EASTMAN

Technical Data Sheet
Eastman Cristal™ 401 Copolyester

Application/Uses
- Compacts
- Cosmetic jar caps
- Cosmetic jars
- Cosmetics/personal care packaging
- Fragrance caps
- Fragrance packaging
- Lip gloss containers
- Lipstick containers
- Personal care bottles

Key Attributes
- Ability to mold thick parts
- Ease of processing
- Easy to extrude, cut, decorate, and seal
- Excellent clarity and color
- Excellent colorability
- Good impact strength
- Good stiffness
- High gloss appearance
- Improved gate aesthetics
- Readily fill intricate molds
- Toughness

Product Description
Cristal™ 401 copolyester is a high flow product that contains mold release for ease of ejection. It is designed and engineered specifically for cosmetics packaging applications. With its unsurpassed color and clarity and an unmatched ability to mold thick parts with improved gate aesthetics, Cristal™ is clearly a well suited copolyester for premium cosmetics packaging. Other outstanding features of Cristal™ are excellent chemical resistance, high gloss, and improvements in processing such as faster cycle times, and lower scrap rates. Cristal™ is also ideally suited for two-shot molding techniques due to its lower processing temperatures, very slow crystallization rate, and flow characteristics.

Typical Properties (Preliminary)

Property[a]	Test[b] Method	Typical Value, Units[c]
General Properties		
Specific Gravity	D 792	1.28
Mold Shrinkage Parallel to Flow, 3.2-mm (0.125-in.) thickness	D 955	0.002-0.005 mm/mm (0.002-0.005 in./in.)
Thermal Properties		
Deflection Temperature		
@ 0.455 MPa (66 psi)	D 648	68°C (155°F)
@ 1.82 MPa (264 psi)	D 648	61°C (142°F)
Mechanical Properties		
Tensile Stress @ Break	D 638	24 MPa (3480 psi)
Tensile Stress @ Yield	D 638	50 MPa (7200 psi)
Elongation @ Break	D 638	44%
Elongation @ Yield	D 638	4.4%
Tensile Modulus	D 638	2036 MPa (2.9 x 10^5 psi)
Flexural Strength	D 790	66 MPa (9570 psi)
Flexural Modulus	D 790	1808 MPa (2.6 x 10^5 psi)
Rockwell Hardness, R Scale	D 785	108
Izod Impact Strength, Notched		
@ 23°C (73°F)	D 256	103 J/m (1.9 ft·lbf/in.)
@ -40°C (-40°F)	D 256	44 J/m (0.8 ft·lbf/in.)
Impact Strength, Unnotched		
@ 23°C (73°F)	D 4812	NB
@ -40°C (-40°F)	D 4812	NB
Mechanical Properties (ISO Method)		
Tensile Strength @ Yield	ISO 527	50 MPa
Tensile Strength @ Break	ISO 527	20 MPa
Elongation @ Yield	ISO 527	4.3%
Elongation @ Break	ISO 527	39%
Tensile Modulus	ISO 527	2027 MPa
Optical Properties		
Transmittance	D 1003	91.8%
Haze	D 1003	0.40%
Typical Processing Conditions		
Drying Temperature		65°C (150°F)

Drying Time	8 hrs
Processing Melt Temperature	205-240°C (400-465°F)
Mold Temperature	16-38°C (60-100°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 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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