

Product Data Sheet

Estar™ Copolyester EN059, Natural

Application/Uses

- Cosmetics/personal care packaging
- Deodorant packaging
- Fragrance packaging
- Oral hygiene
- Plastics for hygiene feminine products
- Toothbrushes
- Toys/Sporting goods
- Writing instruments

Product Description

Tailored to meet the needs of injection-molding market, Estar™ Copolyesters are clear materials with good mechanical properties and chemical resistance to a variety of substances.

This product has been GREENGUARD INDOOR AIR QUALITY CERTIFIED®.

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The GREENGUARD Certification Program is an industry independent, third-party testing program for low-emitting products and materials for indoor environments. For more information about GEI and to obtain printable certificates for Eastman™ Copolyesters, visit

www.greenguard.org. Choose Eastman Chemical Company under the Manufacturer category and click search to display a list of our products.

Typical Properties

Property ^a	Test ^b Method	Typical Value, Units ^c
General Properties		
Specific Gravity	D 792	1.33
Mold Shrinkage	D 955	0.002 mm/mm (0.002 in./in.)
Water Absorption, 24 h immersion	D 570	0.19%
Mechanical Properties		
Tensile Stress @ Yield	D 638	58 MPa (8400 psi)
Tensile Stress @ Break	D 638	24 MPa (3500 psi)
Elongation @ Yield	D 638	4%
Elongation @ Break	D 638	90%
Flexural Yield Strength	D 790	78 MPa (11300 psi)

Flexural Modulus	D 790	2400 MPa (3.5 x 10 ⁵ psi)
Rockwell Hardness, R Scale	D 785	111
Izod Impact Strength, Notched		
@ 23°C (73°F)	D 256	56 J/m (1.0 ft·lbf/in.)
@ -40°C (-40°F)	D 256	33 J/m (0.6 ft·lbf/in.)
Impact Strength, Unnotched		
@ 23°C (73°F)	D 4812	NB
@ -40°C (-40°F)	D 4812	2446 J/m (46 ft·lbf/in.)
Impact Resistance (Puncture), Energy @ Max. Load		
@ 23°C (73°F)	D 3763	32 J (24 ft·lbf)
@ -40°C (-40°F)	D 3763	38 J (28 ft·lbf)

Thermal Properties

Deflection Temperature		
@ 0.455 MPa (66 psi)	D 648	69°C (156°F)
@ 1.82 MPa (264 psi)	D 648	63°C (145°F)
Vicat Softening Temperature @ 1 kg load	D 1525	80°C (176°F)

Optical Properties

Haze	D 1003	<1%
Total Transmittance	D 1003	82%

Typical Processing Conditions

Drying Temperature	160°C (320°F)
Drying Time	4-6 hrs
Processing Melt Temperature	277-293°C (530-560°F)
Mold Temperature	16-32°C (60-90°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.

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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