

Eastman Eastman 1223 Copolyester

Category : Polymer , Thermoplastic , Polyester , TP

Material Notes:

Applications:Blown filmCredit cardsDebit cardsDeodorant packagingElectronic packagingFabricated boxesFlexible packagingFood packagingFurniture/Furniture trimGaming cardsGift cardsIdentification cardsLaminatingPhone cardsPlastic cardsShrink filmSignsSmart cardsToys/Sporting goodsWriting instruments

Key Attributes:Easy primary and secondary operationsExcellent clarityExcellent toughnessGamma, ebeam, ETO sterilization stable

Product Description: Eastman copolyester 1223 is a clear, amorphous material. Because of its clarity, toughness and good melt strength at processing temperatures, it is useful in a variety of processing techniques including film and sheet extrusion. Eastman Copolyester 1223 may be colored using color concentrates, dry colors or liquid colorants. This product has been GREEN GUARD INDOOR AIR QUALITY CERTIFIED®. This Product has been CRADLE TO CRADLE CERTIFIEDcm Silver.Information provided by Eastman.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Eastman-Eastman-1223-Copolyester.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.27 g/cc	1.27 g/cc	ASTM D792
Density	1.27 g/cc	0.0459 lb/in ³	ASTM D1505
Water Absorption	0.13 % @Time 86400 sec	0.13 % @Time 24.0 hour	Immersion; ASTM D570
Water Vapor Transmission	7.00 g/m ² /day	0.451 g/100 in ² /day	ASTM F1249
Oxygen Transmission	10.0 cc-mm/m ² -24hr-atm	25.4 cc-mil/100 in ² -24hr-atm	ASTM D3985
Carbon Dioxide Transmission	49.0 cc-mm/m ² -24hr-atm	124 cc-mil/100 in ² -24hr-atm	ASTM D1434
Thickness	250 microns	9.84 mil	ASTM D374

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	106	106	ASTM D785
Tensile Strength at Break	28.0 MPa	4060 psi	ASTM D638
Film Tensile Strength at Yield, MD	52.0 MPa	7540 psi	ASTM D882
Film Tensile Strength at Yield, TD	52.0 MPa	7540 psi	ASTM D882
Tensile Strength, Yield	50.0 MPa	7250 psi	ASTM D638
Film Elongation at Break, MD	400 %	400 %	ASTM D882
Film Elongation at Break, TD	400 %	400 %	ASTM D882

Mechanical Properties	Metric	English	Comments
Film Elongation at Yield, TD	4.0 %	4.0 %	ASTM D882
Elongation at Break	130 %	130 %	ASTM D638
Tensile Modulus	1.90 GPa	276 ksi	Film M.D.; ASTM D882
	1.90 GPa	276 ksi	Film T.D.; ASTM D882
	2.10 GPa	305 ksi	Injection Molded Specimen; ASTM D638
Flexural Strength	70.0 MPa	10200 psi	ASTM D790
Flexural Modulus	2.10 GPa	305 ksi	ASTM D790
Izod Impact, Notched	0.370 J/cm	0.693 ft-lb/in	ASTM D256
	@Temperature -40.0 °C	@Temperature -40.0 °F	
Izod Impact, Notched	1.01 J/cm	1.89 ft-lb/in	ASTM D256
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Izod Impact, Unnotched	NB	NB	ASTM D4812
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Izod Impact, Unnotched	NB	NB	ASTM D4812
	@Temperature -20.0 °C	@Temperature -4.00 °F	
Izod Impact, Unnotched	NB	NB	ASTM D4812
	@Temperature -30.0 °C	@Temperature -22.0 °F	
Izod Impact, Unnotched	NB	NB	ASTM D4812
	@Temperature -40.0 °C	@Temperature -40.0 °F	
Puncture Energy	28.0 J	20.7 ft-lb	At Max load; ASTM D3763
	@Thickness 2.50 mm, Temperature 23.0 °C	@Thickness 0.0984 in, Temperature 73.4 °F	
Puncture Energy	33.0 J	24.3 ft-lb	At Max load; ASTM D3763
	@Thickness 3.20 mm, Temperature 23.0 °C	@Thickness 0.126 in, Temperature 73.4 °F	
Puncture Energy	41.0 J	30.2 ft-lb	At Max load; ASTM D3763
	@Thickness 2.50 mm, Temperature -40.0 °C	@Thickness 0.0984 in, Temperature -40.0 °F	
Puncture Energy	50.0 J	36.9 ft-lb	At Max load; ASTM D3763
	@Thickness 3.20 mm, Temperature -40.0 °C	@Thickness 0.126 in, Temperature -40.0 °F	

Mechanical Properties	Metric	English	Comments
Tear Strength, Total	16.7 N	3.75 lb (f)	M.D., Elmendorf; ASTM D1922
	16.7 N	3.75 lb (f)	T.D., Elmendorf; ASTM D1922
	93.0 N	20.9 lb (f)	M.D., PPT; ASTM D2582
	93.0 N	20.9 lb (f)	T.D., PPT; ASTM D2582
Tear Strength	36.0 kN/m	205 pli	M.D., Split Tear @ 254 mm/min; ASTM D1938
	36.0 kN/m	205 pli	T.D., Split Tear @ 254 mm/min; ASTM D1938
	36.0 kN/m	205 pli	M.D., Trouser @ 200 mm/min; ISO 6383-1
	36.0 kN/m	205 pli	T.D., Trouser @ 200 mm/min; ISO 6383-1
Dart Drop Test	400 g	0.882 lb	ASTM D1709A modified
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	500 g	1.10 lb	ASTM D1709A modified
	@Temperature -18.0 °C	@Temperature -0.400 °F	
Film Tensile Strength at Break, MD	59.0 MPa	8560 psi	ASTM D882
Film Tensile Strength at Break, TD	55.0 MPa	7980 psi	ASTM D882

Thermal Properties	Metric	English	Comments
CTE, linear	51.0 µm/m-°C	28.3 µin/in-°F	ASTM D696
Specific Heat Capacity	1.30 J/g-°C	0.311 BTU/lb-°F	DSC
	@Temperature 60.0 °C	@Temperature 140 °F	
	1.76 J/g-°C	0.421 BTU/lb-°F	DSC
	@Temperature 100 °C	@Temperature 212 °F	
	1.88 J/g-°C	0.449 BTU/lb-°F	DSC
	@Temperature 150 °C	@Temperature 302 °F	
	1.97 J/g-°C	0.471 BTU/lb-°F	DSC
	@Temperature 200 °C	@Temperature 392 °F	
	2.05 J/g-°C	0.490 BTU/lb-°F	DSC
	@Temperature 250 °C	@Temperature 482 °F	
Thermal Conductivity	0.210 W/m-K	1.46 BTU-in/hr-ft ² -°F	ASTM C177

Thermal Properties (at 0.46 MPa (66 psi))	Metric	English	Comments
Deflection Temperature at 1.8 MPa (264 psi)	64.0 °C	147 °F	ASTM D648
Vicat Softening Point	85.0 °C	185 °F	ASTM D1525
Glass Transition Temp, Tg	80.0 °C	176 °F	DSC

Optical Properties	Metric	English	Comments
Haze	0.80 %	0.80 %	for Film; ASTM D1003
Gloss	108 %	108 %	for Film, 45°; ASTM D2457
Transmission, Visible	85 %	85 %	Transparency, Film; ASTM D1746
	@Thickness 0.130 mm	@Thickness 0.00512 in	
	89 %	89 %	
	@Thickness 0.130 mm	@Thickness 0.00512 in	Regular, Film; ASTM D1003, modified
	91 %	91 %	Total, Film; ASTM D1003, modified
	@Thickness 0.130 mm	@Thickness 0.00512 in	

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+15 ohm-cm	1.00e+15 ohm-cm	ASTM D257
Surface Resistivity per Square	1.00e+16 ohm	1.00e+16 ohm	ASTM D257
Dielectric Constant	2.4	2.4	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
Dielectric Strength	2.6	2.6	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
Dielectric Strength	16.0 kV/mm	406 kV/in	Short Time, 500 V/sec rate-of-rise; ASTM D149
Dissipation Factor	0.0050	0.0050	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
Arc Resistance	0.020	0.020	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
Arc Resistance	158 sec	158 sec	ASTM D495

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