

CELANEX® 2002-2FC

unfilled; medium flow lubricated PBT; for use in food contact applications

Celanex 2002-2FC is a general purpose, unreinforced polybutylene terephthalate with a good balance of mechanical properties and processability for use in food contact applications. Celanex 2002-2FC is a medium flow material that contains an internal lubricant.

Rheological properties

Melt volume-flow rate	20 cm ³ /10min	ISO 1133
Temperature	250 °C	
Load	2.16 kg	
Moulding shrinkage, parallel	1.8 %	ISO 294-4, 2577
Moulding shrinkage range, parallel	1.5 - 2.0 %	ISO 294-4, 2577
Moulding shrinkage, normal	1.8 %	ISO 294-4, 2577
Moulding shrinkage range, normal	1.5 - 2.0 %	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	2600 MPa	ISO 527-1/-2
Yield stress, 50mm/min	60 MPa	ISO 527-1/-2
Yield strain, 50mm/min	4 %	ISO 527-1/-2
Stress at 50% strain	30 MPa	ISO 527-1/-2
Stress at break, 50mm/min	60 MPa	ISO 527-1/-2
Nominal strain at break	>50 %	ISO 527-1/-2
Flexural Modulus	2500 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	190 kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	6 kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	6 kJ/m ²	ISO 179/1eA
Izod notched impact strength, 23°C	5 kJ/m ²	ISO 180/1A
Hardness, Rockwell, M-scale	78	ISO 2039-2

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	55 °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	190 °C	ISO 306
Coeff. of linear therm. expansion, parallel	110 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	130 E-6/K	ISO 11359-1/-2



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Flammability

Burning Behav. at thickness h	HB class	UL 94
Thickness tested	0.71 mm	UL 94
Oxygen index	22 %	ISO 4589-1/-2

Electrical properties

Relative permittivity, 100Hz	4	IEC 62631-2-1
Relative permittivity, 1MHz	3.5	IEC 62631-2-1
Dissipation factor, 100Hz	14 E-4	IEC 62631-2-1
Dissipation factor, 1MHz	220 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

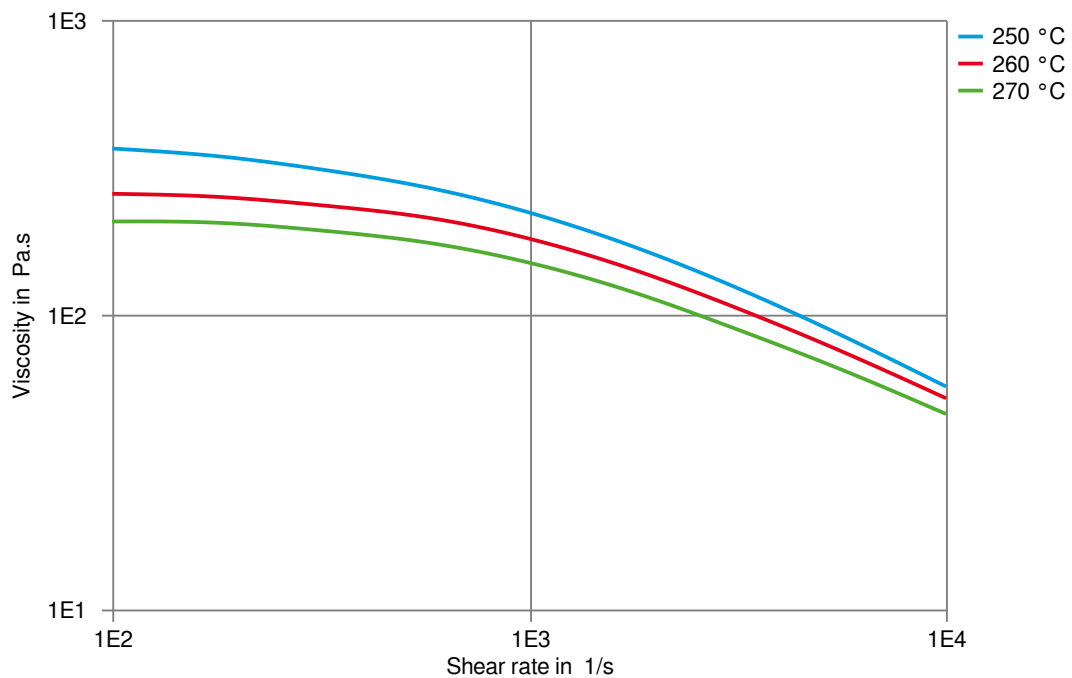
Characteristics

Additives	Release agent
Food contact	FDA 21 CFR



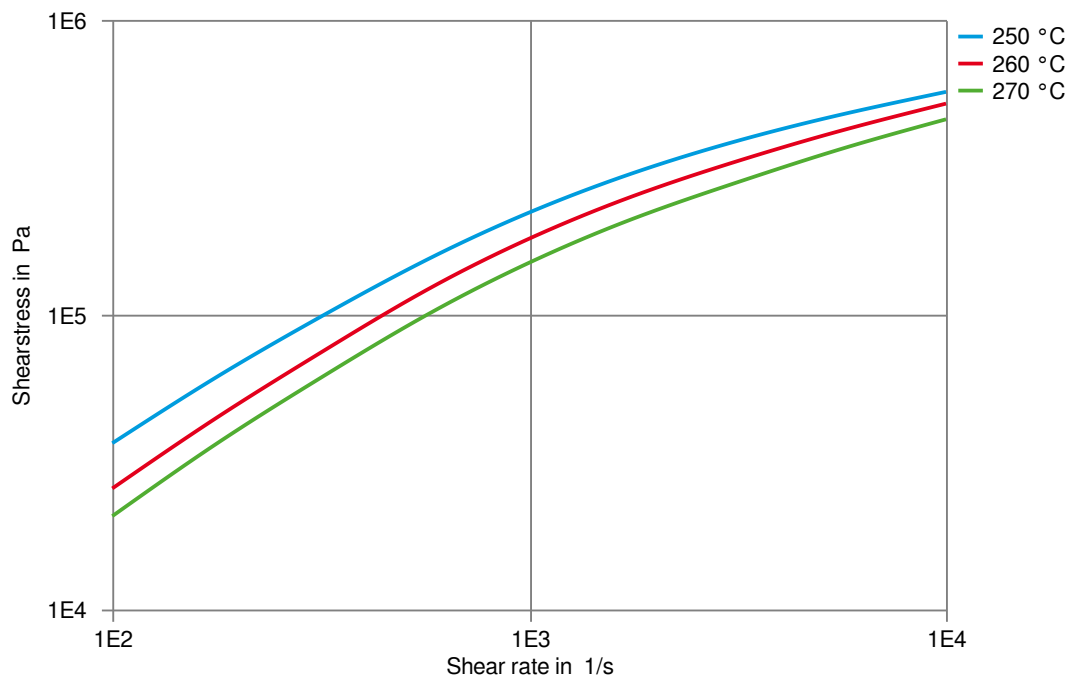
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Viscosity-shear rate



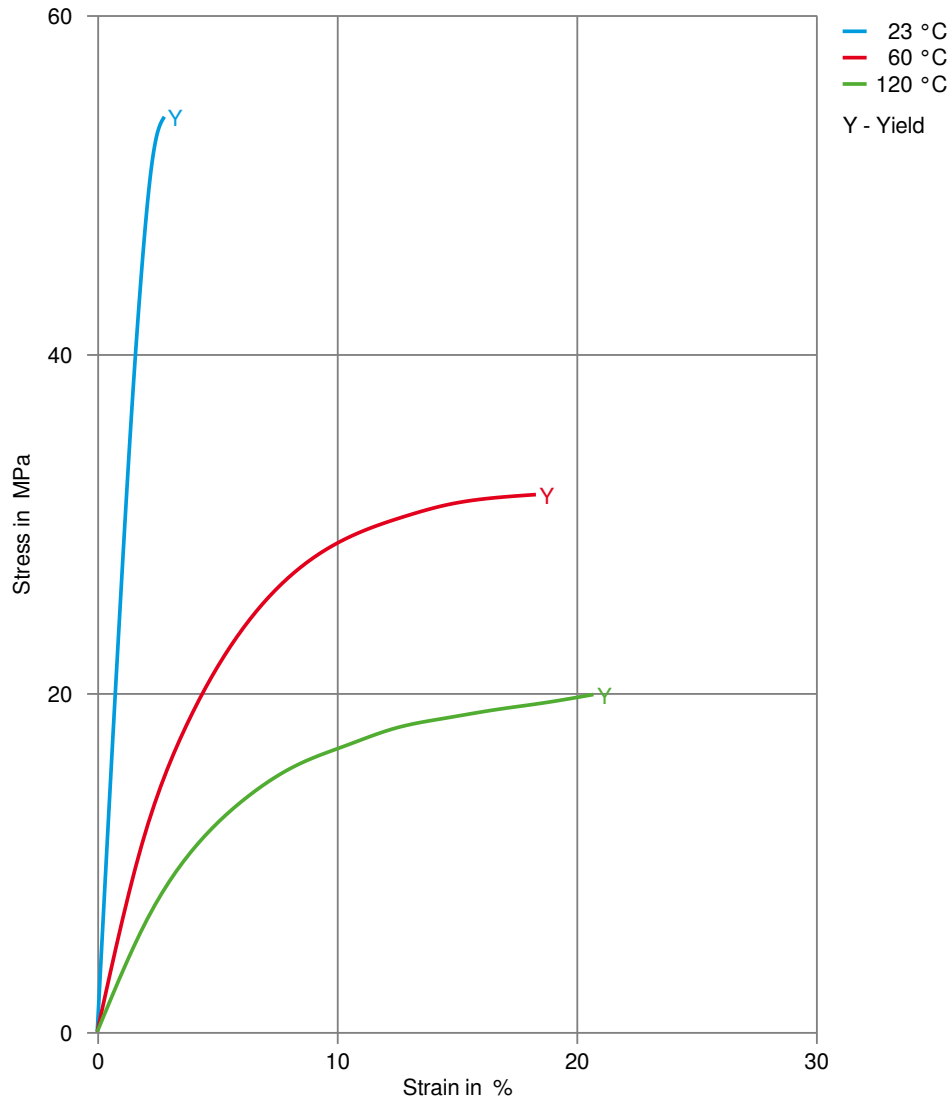
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Shearstress-shear rate



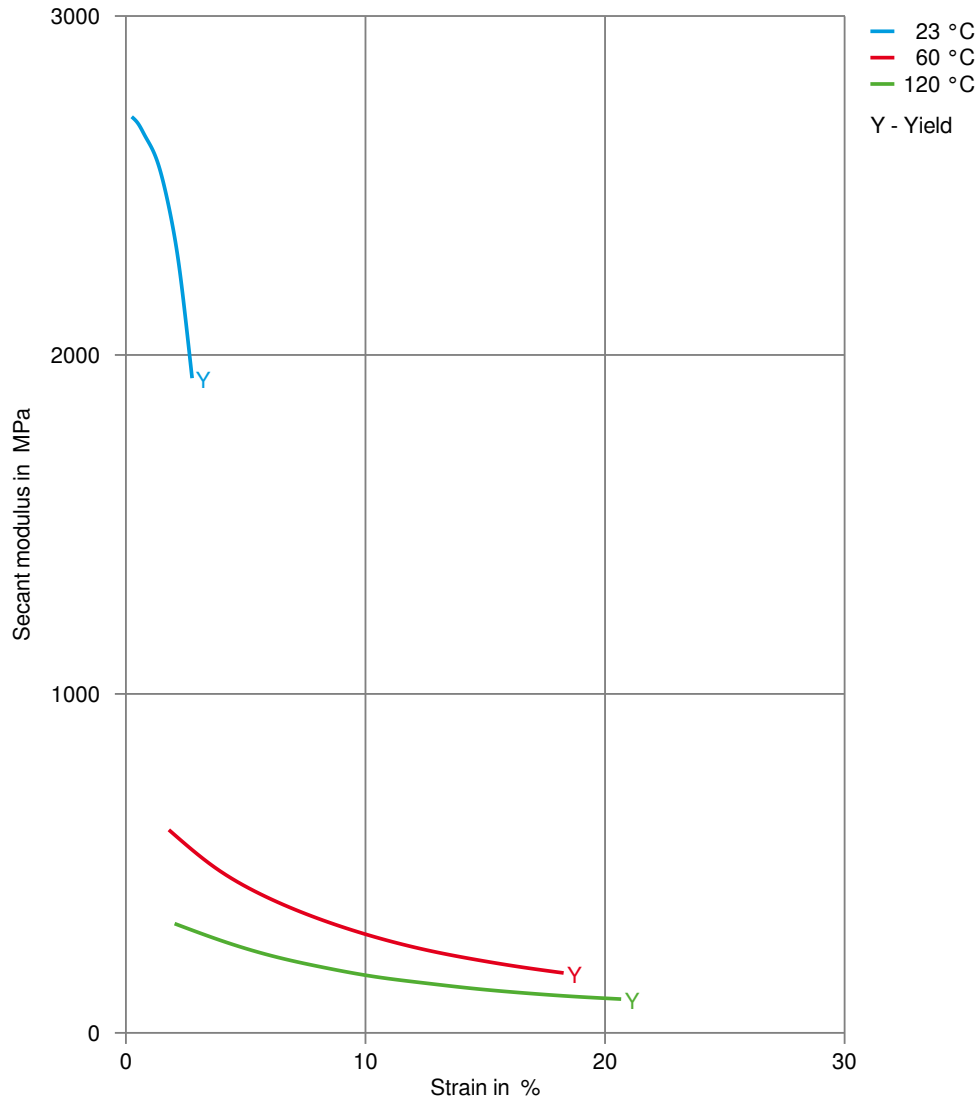
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Stress-strain



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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 .

