Embrace™ Copolyester

Copolyester

Eastman Chemical Company

Message:

Eastman Embrace™ copolyester is a leader in the shrink film for dairy, water, juice, liquor, and sports and soft drink beverage packaging. Eastman Embrace™ copolyester provides excellent clarity, printability, and toughness, enabling marketers to increase shelf visibility, presence, and appeal for their products. With ultimate shrinkage of over 75%, Eastman Embrace™ copolyester is the ideal label material for marketers looking to differentiate their products in the competitive beverage 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.greenguard.org. 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 Silver.
The CRADLE TO CRADLE CERTIFIED Mark is a registered certification mark used under license through McDonough Braungart Design Chemistry (MBDC). MBDC is a global sustainability consulting and product certification firm. The CRADLE TO CRADLE® framework moves beyond the traditional goal of reducing the negative impacts of commerce ('eco-efficiency'), to a new paradigm of increasing its positive impacts ('eco-effectiveness'). At its core, Cradle to Cradle design perceives the safe and productive processes of nature's 'biological metabolism' as a model for developing a 'technical metabolism' flow of industrial materials. Product components can be designed for continuous recovery and reutilization as biological and technical nutrients within these metabolisms. For more information about MBDC and to obtain printable certificates for Eastman Copolyesters, visit www.mbdc.com. Choose Eastman Chemical Company under Company Name in C2C Certified products to display a list of our products.

General Information	
Features	Excellent Printability
	Good Chemical Resistance
	Good Toughness
	High Clarity
	High Gloss
	High Shrinkage
Uses	Containers
	Film
	Labels
	Packaging
	Shrink Wrap
Forms	Pellets
Processing Method	Cast Film

Physical	Nominal Value	Unit	Test Method
Density	1.30	g/cm³	ASTM D1505
Color			ASTM D2244
a : 50.0 µm	0.020		
b : 50.0 µm	0.37		
L : 50.0 µm	96		
Inherent Viscosity [1]			Internal Method

23°C, 50.0 µm	0.70		
23°C, 250.0 µm	0.70		
Surface Tension			
Harmonic Mean, Dispersive : 23°C, 50.0 µm	38	mN/m	
Harmonic Mean, Polar : 23°C, 50.0 µm	9.0	mN/m	
Harmonic Mean, Total : 23°C, 50.0 µm	47	mN/m	
Tear Propagation Resistance [2]			ASTM D1938
MD : 23°C, 250.0 µm	61	kN/m	
TD : 23°C, 250.0 µm	61	kN/m	
Tear Strength			ASTM D2582
MD : 23°C, 250.0 µm	61	N	
TD : 23°C, 250.0 µm	66	N	
Ultimate Shrinkage (90°C, 50.0 µm)	80	%	

Films	Nominal Value	Unit	Test Method
	50		
Film Thickness - Tested	250	µm	
Secant Modulus			ASTM D882
MD : 50 µm	1800	MPa	
MD : 250 µm	1570	MPa	
TD : 50 µm	7250	MPa	
TD : 250 µm	1560	MPa	
Tensile Strength			ASTM D882
MD : Break, 50 µm	42.0	MPa	
MD : Break, 250 µm	53.0	MPa	
TD : Break, 50 µm	290	MPa	
TD : Break, 250 µm	53.0	MPa	
Tensile Elongation			ASTM D882
MD : Break, 50 µm	270	%	
MD : Break, 250 µm	5.0	%	
TD : Break, 50 µm	34	%	
TD : Break, 250 µm	5.0	%	
Dart Drop Impact			ASTM D1709A
23°C, 50 µm	230	g	
23°C, 250 µm	360	g	
Elmendorf Tear Strength			ASTM D1922
MD : 50 µm	120	g	
MD : 250 µm	760	g	
TD : 50 µm	12	g	
TD : 250 µm	760	g	

Oxygen Permeability			ASTM D3985
30°C, 50 µm, 68% RH	71	$cm^3 \cdot mm/m^2/atm/24\ hr$	
30°C, 250 µm, 68% RH	5.9	$cm^3 \cdot mm/m^2/atm/24\ hr$	
Water Vapor Transmission Rate			ASTM F1249
38°C, 100% RH, 50 µm	20	$g/m^2/24\ hr$	
38°C, 100% RH, 250 µm	7.6	$g/m^2/24\ hr$	
Thermal	**Nominal Value**	**Unit**	**Test Method**
Glass Transition Temperature	71.0	°C	ASTM D1525
Vicat Softening Temperature	71.0 to 74.0	°C	ASTM D1525
Optical	**Nominal Value**	**Unit**	**Test Method**
Gloss			ASTM D2457
60°, 50.0 µm	139		
60°, 250 µm	166		
Transmittance			ASTM D1003
Regular, 50.0 µm	85.0	%	
Total, 50.0 µm	92.0	%	
Regular, 250 µm	89.0	%	
Total, 250 µm	92.0	%	
Clarity			ASTM D1746
50.0 µm	85.0		
250 µm	67.0		
Haze			ASTM D1003
50.0 µm	4.9	%	
250 µm	4.9	%	
NOTE			
1.	EMN-A-AC-G-V-1		
2.	Split Tear Method, 254 mm/min		

Recommended distributors for this material

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