass-flow rate	5 g/10min	ISO 1133
Temperature	250 °C	
Load	2.16 kg	
Melt mass-flow rate, Temperature	250 °C	
Melt mass-flow rate, Load	2.16 kg	
Viscosity number	130 cm ³ /g	ISO 307, 1157, 1628
Moulding shrinkage range, parallel	1.8 - 2.0 %	ISO 294-4, 2577
Moulding shrinkage range, normal	1.8 - 2.0 %	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	2500 MPa	ISO 527-1/-2
Yield stress, 50mm/min	60 MPa	ISO 527-1/-2
Yield strain, 50mm/min	6 %	ISO 527-1/-2
Stress at 50% strain	28 MPa	ISO 527-1/-2
Stress at break, 50mm/min	35 MPa	ISO 527-1/-2
Nominal strain at break	>50 %	ISO 527-1/-2
Strain at break, 50mm/min	120 %	ISO 527-1/-2
Flexural Modulus	2200 MPa	ISO 178
Flexural Strength	80 MPa	ISO 178
Charpy impact strength, 23°C	NB kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	220 kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	7.5 kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	7 kJ/m ²	ISO 179/1eA
Izod notched impact strength, 23°C	5.5 kJ/m ²	ISO 180/1A
Hardness, Rockwell, M-scale	72	ISO 2039-2
Shore D hardness, 15s	80	ISO 48-4 / ISO 868

Thermal properties

Melting temperature, 10°C/min	225 °C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	60 °C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	50 °C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	150 °C	ISO 75-1/-2
Vicat softening temperature, 50°C/h, 50N	182 °C	ISO 306
Coeff. of linear therm. expansion, parallel	110 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	100 E-6/K	ISO 11359-1/-2

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Flammability

Burning Behav. at thickness h	HB class	UL 94
Thickness tested	0.75 mm	UL 94
Oxygen index	22 %	ISO 4589-1/-2

Electrical properties

Relative permittivity, 100Hz	4	IEC 62631-2-1
Relative permittivity, 1MHz	3.6	IEC 62631-2-1
Dissipation factor, 100Hz	14 E-4	IEC 62631-2-1
Dissipation factor, 1MHz	210 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	23 kV/mm	IEC 60243-1
Comparative tracking index	PLC 0 PLC	UL 746A

Other properties

Humidity absorption, 2mm	0.2 %	Sim. to ISO 62
Water absorption, 2mm	0.45 %	Sim. to ISO 62
Density	1310 kg/m³	ISO 1183

Injection

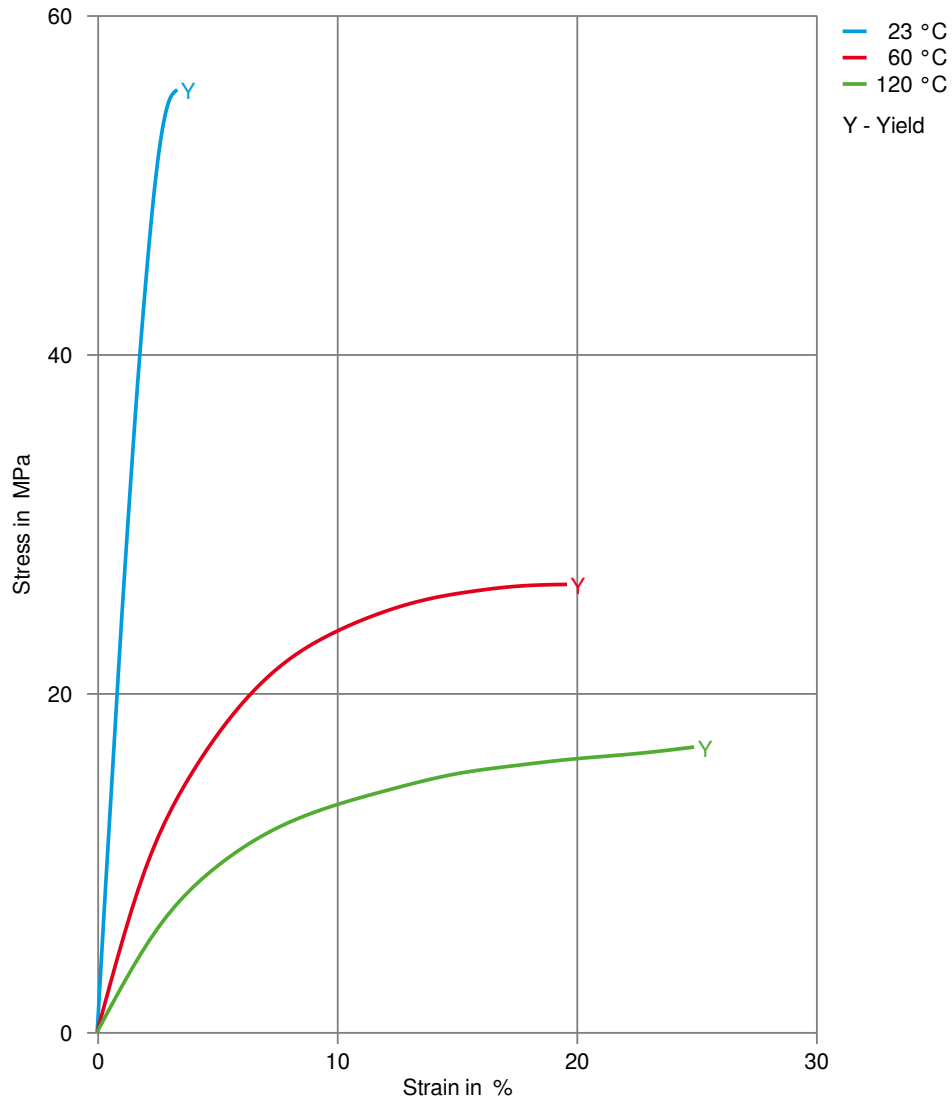
Drying Temperature	120 - 130 °C
Drying Time, Dehumidified Dryer	4 h
Processing Moisture Content	0.02 %
Max. mould temperature	65 - 93 °C
Injection speed	medium-fast

Characteristics

Food contact	FDA 21 CFR
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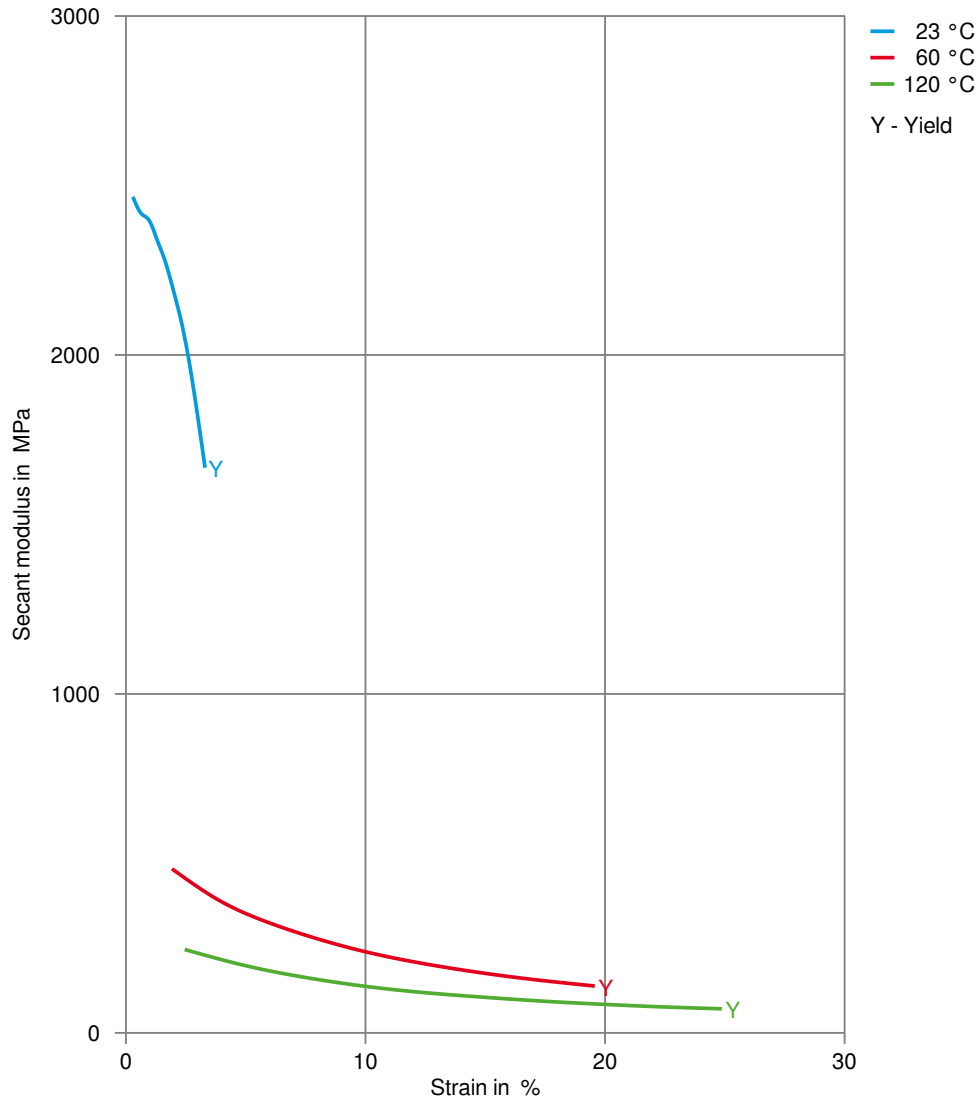
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Stress-strain



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Secant modulus-strain



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Processing Texts

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 $< -40^{\circ}\text{F}$ (-40°C) at 250°F (121°C) for 4 hours.

Longer pre-drying times/storage

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