

## ZEONEX® 5000 Medical Grade

Cyclo-Olefin Polymer resin suitable for high pressure injection molding and/or applications that require more flexibility and mechanical strength. Suitable for applications requiring liquid nitrogen storage due to increased flexibility. Compatible with EtO, Gamma irradiation and vaporized hydrogen peroxide sterilization.

Property	Value	Unit	Test Standard
<b>Physical Properties</b>			
Density	1.003	kg/m <sup>3</sup>	ASTM D792
Melt flow rate (MFR) (230 °C, 21.18 N)	8.4	g/10min	JIS K719, ISO 1133
Water absorption (23 °C-sat)	0.01	%	ASTM D570
Water vapor transmission (40 °C, 90% rh, @100µm thickness)	0.8	g/(m <sup>2</sup> ·day)	ASTM F1249
Oxygen transmission (23 °C, 0% rh, @100µm thickness)	200.9	cm <sup>3</sup> / (m <sup>2</sup> ·day·atm)	ASTM D3985
<b>Mechanical Properties</b>			
Tensile modulus (1 mm/min)	278	kpsi	ISO 527
Tensile stress at yield (5 mm/min)	6374	psi	ISO 527
Tensile stress at break (5 mm/min)	5875	psi	ISO 527
Tensile stress (5 mm/min)	6374	psi	ISO 527
Tensile strain at break (5 mm/min)	140	%	ISO 527
Flexural modulus	260	kpsi	ISO 178
Flexural strength	9487	psi	ISO 178
Charpy impact strength @ 23 °C	114*	ft-lbs/in <sup>2</sup>	ISO 179 / 1eU
Charpy impact strength @ -20 °C	138*	ft-lbs/in <sup>2</sup>	ISO 179 / 1eU
Charpy impact strength @ -80 °C	138	ft-lbs/in <sup>2</sup>	ISO 179 / 1eU
Charpy impact strength @ -194 °C	47.6	ft-lbs/in <sup>2</sup>	ISO 179 / 1eU
<b>Thermal Properties</b>			
Glass transition temperature (20 °C/min)	68.9	°C	JIS K7121
DTUL @ 1.82 MPa	63.0	°C	ASTM D648
<b>Electrical Properties</b>			
Dielectric constant at 1 GHz	2.28	-	IEC 62810
Volume resistivity	1.50E+16	Ω·m	IEC 62631-3-1
<b>Optical Properties</b>			
Deg. of light transmission (t = 3mm)	91.4	%	ASTM D1003

Typical properties. Not to be used for purposes of establishing specification(s).

\* No break observed during testing, indicating the impact strength is greater than the value shown in the table.

COP medical grades (ZEONEX®5000, ZEONEX®690R, ZEONEX®790R, ZEONOR®1020R) have been assessed for compliance with USP Class VI <87>, <88> and <661.1>, ISO10993, EU 3.1.3 and 3.1.5, and JP 7.02. FDA DMF and more information available upon request.

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