Celanese
The chemistry inside innovation™

CELANEX® 2404MT

unfilled medium flow, PTFE filled grade, with improved sliding, low friction and wear, for use in medical applications
Celanex 2404MT is an unreinforced, tribologically-modified and nucleated, medium flow PBT grade for injection molding processing.
Celanex 2404MT is a special grade developed for medical industry applications and complies with:

- CFR 21 (177.1660) of the Food and Drug Administration (FDA) and is listed in the Drug Master File (DMF 10047 (US) / 10033 (EU)) and the Device Master File (MAF 443 (US) / 1078 (EU))
- the corresponding EU and national registry regulatory requirements
- biocompatibility in tests corresponding to USP 23 Class VI/ISO 10993
- low residual monomers
- no animal products

Product information

Part Marking Code	> (PBT+PTFE) <	ISO 11469

Rheological properties

Melt volume-flow rate	21	cm^3/10min	ISO 1133
Temperature	250	°C	
Load	2.16	kg	
Moulding shrinkage range, parallel	1.7 - 2.1	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.9	%	ISO 294-4, 2577
Moulding shrinkage range, normal	1.7 - 2.1	%	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	2600	MPa	ISO 527-1/-2
Yield stress, 50mm/min	56	MPa	ISO 527-1/-2
Yield strain, 50mm/min	7	%	ISO 527-1/-2
Nominal strain at break	19	%	ISO 527-1/-2
Charpy notched impact strength, 23°C	3.3	kJ/m^2	ISO 179/1eA

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	55	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h, 50N	190	°C	ISO 306

Electrical properties

Comparative tracking index	PLC 0	PLC	UL 746A

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Other properties

Humidity absorption, 2mm	0.2	%	Sim. to ISO 62
Density	1340	kg/m³	ISO 1183

Injection

Drying Temperature	120 - 130	°C	
Drying Time, Dehumidified Dryer	4	h	
Processing Moisture Content	0.02	%	
Melt Temperature Optimum	255	°C	Internal
Max. mould temperature	65 - 93	°C	
Injection speed	medium-fast		

Characteristics

Additives	Release agent
Food contact	FDA 21 CFR

Additional information

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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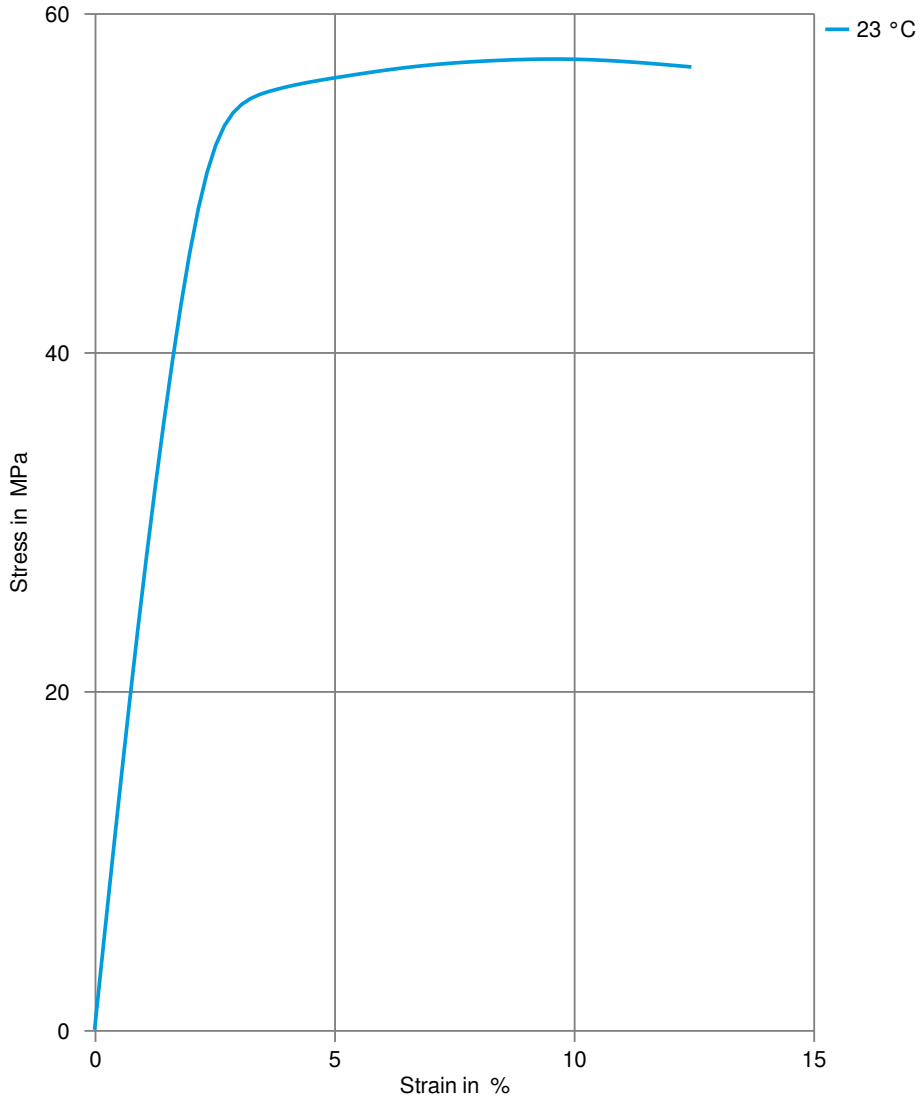
Stress-strain



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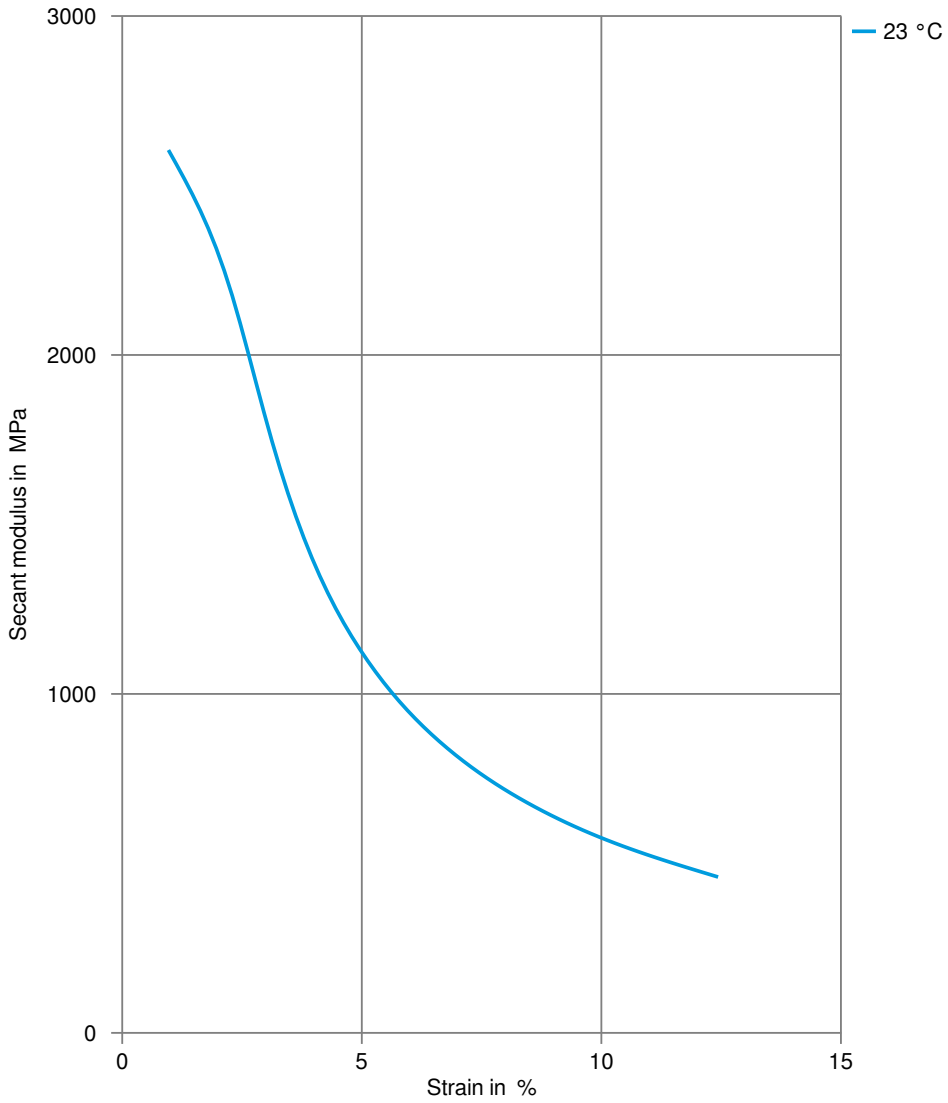
Secant modulus-strain



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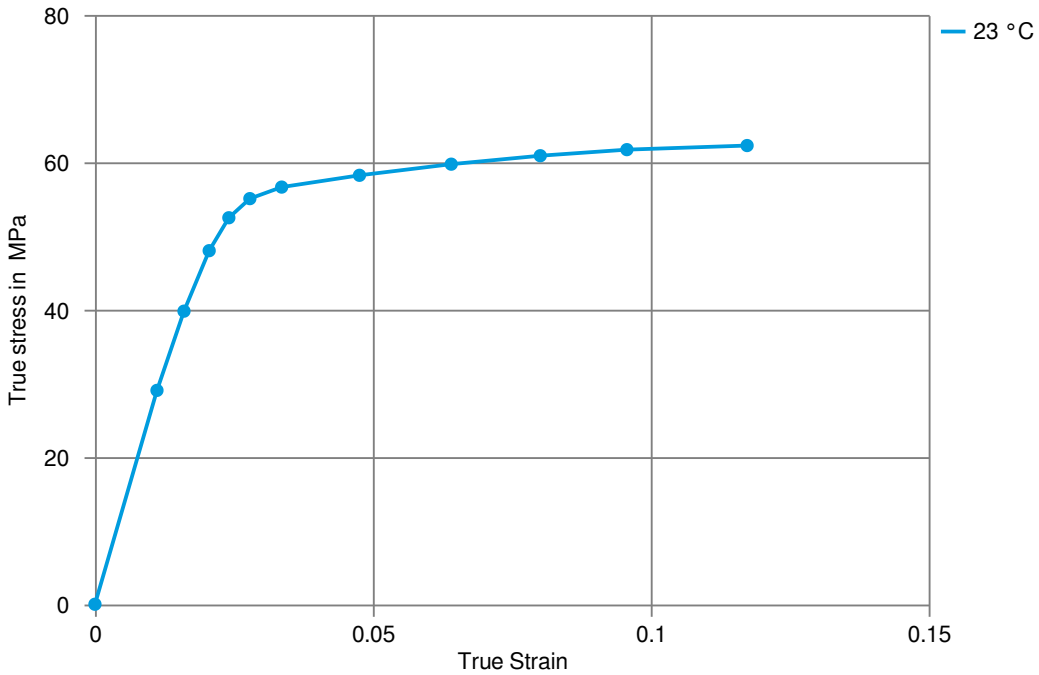
True stress-strain



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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%. 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.
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.
Injection molding Preprocessing	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 <-30°F (-34°C) at 250°F (121°C) for 4 hours.