CELANEX® 2002SW1

CELANEX® PBT

Celanex 2002SW1 Natural is an unreinforced PTFE-modified PBT with improved friction, sliding, and wear properties.

Product information

Resin Identification	(PBT+PTFE)	ISO 1043
Part Marking Code	>(PBT+PTFE)<	ISO 11469

Rheological properties

Melt volume-flow rate	21	cm^3/10min	ISO 1133
Temperature	482	°F	
Load	4.76	lb	
Molding shrinkage, parallel	1.9	%	ISO 294-4, 2577
Molding shrinkage range, parallel	1.7 - 2.1	%	ISO 294-4, 2577
Molding shrinkage, normal	1.9	%	ISO 294-4, 2577
Molding shrinkage range, normal	1.7 - 2.1	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	377000	psi	ISO 527-1/-2
Tensile stress at yield, 50mm/min	8100	psi	ISO 527-1/-2
Tensile strain at yield, 50mm/min	7	%	ISO 527-1/-2
Nominal strain at break	19	%	ISO 527-1/-2
Charpy notched impact strength, 23°C	1.57	$ftlb/in^2$	ISO 179/1eA

Thermal properties

Melting temperature, 10°C/min	437	°F	ISO 11357-1/-3
Glass transition temperature, 10°C/min	140	°F	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	131	°F	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	374	°F	ISO 306

Electrical properties

Comparative tracking index	600		IEC 60112

Physical/Other properties

Humidity absorption, 2mm	0.2	%	Sim. to ISO 62
Density	0.0484	lb/in^3	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	248	°F
Drying Time, Dehumidified Dryer	4	h
Processing Moisture Content	≤0.02	%
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

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Max. mold temperature	266	°F
Ejection temperature	374	°F

Characteristics

Processing	Injection Molding
Special characteristics	Low wear / Low friction

Additional information

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 <-40°F (-40°C) at 250°F (120°C) for minimum 4 hours.

Processing

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.

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 0.02%. Drying should be done in a dehumidifying hopper dryer capable of dewpoints <-40°F (-40°C) at 250°F (120°C) for minimum 4 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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