



# Eastar™ 6763

Eastman Chemical Company - Copolyester

Thursday, December 21, 2023

## General Information

### Product Description

Eastar™ 6763 copolyester meets ISO 10993 and/or USP Class VI biocompatibility requirement; Food Contact Status compliant. Eastar 6763 is a clear, amorphous material that can be molded and extruded with ease. Its excellent performance properties include clarity, toughness, good melt strength, no dusting, no stress whitening, good heat sealability, easy cutting and thermoforming. Eastar 6763 may be colored using color concentrates, dry colors, or liquid colorants. Eastar 6763 can be safely sterilized with proper ethylene oxide, radiation, or electron beam methods without property loss or color shift.

Eastar 6763 provides:

- Superior, long-term clarity provides easy identification of instruments
- Excellent puncture resistance and impact toughness ensure package integrity
- Excellent ability to be subjected to several methods of sterilization, providing flexibility and security to the device manufacturer
- Excellent optical and physical property stability post sterilization
- Good melt strength offers wide processing latitude and ease in thermoforming

The production and trimming of rigid medical trays made from sheet of Eastar 6763 results in little or no dust or particulates. After the thermoformed trays are made, they are put in polybags. The polybags of trays are then placed in protective boxes for storage or shipment. As long as the polybags in the protective boxes are intact and no outside contamination is evident, the thermoformer or medical device manufacturer should not need to clean the tray prior to packaging a device and sealing the package. If contamination is found on the medical trays and cleaning is required, use a lint-free towel. Blowing the tray out with filtered, deionized, non-lubricated air is also acceptable, assuming this does not stir up dust from the surrounding area. Using alcohol, which could cause crazing, or water, which would not evaporate, is not recommended.

This product has received a Platinum level Material Health Certificate from the Cradle to Cradle Products Innovation Institute. A Material Health Certificate is awarded to products that meet the Material Health requirements of the multi-attribute Cradle to Cradle Certified™ Product Standard. The Cradle to Cradle Products Innovation Institute is 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 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 [www.c2ccertified.org](http://www.c2ccertified.org). Search for Eastman Chemical Company in the Material Health Certificate Registry.

### Key Attributes

- Easy primary & secondary operations
- Excellent clarity
- Excellent toughness
- Gamma, ebeam, ETO sterilization stable

### Applications

- Flexible medical device packaging
- Pharmaceutical packaging
- Rigid medical packaging

## General

### Material Status

- Commercial: Active

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### General

Regional Availability	<ul style="list-style-type: none"> <li>Africa &amp; Middle East</li> <li>Asia Pacific</li> </ul>	<ul style="list-style-type: none"> <li>Europe</li> <li>Latin America</li> </ul>	<ul style="list-style-type: none"> <li>North America</li> </ul>
Features	<ul style="list-style-type: none"> <li>Amorphous</li> <li>Biocompatible</li> <li>E-beam Sterilizable</li> <li>Ethylene Oxide Sterilizable</li> <li>Food Contact Acceptable</li> </ul>	<ul style="list-style-type: none"> <li>Good Colorability</li> <li>Good Melt Strength</li> <li>Good Stability</li> <li>Good Sterilizability</li> <li>Good Toughness</li> </ul>	<ul style="list-style-type: none"> <li>Heat Sealable</li> <li>High Clarity</li> <li>Puncture Resistant</li> <li>Radiation Sterilizable</li> <li>Stress Whitening Resistant</li> </ul>
Uses	<ul style="list-style-type: none"> <li>Film</li> <li>Medical Devices</li> <li>Medical Packaging</li> <li>Medical/Healthcare Applications</li> </ul>	<ul style="list-style-type: none"> <li>Packaging</li> <li>Pharmaceutical Packaging</li> <li>Rigid Packaging</li> <li>Sheet</li> </ul>	<ul style="list-style-type: none"> <li>Thermoforming Applications</li> <li>Trays</li> </ul>
Agency Ratings	<ul style="list-style-type: none"> <li>ISO 10993</li> </ul>	<ul style="list-style-type: none"> <li>USP Class VI</li> </ul>	
Appearance	<ul style="list-style-type: none"> <li>Clear/Transparent</li> </ul>		
Forms	<ul style="list-style-type: none"> <li>Pellets</li> </ul>		
Processing Method	<ul style="list-style-type: none"> <li>Extrusion</li> <li>Film Extrusion</li> </ul>	<ul style="list-style-type: none"> <li>Sheet Extrusion</li> <li>Thermoforming</li> </ul>	

### ASTM & ISO Properties <sup>1</sup>

Physical	Typical Value (English)	Typical Value (SI)	Test Method
Density / Specific Gravity			
--	1.27	1.27	ASTM D792
73°F (23°C)	1.27 g/cm <sup>3</sup>	1.27 g/cm <sup>3</sup>	ISO 1183/D
--	1.27 g/cm <sup>3</sup>	1.27 g/cm <sup>3</sup>	ASTM D1505
Water Absorption			
24 hr, 73°F (23°C), 50% RH	0.13 %	0.13 %	ASTM D570
24 hr, 73°F (23°C)	0.13 %	0.13 %	ISO 62
Mechanical	Typical Value (English)	Typical Value (SI)	Test Method
Tensile Modulus (73°F (23°C))	305000 psi	2100 MPa	ASTM D638 ISO 527-1
Tensile Strength			ASTM D638 ISO 527-2
Yield, 73°F (23°C)	7250 psi	50.0 MPa	
Break, 73°F (23°C)	4060 psi	28.0 MPa	
Tensile Elongation			
Break, 73°F (23°C)	130 %	130 %	ASTM D638
Break, 73°F (23°C)	100 %	100 %	ISO 527-2
Flexural Modulus			
73°F (23°C)	305000 psi	2100 MPa	ASTM D790
73°F (23°C)	290000 psi	2000 MPa	ISO 178
Flexural Stress			
73°F (23°C)	9860 psi	68.0 MPa	ISO 178
Yield, 73°F (23°C)	10200 psi	70.0 MPa	ASTM D790
Tear Resistance			ASTM D2582
MD : 73°F (23°C), 9.8 mil (250.0 µm)	93 N	93 N	
TD : 73°F (23°C), 9.8 mil (250.0 µm)	93 N	93 N	

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Films	Typical Value (English)	Typical Value (SI)	Test Method
Film Thickness - Tested	9.8 mil	250 µm	ASTM D374
Secant Modulus			ASTM D882
MD : 9.8 mil (250 µm)	276000 psi	1900 MPa	
TD : 9.8 mil (250 µm)	276000 psi	1900 MPa	
Tensile Strength			ASTM D882
MD : Yield, 9.8 mil (250 µm)	7540 psi	52.0 MPa	
TD : Yield, 9.8 mil (250 µm)	7540 psi	52.0 MPa	
MD : Break, 9.8 mil (250 µm)	8560 psi	59.0 MPa	
TD : Break, 9.8 mil (250 µm)	7980 psi	55.0 MPa	
Tensile Elongation			ASTM D882
MD : Yield, 9.8 mil (250 µm)	4.0 %	4.0 %	
TD : Yield, 9.8 mil (250 µm)	4.0 %	4.0 %	
MD : Break, 9.8 mil (250 µm)	400 %	400 %	
TD : Break, 9.8 mil (250 µm)	400 %	400 %	
Dart Drop Impact <sup>2</sup>			ASTM D1709A
0°F (-18°C), 9.8 mil (250 µm)	500 g	500 g	
73°F (23°C), 9.8 mil (250 µm)	400 g	400 g	
Elmendorf Tear Strength			ASTM D1922
MD : 9.8 mil (250 µm)	1400 g	1400 g	
TD : 9.8 mil (250 µm)	1700 g	1700 g	
Trouser Tear Resistance <sup>3</sup>			ISO 6383-1
MD	206 lbf/in	36.0 N/mm	
TD	206 lbf/in	36.0 N/mm	
Oxygen Permeability			ASTM D3985
73°F (23°C), 9.8 mil (250 µm), 50% RH	25 cm <sup>3</sup> ·mil/ 100in <sup>2</sup> /atm/24 hr	10 cm <sup>3</sup> ·mm/m <sup>2</sup> /atm/ 24 hr	
Water Vapor Transmission Rate			ASTM F1249
100°F (38°C), 100% RH, 9.8 mil (250 µm)	0.45 g/100 in <sup>2</sup> /24 hr	7.0 g/m <sup>2</sup> /24 hr	
Carbon Dioxide Permeability			ASTM D1434
73°F (23°C), 9.8 mil (250.0 µm)	120 cm <sup>3</sup> ·mil/ 100in <sup>2</sup> /atm/24 hr	49 cm <sup>3</sup> ·mm/m <sup>2</sup> /atm/ 24 hr	
Tear Propagation Resistance <sup>4</sup>			ASTM D1938
MD : 73°F (23°C), 9.8 mil (250.0 µm)	210 lbf/in	36 kN/m	
TD : 73°F (23°C), 9.8 mil (250.0 µm)	210 lbf/in	36 kN/m	
<b>Impact</b>	<b>Typical Value (English)</b>	<b>Typical Value (SI)</b>	<b>Test Method</b>
Notched Izod Impact			
-40°F (-40°C)	0.69 ft·lb/in	37 J/m	ASTM D256
73°F (23°C)	1.9 ft·lb/in	100 J/m	ASTM D256
-40°F (-40°C)	2.0 ft·lb/in <sup>2</sup>	4.2 kJ/m <sup>2</sup>	ISO 180
73°F (23°C)	3.0 ft·lb/in <sup>2</sup>	6.2 kJ/m <sup>2</sup>	ISO 180

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## Eastman Chemical Company - Copolyester

Impact	Typical Value (English)	Typical Value (SI)	Test Method
<b>Unnotched Izod Impact</b>			
-40°F (-40°C), 0.126 in (3.20 mm)	No Break	No Break	ASTM D4812
-22°F (-30°C), 0.126 in (3.20 mm)	No Break	No Break	ASTM D4812
-4°F (-20°C), 0.126 in (3.20 mm)	No Break	No Break	ASTM D4812
73°F (23°C), 0.126 in (3.20 mm)	No Break	No Break	ASTM D4812
-40°F (-40°C) <sup>5</sup>	No Break	No Break	ISO 180/1U
-22°F (-30°C) <sup>5</sup>	No Break	No Break	ISO 180/1U
-4°F (-20°C) <sup>5</sup>	No Break	No Break	ISO 180/1U
73°F (23°C) <sup>5</sup>	No Break	No Break	ISO 180/1U
<b>Instrumented Dart Impact</b>			
-40°F (-40°C), 0.0984 in (2.50 mm), Energy at Peak Load	363 in·lb	41.0 J	ASTM D3763
-40°F (-40°C), 0.126 in (3.20 mm), Energy at Peak Load	443 in·lb	50.0 J	ASTM D3763
73°F (23°C), 0.0984 in (2.50 mm), Energy at Peak Load	248 in·lb	28.0 J	ASTM D3763
73°F (23°C), 0.126 in (3.20 mm), Energy at Peak Load	292 in·lb	33.0 J	ASTM D3763
-40°F (-40°C), 0.0984 in (2.50 mm), Energy to Peak Force <sup>6, 7</sup>	25.8 ft·lb	35.0 J	ISO 6603-2
-40°F (-40°C), 0.126 in (3.20 mm), Energy to Peak Force <sup>6, 7</sup>	26.6 ft·lb	36.0 J	ISO 6603-2
73°F (23°C), 0.0984 in (2.50 mm), Energy to Peak Force <sup>6, 7</sup>	29.5 ft·lb	40.0 J	ISO 6603-2
73°F (23°C), 0.126 in (3.20 mm), Energy to Peak Force <sup>6, 7</sup>	32.5 ft·lb	44.0 J	ISO 6603-2
<b>Hardness</b>			
<b>Rockwell Hardness</b>			
R-Scale, 73°F (23°C)	106	106	ASTM D785
R-Scale, 73°F (23°C)	109	109	ISO 2039-2
<b>Thermal</b>			
<b>Deflection Temperature Under Load</b>			ASTM D648
66 psi (0.45 MPa), Unannealed	158 °F	70.0 °C	
264 psi (1.8 MPa), Unannealed	147 °F	64.0 °C	
Glass Transition Temperature	176 °F	80.0 °C	DSC
Vicat Softening Temperature	185 °F	85.0 °C	ASTM D1525
CLTE - Flow (-22 to 104°F (-30 to 40°C))	2.8E-5 in/in/°F	5.1E-5 cm/cm/°C	ASTM D696
<b>Specific Heat</b>			DSC
140°F (60°C)	0.311 Btu/lb/°F	1300 J/kg/°C	
212°F (100°C)	0.421 Btu/lb/°F	1760 J/kg/°C	
302°F (150°C)	0.449 Btu/lb/°F	1880 J/kg/°C	
392°F (200°C)	0.471 Btu/lb/°F	1970 J/kg/°C	
482°F (250°C)	0.490 Btu/lb/°F	2050 J/kg/°C	
Thermal Conductivity (73°F (23°C))	1.5 Btu·in/hr/ft <sup>2</sup> /°F	0.21 W/m/K	ASTM C177

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Electrical	Typical Value (English)	Typical Value (SI)	Test Method
Surface Resistivity (73°F (23°C))	1.0E+17 ohms	1.0E+17 ohms	ASTM D257
Volume Resistivity (73°F (23°C))	1.0E+16 ohms·cm	1.0E+16 ohms·cm	ASTM D257
Dielectric Strength <sup>8</sup>			ASTM D149
73°F (23°C), Method A (Short-Time)	410 V/mil	16 kV/mm	
Dielectric Constant			ASTM D150
73°F (23°C), 1 kHz	2.60	2.60	
73°F (23°C), 1 MHz	2.40	2.40	
Dissipation Factor			ASTM D150
73°F (23°C), 1 kHz	5.0E-3	5.0E-3	
73°F (23°C), 1 MHz	0.020	0.020	
Arc Resistance	158 sec	158 sec	ASTM D495
Optical	Typical Value (English)	Typical Value (SI)	Test Method
Gloss (45°, 9.84 mil (250 µm))	108	108	ASTM D2457
Light Transmittance <sup>9</sup>			ASTM D1003
Regular, 9.84 mil (250 µm)	89.0 %	89.0 %	
Total, 9.84 mil (250 µm)	91.0 %	91.0 %	
Clarity (9.84 mil (250 µm))	85.0	85.0	ASTM D1746
Haze (9.84 mil (250 µm))	0.800 %	0.800 %	ASTM D1003

### Processing Information

Injection	Typical Value (English)	Typical Value (SI)
Drying Temperature	149 °F	65 °C
Drying Time	4.0 to 6.0 hr	4.0 to 6.0 hr
Processing (Melt) Temp	480 to 520 °F	249 to 271 °C
Mold Temperature	61 to 100 °F	16 to 38 °C

### Notes

<sup>1</sup> Typical properties: these are not to be construed as specifications.

<sup>2</sup> 12.7 mm dia. head, 127 mm dia. clamp, 600 mm drop

<sup>3</sup> 7.9 in/min (200 mm/min)

<sup>4</sup> Split Tear Method, 254 mm/min

<sup>5</sup> 4 mm

<sup>6</sup> 13.5 ft/sec (4.1 m/sec), 0.79 in (20 mm) Striker Diameter

<sup>7</sup> 40 mm support and clamp diameter

<sup>8</sup> 500 V/sec

<sup>9</sup> Modified

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