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CELANEX® 2414MT

CELANEX® PBT

Preliminary Technical Data Sheet
Celanex 2414MT is an unreinforced, low viscosity and low friction Polybutylene Terephthalate, specifically designed for medical/healthcare applications requiring excellent sliding and low wear properties.

Product information

Resin Identification	PBT	ISO 1043
Part Marking Code	>PBT<	ISO 11469

Rheological properties

Melt volume-flow rate	40	cm^3/10min	ISO 1133
Temperature	250	°C	
Load	2.16	kg	
Moulding shrinkage range, parallel	1.8 - 2.2	%	ISO 294-4, 2577
Moulding shrinkage, normal	2.0	%	ISO 294-4, 2577
Moulding shrinkage range, normal	1.8 - 2.2	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	2400	MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	50	MPa	ISO 527-1/-2
Tensile strain at yield, 50mm/min	4	%	ISO 527-1/-2
Nominal strain at break	19	%	ISO 527-1/-2
Flexural modulus	2400	MPa	ISO 178
Flexural strength	80	MPa	ISO 178
Flexural strain at failure	5.8	%	ISO 178
Charpy impact strength, 23°C	150	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, 23°C	3	kJ/m^2	ISO 179/1eA
Poisson's ratio	0.38[C]		

[C]: Calculated

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

Physical/Other properties

Humidity absorption, 2mm	0.2	%	Sim. to ISO 62
Water absorption, 2mm	0.45	%	Sim. to ISO 62
Density	1280	kg/m^3	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	140	°C
Drying Time, Dehumidified Dryer	4 - 6	h
Processing Moisture Content	≤0.01	%
Melt Temperature Optimum	245	°C
Min. melt temperature	240	°C
Max. melt temperature	250	°C
Screw tangential speed	0.1 - 0.3	m/s

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Mold Temperature Optimum	80	°C
Min. mould temperature	60	°C
Max. mould temperature	130	°C

Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Additives	Release agent
Special characteristics	Low wear / Low friction

Additional information

Injection molding

To minimize the volatile content in the final product, dry the resin to ≤0.01% water content. In injection molding, use the lowest possible melt temperature (recommended 240 °C) and shortest feasible residence time (recommended 2-3 minutes). Store the parts in a ventilated, clean area before use. If assistance is needed please contact your Celanese account representative.

These recommendations are based on internal Celanese testing. For drying and injection molding conditions outside the above parameters, customer must test for and verify suitably low volatiles emissions on molded articles to confirm the final product is suitably pure for its intended use.

Processing Notes

Pre-Drying

To avoid hydrolytic degradation during processing, CELANEX resins have to be dried to a moisture level equal to or less than 0.01%. Drying should be done in a dehumidifying hopper dryer capable of dewpoints <-40°C (-40°F) at 140°C (284°F) for 4-6 hours.

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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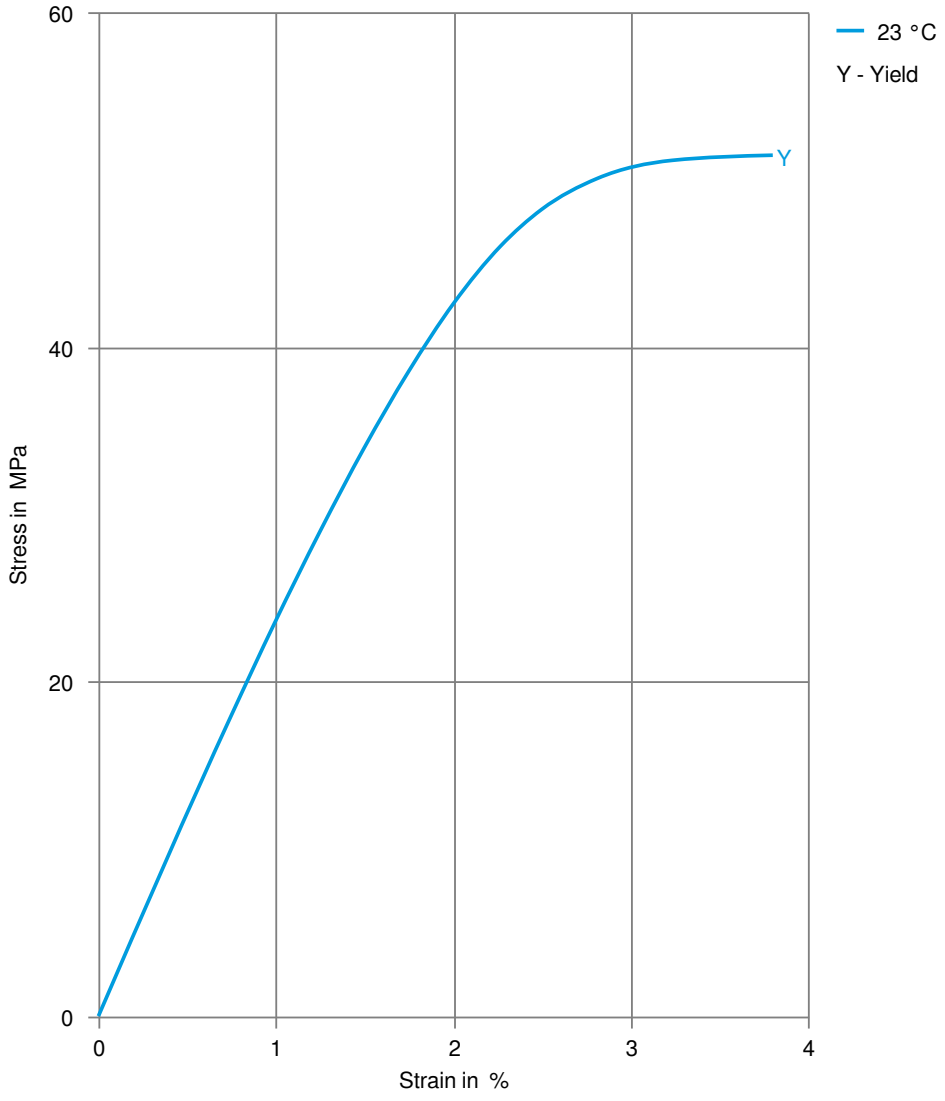
Stress-strain



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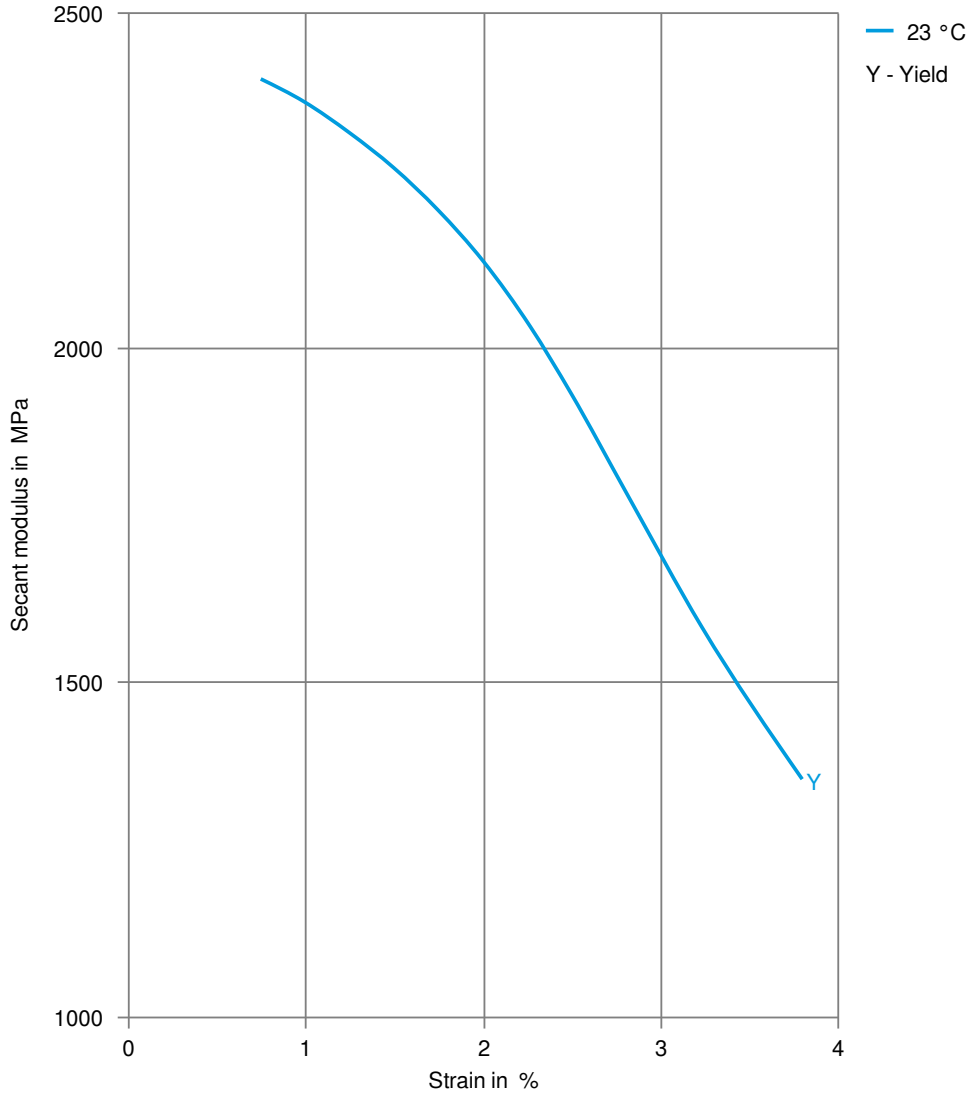
Secant modulus-strain



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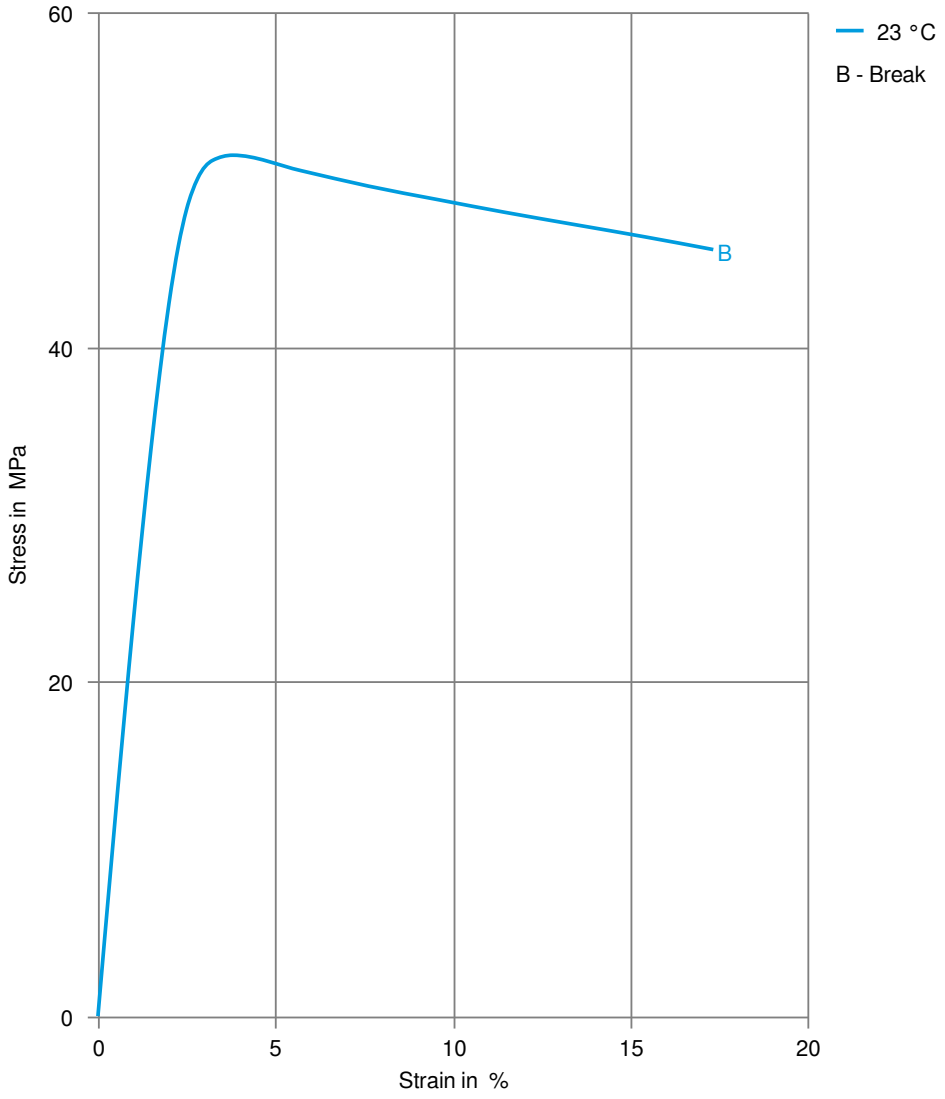
Stress-strain, 50mm/min



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Secant modulus-strain, 50mm/min