CELANEX® 2409MT GF30 (PRELIMINARY)

CELANEX® PBT

Developmental grade. Preliminary datasheet.
Chemical abbreviation according to ISO 1043-1: PBT GF30. Celanex® 2409MT® GF30 is a special grade developed for medical industry applications and is filled with 30% glass fiber

Product information

Resin Identification	PBT-GF30		ISO 1043
Part Marking Code	>PBT-GF30<		ISO 11469

Rheological properties

Melt volume-flow rate	12	cm^3/10min	ISO 1133
Temperature	482	°F	
Load	4.76	lb	
Molding shrinkage, parallel	0.3	%	ISO 294-4, 2577
Molding shrinkage range, parallel	0.2 - 0.4	%	ISO 294-4, 2577
Molding shrinkage, normal	0.9	%	ISO 294-4, 2577
Molding shrinkage range, normal	0.8 - 1	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	1.45E6	psi	ISO 527-1/-2
Tensile stress at break, 5mm/min	22500	psi	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.5	%	ISO 527-1/-2
Flexural modulus	1.45E6	psi	ISO 178
Flexural strength	33400	psi	ISO 178
Charpy impact strength, 23°C	45.2	$ftlb/in^2$	ISO 179/1eU
Charpy impact strength, -30°C	35.7	$ftlb/in^2$	ISO 179/1eU
Charpy notched impact strength, 23°C	4.76	$ftlb/in^2$	ISO 179/1eA
Charpy notched impact strength, -30°C	4.76	$ftlb/in^2$	ISO 179/1eA
Ball indentation hardness, H 961/30	34100	psi	ISO 2039-1

Thermal properties

Melting temperature, 10°C/min	437	°F	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	414	°F	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	435	°F	ISO 75-1/-2
Temperature of deflection under load, 8 MPa	338	°F	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	419	°F	ISO 306
Coefficient of linear thermal expansion (CLTE), parallel	0.17	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	0.5	E-4/°F	ISO 11359-1/-2

Physical/Other properties

Humidity absorption, 2mm	0.15	%	Sim. to ISO 62
Water absorption, 2mm	0.4	%	Sim. to ISO 62
Density	0.0556	lb/in^3	ISO 1183

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Injection

Drying Recommended	yes	
Drying Temperature	266[1]	°F
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.01	%
Melt Temperature Optimum	482	°F
Min. melt temperature	464	°F
Max. melt temperature	500	°F
Max. screw tangential speed	0.1 - 0.3	m/s
Mold Temperature Optimum	176	°F
Min. mold temperature	140	°F
Max. mold temperature	266	°F
Ejection temperature	381	°F

[1]: Limits: from 120 °C to 140 °C

Characteristics

Processing	Injection Molding

Additional information

Injection molding

To minimize the volatile content in the final product, dry the resin to <0.02%, preferably ≤0.01% water content. In injection molding, use the lowest possible melt temperature (recommended 250 °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.

Preprocessing

To avoid hydrolytic degradation during processing, CELANEX resins have to be dried to a moisture level equal to or less than 0.02%. The drying should be done in a dry-air dryer (dew point < -30 °C) with a temperature of 120 to 140 °C and a drying time of 4 to min. 2 hours. In case of longer residence times in the dry-air dryer, the temperature should be reduced to below 80 °C.
The time between drying and processing should be kept as short as possible.
The processing machine feed hopper should be closed during the processing operation.

Processing Notes

Pre-Drying

To avoid hydrolytic degradation during processing, CELANEX PBT resins have to be dried to a moisture level to less than 0.02%, preferably equal or less than 0.01%. Drying should be done in a dehumidifying hopper dryer capable of

dewpoints <-40°C (-40°F) at 120°C - 140°C (284°F) for 4 +/- 2 hours.

Storage

For subsequent storage of the material in the dryer until processed (<= 60 h) it is necessary to lower the temperature below 80° C.

The above data are preliminary and are subject to change as additional data are developed on subsequent lots.
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