

CELANEX® 2401MT - PBT

Description

Celanex 2401MT is an unfilled, medium flow PBT grade for injection molding processing.

Celanex 2401MT 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

Physical properties

ISO	Value	Unit	Test Standard
Density	1310	kg/m ³	ISO 1183
Melt volume rate, MVR	20	cm ³ /10min	ISO 1133
MVR temperature	250	°C	ISO 1133
MVR load	2,16	kg	ISO 1133
Molding shrinkage, parallel	1,6 - 2,0	%	ISO 294-4, 2577
Molding shrinkage, normal	1,5 - 1,8	%	ISO 294-4, 2577

Mechanical properties

ISO	Value	Unit	Test Standard
Tensile modulus	2600	MPa	ISO 527-2/1A
Tensile stress at yield, 50mm/min	60	MPa	ISO 527-2/1A
Tensile strain at yield, 50mm/min	4	%	ISO 527-2/1A
Tensile nominal strain at break, 50mm/min	>50	%	ISO 527-2/1A
Tensile stress at 50% strain, 50mm/min	30	MPa	ISO 527-2/1A
Flexural modulus, 23°C	2500	MPa	ISO 178
Flexural strength, 23°C	80	MPa	ISO 178
Charpy impact strength, 23°C	N	kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	190	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	6	kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	6	kJ/m ²	ISO 179/1eA
Izod impact notched, 23°C	5	kJ/m ²	ISO 180/1A

Thermal properties

ISO	Value	Unit	Test Standard
Melting temperature, 10°C/min	225	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	60	°C	ISO 11357-1,-2,-3
DTUL at 1.8 MPa	55	°C	ISO 75-1, -2
DTUL at 0.45 MPa	150	°C	ISO 75-1, -2
Vicat softening temperature, 50°C/h 50N	190	°C	ISO 306
Coeff. of linear therm expansion, parallel	1,1	E-4/°C	ISO 11359-2
Limiting oxygen index (LOI)	20	%	ISO 4589-1/-2
Flammability at thickness h	HB	class	UL 94
thickness tested (h)	0,80	mm	UL 94

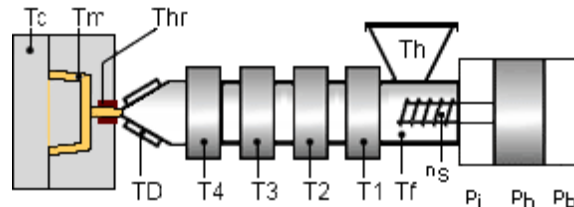
Electrical properties

ISO	Value	Unit	Test Standard
Relative permittivity, 100Hz	4	-	IEC 60250
Relative permittivity, 1MHz	3,5	-	IEC 60250
Dissipation factor, 100Hz	14	E-4	IEC 60250
Dissipation factor, 1MHz	220	E-4	IEC 60250
Volume resistivity	1E13	Ohm*m	IEC 60093
Surface resistivity	1E15	Ohm	IEC 60093
Electric strength	23	kV/mm	IEC 60243-1
Comparative tracking index	600	-	IEC 60112

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Test specimen production	Value	Unit	Test Standard
Processing conditions acc. ISO	7792-2	-	Internal
Injection Molding, melt temperature	243	°C	ISO 294
Injection Molding, mold temperature	82	°C	ISO 294
Injection Molding, injection velocity	300	mm/s	ISO 294
Injection Molding, pressure at hold	48	MPa	ISO 294

INJECTION MOLDING RECOMMENDATIONS



Typical injection moulding processing conditions

Pre Drying

	LowMaxRes	DryTime	DryTemp
max	0,02 %	4 h	130 °C
min			120 °C

Temperature

	HRTemp	CavTem p	MTemp	DieTemp	Z4Temp	Z3Temp	Z2Temp	Z1Temp	FeedTem p	Hopper p
max	260 °C	93 °C	260 °C	260 °C	260 °C	250 °C	250 °C	240 °C	240 °C	50 °C
min	250 °C	65 °C	235 °C	250 °C	240 °C	235 °C	235 °C	230 °C	230 °C	20 °C

Speed

	Value	Unit	Test Standard
Injection speed	medium-fast	-	-

Other text information

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.

Characteristics

Product Categories

Medical technology, Unfilled

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General Disclaimer

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