

# Technical Data Sheet

## Estar™ Copolyester AN001 Natural

### Applications

- Bottles-skin care pkg
- Color cosmetics packaging
- Compounders
- Fragrance packaging
- Jars-skin care pkg
- Packaging components non food contact
- Personal care & cosmetics packaging
- Personal care bottles
- Personal care packaging
- Protective & performance film

### Key Attributes

- Easy to extrude, cut, print, and seal
- Effective barrier properties
- Excellent chemical resistance
- Excellent clarity
- Excellent colorability
- Good impact strength
- Good stiffness
- High gloss appearance
- Toughness

### Product Description

Estar™ AN001 Copolyester has excellent appearance and is nearly water-clear. Its most outstanding features are its chemical resistance and processing capabilities. Exposure to aromatic oils often causes crazing or actual fracture of many polymer resins, but AN001 maintains its physical properties when exposed to these oils, and its appearance is virtually unchanged. It is one of our premier material for the cosmetics and personal care packaging market.

This product has been GREENGUARD INDOOR AIR QUALITY CERTIFIED

The GREENGUARD INDOOR AIR QUALITY CERTIFIED Mark is a registered certification mark used under license through the GREENGUARD Environmental Institute (GEI). GEI is an industry-independent, non-profit organization that oversees the GREENGUARD Certification Program. The GREENGUARD Certification Program is an industry independent, third-party testing program for low-emitting products and materials for indoor environments. For more information about GEI and to obtain printable certificates for Eastman™ Copolyesters, visit [www.gei.com](#)

. Choose Eastman Chemical Company under the Manufacturer category and click search to display a list of our products.

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.cradletogether.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</b>		
Specific Gravity	D 792	1.20
Mold Shrinkage		
Parallel to Flow, 3.2-mm (0.125-	D 955	0.002-0.006 mm/mm (0.002-0.006

in.) thickness		in./in.)
<b>Mechanical Properties</b>		
Tensile Stress @ Yield	D 638	47 MPa (6900 psi)
Tensile Stress @ Break	D 638	51 MPa (7400 psi)
Elongation @ Yield	D 638	5 %
Elongation @ Break	D 638	320 %
Flexural Modulus	D 790	2000 MPa (2.9 x 10 <sup>5</sup> psi)
Flexural Yield Strength	D 790	69 MPa (10000 psi)
Rockwell Hardness, R Scale	D 785	103
Izod Impact Strength, Notched		
@ 23°C (73°F)	D 256	80 J/m (1.5 ft·lbf/in.)
@ -40°C (-40°F)	D 256	40 J/m (0.7 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	42 J (31 ft·lbf)
@ -40°C (-40°F)	D 3763	48 J (35 ft·lbf)
<b>Optical Properties</b>		
Haze	D 1003	0.3 %
Regular Transmittance	D 1003	89 %
Total Transmittance	D 1003	91 %
<b>Thermal Properties</b>		
Deflection Temperature		
@ 0.455 MPa (66 psi)	D 648	73 °C (164 °F)
@ 1.82 MPa (264 psi)	D 648	65 °C (149 °F)
<b>Typical Processing Conditions</b>		
Drying Temperature		70 °C (160 °F)
Drying Time		3 hrs
Processing Melt Temperature		230-280 °C (450-530 °F)
Mold Temperature		15-30 °C (60-80 °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 typical of average lots. Eastman makes no representation that the material in any particular shipment will conform exactly to the values given.

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