

Product Data Sheet

Eastman Tritan™ Copolyester FX100

Application/Uses

- Consumer and durable goods
- Graphic Arts
- Leisure and safety
- Specialty films

Key Attributes

- Does not contain Bisphenol-A (BPA)
- Does not contain plasticizers
- Excellent clarity
- Good heat resistance
- No pre-drying of film prior to thermoforming
- Outstanding chemical resistance
- Tremendous toughness
- Wide thermoforming window

Product Description

Eastman Tritan™ FX100 is an amorphous copolyester that combines excellent clarity and toughness with outstanding heat and chemical resistance. Films manufactured from this new-generation copolyester can be thermoformed without pre-drying and with a wide processing window that allows for product designs that reflect intricate detail. Eastman Tritan™ FX100 copolyester may be used in repeated use food contact articles under United States Food and Drug Administration (FDA) regulations. Eastman Tritan™ FX100 copolyester is certified to NSF/ANSI Standard 51 for Food Equipment Materials.

Typical Properties

Property ^a	Test ^b Method	Typical Value, Units ^c
General Properties		
Thickness of Film Tested	D 374	0.254 mm (0.010 in.)
Density	ASTM D 1505	1.19 g/cm ³
Water Vapor Transmission Rate ^d		
@ 23°C (73°F)	ASTM F 1249	4 g/m ² ·24h (0.2 g/100in. ² ·24h)
@ 38°C (100°F)		11 g/m ² ·24h (1 g/100in. ² ·24h)
Gas Permeability, CO ₂	ASTM D 1434	149 cm ³ ·mm/m ² ·24h·atm (379 cm ³ ·mil/100in. ² ·24h·atm)
Gas Permeability, O ₂	ASTM D 3985	32 cm ³ ·mm/m ² ·24h·atm (82 cm ³ ·mil/100in. ² ·24h·atm)

Elmendorf Tear Resistance

M.D.	ASTM D 1922	5.1 N (524 gf)
T.D.		5.6 N (575 gf)
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PPT Tear Resistance		
M.D.	ASTM D 2582	42 N (10 lbf)
T.D.		56 N (13 lbf)
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Tear Propagation Resistance, Split Tear Method ^e		
M.D.	ASTM D 1938	4 N (0.8 lbf)
M.D.		13 N/mm (75 lbf/in.)
T.D.		3 N (0.7 lbf)
T.D.		12 N/mm (66 lbf/in.)
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Tear Resistance, Trouser @ 200 mm/min		
M.D.	ISO 6383-1	11 N/mm (63 lbf/in.)
T.D.		11 N/mm (63 lbf/in.)
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Tensile Strength @ Yield		
M.D.	ASTM D 882	41 MPa (5900 psi)
T.D.		40 MPa (5800 psi)
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Tensile Strength @ Break		
M.D.	ASTM D 882	59 MPa (8500 psi)
T.D.		52 MPa (7600 psi)
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Elongation @ Yield		
M.D.	ASTM D 882	7%
T.D.		7%
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Elongation @ Break		
M.D.	ASTM D 882	179%
T.D.		203%
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Tensile Modulus		
M.D.	ASTM D 882	1500 MPa (2.1 x 10 ⁵ psi)
T.D.		1400 MPa (2.0 x 10 ⁵ psi)
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Dart Impact ^f		
@ 23°C (73°F)	ASTM 1709A	882 g (1.94 lb)
@ -30°C (-22°F)		913 g (2.01 lb)
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Puncture Resistance (Dynatup); Total Energy		
	ASTM D 3763	4.6 J (3.4 ft-lb)
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Water Absorption, 24 hours		
	ASTM D 570	0.5%
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Surface Energy		
Polar	ASTM D 5946	8 dynes/cm
Dispersive		39 dynes/cm
Total		46 dynes/cm
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Taber Abrasion (average at 25 cycles)		
	ASTM 1044	23% haze
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Thermal Properties		
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Glass Transition Temperature (T _g)		
	DSC	110°C (229°F)
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Specific Heat

@ 60°C (140°F)	DSC	1.7 J/g-°C (0.41 Btu/lb·°F)
@ 100°C (212°F)		1.9 J/g-°C (0.45 Btu/lb·°F)
@ 150°C (302°F)		2.2 J/g-°C (0.54 Btu/lb·°F)
@ 200°C (392°F)		2.4 J/g-°C (0.58 Btu/lb·°F)
@ 250°C (482°F)		2.6 J/g-°C (0.62 Btu/lb·°F)

Coefficient of Linear Thermal Expansion	ASTM D 696	9 (x10 ⁻⁵ /°C) (5 (x10 ⁻⁵ /°F))
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Optical Properties

Refractive Index	ASTM D 542	1.55
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Yellowness Index	ASTM D 1925	0.5
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UV % Transmission at 380 nm	UV/Vis Spectro	89%
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Haze	ASTM D 1003	0.7%
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Gloss @ 60°	ASTM D 2457	161
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Light Transmission (Total Transmittance)	ASTM D 1003	92%
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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 (a) Test conducted at 23°C (73.4°F) and 100% relative humidity. (b) Test conducted at 38°C (100.4°F) and 100% relative humidity.

e @ 254 mm/min (10 in./min)

f 12.7 mm (1/2 in.) dia. head, 127 mm (5 in.) dia. clamp, 660 mm (26 in.) drop

Comments

Properties reported here are based on limited testing. Eastman makes no representation that the material in any particular shipment will conform exactly to the values given.

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