



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 Load	40 cm ³ /10min 250 °C 2.16 kg	ISO 1133
Moulding shrinkage range, parallel 1.8	3 - 2.2 %	ISO 294-4, 2577
Moulding shrinkage range, normal 1.8	3 - 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/m²	ISO 179/1eU
Charpy impact strength, -30°C	130 kJ/m²	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/m ²	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
THICKNESS tested	0.00 111111	OL 94
Other properties		
Humidity absorption, 2mm	0.2 %	Sim. to ISO 62
Water absorption, 2mm	0.45 %	Sim. to ISO 62
Density	1310 kg/m ³	ISO 1183

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Injection

Drying Temperature 120 - 130 °C

Drying Time, Dehumidified Dryer 4 h

Processing Moisture Content 0.02 %

Max. mould temperature 70 - 90 °C

Injection speed fast

Characteristics

Additives Release agent 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 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 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.

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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 $^{\circ}$ F (-34 $^{\circ}$ C) at 250 $^{\circ}$ F (121 $^{\circ}$ C) for 4 hours.