EASTMAN

Technical Data Sheet

Eastman Tritan™ Copolyester MX731

Applications

- Blood contact and dialysis
- Blood tubes
- Fluid administration
- Medical devices
- Medical equipment
- Medical labware

Key Attributes

- Excellent clarity
- Excellent hydrolytic stability
- Fast cycle times
- Fast drying times
- Good chemical resistance
- Good color stability upon ETO sterilization
- Good color stability upon gamma sterilization
- Good heat resistance
- Good melt flowability
- Good toughness
- Improved processability over traditional copolyesters

Product Description

Eastman Tritan™ Copolyester MX731 is an amorphous product with excellent appearance and clarity. Eastman Tritan™ Copolyester MX731 is a high flow medical grade of Eastman Tritan™ that has viscosity reductions of 40-50% relative to Eastman Tritan™ Copolyester MX711. Eastman Tritan™ Copolyester MX731 contains a mold release derived from vegetable based sources. Eastman Tritan™ Copolyester MX731 has many outstanding features that include excellent toughness, hydrolytic stability, heat resistance, chemical resistance, and melt flowability. Eastman Tritan™ Copolyester MX731 has been formulated for medical devices. Eastman Tritan™ Copolyester MX731 has been tested for FDA/ISO 10993 and USP Class VI Biological Evaluation testing after Gamma and ETO sterilization.

Typical Properties

Property[a]	Test Method[b]	Typical Value, Units[c]
General Properties		
Specific Gravity	D 792	1.18
Mold Shrinkage	D 955	0.005-0.007 mm/mm (0.005-0.007 in./in.)
Mechanical Properties (ISO Method)		
Tensile Strength @ Yield	ISO 527	44 MPa
Tensile Strength @ Break	ISO 527	49 MPa
Elongation @ Yield	ISO 527	7 %
Elongation @ Break	ISO 527	154 %
Tensile Modulus	ISO 527	1604 MPa
Flexural Modulus	ISO 178	1502 MPa
Flexural Strength	ISO 178	60 MPa
Izod Impact Strength, Notched		
@ 23°C	ISO 180	83 kJ/m^2
@ -40°C	ISO 180	11 kJ/m^2
Mechanical Properties		
Tensile Stress @ Yield	D 638	43 MPa (6200 psi)
Tensile Stress @ Break	D 638	52 MPa (7500 psi)
Elongation @ Yield	D 638	7 %
Elongation @ Break	D 638	210 %
Tensile Modulus	D 638	1575 MPa (2.28 x 10^5 psi)
Flexural Modulus	D 790	1575 MPa (2.28 x 10^5 psi)
Flexural Yield Strength	D 790	64 MPa (9300 psi)
Rockwell Hardness, R Scale	D 785	111
Izod Impact Strength, Notched		
@ 23°C (73°F)	D 256	860 J/m (16.1 ft·lbf/in.)
Impact Strength, Unnotched		
@ 23°C (73°F)	D 4812	NB
Optical Properties		
Total Transmittance	D 1003	91 %
Haze	D 1003	<1 %
Thermal Properties		
Deflection Temperature		
@ 0.455 MPa (66 psi)	D 648	94 °C (201 °F)
@ 1.82 MPa (264 psi)	D 648	81 °C (178 °F)
Typical Processing Conditions		
Drying Temperature		88 °C (190 °F)
Drying Time		4-6 hrs
Processing Melt Temperature		260-282 °C (500-540 °F)
Mold Temperature		38-66 °C (100-150 °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.*

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 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. For manufacturers of medical devices, biological evaluation of medical devices is performed to determine the potential toxicity resulting from contact of the component materials of the device with the body. Tests are defined in FDA-Modified ISO-10993, Part 1 ''''Biological Evaluation of Medical Devices''''. Limited testing information for certain Eastman products is available upon request. The Manufacturer of the medical device 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.

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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