CELANEX® HCT 241A EF3001 (PRELIMINARY)

CELANEX® PBT

Celanex HCT 241A is an unfilled, medium flow PBT grade for injection molding processing, it is ISO 10993 certified for medical applications.

Product information

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

Rheological properties

Melt volume-flow rate	20	cm^3/10min	ISO 1133
Temperature	482	°F	
Load	4.76	lb	
Molding shrinkage, parallel	1.6	%	ISO 294-4, 2577
Molding shrinkage range, parallel	1.4 - 1.9	%	ISO 294-4, 2577
Molding shrinkage, normal	1.6	%	ISO 294-4, 2577
Molding shrinkage range, normal	1.4 - 1.9	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	377000	psi	ISO 527-1/-2
Tensile stress at yield, 50mm/min	8700	psi	ISO 527-1/-2
Tensile strain at yield, 50mm/min	4	%	ISO 527-1/-2
Nominal strain at break	50	%	ISO 527-1/-2
Flexural modulus	363000	psi	ISO 178
Flexural strength	11600	psi	ISO 178
Charpy impact strength, 23°C	N	$ftlb/in^2$	ISO 179/1eU
Charpy impact strength, -30°C	90.4	$ftlb/in^2$	ISO 179/1eU
Charpy notched impact strength, 23°C	1.9	$ftlb/in^2$	ISO 179/1eA
Charpy notched impact strength, -30°C	1.9	$ftlb/in^2$	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
Temperature of deflection under load, 0.45 MPa	302	°F	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	374	°F	ISO 306
Coefficient of linear thermal expansion (CLTE), parallel	0.61	E-4/°F	ISO 11359-1/-2

Physical/Other properties

Humidity absorption, 2mm	0.2	%	Sim. to ISO 62
Water absorption, 2mm	0.45	%	Sim. to ISO 62
Density	0.0473	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

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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

Characteristics

Processing	Injection Molding
Additives	Release agent

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 <-30°F (-34°C) at 250°F (121°C) for 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

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