

# Technical Data Sheet

## Eastman Tritan™ Copolyester TX1000

### Applications

- Appliances (food contact)
- Building materials
- Commercial housewares
- Compounders
- Consumer housewares-nfc
- Device housings
- Large appliances non-food contact
- Lighting
- Packaging components non food contact
- Small appliances non-food contact
- Water/sport bottles

### Key Attributes

- Ease of processing
- Excellent clarity
  - Excellent hydrolytic stability
    - Fast drying times
- Good chemical resistance
- Good heat resistance
  - Outstanding impact resistance
  - Quick cycle times

### Product Description

Eastman Tritan™ TX1000 is an amorphous copolyester with excellent appearance and clarity. Its most outstanding features are excellent toughness, hydrolytic stability, and heat and chemical resistance. This new-generation copolyester can also be molded into various applications without incorporating high levels of residual stress. Combined with Tritan™ copolyester's outstanding chemical resistance and hydrolytic stability, these features give molded products enhanced durability in the dishwasher environment, which can expose products to high heat, humidity and aggressive cleaning detergents. Tritan™ TX1000 copolyester may be used in repeated use food contact articles under United States Food and Drug Administration (FDA) regulations. Tritan™ TX1000 copolyester is certified to NSF/ANSI Standard 51 for Food Equipment Materials.

This product has been *CRADLE TO CRADLE CERTIFIED*™ Bronze, with Material Health Certificate, Platinum. The *CRADLE TO CRADLE CERTIFIED* mark is a registered certification mark used under license through the Cradle to Cradle Products Innovation Institute, 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 *Cradle to Cradle Certified*™ Product Standard guides designers and manufacturers through a continual improvement process that looks at a product through five quality categories—material health, material reutilization, renewable energy and carbon management, water stewardship, and social fairness. A product receives an achievement level in each category—Basic, Bronze, Silver, Gold, or Platinum—with the lowest achievement level representing the product's overall mark.

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.cn-plas.com](http://www.cn-plas.com). Search for Eastman Chemical Company in *Cradle to Cradle Certified* Products 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	0.005-0.007 mm/mm (0.005-0.007 in./in.)
<b>Mechanical Properties (ISO Method)</b>		
Tensile Strength @ Yield	ISO 527	47 MPa
Tensile Stress @ Break	ISO 527	58 MPa
Elongation @ Yield	ISO 527	7 %
Elongation @ Break	ISO 527	185 %

Tensile Modulus	ISO 527	1548 MPa
Flexural Modulus	ISO 178	1495 MPa
Flexural Strength	ISO 178	59 MPa
Izod Impact Strength, Notched		
@ 23°C	ISO 180	93 kJ/m <sup>2</sup>
@ -40°C	ISO 180	20 kJ/m <sup>2</sup>
<b>Mechanical Properties</b>		
Tensile Stress @ Yield	D 638	43 MPa (6200 psi)
Tensile Stress @ Break	D 638	53 MPa (7700 psi)
Elongation @ Yield	D 638	6 %
Elongation @ Break	D 638	210 %
Tensile Modulus	D 638	1550 MPa (2.25 x 10 <sup>5</sup> psi)
Flexural Modulus	D 790	1550 MPa (2.25 x 10 <sup>5</sup> psi)
Flexural Yield Strength	D 790	62 MPa (9000 psi)
Rockwell Hardness, R Scale	D 785	112
Izod Impact Strength, Notched		
@ 23°C (73°F)	D 256	980 J/m (18.4 ft·lbf/in.)
Impact Strength, Unnotched		
@ 23°C (73°F)	D 4812	NB
<b>Optical Properties</b>		
Total Transmittance	D 1003	90 %
Haze	D 1003	<1 %
<b>Thermal Properties</b>		
Deflection Temperature		
@ 0.455 MPa (66 psi)	D 648	99 °C (210 °F)
@ 1.82 MPa (264 psi)	D 648	85 °C (185 °F)
<b>Typical Processing Conditions</b>		
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)

<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.

## 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.

*Eastman and its marketing affiliates shall not be responsible for the use of this information, or of any product, method, or apparatus mentioned, and you must make your own determination of its suitability and completeness for your own use, for the protection of the environment, and for the health and safety of your employees and purchasers of your products. No warranty is made of the merchantability of fitness of any product, and nothing herein waives any of the Seller's conditions of sale.*