

CELANEX® 2002-2USFDA - PBT

Description

Celanex 2002-2USFDA is an unreinforced polybutylene terephthalate with a good balance of mechanical properties and processability for use in US FDA applications

Physical properties	Value	Unit	Test Standard
Density	1310	kg/m ³	ISO 1183
Melt volume rate, MVR	20	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
Water absorption, 23°C-sat	0.45	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus	2600	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
Tensile nominal strain at break, 50mm/min	>50	%	ISO 527-2/1A
Tensile stress at 50% strain, 50mm/min	30	MPa	ISO 527-2/1A
Tensile stress at break, 50mm/min	60	MPa	ISO 527-2/1A
Flexural modulus, 23°C	2500	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	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 impact notched, 23°C	5	kJ/m ²	ISO 180/1A
Rockwell hardness (M-Scale)	78	M-Scale	ISO 2039-2

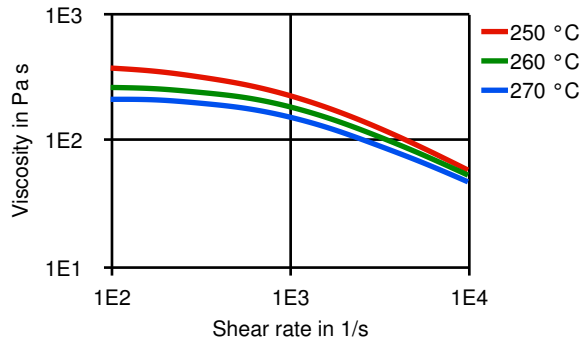
Thermal properties	Value	Unit	Test Standard
Melting temperature, 10°C/min	225	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	60	°C	ISO 11357-1,-2,-3
DTUL at 1.8 MPa	55	°C	ISO 75-1, -2
DTUL at 0.45 MPa	150	°C	ISO 75-1, -2
Vicat softening temperature, 50°C/h 50N	190	°C	ISO 306
Coeff. of linear therm expansion, parallel	1.1	E-4/°C	ISO 11359-2
Coeff. of linear therm expansion, normal	1.27	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)	0.71	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	220	E-4	IEC 60250
Volume resistivity	1E13	Ohm*m	IEC 60093
Surface resistivity	1E15	Ohm	IEC 60093
Electric strength	23	kV/mm	IEC 60243-1
Comparative tracking index	600	-	IEC 60112

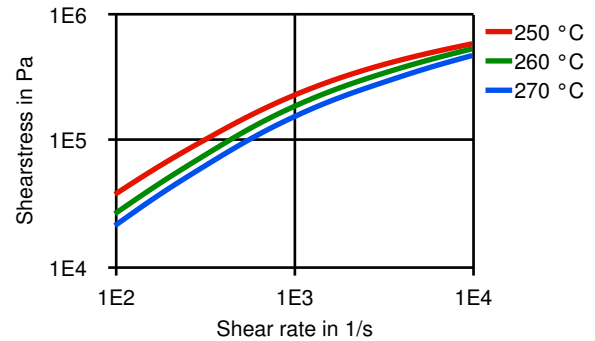
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Diagrams

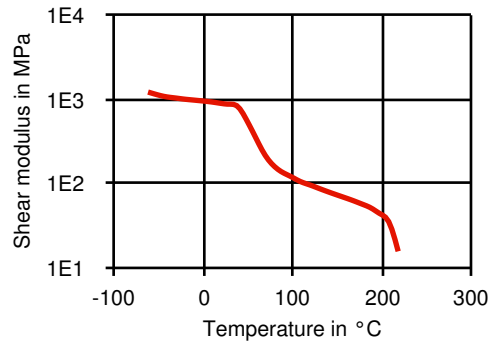
Viscosity-shear rate



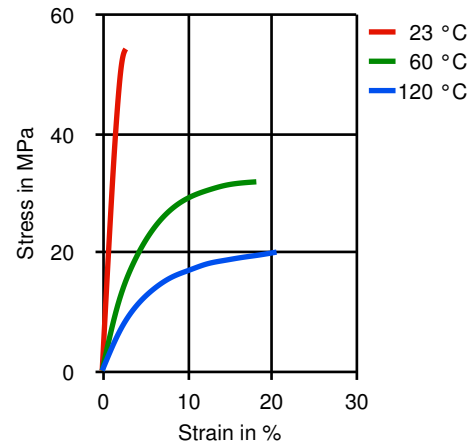
Shearstress-shear rate



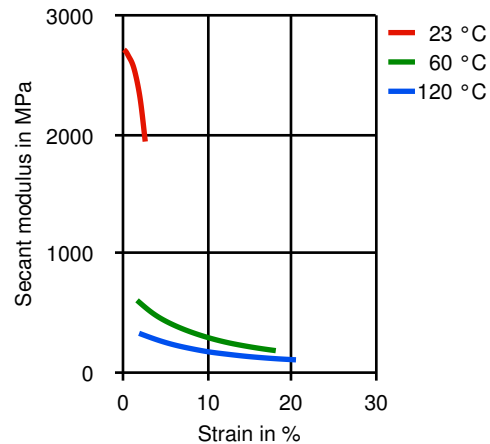
Dynamic Shear modulus-temperature



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	-

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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	-
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%. 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.

Characteristics

Product Categories	Delivery Form
Unfilled	Pellets
Processing	Additives
Injection molding	Lubricants