



Celanex® 1600USFDA

Celanese Corporation - Polybutylene Terephthalate

Monday, November 4, 2019

General Information

Product Description

Celanex 1600USFDA is a high molecular weight grade of unreinforced polybutylene terephthalate for use in injection molding and extrusion US FDA applications.

General

Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Features	• High Molecular Weight		
RoHS Compliance	• Contact Manufacturer		
Processing Method	• Extrusion	• Injection Molding	

ASTM & ISO Properties ¹

Physical	Nominal Value	Unit	Test Method
Density	1.31	g/cm ³	ISO 1183
Melt Mass-Flow Rate (MFR) (250°C/2.16 kg)	9.9	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (250°C/2.16 kg)	8.50	cm ³ /10min	ISO 1133
Molding Shrinkage			ISO 294-4
Across Flow	1.8 to 2.0	%	
Flow	1.8 to 2.0	%	
Water Absorption (Saturation, 73°F)	0.45	%	ISO 62
Water Absorption (Equilibrium, 73°F, 50% RH)	0.20	%	ISO 62

Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	370000	psi	ISO 527-2/1A
Tensile Stress (Yield)	8700	psi	ISO 527-2/1A/50
Tensile Stress (Break)	4790	psi	ISO 527-2/1A/50
Tensile Stress (50% Strain)	4060	psi	ISO 527-2/1A/50
Tensile Strain (Yield)	5.0	%	ISO 527-2/1A/50
Tensile Strain (Break)	120	%	ISO 527-2/1A/50
Nominal Tensile Strain at Break	> 50	%	ISO 527-2/1A/50
Flexural Modulus (73°F)	319000	psi	ISO 178
Flexural Stress (73°F)	11600	psi	ISO 178

Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			ISO 179/1eA
-22°F	3.1	ft-lb/in ²	
73°F	3.3	ft-lb/in ²	
Charpy Unnotched Impact Strength			ISO 179/1eU
-22°F	100	ft-lb/in ²	
73°F	No Break		
Notched Izod Impact Strength (73°F)	2.6	ft-lb/in ²	ISO 180/1A

Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (M-Scale)	72		ISO 2039-2
Shore Hardness (Shore D, 15 sec)	77		ISO 868

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Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature (66 psi, Unannealed)	302	°F	ISO 75-2/B
Heat Deflection Temperature (264 psi, Unannealed)	122	°F	ISO 75-2/A
Glass Transition Temperature ²	140	°F	ISO 11357-2
Vicat Softening Temperature	365	°F	ISO 306/B50
Melting Temperature ²	437	°F	ISO 11357-3
CLTE - Flow	6.1E-5	in/in/°F	ISO 11359-2
CLTE - Transverse	5.7E-5	in/in/°F	ISO 11359-2
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	> 1.0E+15	ohms	IEC 60093
Volume Resistivity	> 1.0E+15	ohms·cm	IEC 60093
Electric Strength	580	V/mil	IEC 60243-1
Relative Permittivity			IEC 60250
100 Hz	4.00		
1 MHz	3.50		
Dissipation Factor			IEC 60250
100 Hz	1.4E-3		
1 MHz	0.021		
Comparative Tracking Index	600	V	IEC 60112
Flammability	Nominal Value	Unit	Test Method
Flame Rating (0.030 in)	HB		UL 94
Oxygen Index	22	%	ISO 4589-2

Processing Information

Injection	Nominal Value	Unit
Drying Temperature	248 to 266	°F
Drying Time	4.0	hr
Suggested Max Moisture	0.020	%
Suggested Max Regrind	25	%
Hopper Temperature	68 to 122	°F
Rear Temperature	446 to 464	°F
Middle Temperature	455 to 482	°F
Front Temperature	455 to 482	°F
Nozzle Temperature	482 to 500	°F
Processing (Melt) Temp	455 to 500	°F
Mold Temperature	149 to 199	°F
Injection Rate	Moderate-Fast	
Back Pressure	< 50.8	psi

Injection Notes

Die Temperature: 250 to 260°C
Feed Temperature: 230 to 240°C
Zone 4 Temperature: 240 to 260°C

Notes

¹ Typical properties: these are not to be construed as specifications.

² 10°C/min