

# Technical Data Sheet

## Eastman Tritan™ Copolyester TX1800

### Applications

- Appliances (food contact)
- Automotive parts & accessories
- Blow molding
- Building materials
- Consumer housewares - food contact (FC)
- Consumer housewares-NFC
- Equipment & machinery
- Fruit juice drinks packaging
- Home, garden & automotive packaging
- Lighting
- Milk packaging
- Packaging components non food contact
- Point-of-purchase
- Profiles
- Small appliances non-food contact
- Sporting equipment
- Water/sport bottles

### Key Attributes

- Ease of processing
- Excellent clarity
- Excellent hydrolytic stability
- Good chemical resistance
- Good heat resistance
- Outstanding impact resistance

### Product Description

Eastman Tritan™ TX 1800 copolyester is an amorphous copolyester specifically developed for use in blow molding and profile extrusion applications. Its most outstanding features are excellent toughness, hydrolytic stability, heat resistance, and chemical resistance. In addition, this new generation copolyester offers excellent appearance and clarity. Eastman Tritan™ TX1800 copolyester may be used in repeated use food contact articles under United States Food and Drug Administration (FDA) regulations.

This product is certified to NSF/ANSI Standard 51 for Food Equipment Materials.

This product has received a Platinum level Material Health Certificate from the Cradle to Cradle Products Innovation Institute. A Material Health Certificate is awarded to products that meet the Material Health requirements of the multi-attribute *Cradle to Cradle Certified*™ Product Standard. The Cradle to Cradle Products Innovation Institute is a nonprofit organization that administers the publicly available *Cradle to Cradle Certified*™ Product Standard, which provides designers and manufacturers with criteria and requirements for continually improving product materials and manufacturing processes. The Material Health Certificate provides manufacturers with a trusted way to communicate their efforts to identify and replace chemicals of concern in their products. For more information about Cradle to Cradle certification and to obtain printable certificates for Eastman copolyesters, visit [www.c2ccertified.org](http://www.c2ccertified.org). Search for Eastman Chemical Company in the Material Health Certificate Registry.

### Typical Properties

Property <sup>a</sup>	Test Method <sup>b</sup>	Typical Value, Units <sup>c</sup>
<b>General Properties</b>		
Specific Gravity	D 792	1.18
Mold Shrinkage	D 955	0.006 mm/mm (0.006 in./in.)
<b>Mechanical Properties (ISO Method)</b>		
Tensile Strength @ Yield	ISO 527	45 MPa
Tensile Stress @ Break	ISO 527	51 MPa
Elongation @ Yield	ISO 527	7 %
Elongation @ Break	ISO 527	142 %
Tensile Modulus	ISO 527	1569 MPa
Flexural Modulus	ISO 178	1494 MPa
Flexural Strength	ISO 178	60 MPa
Izod Impact Strength, Notched		
@ 23°C	ISO 180	78 kJ/m <sup>2</sup>
@ -40°C	ISO 180	12 kJ/m <sup>2</sup>
<b>Mechanical Properties</b>		
Tensile Stress @ Yield	D 638	45 MPa (6500 psi)
Tensile Stress @ Break	D 638	52 MPa (7600 psi)
Elongation @ Yield	D 638	7 %
Elongation @ Break	D 638	139 %
Tensile Modulus	D 638	1609 MPa (2.3x10 <sup>5</sup> psi)
Flexural Modulus	D 790	1522 MPa (2.2x10 <sup>5</sup> psi)
Flexural Yield Strength	D 790	64 MPa (9300 psi)
Rockwell Hardness, R Scale	D 785	110
Izod Impact Strength, Notched		
@ 23°C (73°F)	D 256	842 J/m (15.8 ft·lbf/in.)
Impact Strength, Unnotched		
@ 23°C (73°F)	D 4812	NB
Impact Resistance (Puncture), Energy @ Max. Load		
@ 0°C (32°F)	D 3763	65 J (48 ft·lbf)
@ 23°C (73°F)	D 3763	62 J (46 ft·lbf)
@ -40°C (-40°F)	D 3763	67 J (49 ft·lbf)
<b>Optical Properties</b>		
Total Transmittance	D 1003	91 %
Haze	D 1003	<1 %
<b>Thermal Properties</b>		
Deflection Temperature		

@ 0.455 MPa (66 psi)	D 648	101°C-214°F
@ 1.82 MPa (264 psi)	D 648	85°C-185°F
Typical Processing Conditions		
Drying Temperature		88°C-190°F
Drying Time		4-6 hrs
EBM Processing Melt Temperature		235-255 °C (455-490 °F)
EBM Blow Mold Temperature		15-50 °C (60-122 °F)
ISBM Processing Melt Temperature		260-280 °C (500-536 °F)
ISBM Injection Mold Temperature		40-65 °C (104-149 °F)
ISBM Blow Mold Temperature		35-55 °C (95-131 °F)

<sup>a</sup>Unless noted otherwise, all tests are run at 23°C (73°F) and 50% relative humidity.

<sup>b</sup>Unless noted otherwise, the test method is ASTM.

<sup>c</sup>Units are in SI or US customary units.

## Technical Disclaimer

Eastman makes no representation and disclaims any warranty that the material in any particular shipment will conform exactly to the values given. Values as well as the performance of the final molded article may be affected by various factors such as the part design, mold design or tooling, drying, processing conditions as well as coloring or pigmentation of the product. No warranty of merchantability or fitness for use is made, and nothing herein waives any of the Seller's conditions of sale. You must make your own determination of the suitability of this product in your specific application due to the many factors (e.g. design, processing and conditions of use) that affect the performance of the final molded article. Suitability of use should be evaluated with appropriate testing and analysis. The processing melt temperature and mold temperature refer to the actual resin melt temperature and actual mold surface temperature respectively. Consider overall resin residence time, part shot size utilization and part geometry to set appropriate processing melt temperature and mold temperature in order to minimize IV loss and maximize molded part performance.

## Comments

Properties reported here are based on limited testing of Tritan TX1800. Eastman makes no representation that the material in any particular shipment will conform exactly to the values given.

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