

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 ^d 3.0 mm specimen | UL 94 | 94V-2 |

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.

Eastman and its marketing affiliates shall not be responsible for the use of this information, or of any product, method, or apparatus mentioned, and you must make your own determination of its suitability and completeness for your own use, for the protection of the environment, and for the health and safety of your employees and purchasers of your products. No warranty is made of the merchantability or fitness of any product, and nothing herein waives any of the Seller's conditions of sale.