

**Product Texts**

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

Flammability at thickness h (0.8 HB mm)

Processing/Physical Characteristics	Value	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Melt volume-flow rate, MVR	20	cm <sup>3</sup> /10min	ISO 1133
Temperature	250	°C	-
Load	2.16	kg	-
<sup>[C]</sup> Molding shrinkage, parallel	1.8	%	ISO 294-4, 2577
<sup>[C]</sup> Molding shrinkage, normal	1.7	%	ISO 294-4, 2577

[C]: CAMPUS

Mechanical properties	Value	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Tensile Modulus	2600	MPa	ISO 527
<sup>[C]</sup> Yield stress	60	MPa	ISO 527
<sup>[C]</sup> Yield strain	4	%	ISO 527
<sup>[C]</sup> Nominal strain at break	>50	%	ISO 527
<sup>[C]</sup> Charpy impact strength, +23°C	N	kJ/m <sup>2</sup>	ISO 179/1eU
<sup>[C]</sup> Charpy impact strength, -30°C	190	kJ/m <sup>2</sup>	ISO 179/1eU
<sup>[C]</sup> Charpy notched impact strength, +23°C	6	kJ/m <sup>2</sup>	ISO 179/1eA
<sup>[C]</sup> Charpy notched impact strength, -30°C	6	kJ/m <sup>2</sup>	ISO 179/1eA

[C]: CAMPUS

Thermal properties	Value	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Melting temperature, 10°C/min	225	°C	ISO 11357-1/-3
<sup>[C]</sup> Glass transition temperature, 10°C/min	60	°C	ISO 11357-1/-2
<sup>[C]</sup> Temp. of deflection under load, 1.80 MPa	55	°C	ISO 75-1/-2
<sup>[C]</sup> Temp. of deflection under load, 0.45 MPa	150	°C	ISO 75-1/-2
<sup>[C]</sup> Vicat softening temperature, B	190	°C	ISO 306
<sup>[C]</sup> Coeff. of linear therm. expansion, parallel	110	E-6/K	ISO 11359-1/-2
<sup>[C]</sup> Burning Behav. at thickness h	HB	class	IEC 60695-11-10
Thickness tested	0.8	mm	-
<sup>[C]</sup> Oxygen index	20	%	ISO 4589-1/-2

[C]: CAMPUS

Electrical properties	Value	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Relative permittivity, 100Hz	4	-	IEC 62631-2-1
<sup>[C]</sup> Relative permittivity, 1MHz	3.5	-	IEC 62631-2-1
<sup>[C]</sup> Dissipation factor, 100Hz	14	E-4	IEC 62631-2-1
<sup>[C]</sup> Dissipation factor, 1MHz	220	E-4	IEC 62631-2-1
<sup>[C]</sup> Volume resistivity	1E13	Ohm*m	IEC 62631-3-1
<sup>[C]</sup> Surface resistivity	1E15	Ohm	IEC 62631-3-2
<sup>[C]</sup> Electric strength	23	kV/mm	IEC 60243-1

[C]: CAMPUS

Other properties	Value	Unit	Test Standard
<sup>[C]</sup> Water absorption	<b>0.45</b>	%	Sim. to ISO 62
<sup>[C]</sup> Humidity absorption	<b>0.2</b>	%	Sim. to ISO 62
<sup>[C]</sup> Density	<b>1310</b>	kg/m <sup>3</sup>	ISO 1183

[C]: CAMPUS

Processing Recommendation Injection Molding	Value	Unit	Test Standard
Pre-drying - Temperature	<b>121</b>	°C	-
Pre-drying - Time	<b>4</b>	h	-
Processing humidity	<b>≤0.02</b>	%	-
Melt temperature	<b>235 - 260</b>	°C	-
Mold temperature	<b>65 - 93</b>	°C	-

**Characteristics**

**Processing**

Injection Molding

**Delivery form**

Pellets

**Additives**

Lubricants, Release agent

**Special Characteristics**

Sterilizable, Ethylene Oxide (EtO) Sterilization, Steam sterilization, Gamma irradiation sterilization

**Certifications**

Food contact, Food approval BFR, Food approval FDA 21 CFR, Medical Grade, Biocompatibility ISO 10993, US Pharmacopeia Class VI Approved, Drug Master File, Device Master File

**Applications**

Medical

**Regional Availability**

North America, Europe, Asia Pacific, South and Central America, Near East/Africa

**Other text information**

**Injection molding**

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.

- 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.