

Topas Advanced Polymers TOPAS® IT X1 Cyclic Olefin Copolymer (COC)

Category : Polymer , Thermoplastic , Cyclo Olefin Polymer

Material Notes:

TOPAS® IT X1 is an injection molding grade with heat and impact resistance. It is a moderately clear resin with high moisture barrier, chemical and heat resistance, making it suitable for products exposed to dishwashing or steam (121°C) temperatures. Key applications and attributes: Healthcare and Food: Broad regulatory approval Labware: Temperature resistance, clarity and purity High Temperature Optics: Clarity, low birefringence, low moisture sensitivity Electronics: Low dielectric constant, thermoplastic Food Packaging: Not manufactured with BPA, phthalates, or halogens Bottles: Minimally reactive, EtO/gamma/steam sterilizable Information provided by TOPAS Advanced Polymers

Order this product through the following link:

http://www.lookpolymers.com/polymer_Topas-Advanced-Polymers-TOPAS-IT-X1-Cyclic-Olefin-Copolymer-COC.php

Physical Properties	Metric	English	Comments
Density	1.00 g/cc	0.0361 lb/in ³	ISO 1183
Linear Mold Shrinkage	0.00300 - 0.00700 cm/cm	0.00300 - 0.00700 in/in	Internal Method
Melt Flow	8.55 g/10 min @Load 2.16 kg, Temperature 260 °C	8.55 g/10 min @Load 4.76 lb, Temperature 500 °F	ASTM D1238-10A

Mechanical Properties	Metric	English	Comments
Puncture Resistance	2590 N	582 lb (f)	ASTM D3763-10
Unnotched Impact Cantilever Beam	3.14 J/cm	5.88 ft-lb/in	ASTM D4812-11
Hardness, Rockwell R	102	102	ASTM D785-08A
Tensile Stress	32.0 MPa	4640 psi	Break, (50mm/min); ISO 527-2, -1A
Tensile Strength, Yield	52.0 MPa	7540 psi	50mm/min; ISO 527-2, -1A
Elongation at Break	6.7 %	6.7 %	(50mm/min); ISO 527-2, -1A
Elongation at Yield	4.5 %	4.5 %	(50mm/min); ISO 527-2, -1A
Tensile Modulus	2.10 GPa	305 ksi	(1mm/min); ISO 527-2, -1A
Flexural Strength	80.7 MPa @Strain 5.00 %	11700 psi @Strain 5.00 %	ASTM D790-10A
Flexural Modulus	2.11 GPa	306 ksi	(tangent); ASTM D790-10A
Izod Impact, Notched	0.368 J/cm	0.690 ft-lb/in	ASTM D256-10A

Mechanical Properties	Metric	English	Comments
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Charpy Impact, Notched	0.250 J/cm ²	1.19 ft-lb/in ²	ISO 179/1eA
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Puncture Energy	27.1 J	20.0 ft-lb	ASTM D3763-10

Thermal Properties	Metric	English	Comments
Deflection Temperature at 0.46 MPa (66 psi)	131 °C	268 °F	ASTM D648-07B
Deflection Temperature at 1.8 MPa (264 psi)	118 °C	244 °F	ASTM D648-07B
Glass Transition Temp, Tg	138 °C	280 °F	ISO 11357-1, -2, -3

Optical Properties	Metric	English	Comments
Refractive Index	1.53	1.53	ISO 489
Haze	8.5 %	8.5 %	ASTM D1003-00B
Transmission, Visible	90 %	90 %	ASTM D1003-00B

Electrical Properties	Metric	English	Comments
Volume Resistivity	<= 1.00e+17 ohm-cm	<= 1.00e+17 ohm-cm	ASTM D257
Dielectric Constant	2.25	2.25	ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	

Processing Properties	Metric	English	Comments
Feed Temperature	<= 60.0 °C	<= 140 °F	
Nozzle Temperature	220 - 260 °C	428 - 500 °F	
Zone 1	190 - 220 °C	374 - 428 °F	
Zone 2	200 - 250 °C	392 - 482 °F	
Zone 3	210 - 260 °C	410 - 500 °F	
Zone 4	220 - 260 °C	428 - 500 °F	
Melt Temperature	220 - 260 °C	428 - 500 °F	
Mold Temperature	70.0 - 100 °C	158 - 212 °F	

Descriptive Properties	Value	Comments
Puncture Failure Mode	Ductile	ASTM D3763-10

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