Ecdel™ 9966

Thermoplastic Elastomer

Eastman Chemical Company

Message:

Ecdel™ elastomers are medical grade copolyester ethers (COPE). They offer the clarity, toughness, and chemical resistance needed in a variety of flexible packaging including medical applications. Ecdel™ Elastomer 9966 may be injection molded or extruded. Ecdel™ elastomers may be extrusion blow molded directly into bags or extruded into film for later fabrication into bags.
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	Good Chemical Resistance
	Good Flexibility
	Good Sterilizability
	Good Toughness
	High Clarity
	High Heat Resistance
	Low Extractables
Uses	Bags
	Film
	Medical Packaging
	Medical/Healthcare Applications
	Packaging
	Pharmaceutical Packaging
	Tubing
Forms	Pellets
Processing Method	Extrusion
	Extrusion Blow Molding
	Film Extrusion
	Injection Molding

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.13	g/cm³	ASTM D792
Melt Mass-Flow Rate (MFR) (230°C/2.16 kg)	10	g/10 min	ASTM D1238
Water Absorption (23°C, 24 hr)	0.40	%	ASTM D570

Inherent Viscosity [1] (23°C)	1.2		Internal Method
Carbon Dioxide Permeability (23°C, 130.0 µm)	> 1000	$cm^3 \cdot mm/m^2/atm/24\ hr$	ASTM D1434
Heat of Fusion (23°C)	27.0	kJ/kg	ASTM E793
Arc Resistance (23°C)	Fails by melting		ASTM D495
Tear Strength (23°C)	350	N	ASTM D1004
Hardness	**Nominal Value**	**Unit**	**Test Method**
Durometer Hardness			ASTM D2240
Shore A, 23°C	95		
Shore D, 23°C	55		
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus (23°C)	170	MPa	ASTM D638
Tensile Strength			ASTM D638
Yield, 23°C, 3.00 mm, Injection Molded [2]	14.0	MPa	
Break, 23°C, 2.00 mm [3]	22.0	MPa	
Tensile Elongation			ASTM D638
Yield, 23°C	38	%	
Break, 23°C	400	%	
Flexural Modulus (23°C)	150	MPa	ASTM D790
Coefficient of Friction	> 1.0		ASTM D1894
Films	**Nominal Value**	**Unit**	**Test Method**
Film Thickness - Tested	130	µm	
Secant Modulus - MD [4] (130 µm)	180	MPa	ASTM D882
Tensile Strength [5]			ASTM D882
MD : Yield,130 µm	14.0	MPa	
TD : Yield,130 µm	12.0	MPa	
Tensile Elongation			ASTM D882
MD : Break, 130 µm	> 400	%	
TD : Break, 130 µm	> 500	%	
Oxygen Permeability (30°C, 130 µm)	130	$cm^3 \cdot mm/m^2/atm/24\ hr$	ASTM D1434
Water Vapor Transmission Rate [6] (38°C, 100% RH, 130 µm)	190	$g/m^2/24\ hr$	ASTM F372
Elastomers	**Nominal Value**	**Unit**	**Test Method**
Clash-Berg Modulus			ASTM D1043
-70°C	930	MPa	
-28°C	240	MPa	
Impact	**Nominal Value**	**Unit**	**Test Method**
Notched Izod Impact (-40°C)	40	J/m	ASTM D256
Thermal	**Nominal Value**	**Unit**	**Test Method**
Brittleness Temperature	< -75.0	°C	ASTM D746
Glass Transition Temperature	-3.00	°C	DSC
Vicat Softening Temperature	170	°C	ASTM D1525 [7]
Peak Melting Temperature	205	°C	ASTM D3418

Peak Crystallization Temperature (DSC)	140	°C	DSC
CLTE - Flow (23°C)	9.0E-5	cm/cm/°C	ASTM D696
Specific Heat			DSC
25°C [8]	1600	J/kg/°C	
100°C [9]	1800	J/kg/°C	
150°C [10]	2000	J/kg/°C	
175°C [11]	2300	J/kg/°C	
200°C [12]	3100	J/kg/°C	
225°C [13]	2300	J/kg/°C	
Thermal Conductivity (23°C)	0.19	W/m/K	ASTM C177
Electrical	**Nominal Value**	**Unit**	**Test Method**
Dielectric Strength [14]			ASTM D149
23°C, in Air	6.0	kV/mm	
23°C, in Oil	14	kV/mm	
Dielectric Constant			ASTM D150
23°C, 1 kHz	3.90		
23°C, 10 kHz	3.80		
23°C, 1 MHz	3.70		
Dissipation Factor			ASTM D150
23°C, 1 kHz	0.020		
23°C, 10 kHz	0.020		
23°C, 1 MHz	0.020		
Optical	**Nominal Value**	**Unit**	**Test Method**
Gloss (45°, 125 µm)	85		ASTM D2457
Refractive Index	1.510		ASTM D542
Transmittance			ASTM D1003
Total, 125 µm	93.0	%	
Regular, 125 µm	94.0	%	
Haze (125 µm)	1.0	%	ASTM D1003
NOTE			
1.	EMN-A-AC-G-V-1		
2.	Type I, 500 mm/min		
3.	Type IV, 500 mm/min		
4.	25 mm/min		
5.	500 mm/min		
6.	Mocon value, confirmed by ASTM E96E		
7.	Loading 1 (10 N)		
8.	Solid		
9.	Solid		
10.	Solid		
11.	Solid		

12.	Transition, apparent specific heat, including the effects of the heat of fusion.
13.	Melt
14.	500 V/sec, Method A (Short-Time)

Recommended distributors for this material

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