

# Celanex® 2401 MT

Ticona - Polybutylene Terephthalate

Friday, August 01, 2008

## General Information

### Product Description

Celanex 2401 MT Natural is an unreinforced, high molecular weight PBT that complies with the requirements of 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). 2401 MT also complies with the corresponding EU and national registry regulatory requirements. 2401 MT has displayed excellent biocompatibility in tests corresponding to USP 23 class VI. Celanex 2401 MT contains no animal derived materials.

### General

Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America • South America
Features	• High Molecular Weight		
Agency Ratings	• DMF 10033 • DMF 10047	• FDA 21 CFR 177.1660 <sup>1</sup> • MAF 1078	• MAF 443
RoHS Compliance	• Contact Manufacturer		
Appearance	• Natural Color		
Forms	• Pellets		
Processing Method	• Injection Molding		

### ASTM and ISO Properties<sup>2</sup>

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	0.0473 lb/in <sup>3</sup>	1310 kg/m <sup>3</sup>	ISO 1183 <sup>3</sup>
Melt volume-flow rate (250°C/2.16 kg)	1.22 in <sup>3</sup> /10min	20.0 cm <sup>3</sup> /10min	ISO 1133 <sup>3</sup>
Molding Shrinkage (Flow)	1.8 to 2.0 %	1.8 to 2.0 %	ISO 2577 <sup>3</sup>
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus	377000 psi	2600 MPa	ISO 527-2/1
Tensile Stress (Yield)	8700 psi	60.0 MPa	ISO 527-2/50
Tensile Stress (50% Strain)	4350 psi	30.0 MPa	ISO 527-2/50
Tensile Strain (Yield)	4.0 %	4.0 %	ISO 527-2/50
Nominal Tensile Strain at Break	50 %	50 %	ISO 527-2/1A/50
Flexural Modulus (73 °F (23 °C))	363000 psi	2500 MPa	ISO 178
Flexural Strength (73 °F (23 °C))	11600 psi	80.0 MPa	ISO 178
Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Charpy notched impact strength 73 °F (23 °C)	2.86 ft-lb/in <sup>2</sup>	6.00 kJ/m <sup>2</sup>	ISO 179/1eA <sup>3</sup>
Charpy notched impact strength -22 °F (-30 °C)	2.86 ft-lb/in <sup>2</sup>	6.00 kJ/m <sup>2</sup>	ISO 179/1eA <sup>3</sup>
Charpy impact strength (73 °F (23 °C))	No Break	No Break	ISO 179/1eU <sup>3</sup>
Charpy impact strength (-22 °F (-30 °C))	90.4 ft-lb/in <sup>2</sup>	190 kJ/m <sup>2</sup>	ISO 179/1eU <sup>3</sup>
Notched Izod Impact Strength (73 °F (23 °C))	2.38 ft-lb/in <sup>2</sup>	5.00 kJ/m <sup>2</sup>	ISO 180/1A

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Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load 66 psi (0.45 MPa)	302 °F	150 °C	ISO 75-2 <sup>3</sup>
Deflection Temperature Under Load 264 psi (1.8 MPa)	131 °F	55.0 °C	ISO 75-2 <sup>3</sup>
Glass Transition Temperature 18 °F/min (10 °C/min)	140 °F	60 °C	ISO 11357-2 <sup>3</sup>
Vicat Softening Temperature 50°C/h, B (50N)	374 °F	190 °C	ISO 306 <sup>3</sup>
Melting Temperature (18 °F/min (10 °C/min))	437 °F	225 °C	ISO 11357-3 <sup>3</sup>
CLTE (Flow)	0.000061 in/in/°F	0.00011 cm/cm/°C	ISO 11359-2 <sup>3</sup>

Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Surface resistivity	1.0E+15 ohms	1.0E+15 ohms	IEC 60093 <sup>3</sup>
Volume resistivity	3.9E+14 ohm-in	1.0E+13 ohm·m	IEC 60093 <sup>3</sup>
Relative Permittivity (100 Hz)	4.00	4.00	IEC 60250 <sup>3</sup>
Relative Permittivity (1 MHz)	3.50	3.50	IEC 60250 <sup>3</sup>
Dissipation Factor (100 Hz)	0.0014	0.0014	IEC 60250 <sup>3</sup>
Dissipation Factor (1 MHz)	0.022	0.022	IEC 60250 <sup>3</sup>
Comparative tracking index	600	600	IEC 60112 <sup>3</sup>
Electric strength	580 V/mil	23 kV/mm	IEC 60243-1 <sup>3</sup>

Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Flame Rating - UL (0.0315 in (0.800 mm))	HB	HB	UL 94
Oxygen index	20 %	20 %	ISO 4589-2 <sup>3</sup>

### Additional Properties

Nominal Strain at Break, ISO 527, Type 1A, 50 mm/min: >50%

### Processing Information

Injection	Nominal Value (English)	Nominal Value (SI)
Suggested Max Regrind	25 %	25 %
Rear Temperature	450 to 470 °F	232 to 243 °C
Middle Temperature	460 to 480 °F	238 to 249 °C
Front Temperature	470 to 500 °F	243 to 260 °C
Nozzle Temperature	480 to 500 °F	249 to 260 °C
Processing (Melt) Temp	460 to 500 °F	238 to 260 °C
Mold Temperature	150 to 200 °F	65.6 to 93.3 °C
Injection Rate	Fast	Fast
Back Pressure	0.00 to 50.0 psi	0.00 to 0.345 MPa

### Injection Notes

Screw Speed: Medium

### Notes

<sup>1</sup> When used unmodified for the manufacture of food contact articles, Celanex® 2401 MT will comply with Food Additive Regulations FDA 21 CFR 177.1660 under the U.S. Food, Drug and Cosmetic Act. Such uses are subject to good manufacturing practices and any other limitations which are part of the statute or regulations. These should be consulted for complete details.

<sup>2</sup> Typical properties: these are not to be construed as specifications.

<sup>3</sup> Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.

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**US INFORMATION SERVICES**

Product Information  
phone: +1-800-833-4882  
phone: +1-859-372-3244

Customer Service  
phone: +1-859-372-3214  
phone: +1-800-526-4960

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