EASTMAN

Technical Data Sheet

Eastar™ Copolyester AN004 Natural

Applications

- Bottles-color cosmetics pkg
- Closures-fragrance pkg
- Color cosmetics packaging
- Compounders
- Consumer housewares-nfc
- Fragrance packaging
- Jars-skin care pkg
- Packaging components non food contact
- Personal care & cosmetics packaging
- Skin care packaging

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

Eastar™ AN004 Copolyester contains a mold release. It 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 AN004 maintains its physical properties when exposed to these oils, and its appearance is virtually unchanged. Easy to process, it flows readily and fills intricate molds. Its processability coupled with its outstanding chemical resistance makes it well suited for thick-wall applications.

This product has been GREENGUARD INDOOR AIR QUALITY CERTIFIED
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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 . Search for Eastman Chemical Company in *Cradle to Cradle Certified* Products Registry.

Typical Properties

Property[a]	Test Method[b]	Typical Value, Units[c]
General		
Specific Gravity	D 792	1.2
Mold Shrinkage		

Parallel to Flow, 3.2-mm (0.125-in.) thickness	D 955	0.002-0.006 mm/mm (0.002-0.006 in./in.)
Mechanical Properties (ISO Method)		
Tensile Strength @ Yield	ISO 527	47 MPa
Tensile Strength @ Break	ISO 527	46 MPa
Elongation @ Yield	ISO 527	4 %
Elongation @ Break	ISO 527	200 %
Tensile Modulus	ISO 527	1800 MPa
Flexural Modulus	ISO 178	1850 MPa
Flexural Strength	ISO 178	65 MPa
Izod Impact Strength, Notched		
@ 23°C	ISO 180	7.8 kJ/m^2
@ -40°C	ISO 180	4.8 kJ/m^2
Mechanical Properties		
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 10^5 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)
Optical Properties		
Haze	D 1003	0.3 %
Regular Transmittance	D 1003	89 %
Total Transmittance	D 1003	91 %
Thermal Properties		
Deflection Temperature		
@ 0.455 MPa (66 psi)	D 648	73 °C (164 °F)
@ 1.82 MPa (264 psi)	D 648	65 °C (149 °F)
Typical Processing Conditions		
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)

[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.*

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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