

CELANEX[®] 2003-5FC

unfilled; lubricated; medium-high flow PBT grade; for food contact applications Celanex 2003-5FC is a general purpose, unreinforced polybutylene terephthalate with a good balance of mechanical properties and processability for use in food contact applications. Celanex 2003-5FC is a medium to high flow material that contains an internal lubricant and nucleant.

Rheological properties

Melt volume-flow rate Temperature	40 250 2.16	cm³/10min °C	ISO 1133
Luau Moulding shrinkage range, parallel	18-22	ку %	190 294-4 2577
Moulding shrinkage range, normal	1.8 - 2.0	%	ISO 294-4, 2577
Typical mechanical properties			
Tensile Modulus	2700	MPa	ISO 527-1/-2
Yield stress, 50mm/min	63	MPa	ISO 527-1/-2
Yield strain, 50mm/min	4	%	ISO 527-1/-2
Stress at break, 50mm/min	57	MPa	ISO 527-1/-2
Nominal strain at break	15	%	ISO 527-1/-2
Flexural Modulus	2550	MPa	ISO 178
Flexural Strength	80	MPa	ISO 178
Charpy impact strength, 23°C	135	kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	130	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	5	kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	4.5	kJ/m²	ISO 179/1eA
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	60	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	160	°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
Flammability			
Burning Behav, at thickness h	HB	class	UL 94
Thickness tested	0.80	mm	UL 94
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

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Drying Temperature Drying Time, Dehumidified Dryer Processing Moisture Content Max. mould temperature Injection speed	120 - 130 °C 4 h 0.02 % 70 - 90 °C fast
Characteristics	
Additives	
Food contact	FDA 21 CFR
Additional information	
Injection molding	 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 465-500 (240-260) deg F (deg C) Mold Temperature 165-200 (74-93) deg F (deg C) Back Pressure 0-50 psi Screw Speed Medium 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 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°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.
Injection molding	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 465-500 (240-260) deg F (deg C) Mold Temperature 165-200 (74-93) deg F (deg C)
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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.

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.

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