Product Data Sheet

Eastman Tritan™ Copolyester MP100

Application/Uses

- Device Packaging
- Extruded medical films and sheeting
- Medical articles from sheet
- Rigid Medical Packaging
- Sterile medical packaging

Key Attributes

- Best-in-class toughness
- Does not contain Bisphenol-A (BPA)
- Does not contain plasticizers
- Enduring sustainability
- Excellent heat resistance
- Outstanding chemical resistance
- Reliable, predictable processing for extrusion, thermoforming, heat and radio frequency sealing
- Suitable for most forms of sterilization
- Superb, long-term clarity

Product Description

Eastman Tritan™ MP100 is an amorphous copolyester that combines excellent clarity and toughness with outstanding heat and chemical resistance. Film and sheet manufactured from this new-generation copolyester can be thermoformed with a wide processing window that allows for product designs that reflect intricate detail. Eastman Tritan™ MP100 copolyester is suitable for use with most forms of sterilization including radiation and ethylene oxide. It is NOT suitable for autoclave/steam sterilization. Eastman Tritan™ MP100 copolyester has been formulated for use in medical film, sheet, and packaging applications.

Typical Properties

Property[a]	Test[b] Method	Typical Value, Units[c]
Thickness of Film Tested	ASTM D 374	.25 mm (.01 in.)
Density	ASTM D 1505	1.19 g/cm^3
Permeability		
Water Vapor Transmission Rate [d]		
@ 23°C (73°F)	ASTM F 1249	4 g/m^2·24h (.2 g/100$in.^2$·24h)
@ 38°C (100°F)	ASTM F 1249	11 g/m^2·24h (.7 g/100$in.^2$·24h)
Gas Permeability, CO_2	ASTM D 1434	149 cm^3·mm/m^2·24h·atm (379 cm^3/100$in.^2$·24h·atm)
Gas Permeability, O_2	ASTM D 3985	32 cm^3·mm/m^2·24h·atm (82 cm^3·mil/100$in.^2$·24h·atm)

Mechanical & Physical Properties		
Elmendorf Tear Resistance		
M.D.	ASTM 1922	5 N (524 gf)
T.D.	ASTM 1922	6 N (575 gf)
PPT Tear Resistance		
M.D.	ASTM 2582	42 N (10 lbf)
T.D.	ASTM 2582	56 N (13 lbf)
Tear Propagation Resistance, Split Tear Method		
M.D.	ASTM 1938	4 N (.8 lbf)
M.D.	ASTM 1938	13 N/mm (74.8 lbf/in.)
T.D.	ASTM 1938	3 N (.7 lbf)
T.D.	ASTM 1938	12 N/mm (65.6 lbf/in.)
Tear Resistance, Trouser @ 200 mm/min		
M.D.	ISO 6383-1	11 N/mm (63 lbf/in.)
T.D.	ISO 6383-1	11 N/mm (63 lbf/in.)
Tensile Strength @ Yield		
M.D.	ASTM D 882	41 MPa (5908 psi)
T.D.	ASTM D 882	40 MPa (5782 psi)
Tensile Strength @ Break		
M.D.	ASTM D 882	59 MPa (8548 psi)
T.D.	ASTM D 882	52 MPa (7581 psi)
Elongation @ Yield		
M.D.	ASTM D 882	7%
T.D.	ASTM D 882	7%
Elongation @ Break		
M.D.	ASTM D 882	179%
T.D.	ASTM D 882	203%
Tensile Modulus		
M.D.	ASTM D 882	1462 MPa (2 x 10^5 psi)
T.D.	ASTM D 882	1383 MPa (2 x 10^5 psi)
Dart Impact [e]		
@ 23°C (73°F)	ASTM 1709A	882 g (2 lb)
@ -18°C (0°F)	ASTM 1709A	867 g (2 lb)
@ -30°C (-22°F)	ASTM 1709A	913 g (2 lb)
Puncture Resistance (Dynatup); Total Energy	ASTM D 3763	4.6 J (3 ft·lbf)
Water Absorption, 24 hours	ASTM D 570	.5%
Surface Energy (Polar)	ASTM D 5946	45 dynes/cm
Taber Abrasion (average at 25 cycles)	ASTM 1044	23% haze

Thermal Properties		
Glass Transition Temperature (T_g)	DSC	110°C (229°F)

Specific Heat		
@ 60°C (140°F)	DSC	1.71 J/g-°C (.41 Btu/lb·°F)
@ 100°C (212°F)		1.89 J/g-°C (.45 Btu/lb·°F)
@ 150°C (302°F)		2.25 J/g-°C (.54 Btu/lb·°F)
@ 200°C (392°F)		2.40 J/g-°C (.58 Btu/lb·°F)
@ 250°C (482°F)		2.57 J/g-°C (.62 Btu/lb·°F)
Coefficient of Linear Thermal Expansion	ASTM D 696	8.8 (x10-5/°C) (4.9 (x10-5/°F))
Brittleness Temperature	ASTM D 1790	<-60°C (<-76°F)

Optical Properties		
Haze	ASTM D 1003	1%
Gloss @ 60°	ASTM D 2457	161
Light Transmission Total	ASTM D 1003	92%
Refractive Index	ASTM D 542	1.545
UV % Transmission at 380 nm	UV/Vis Spectro	89%

[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] *Test conducted at 23°C (73.4°F) and 100% relative humidity. Test conducted at 38°C (100.4°F) and 100% relative humidity.*

[e] *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.

Applications

- Extruded medical films & sheeting - Sterile medical packaging - Medical articles from sheet

Key Attributes

- Excellent heat resistance - Best-in-class toughness - Superb, long-term clarity - Reliable, predictable processing for extrusion, thermoforming, heat & radio frequency sealing - Enduring sustainability - Outstanding chemical resistance - Suitable for most forms of sterilization - Does not contain Bisphenol-A (BPA) - Does not contain plasticizers

Product Description

Eastman Tritan MP100 is an amorphous copolyester that combines excellent clarity and toughness with outstanding heat and chemical resistance. Film and sheet manufactured from this new-generation copolyester can be thermoformed with a wide processing window that allows for product designs that reflect intricate detail. Eastman Tritan MP100 copolyester is suitable for use with most forms of sterilization including radiation and ethylene oxide. It is NOT suitable for autoclave/steam sterilization. Eastman Tritan MP100 copolyester has been formulated for use in medical film, sheet, and packaging applications.

Eastman Medical Disclaimer

It is the responsibility of the medical device manufacturer ("Manufacturer") to determine the suitability of all component parts and raw materials, including any Eastman product, used in its final product in order to ensure safety and compliance with requirements of the United States Food and Drug Administration (FDA) or other international regulatory agencies.

Eastman Chemical Company products have not been designed for nor are they promoted for end uses that would be categorized by either the United States FDA or by the International Standards Organization (ISO) as implant devices. Eastman products are not intended for use in the following applications: (1) in any bodily implant applications for greater than 30 days, based on FDA-Modified ISO-10993, Part 1 "Biological Evaluation of Medical Devices" tests (including any cosmetic, reconstructive or reproductive implant applications); (2) in any cardiac prosthetic device application, regardless of the length of time involved, including, without limitation, pacemaker leads and devices, artificial hearts, heart valves, intra-aortic balloons and control systems, and ventricular bypass assisted devices, or (3) as any critical component in any medical device that supports or sustains human life. Eastman Chemical Company products offered for the medical market have met selected FDA-Modified ISO-10993, Part 1 "Biological Evaluation of Medical Devices" tests with human tissue contact time of 30 days or less. The tests include: cytotoxicity, sensitization, irritation or intracutaneous reactivity, systemic toxicity (acute), subchronic toxicity (sub-acute), implantation, hemocompatibility. The Manufacturer is responsible for the biological evaluation of the finished medical device. The suitability of an Eastman Product in a given end-use environment is dependent upon various conditions including, without limitation, chemical compatibility, temperature, part design, sterilization method, residual stresses, and external loads. It is the responsibility of the Manufacturer to evaluate its final product under actual end-use requirements and to adequately advise and warn purchasers and users thereof.
