



## Product Data Sheet

### *Eastman Tritan Copolyester MX710*

#### Application/Uses

- Blood Therapy
- IV Components
- Medical Devices

#### Key Attributes

- Ease of processing
- 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
- Outstanding impact resistance

#### Product Description

*Eastman Tritan Copolyester MX710* is an amorphous product with excellent appearance and clarity. *Eastman Tritan Copolyester MX710* has many outstanding features that include excellent toughness, hydrolytic stability, heat resistance, and chemical resistance. *Eastman Tritan Copolyester MX710* has been formulated for medical devices.

#### Typical Properties (Preliminary)

##### General Properties

|                  |       |                                            |
|------------------|-------|--------------------------------------------|
| Specific Gravity | D 792 | 1.18                                       |
| Mold Shrinkage   | D 955 | 0.005-0.007 mm/mm<br>(0.005-0.007 in./in.) |

##### Mechanical Properties

|                               |        |                                        |
|-------------------------------|--------|----------------------------------------|
| 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.)              |
| @ -40°C (-40°F)               | D 256  | 110 J/m (2.1 ft·lbf/in.)               |
| Impact Strength, Unnotched    |        |                                        |
| @ 23°C (73°F)                 | D 4812 | NB                                     |

|                                                  |        |                  |
|--------------------------------------------------|--------|------------------|
| @ -40°C (-40°F)                                  | D 4812 | NB               |
| Impact Resistance (Puncture), Energy @ Max. Load |        |                  |
| @ 23°C (73°F)                                    | D 3763 | 61 J (45 ft·lbf) |
| @ -40°C (-40°F)                                  | D 3763 | 66 J (49 ft·lbf) |

### Thermal Properties

|                        |       |              |
|------------------------|-------|--------------|
| Deflection Temperature |       |              |
| @ 0.455 MPa (66 psi)   | D 648 | 99°C (210°F) |
| @ 1.82 MPa (264 psi)   | D 648 | 85°C (185°F) |

### Optical Properties

|                     |        |     |
|---------------------|--------|-----|
| Total Transmittance | D 1003 | 90% |
| Haze                | D 1003 | <1% |

### 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)   |

### 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 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.

10-Feb-2009 9:23:34 AM



## Product Data Sheet

### Eastman Tritan Copolyester EX401

#### Application/Uses

- Infant care

#### Key Attributes

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

#### Product Description

*Tritan* EX401 is an amorphous copolyester with excellent appearance and clarity. *Tritan* EX401 contains a mold release derived from vegetable based sources. Its most outstanding features are excellent toughness, hydrolytic stability, and heat and chemical resistance. *Tritan* EX401 was specifically developed for the Infant Care market using Eastman's knowledge of copolyester chemistry. *Tritan* EX401 can be converted into parts using Injection, Injection Blow, Injection Stretch Blow, Reheat Blow, and Extrusion Blow Molding techniques. *Tritan* EX401 copolyester may be used in repeated use food contact articles under United States Food and Drug Administration (FDA) regulations.

#### Typical Properties (Preliminary)

##### General Properties

|                  |       |                                            |
|------------------|-------|--------------------------------------------|
| Specific Gravity | D 792 | 1.17                                       |
| Mold Shrinkage   | D 955 | 0.005-0.007 mm/mm<br>(0.005-0.007 in./in.) |

##### Mechanical Properties

|                               |        |                                        |
|-------------------------------|--------|----------------------------------------|
| Tensile Stress @ Yield        | D 638  | 44 MPa (6400 psi)                      |
| Tensile Stress @ Break        | D 638  | 53 MPa (7700 psi)                      |
| Elongation @ Yield            | D 638  | 7%                                     |
| Elongation @ Break            | D 638  | 140%                                   |
| Tensile Modulus               | D 638  | 1585 MPa (2.28 x 10 <sup>5</sup> psi ) |
| Flexural Modulus              | D 790  | 1585 MPa (2.28 x 10 <sup>5</sup> psi ) |
| Flexural Yield Strength       | D 790  | 66 MPa (9600 psi)                      |
| Rockwell Hardness, R Scale    | D 785  | 115                                    |
| Izod Impact Strength, Notched |        |                                        |
| @ 23°C (73°F)                 | D 256  | 650 J/m (12.2 ft·lbf/in.)              |
| @ -40°C (-40°F)               | D 256  | 126 J/m (2.4 ft·lbf/in.)               |
| Impact Strength, Unnotched    |        |                                        |
| @ 23°C (73°F)                 | D 4812 | NB                                     |
| @ -40°C (-40°F)               | D 4812 | NB                                     |

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**Impact Resistance (Puncture), Energy @ Max. Load**

|                 |        |                  |
|-----------------|--------|------------------|
| @ 23°C (73°F)   | D 3763 | 59 J (43 ft·lbf) |
| @ -40°C (-40°F) | D 3763 | 63 J (46 ft·lbf) |

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**Thermal Properties**

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**Deflection Temperature**

|                      |       |               |
|----------------------|-------|---------------|
| @ 0.455 MPa (66 psi) | D 648 | 109°C (228°F) |
| @ 1.82 MPa (264 psi) | D 648 | 92°C (198°F)  |

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**Optical Properties**

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|                     |        |     |
|---------------------|--------|-----|
| Total Transmittance | D 1003 | 92% |
| Haze                | D 1003 | <1% |

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**Typical Processing Conditions**

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|                             |                       |
|-----------------------------|-----------------------|
| 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)   |

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**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.

23-Jan-2008 8:48:59 AM



## Product Data Sheet

### *Eastman Tritan Copolyester MX711*

#### Application/Uses

- Blood Therapy
- IV Components
- Medical Devices

#### Key Attributes

- Ease of processing
- 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
- Outstanding impact resistance

#### Product Description

*Eastman Tritan Copolyester MX711* is an amorphous product with excellent appearance and clarity. *Eastman Tritan Copolyester MX711* contains a mold release derived from vegetable based sources. *Eastman Tritan Copolyester MX711* has many outstanding features that include excellent toughness, hydrolytic stability, heat resistance, and chemical resistance. *Eastman Tritan Copolyester MX711* has been formulated for medical devices. *Eastman Tritan Copolyester MX711* has been tested for FDA/ISO 10993 and USP Class VI Biological Evaluation testing after Gamma and ETO sterilization.

#### Typical Properties (Preliminary)

##### General Properties

|                  |       |                                            |
|------------------|-------|--------------------------------------------|
| Specific Gravity | D 792 | 1.18                                       |
| Mold Shrinkage   | D 955 | 0.005-0.007 mm/mm<br>(0.005-0.007 in./in.) |

##### Mechanical Properties

|                               |       |                                        |
|-------------------------------|-------|----------------------------------------|
| 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.)              |
| @ -40°C (-40°F)               | D 256 | 110 J/m (2.1 ft·lbf/in.)               |

**Impact Strength, Unnotched**

|                 |        |    |
|-----------------|--------|----|
| @ 23°C (73°F)   | D 4812 | NB |
| @ -40°C (-40°F) | D 4812 | NB |

**Impact Resistance (Puncture), Energy @ Max. Load**

|                 |        |                  |
|-----------------|--------|------------------|
| @ 23°C (73°F)   | D 3763 | 61 J (45 ft·lbf) |
| @ -40°C (-40°F) | D 3763 | 66 J (49 ft·lbf) |

**Thermal Properties****Deflection Temperature**

|                      |       |              |
|----------------------|-------|--------------|
| @ 0.455 MPa (66 psi) | D 648 | 99°C (210°F) |
| @ 1.82 MPa (264 psi) | D 648 | 85°C (185°F) |

**Optical Properties**

|                     |        |     |
|---------------------|--------|-----|
| Total Transmittance | D 1003 | 90% |
| Haze                | D 1003 | <1% |

**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)   |

**Comments**

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10-Feb-2009 9:26:51 AM



## Product Data Sheet

### *Eastman Tritan Copolyester TX1000*

#### Application/Uses

- Appliances
- Consumer and durable goods
- Housewares
- Small appliances

#### 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

*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.

#### Typical Properties (Preliminary)

##### General Properties

|                  |       |                                            |
|------------------|-------|--------------------------------------------|
| Specific Gravity | D 792 | 1.18                                       |
| Mold Shrinkage   | D 955 | 0.005-0.007 mm/mm<br>(0.005-0.007 in./in.) |

##### Mechanical Properties

|                                             |        |                                        |
|---------------------------------------------|--------|----------------------------------------|
| 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                                     |

##### Thermal Properties

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**Deflection Temperature**

@ 0.455 MPa (66 psi)

D 648

99°C (210°F)

@ 1.82 MPa (264 psi)

D 648

85°C (185°F)

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**Optical Properties**

Total Transmittance

D 1003

90%

Haze

D 1003

&lt;1%

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**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)

**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.

04-Jan-2008 9:40:42 AM



## Product Data Sheet

### Eastman Tritan Copolyester TX1001

#### Application/Uses

- Appliances
- Consumer and durable goods
- Housewares
- Small appliances

#### 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

*Tritan* TX1001 is an amorphous copolyester with excellent appearance and clarity. *Tritan* TX1001 contains a mold release derived from vegetable based sources. 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* TX1001 copolyester may be used in repeated use food contact articles under United States Food and Drug Administration (FDA) regulations. *Tritan* TX1001 copolyester is certified to NSF/ANSI Standard 51 for Food Equipment Materials.

#### Typical Properties (Preliminary)

##### General Properties

|                  |       |                                            |
|------------------|-------|--------------------------------------------|
| Specific Gravity | D 792 | 1.18                                       |
| Mold Shrinkage   | D 955 | 0.005-0.007 mm/mm<br>(0.005-0.007 in./in.) |

##### Mechanical Properties

|                                             |        |                                        |
|---------------------------------------------|--------|----------------------------------------|
| 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                                     |

##### Thermal Properties

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**Deflection Temperature**

@ 0.455 MPa (66 psi)

D 648

99°C (210°F)

@ 1.82 MPa (264 psi)

D 648

85°C (185°F)

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**Optical Properties**

Total Transmittance

D 1003

90%

Haze

D 1003

&lt;1%

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**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)

**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.

21-Jan-2008 8:15:20 AM



## Product Data Sheet

### *Eastman Tritan* Copolyester TX1500HF

#### Application/Uses

- Appliances
- Consumer goods
- Durable goods
- Housewares

#### Key Attributes

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

#### Product Description

*Eastman Tritan* copolyester TX1500HF is a high flow grade of *Eastman Tritan*. *Eastman Tritan* copolyester TX1500HF has viscosity reductions of 40-50% relative to *Eastman Tritan* copolyester TX1000. Other outstanding features include good toughness, hydrolytic stability, and heat and chemical resistance. *Eastman Tritan* copolyester TX1500HF may be used in repeated use food contact articles under United States Food and Drug Administration (FDA) regulations. *Eastman Tritan* copolyester TX1500HF is certified to NSF/ANSI Standard 51 for Food and Equipment Materials.

#### Typical Properties (Preliminary)

| Property <sup>a</sup>                       | Test <sup>b</sup><br>Method | 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<br>(0.005-0.007 in./in.) |
| <b>Mechanical Properties</b>                |                             |                                            |
| 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 <sup>5</sup> psi )     |
| Flexural Modulus                            | D 790                       | 1575 MPa (2.28 x 10 <sup>5</sup> 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                                         |

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**Thermal Properties**

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## Deflection Temperature

|                      |       |              |
|----------------------|-------|--------------|
| @ 0.455 MPa (66 psi) | D 648 | 94°C (201°F) |
| @ 1.82 MPa (264 psi) | D 648 | 81°C (178°F) |

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**Optical Properties**

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|                     |        |     |
|---------------------|--------|-----|
| Total Transmittance | D 1003 | 91% |
| Haze                | D 1003 | <1% |

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**Typical Processing Conditions**

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|                             |                       |
|-----------------------------|-----------------------|
| 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)   |

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<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.

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*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.*

11-Nov-2008 8:32:50 AM



## Product Data Sheet

### Eastman Tritan Copolyester TX1501HF

#### Application/Uses

- Appliances
- Consumer goods
- Durable goods
- Housewares

#### Key Attributes

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

#### Product Description

*Eastman Tritan* copolyester TX1501HF is a high flow grade of *Eastman Tritan*. *Eastman Tritan* copolyester TX1501HF has viscosity reductions of 40-50% relative to *Eastman Tritan* copolyester TX1001. *Eastman Tritan* copolyester TX1501HF contains a mold release derived from vegetable based sources. Other outstanding features include good toughness, hydrolytic stability, and heat and chemical resistance. *Eastman Tritan* copolyester TX1501HF may be used in repeated use food contact articles under United States Food and Drug Administration (FDA) regulations. *Eastman Tritan* copolyester TX1501HF is certified to NSF/ANSI Standard 51 for Food Equipment Materials.

#### Typical Properties (Preliminary)

| Property <sup>a</sup>                       | Test <sup>b</sup><br>Method | 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<br>(0.005-0.007 in./in.) |
| <b>Mechanical Properties</b>                |                             |                                            |
| 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 <sup>5</sup> psi )     |
| Flexural Modulus                            | D 790                       | 1575 MPa (2.28 x 10 <sup>5</sup> 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                                         |

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**Thermal Properties**

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## Deflection Temperature

|                      |       |              |
|----------------------|-------|--------------|
| @ 0.455 MPa (66 psi) | D 648 | 94°C (201°F) |
| @ 1.82 MPa (264 psi) | D 648 | 81°C (178°F) |

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**Optical Properties**

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|                     |        |     |
|---------------------|--------|-----|
| Total Transmittance | D 1003 | 91% |
| Haze                | D 1003 | <1% |

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**Typical Processing Conditions**

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|                             |                       |
|-----------------------------|-----------------------|
| 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)   |

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<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.

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*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.*

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## Product Data Sheet

### *Eastman Tritan Copolyester TX2000*

#### Application/Uses

- Appliances
- Consumer and durable goods
- Housewares
- Small appliances

#### 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

*Tritan* TX2000 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* TX2000 copolyester may be used in repeated use food contact articles under United States Food and Drug Administration (FDA) regulations. *Tritan* TX2000 copolyester is certified to NSF/ANSI Standard 51 for Food Equipment Materials.

#### Typical Properties (Preliminary)

##### General Properties

|                  |       |                                            |
|------------------|-------|--------------------------------------------|
| Specific Gravity | D 792 | 1.17                                       |
| Mold Shrinkage   | D 955 | 0.005-0.007 mm/mm<br>(0.005-0.007 in./in.) |

##### Mechanical Properties

|                                             |        |                                        |
|---------------------------------------------|--------|----------------------------------------|
| Tensile Stress @ Yield                      | D 638  | 44 MPa (6400 psi)                      |
| Tensile Stress @ Break                      | D 638  | 53 MPa (7700 psi)                      |
| Elongation @ Yield                          | D 638  | 7%                                     |
| Elongation @ Break                          | D 638  | 140%                                   |
| Tensile Modulus                             | D 638  | 1585 MPa (2.28 x 10 <sup>5</sup> psi ) |
| Flexural Modulus                            | D 790  | 1585 MPa (2.28 x 10 <sup>5</sup> psi ) |
| Flexural Yield Strength                     | D 790  | 66 MPa (9600 psi)                      |
| Rockwell Hardness, R Scale                  | D 785  | 115                                    |
| Izod Impact Strength, Notched @ 23°C (73°F) | D 256  | 650 J/m (12.2 ft·lbf/in.)              |
| Impact Strength, Unnotched @ 23°C (73°F)    | D 4812 | NB                                     |

##### Thermal Properties

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**Deflection Temperature**

@ 0.455 MPa (66 psi)

D 648

109°C (228°F)

@ 1.82 MPa (264 psi)

D 648

92°C (198°F)

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**Optical Properties**

Total Transmittance

D 1003

92%

Haze

D 1003

&lt;1%

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**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)

**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.

04-Jan-2008 9:24:10 AM



## Product Data Sheet

### *Eastman Tritan Copolyester TX2001*

#### Application/Uses

- Appliances
- Consumer and durable goods
- Housewares
- Small appliances

#### 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

*Tritan* TX2001 is an amorphous copolyester with excellent appearance and clarity. *Tritan* TX2001 contains a mold release derived from vegetable based sources. 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 agents. *Tritan* TX2001 copolyester may be used in repeated use food contact articles under United States Food and Drug Administration (FDA) regulations. *Tritan* TX2001 copolyester is certified to NSF/ANSI Standard 51 for Food Equipment Materials.

#### Typical Properties (Preliminary)

##### General Properties

|                  |       |                                            |
|------------------|-------|--------------------------------------------|
| Specific Gravity | D 792 | 1.17                                       |
| Mold Shrinkage   | D 955 | 0.005-0.007 mm/mm<br>(0.005-0.007 in./in.) |

##### Mechanical Properties

|                                             |        |                                        |
|---------------------------------------------|--------|----------------------------------------|
| Tensile Stress @ Yield                      | D 638  | 44 MPa (6400 psi)                      |
| Tensile Stress @ Break                      | D 638  | 53 MPa (7700 psi)                      |
| Elongation @ Yield                          | D 638  | 7%                                     |
| Elongation @ Break                          | D 638  | 140%                                   |
| Tensile Modulus                             | D 638  | 1585 MPa (2.28 x 10 <sup>5</sup> psi ) |
| Flexural Modulus                            | D 790  | 1585 MPa (2.28 x 10 <sup>5</sup> psi ) |
| Flexural Yield Strength                     | D 790  | 66 MPa (9600 psi)                      |
| Rockwell Hardness, R Scale                  | D 785  | 115                                    |
| Izod Impact Strength, Notched @ 23°C (73°F) | D 256  | 650 J/m (12.2 ft·lbf/in.)              |
| Impact Strength, Unnotched @ 23°C (73°F)    | D 4812 | NB                                     |

##### Thermal Properties

|                        |       |               |
|------------------------|-------|---------------|
| Deflection Temperature |       |               |
| @ 0.455 MPa (66 psi)   | D 648 | 109°C (228°F) |
| @ 1.82 MPa (264 psi)   | D 648 | 92°C (198°F)  |

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**Optical Properties**

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|                     |        |     |
|---------------------|--------|-----|
| Total Transmittance | D 1003 | 92% |
| Haze                | D 1003 | <1% |

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**Typical Processing Conditions**

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|                             |                       |
|-----------------------------|-----------------------|
| 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)   |

**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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