

Product Data Sheet

DuraStar™ Polymer DS2010, Natural

Application/Uses

- Appliances
- Floor care
- Refrigerator interior components
- Toys/Sporting goods
- Washing machine components
- Writing instruments

Key Attributes

- Excellent clarity
- Excellent flow
- Fast drying times
- Good chemical resistance
- Outstanding impact resistance
- Quick cycle times

Product Description

Durastar™ DS2010 polymer contains a mold release. It has excellent appearance and is nearly water-clear. Its most outstanding features are toughness, chemical resistance, and excellent processing characteristics. DS2010 has very good toughness as shown by Izod impact resistance. Exposure to aromatic oils often causes crazing or actual fracture of many polymer resins, but DS2010 maintains its physical properties when exposed to these oils, and its appearance is virtually unchanged. Easy to process, it flows readily and fills intricate molds. Under existing United States Food and Drug Administration (FDA) regulations, Durastar™ DS2010 may be used in food contact articles which comply with the specifications and conditions of use in 21 CFR 177.1240. This product is certified to ANSI/NSF Standard 51.

Typical Properties

Property ^a	Test ^b Method	Typical Value, Units ^c
General Properties		
Specific Gravity	D 792	1.2
Density	ISO 1183	1.19 g/cm ³
Mold Shrinkage Parallel to Flow, 3.2-mm (0.125-in.) thickness	D 955	0.002-0.006 mm/mm (0.002-0.006 in./in.)
Mechanical Properties		
Tensile Stress @ Yield	D 638	46 MPa (6700 psi)
Tensile Stress @ Break	D 638	53 MPa (7700 psi)
Elongation @ Yield	D 638	5%
Elongation @ Break	D 638	310%
Flexural Modulus	D 790	1900 MPa (2.75 x 10 ⁵ psi)
Flexural Yield Strength	D 790	67 MPa (9700 psi)
Rockwell Hardness, R Scale	D 785	105

Izod Impact Strength, Notched		
@ 23°C (73°F)	D 256	370 J/m (7 ft·lbf/in.)
@ -40°C (-40°F)	D 256	60 J/m (1.1 ft·lbf/in.)
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)	D 3763	45 J (33 ft·lbf)
@ -40°C (-40°F)	D 3763	48 J (35 ft·lbf)

Mechanical Properties (ISO Method)

Tensile Stress @ Yield	ISO 527	47 MPa
Tensile Stress @ Break	ISO 527	49 MPa
Elongation @ Yield	ISO 527	4%
Elongation @ Break	ISO 527	210%
Flexural Modulus	ISO 178	1750 MPa
Flexural Strength	ISO 178	64 MPa

Izod Impact Strength, Notched		
@ 23°C	ISO 180	29.6 kJ/m ²
@ -40°C	ISO 180	6.3 kJ/m ²

Impact Resistance (Puncture), Energy @ Max. Load		
@ 23°C	ISO 6603-2	71 J
@ -40°C	ISO 6603-2	55 J

Electrical Properties

Arc Resistance	D 495	123 sec
Dielectric Constant		
1 kHz	D 150	2.6
10 kHz	D 150	2.6
100 kHz	D 150	2.5
1 MHz	D 150	2.5
Dissipation Factor		
1 kHz	D 150	0.006
10 kHz	D 150	0.012
100 kHz	D 150	0.015
1 MHz	D 150	0.015
Dielectric Strength, Short Time, 500 V/sec rate-of-rise	D 149	16.6 kV/mm (422 V/mil)
Surface Resistivity	D 257	10 ¹⁷ ohms/square
Volume Resistivity	D 257	10 ¹⁷ ohm·cm
Comparative Tracking Index	D 3638	700 V

Thermal Properties

Deflection Temperature		
@ 0.455 MPa (66 psi)	D 648	73°C (164°F)
@ 1.82 MPa (264 psi)	D 648	65°C (149°F)
UL Flammability Classification	UL 94	94V-2
specimen	^d 3.0 mm	

Thermal Properties (ISO Method)

Deflection Temperature		
@ 0.455 MPa (66 psi)	ISO 75	73°C
@ 1.82 MPa (264 psi)	ISO 75	66°C

Optical Properties

Haze	D 1003	0.3%
Regular Transmittance	D 1003	89%
Total Transmittance	D 1003	91%

Typical Processing Conditions

Drying Temperature	70°C (160°F)
Drying Time	3 hrs
Processing Melt Temperature	250-290°C (480-550°F)
Mold Temperature	15-30°C (60-80°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.

^d For color AT

Comments

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

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