EASTMAN

Technical Data Sheet

Eastman Neostar™ Elastomer FN007

Applications

- Automotive
- Compounders
- Diffuser film
- Profiles
- Protective & performance film

Key Attributes

- Environmentally preferred, non-halogenated material
- Excellent chemical resistance
- Exceptional heat resistance and high temperature dimensional stability
- High flexibility without plasticizers
- Solvent bondable

Product Description

Eastman Neostar™ Elastomer FN007 is the third in Eastman's series of tough, clear, durable, general purpose grade copolyester ethers. Though originally designed for use in the profile and automotive markets, this innovative copolymer has also found use in tubing and packaging applications. Its excellent chemical, heat, and puncture resistance combined with its strength and durability make it a good choice for applications that require flex-crack resistance and a general utility in harsh environments. Eastman Neostar™ Elastomer FN007 can be injection molded, extruded in blown film or tubing, or extrusion blow molded. The target inherent viscosity of this product is 1.23.

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]
Film Properties		
Thickness of Film Tested		0.13 mm (5 mils)
Refractive Index, n_D	D 542	1.51
Haze	D 1003	1 %
Gloss		
@ 45°	D 2457	73
Regular Transmittance	D 1003	91 %
Total Transmittance	D 1003	94 %
Tensile Stress @ Yield		
T.D.	D 882	11.2 MPa (1600 psi)
Tensile Strength @ Break		
M.D.	D 882	41.5 MPa (6000 psi)

T.D.	D 882	18.1 MPa (2600 psi)
Elongation @ Yield		
M.D.	D 882	46 %
T.D.	D 882	20 %
Elongation @ Break		
M.D.	D 882	330 %
T.D.	D 882	>550 %
Tensile Modulus, Tangent		
M.D.	D 882	197 MPa (28600 psi)
T.D.	D 882	221 MPa (32000 psi)
Water Vapor Transmission Rate[g]	F 372	146 g/m^2·24h (9.5 g/100$in.^2$·24h)
Gas Permeability, O_2		
@ 30°C (86°F)	D 1434	940 cm^3/m^2*24h*atm (61 cm^3/100$in.^2$·24h·atm)
Coefficient of Friction	D 1894	>1
Mechanical Properties		
Specific Gravity	D 792	1.13
Durometer Hardness		
Shore A Scale	D 2240	95
Shore D Scale	D 2240	55
Tensile Stress @ Break[d]	D 638	23 MPa (3300 psi)
Tensile Stress @ Yield[e]	D 638	13 MPa (1900 psi)
Elongation @ Yield	D 638	38 %
Elongation @ Break	D 638	400 %
Tensile Modulus	D 638	170 MPa (24650 psi)
Flexural Modulus	D 790	150 MPa (21750 psi)
Tear Strength	D 1004	350 N (79 lbf)
Izod Impact Strength, Notched		
@ -40°C (-40°F)	D 256	40 J/m (0.75 ft·lbf/in.)
Torsional Modulus Temperature		
@ 240 MPa (35,000 psi)	D 1043	-28 °C (-18 °F)
@ 930 MPa (135,000 psi)	D 1043	<-70 °C (<-94 °F)
Water Absorption, 24 h immersion	D 570	0.4 %
Thermal Properties		
Inherent Viscosity	EMN-A-AC-G-V-1	1.23
Flow Rate		
(Condition 215°C/2.16 kg)	D 1238	8 g/10 min
(Condition 230°C/2.16 kg)	D 1238	12 g/10 min
Crystalline Peak Melting Point (T_m)	D 3418	205 °C (400 °F)
Crystallization Temperature on Cooling (T_cc)	DSC	140 °C (284 °F)
Glass Transition Temperature (T_g)	DSC	-40 °C (-40 °F)
Specific Heat[f]		
@ 100°C (212°F) - solid	DSC	1.8 kJ/kg·K (0.43 Btu/lb·°F)
@ 150°C (302°F) - solid	DSC	2.0 kJ/kg·K (0.48 Btu/lb·°F)
@ 175°C (347°F) - solid	DSC	2.3 kJ/kg·K (0.55 Btu/lb·°F)
@ 200°C (392°F) - transition	DSC	3.1 kJ/kg·K (0.74 Btu/lb·°F)
@ 225°C (437°F) - melt	DSC	2.3 kJ/kg·K (0.55 Btu/lb·°F)
@ 25°C (77°F) - solid	DSC	1.6 kJ/kg·K (0.38 Btu/lb·°F)
Heat of Fusion	E 793	27 kJ/kg (11.6 Btu/lb)
Thermal Conductivity	C 177	0.19 W/m·K (1.3 Btu·in./h·ft^2·°F)
Coefficient of Linear Thermal Expansion	D 696	15 x 10^{-5} /°C (mm/mm·°C) (8 x 10^{-5} /°F (in./in.·°F))
Brittleness Temperature	D 746	<-75 °C (<-103 °F)
Vicat Softening Temperature		

@ 1 kg load	D 1525	170 °C (338 °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.*
[d]*D 412, Die C specimens, which are equivalent to ASTM D 638, Type IV specimens. Specimens were 2.0 mm (0.075 in.) thick and were tested using a crosshead speed of 500 mm (20 in.) per min.*
[e]*Injection molded ASTM D 638 Type I specimens, about 3 mm (1/8 in.) thick, were tested using a crosshead speed of 500 mm (20 in.) per min.*
[f]*For 200°C (392°F) - transition, apparent specific heat, including the effects of the heat of fusion.*
[g]*Test conducted at 38°C (100°F) and 100% relative humidity.*

Applications

NEOSTAR elastomers are tough, clear and durable. NEOSTAR elastomer FN007 can be injection molded, extruded or extrusion blow molded. It has a property profile that is suitable for automotive applications such as trim and constant velocity or steering boots. It is suitable for coextrusion as a flexible element in profile extrusions.

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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