

CELANEX® 2402MT® ECO-B 352

CELANEX® PBT

Celanex 2402MT ECO-B 352 is a special grade developed for medical industry applications and complies with:

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

Celanex® 2402MT ECO-B 352 incorporates 39% of biobased content derived from waste by weight in the finished product through mass balance allocation. The product is a drop-in replacement to the standard grade with the same performance and processing properties and contributes to the displacement of virgin fossil fuel resources. The biobased source and allocated content in the product are certified according to ISCC PLUS mass balance approach.

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 range, normal	1.8 - 2.2 %	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	2700 MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	60 MPa	ISO 527-1/-2
Tensile strain at yield, 50mm/min	4 %	ISO 527-1/-2
Tensile stress at break, 5mm/min	55 MPa	ISO 527-1/-2
Nominal strain at break	15 %	ISO 527-1/-2
Flexural modulus	2550 MPa	ISO 178
Flexural strength	80 MPa	ISO 178
Charpy impact strength, 23°C	135 kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	130 kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	4.5 kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	4 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
Temperature of deflection under load, 1.8 MPa	60 °C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	160 °C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	190 °C	ISO 306
Coefficient of linear thermal expansion (CLTE), parallel	110 E-6/K	ISO 11359-1/-2

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Flammability

Burning Behav. at thickness h	HB class	IEC 60695-11-10
Thickness tested	0.8 mm	IEC 60695-11-10

Physical/Other properties

Humidity absorption, 2mm	0.2 %	Sim. to ISO 62
Water absorption, 2mm	0.45 %	Sim. to ISO 62
Density	1310 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	250 °C
Min. melt temperature	240 °C
Max. melt temperature	260 °C
Screw tangential speed	0.1 - 0.3 m/s
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, Nucleated
Sustainability	Bio-Content

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.

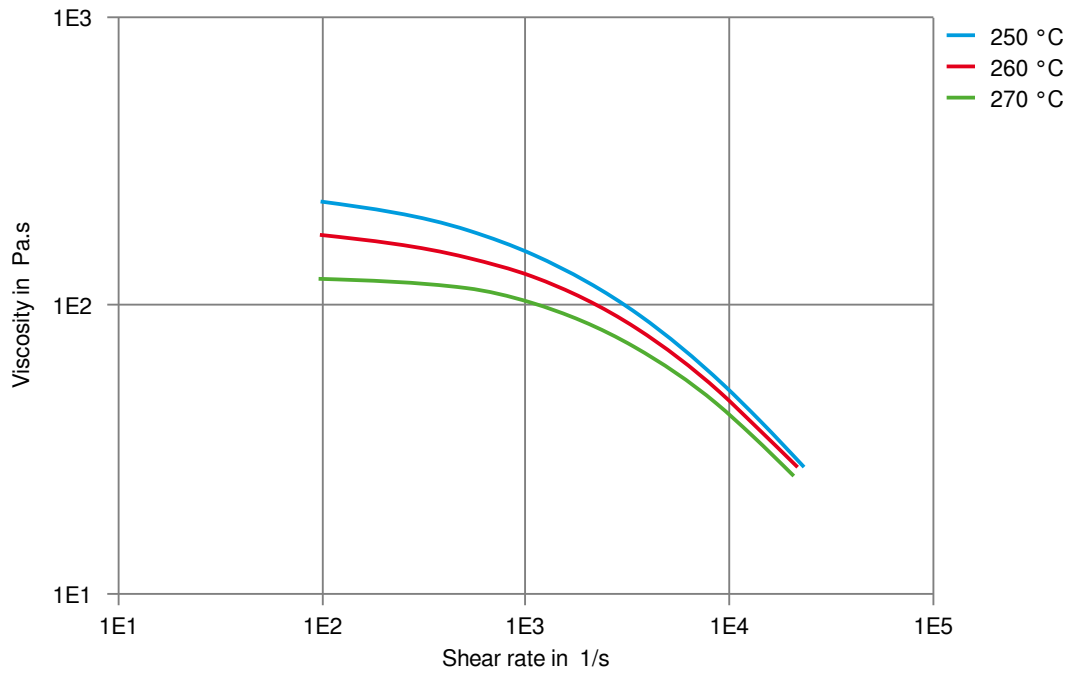
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Storage

For subsequent storage of the material in the dryer until processed (≤ 60 h) it is necessary to lower the temperature to 100°C .

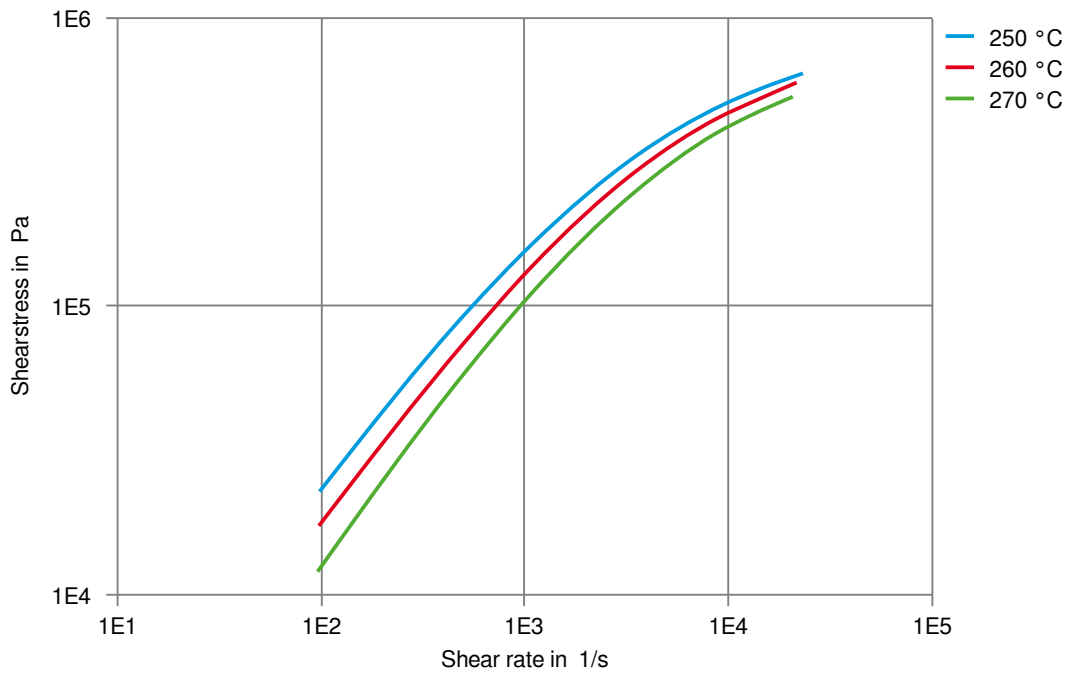
Viscosity-shear rate



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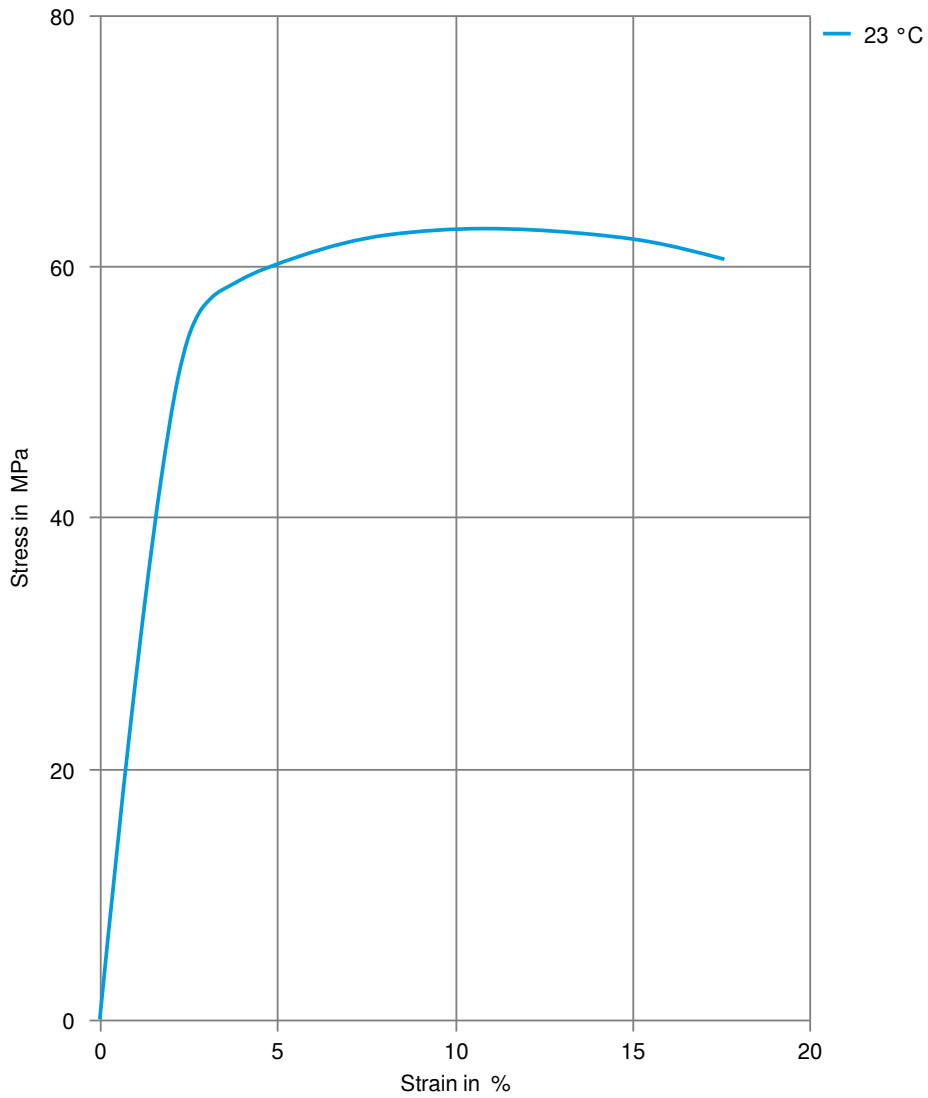
Shearstress-shear rate



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Stress-strain



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Secant modulus-strain

