Product Data Sheet

Eastar™ Copolyester DN001, Natural

Application/Uses

- Cosmetic jar caps
- Fragrance caps
- Frames
- Ophthalmics

Product Description

Eastar™ copolyesters are brilliantly clear polymers that have excellent impact strength, chemical resistance, dimensional stability, and low shrinkage rates. DN001 is a base material without mold release or ultra-violet inhibitors(UVI).

This product has been GREENGUARD INDOOR AIR QUALITY CERTIFIED®.
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Typical Properties

Property[a]	Test[b] Method	Typical Value, Units[c]
Specific Gravity	D 792	1.23
Water Absorption, 24 h immersion		
	D 570	0.13%
	ISO 62	0.13%
Mold Shrinkage Parallel to Flow, 3.2-mm (0.125-in.) thickness	D 955	0.002-0.005 mm/mm (0.002-0.005 in./in.)
Density	ISO 1183	1.23 g/cm^3
Mechanical Properties		
Tensile Stress @ Yield		
	D 638	45 MPa (6500 psi)
	ISO 527	46 MPa
Tensile Stress @ Break		
	D 638	52 MPa (7600 psi)

	ISO 527	47 MPa
Elongation @ Yield		
	D 638	5%
	ISO 527	4.4%
Elongation @ Break		
	D 638	330%
	ISO 527	230%
Tensile Modulus	D 638	1800 MPa (2.6 x 10^5 psi)
Flexural Modulus		
	D 790	1800 MPa (2.6 x 10^5 psi)
	ISO 178	1800 MPa
Flexural Yield Strength		
	D 790	66 MPa (9600 psi)
	ISO 178	63 MPa
Rockwell Hardness, R Scale	D 785	105
Izod Impact Strength, Notched		
@ 23°C (73°F)	D 256	NB
@ 23°C	ISO 180	125 kJ/m^2
@ -40°C (-40°F)	D 256	64 J/m (1.2 ft·lbf/in.)
@ -40°C	ISO 180	7.4 kJ/m^2
Impact Strength, Unnotched		
@ 23°C (73°F)	D 4812	NB
@ -40°C (-40°F)	D 4812	NB
Impact Resistance (Puncture), Energy @ Max. Load		
@ 23°C (73°F)	ISO 6603-2	14 J
@ -40°C (-40°F)	ISO 6603-2	16 J

Thermal Properties		
Deflection Temperature		
@ 0.455 MPa (66 psi)	D 648	74°C (165°F)
@ 1.82 MPa (264 psi)	D 648	64°C (147°F)
@ 0.45 MPa	ISO 75	74°C
@ 1.80 MPa	ISO 75	65°C
Vicat Softening Temperature		
@ 1 kg load	D 1525	88°C (190°F)
@ 1 kg load	ISO 306	88°C
@ 5 kg load	ISO 306	79°C
Thermal Conductivity		0.19 W/m·K (1.3 Btu·in./h·ft^2·°F)
Specific Heat		
@ 60°C (140°F)		1.34 kJ/kg·K (0.32 Btu/lb·°F)
@ 240°C (464°F)		2.05 kJ/kg·K (0.49 Btu/lb·°F)

UL Flammability Classification		
3.2 mm (0.125 in.) specimen	UL 94	94HB
1.6 mm (0.0625 in.) specimen	UL 94	94HB
Electrical Properties		
Dielectric Constant		
1 kHz	D 150	2.7
10 kHz	D 150	2.7
100 kHz	D 150	2.6
1 MHz	D 150	2.5
Dissipation Factor		
1 kHz	D 150	0.0056
10 kHz	D 150	0.0119
100 kHz	D 150	0.0163
1 MHz	D 150	0.0175
Arc Resistance	D 495	66 sec
Dielectric Strength	D 149	16.2 kV/mm (411 V/mil)
Surface Resistivity	D 257	9 x 10^{15} ohms/square
Volume Resistivity	D 257	5 x 10^{15} ohm·cm
Typical Processing Conditions		
Drying Temperature		71°C (160°F)
Drying Time		6 hrs
Processing Melt Temperature		250-270°C (480-520°F)
Mold Temperature		15-40°C (60-100°F)

[a] *Unless noted otherwise, all tests are run at 23°C (73°F) and 50% relative humidity.*

[b] *Unless noted otherwise, the test method is ASTM.*

[c] *Units are in SI or US customary units.*

General

All ISO tests are run @ 4-mm thickness with the exception of Impact Resistance, which is run @ 2-mm thickness.

Comments

Properties reported here are typical of average lots. Eastman makes no representation that the material in any particular shipment will conform to the values given.

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