

Celanex® 1600A

Polybutylene Terephthalate

Celanese Corporation

Message:

Celanex 1600A is a high molecular weight grade of unreinforced polybutylene terephthalate used in both extrusion and injection molding applications.

General Information			
UL YellowCard	E45575-239356		
Features	High molecular weight		
RoHS Compliance	Contact manufacturer		
Processing Method	Extrusion		
	Injection molding		
Multi-Point Data	Isothermal Stress vs. Strain (ISO 11403-1)		
	Shear Modulus vs. Temperature (ISO 11403-1)		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.31	g/cm³	ASTM D792, ISO 1183
Melt Mass-Flow Rate (MFR)	6.5	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR) (250°C/2.16 kg)	8.50	cm³/10min	ISO 1133
Molding Shrinkage			
Flow	1.8 - 2.0	%	ASTM D955
Vertical flow direction	1.8 - 2.0	%	ISO 294-4
Flow direction	1.8 - 2.0	%	ISO 294-4
Water Absorption (Equilibrium, 23°C, 50% RH)	0.20	%	ISO 62
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (M-Scale)	72		ISO 2039-2
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	2550	MPa	ISO 527-2/1A/1
Tensile Strength			
Yield, 23°C	55.2	MPa	ASTM D638
Yield	60.0	MPa	ISO 527-2/1A/50
Fracture	33.0	MPa	ISO 527-2/1A/50
50% strain	28.0	MPa	ISO 527-2/1A/50
Tensile Strain			
Yield	5.0	%	ISO 527-2/1A/50
Fracture, 23°C	200	%	ASTM D638
Fracture	120	%	ISO 527-2/1A/50
Nominal Tensile Strain at Break	> 50	%	ISO 527-2/1A/50

Flexural Modulus (23°C)	2200	MPa	ISO 178
Flexural Stress (23°C)	80.0	MPa	ISO 178
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			ISO 179/1eA
-30°C	6.5	kJ/m ²	ISO 179/1eA
23°C	7.0	kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength			ISO 179/1eU
-30°C	210	kJ/m ²	ISO 179/1eU
23°C	No Break		ISO 179/1eU
Notched Izod Impact (23°C)	5.5	kJ/m ²	ISO 180/1A
Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature			
0.45 MPa, not annealed	150	°C	ISO 75-2/B
0.45 MPa, annealed	154	°C	ASTM D648
1.8 MPa, not annealed	54.4	°C	ASTM D648
1.8 MPa, not annealed	50.0	°C	ISO 75-2/A
Glass Transition Temperature ¹	60.0	°C	ISO 11357-2
Vicat Softening Temperature	185	°C	ISO 306/B50
Melting Temperature ²	225	°C	ISO 11357-3, ASTM D3418
Linear thermal expansion coefficient			ISO 11359-2
Flow	1.1E-4	cm/cm/°C	ISO 11359-2
Lateral	1.0E-4	cm/cm/°C	ISO 11359-2
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	> 1.0E+15	ohms	IEC 60093
Volume Resistivity			
--	1.0E+16	ohms·cm	ASTM D257
--	> 1.0E+15	ohms·cm	IEC 60093
Dielectric Strength			
-- ³	16	kV/mm	ASTM D149
--	23	kV/mm	IEC 60243-1
Dielectric Constant			
1 MHz	3.20		ASTM D150
100 Hz	4.00		IEC 60250
1 MHz	3.50		IEC 60250
Dissipation Factor			
1 kHz	1.0E-3		ASTM D150
1 MHz	1.0E-3		ASTM D150
100 Hz	1.4E-3		IEC 60250
1 MHz	0.021		IEC 60250
Comparative Tracking Index	600	V	IEC 60112
Flammability	Nominal Value	Unit	Test Method
Flame Rating (0.750 mm)	HB		UL 94

Oxygen Index	22	%	ISO 4589-2
Injection	Nominal Value	Unit	
Drying Temperature	120 - 130	°C	
Drying Time	4.0	hr	
Suggested Max Moisture	0.020	%	
Suggested Max Regrind	25	%	
Hopper Temperature	20.0 - 50.0	°C	
Rear Temperature	230 - 240	°C	
Middle Temperature	235 - 250	°C	
Front Temperature	235 - 250	°C	
Nozzle Temperature	250 - 260	°C	
Processing (Melt) Temp	235 - 260	°C	
Mold Temperature	65.0 - 93.0	°C	
Injection Rate	Moderate-Fast		
Back Pressure	0.00 - 0.345	MPa	

Injection instructions

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

NOTE

- 10°C/min
- 10°C/min
- Method A (short time)

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