

CELANEX® 1600USFDA - PBT

Description

Celanex 1600USFDA is a high molecular weight grade of unreinforced polybutylene terephthalate for use in injection molding and extrusion US FDA applications.

Physical properties	Value	Unit	Test Standard
Density	1310	kg/m ³	ISO 1183
Melt flow rate, MFR	9.9	g/10min	ISO 1133
MFR temperature	250	°C	ISO 1133
MFR load	2.16	kg	ISO 1133
Melt volume rate, MVR	8.5	cm ³ /10min	ISO 1133
MVR temperature	250	°C	ISO 1133
MVR load	2.16	kg	ISO 1133
Molding shrinkage, parallel	1.8 - 2.0	%	ISO 294-4, 2577
Molding shrinkage, normal	1.8 - 2.0	%	ISO 294-4, 2577
Water absorption, 23°C-sat	0.45	%	ISO 62
Humidity absorption, 23°C/50%RH	0.2	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus	2550	MPa	ISO 527-2/1A
Tensile stress at yield, 50mm/min	60	MPa	ISO 527-2/1A
Tensile strain at yield, 50mm/min	5	%	ISO 527-2/1A
Tensile nominal strain at break, 50mm/min	>50	%	ISO 527-2/1A
Tensile stress at 50% strain, 50mm/min	28	MPa	ISO 527-2/1A
Tensile stress at break, 50mm/min	33	MPa	ISO 527-2/1A
Tensile strain at break, 50mm/min	115	%	ISO 527-2/1A
Flexural modulus, 23°C	2200	MPa	ISO 178
Flexural strength, 23°C	80	MPa	ISO 178
Charpy impact strength, 23°C	NB	kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	210	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	7	kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	6.5	kJ/m ²	ISO 179/1eA
Izod impact notched, 23°C	5.5	kJ/m ²	ISO 180/1A
Rockwell hardness (M-Scale)	72	M-Scale	ISO 2039-2

Mechanical properties (TPE)	Value	Unit	Test Standard
Shore D hardness, 15s	77	-	ISO 868

Thermal properties	Value	Unit	Test Standard
Melting temperature, 10°C/min	225	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	60	°C	ISO 11357-1,-2,-3
DTUL at 1.8 MPa	50	°C	ISO 75-1, -2
DTUL at 0.45 MPa	150	°C	ISO 75-1, -2
Vicat softening temperature, 50°C/h 50N	185	°C	ISO 306
Coeff. of linear therm expansion, parallel	1.1	E-4/°C	ISO 11359-2
Coeff. of linear therm expansion, normal	1.03	E-4/°C	ISO 11359-2
Limiting oxygen index (LOI)	22	%	ISO 4589-1/-2
Flammability at thickness h	HB	class	UL 94
thickness tested (h)	0.75	mm	UL 94

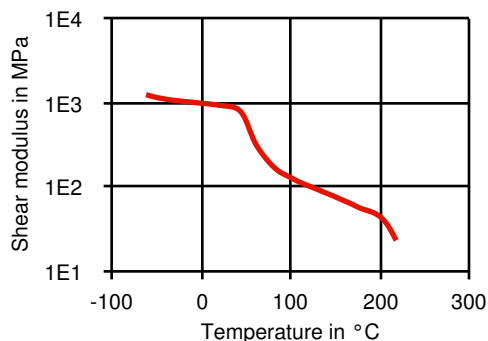
Electrical properties	Value	Unit	Test Standard
Relative permittivity, 100Hz	4	-	IEC 60250
Relative permittivity, 1MHz	3.5	-	IEC 60250
Dissipation factor, 100Hz	14	E-4	IEC 60250
Dissipation factor, 1MHz	210	E-4	IEC 60250
Volume resistivity	>1E13	Ohm*m	IEC 60093
Surface resistivity	>1E15	Ohm	IEC 60093

CELANEX® 1600USFDA - PBT

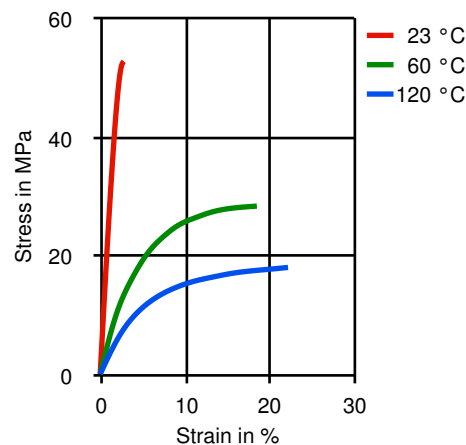
Electric strength	23	kV/mm	IEC 60243-1
Comparative tracking index	600	-	IEC 60112

Diagrams

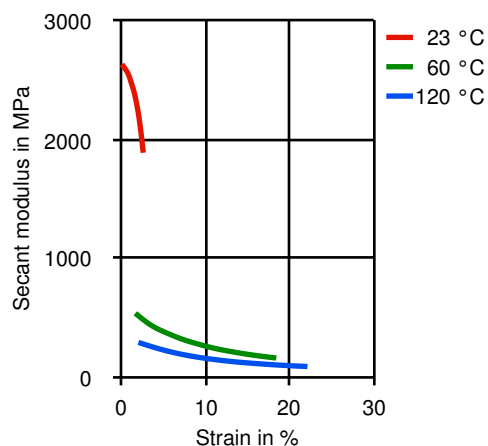
Dynamic Shear modulus-temperature



Stress-strain



Secant modulus-strain



Typical injection moulding processing conditions

Pre Drying	Value	Unit	Test Standard
Necessary low maximum residual moisture content	0.02	%	-
Drying time	4	h	-
Drying temperature	120 - 130	°C	-
Temperature	Value	Unit	Test Standard
Hopper temperature	20 - 50	°C	-
Feeding zone temperature	230 - 240	°C	-
Zone1 temperature	230 - 240	°C	-
Zone2 temperature	235 - 250	°C	-
Zone3 temperature	235 - 250	°C	-
Zone4 temperature	240 - 260	°C	-
Nozzle temperature	250 - 260	°C	-
Melt temperature	235 - 260	°C	-
Mold temperature	65 - 93	°C	-
Hot runner temperature	250 - 260	°C	-
Pressure	Value	Unit	Test Standard
Back pressure max.	3.5	bar	-

CELANEX® 1600USFDA - PBT

Speed	Value	Unit	Test Standard
Injection speed	medium-fast	-	-

Other text information

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% prior to processing. Drying should be done in a dehumidifying hopper dryer capable of dewpoints <-40°F (-40°C). Typical drying conditions are 250°F (121°C) for 4 hours. For subsequent storage of material in the dryer until processed, drying temperature should be lowered to 100 deg C and material should not kept in dryer for more than 60 hrs.

Injection molding

Injection speed, injection pressure and holding pressure should be optimized for individual article geometry. To avoid material degradation during processing, low back pressure and minimum screw speed should be used. Overheating of material should be avoided. Up to 25% clean and dry regrind may be used.

Characteristics

Special Characteristics

High viscosity

Processing

Film extrusion, Injection molding, Other extrusion, Sheet extrusion

Product Categories

Unfilled

Delivery Form

Pellets