Celanese
The chemistry inside innovation™

CELANEX® 1600A

unfilled PBT polymer, extrusion grade
Celanex 1600A is a high molecular weight grade of unreinforced polybutylene terephthalate for use in both extrusion and injection molding applications.

Product information

Part Marking Code	> PBT <		ISO 11469

Rheological properties

Melt volume-flow rate	9	cm^3/10min	ISO 1133
Melt mass-flow rate	10	g/10min	ISO 1133
Temperature	250	°C	
Load	2.16	kg	
Melt mass-flow rate, Temperature	250	°C	
Melt mass-flow rate, Load	2.16	kg	
Viscosity number	115	cm^3/g	ISO 307, 1157, 1628
Moulding shrinkage range, parallel	1.8 - 2.0	%	ISO 294-4, 2577
Moulding shrinkage range, normal	1.8 - 2.0	%	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	2550	MPa	ISO 527-1/-2
Yield stress, 50mm/min	60	MPa	ISO 527-1/-2
Yield strain, 50mm/min	5	%	ISO 527-1/-2
Stress at 50% strain	28	MPa	ISO 527-1/-2
Stress at break, 50mm/min	33	MPa	ISO 527-1/-2
Nominal strain at break	>50	%	ISO 527-1/-2
Strain at break, 50mm/min	115	%	ISO 527-1/-2
Flexural Modulus	2200	MPa	ISO 178
Flexural Strength	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 notched impact strength, 23°C	5.5	kJ/m^2	ISO 180/1A
Hardness, Rockwell, M-scale	72		ISO 2039-2
Shore D hardness, 15s	77		ISO 48-4 / ISO 868

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	50	°C	ISO 75-1/-2
Temp. of deflection under load, 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	110	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	103	E-6/K	ISO 11359-1/-2

Celanese
The chemistry inside innovation™

CELANEX® 1600A

Flammability

Burning Behav. at thickness h	HB	class	UL 94
Thickness tested	0.75	mm	UL 94
Oxygen index	22	%	ISO 4589-1/-2

Electrical properties

Relative permittivity, 100Hz	4		IEC 62631-2-1
Relative permittivity, 1MHz	3.5		IEC 62631-2-1
Dissipation factor, 100Hz	14	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	210	E-4	IEC 62631-2-1
Volume resistivity	>1E13	Ohm.m	IEC 62631-3-1
Surface resistivity	>1E15	Ohm	IEC 62631-3-2
Electric strength	23	kV/mm	IEC 60243-1
Comparative tracking index	PLC 0	PLC	UL 746A

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

Injection

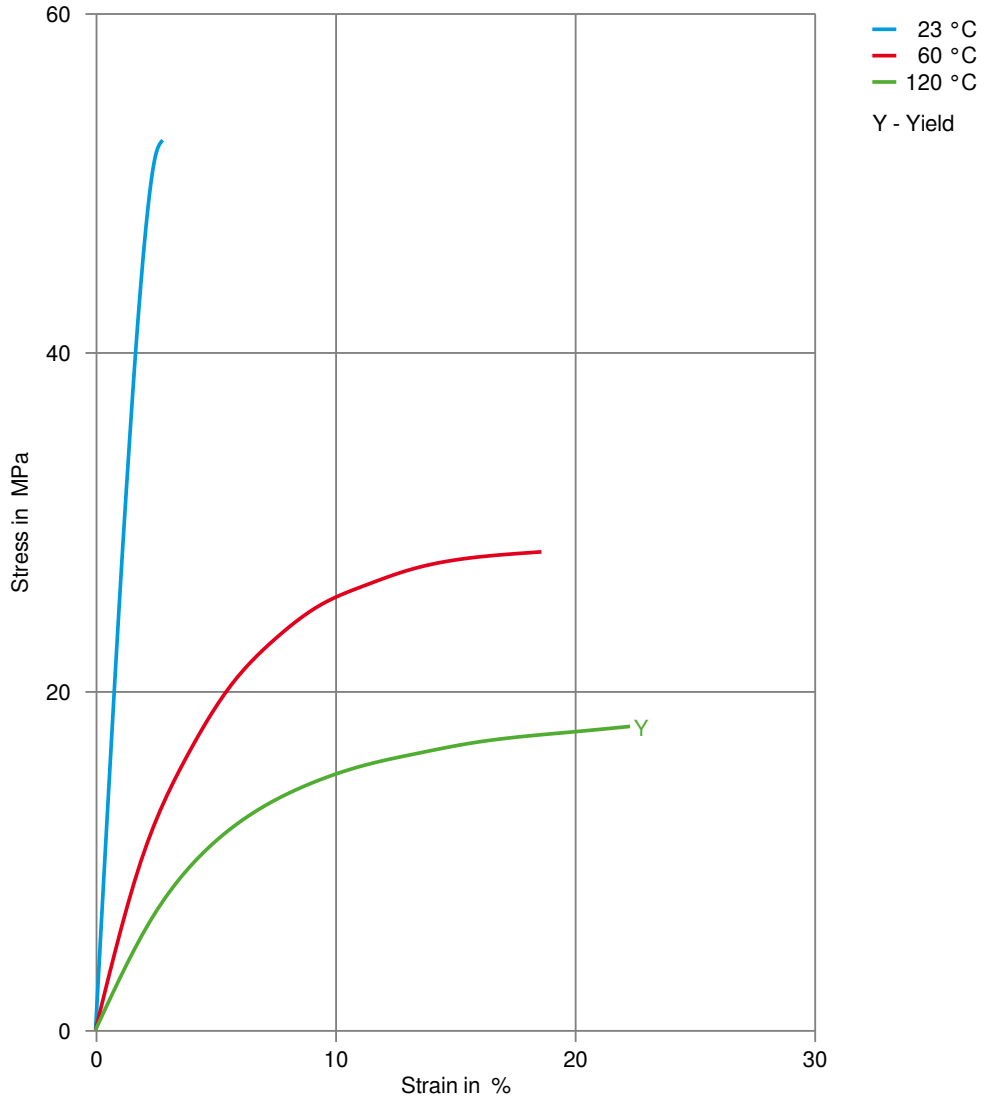
Drying Temperature	120 - 130	°C
Drying Time, Dehumidified Dryer	4	h
Processing Moisture Content	0.02	%
Max. mould temperature	65 - 93	°C
Back pressure		MPa
Injection speed	medium-fast	

Additional information

Injection molding	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. Up to 25% clean and dry regrind may be used.

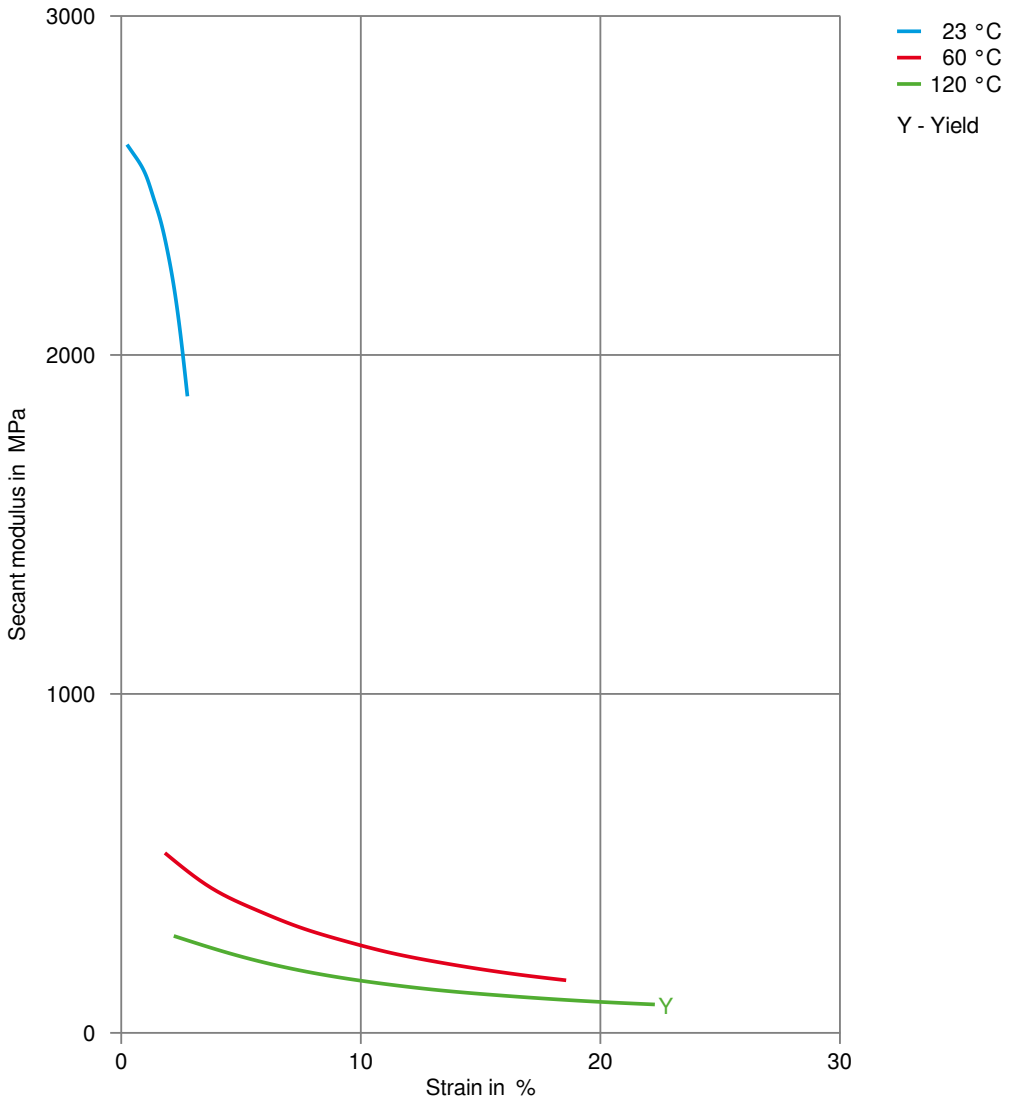
CELANEX® 1600A

Stress-strain



CELANEX® 1600A

Secant modulus-strain



Celanese
The chemistry inside innovation™

CELANEX® 1600A

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% 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 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. Up to 25% clean and dry regrind may be used.