

CELANEX® 2003HR | PBT | Unfilled
Description

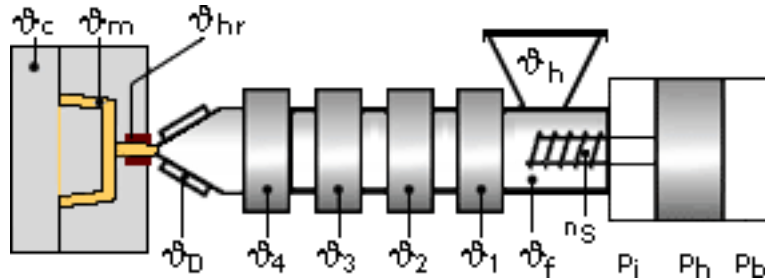
Celanex 2003HR is an unfilled polybutylene terephthalate which has an excellent hydrolysis resistance, mechanical properties and processability

Physical properties	Value	Unit	Test Standard
Density	1310	kg/m ³	ISO 1183
Mold shrinkage - parallel	1.8-2.0	%	ISO 294-4
Mold shrinkage - normal	1.8-2.0	%	ISO 294-4
Humidity absorption (23°C/50%RH)	0.14	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	2700	MPa	ISO 527-2/1A
Tensile stress at yield (50mm/min)	60	MPa	ISO 527-2/1A
Tensile strain at yield (50mm/min)	4	%	ISO 527-2/1A
Nominal strain at break (50mm/min)	40	%	ISO 527-2/1A
Tensile stress at break (50mm/min)	55	MPa	ISO 527-2/1A
Tensile strain at break (50mm/min)	25	%	ISO 527-2/1A
Flexural modulus (23°C)	2550	MPa	ISO 178
Flexural strength (23°C)	80	MPa	ISO 178
Charpy impact strength @ 23°C	111.0	kJ/m ²	ISO 179/1eU
Charpy impact strength @ -30°C	35.0	kJ/m ²	ISO 179/1eU
Charpy notched impact strength @ 23°C	4.3	kJ/m ²	ISO 179/1eA
Charpy notched impact strength @ -30°C	4.3	kJ/m ²	ISO 179/1eA
Unnotched impact str (Izod) @ 23°C	31	kJ/m ²	ISO 180/1U
Unnotched impact str (Izod) @ -30°C	33	kJ/m ²	ISO 180/1U
Notched impact strength (Izod) @ 23°C	4.0	kJ/m ²	ISO 180/1A

Thermal properties	Value	Unit	Test Standard
Melting temperature (10°C/min)	225	°C	ISO 11357-1,-2,-3
DTUL @ 1.8 MPa	55	°C	ISO 75-1/-2
DTUL @ 0.45 MPa	150	°C	ISO 75-1/-2
Vicat softening temperature B50 (50°C/h 50N)	190	°C	ISO 306
Coeff.of linear therm. expansion (parallel)	1.2	E-4/°C	ISO 11359-2
Coeff.of linear therm. expansion (normal)	1.1	E-4/°C	ISO 11359-2

Electrical properties	Value	Unit	Test Standard
Relative permittivity - 1 MHz	3.2	-	IEC 60250
Dissipation factor - 1 MHz	200	E-4	IEC 60250
Volume resistivity	>1E13	Ohm*m	IEC 60093
Surface resistivity	>1E15	Ohm	IEC 60093
Electric strength	15	kV/mm	IEC 60243-1
Comparative tracking index CTI	600	-	IEC 60112

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Typical injection moulding processing conditions

Pre Drying:
Necessary low maximum residual moisture content: 0.02%

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.

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

Drying time: 4 h

Drying temperature: 120 - 130 °C

Temperature:

	ϕManifold	ϕMold	ϕMelt	ϕNozzle	ϕZone4	ϕZone3	ϕZone2	ϕZone1	ϕFeed	ϕHopper
min (°C)	250	65	235	250	240	235	235	230	230	20
max (°C)	260	93	260	260	260	250	250	240	240	50

Speed:

Injection speed: medium-fast

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	460-500(235-260)	deg F (deg C)
Mold Temperature	150-200(65-93)	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.

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