TOPAS® 6017S-04

Cyclic Olefin Copolymer

Topas Advanced Polymers, Inc.

Message:

Product Description
TOPAS 6017S-04 is an injection molding grade with a high heat distortion temperature (170°C) and exceptional dimensional stability. It is a glass-clear amorphous polymer with outstanding moisture barrier, chemical resistance, high purity and a non-reactive surface making it an excellent choice for precision optics, healthcare and other high-tech products. Lower leachables and extractables of TOPAS COC preserve food and drug stability and quality. It is a non-polar substrate that does not promote adsorption, denaturation, aggregation, or precipitation like glass can. This grade has excellent heat resistance to withstand 121°C and 134°C steam and dry heat sterilization protocols, as well as gamma and EtO procedures.
Selected Applications
Drug delivery
Precision componentry
Prefilled syringes, vials, cartridges
Bottles and tubes
Surgical instruments
IV containers and components
Labware
High Temperature Optics
Electronics
Food packaging
Healthcare and food contact
Leading Attributes
Low leachables & extractables, low water transmission
Dimensional stability, high tolerances
Non-ionic, does not promote adsorption like glass
Minimally reactive
Chemically resistant to alcohol, acetone, and acrylates
Transparent, withstands EtO/gamma/steam sterilization
Temperature resistance, clarity and purity
Clarity, low birefringence, low moisture sensitivity
Low dielectric constant, thermoplastic
Not manufactured with BPA, phthalates, or halogens
Broad regulatory compliance
Related Grades for Injection Molding, Healthcare, Optics and Diagnostics
TOPAS 6013M-07 - broader processing window, best for blow molding (IBM/ISBM)
TOPAS 6015S-04 - high heat distortion resistance (150°C) for 134°C protocols
TOPAS IT X1 - impact grade for applications requiring extra toughness

General Information	
Features	Good dimensional stability
	High purity
	Low extract
	Moisture proof
	Radiation disinfection
	Copolymer
	Ethylene oxide disinfection
	Good chemical resistance
	Alcohol resistance
	Heat resistance, high
	Definition, high

	thermal disinfection
	Compliance of Food Exposure
	BPA-free
	amorphous
	Halogen-free
	Disinfect with steam
Uses	Electrical/Electronic Applications
	Pipe fittings
	Optical applications
	Bottle
	Laboratory apparatus
	Food packaging
	Surgical instruments
	Drug packaging
	Medical/nursing supplies
Agency Ratings	DMF 12132
	FDA FCN 405
	ISO 10993
	USP Class VI
	Europe 10/1/2011 12:00:00 AM

Appearance	Clear/transparent		
Forms	Particle		
Processing Method	Injection molding		
Physical	**Nominal Value**	**Unit**	**Test Method**
Density	1.02	g/cm³	ISO 1183
Melt Mass-Flow Rate (MFR) (260°C/2.16 kg)	1.4	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (260°C/2.16 kg)	1.50	cm³/10min	ISO 1133
Molding Shrinkage [1]	0.50 - 0.70	%	Internal method
Water Absorption (Saturation, 23°C)	0.010	%	ISO 62
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus	3000	MPa	ISO 527-2/1A/1
Tensile Stress (Yield)	58.0	MPa	ISO 527-2/1A/50
Tensile Strain (Yield)	2.4	%	ISO 527-2/1A/50
Impact	**Nominal Value**	**Unit**	**Test Method**
Charpy Notched Impact Strength (23°C)	2.0	kJ/m²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	15	kJ/m²	ISO 179/1eU
Thermal	**Nominal Value**	**Unit**	**Test Method**

Heat Deflection Temperature (0.45 MPa, Unannealed)	170	°C	ISO 75-2/B
Glass Transition Temperature	178	°C	ISO 11357-2
Vicat Softening Temperature	178	°C	ISO 306/B50
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity	> 1.0E+16	ohms·cm	IEC 60093
Relative Permittivity			IEC 60250
1 kHz	2.35		IEC 60250
10 kHz	2.35		IEC 60250
Dissipation Factor (1.00 GHz)	7.0E-5		IEC 60250
Comparative Tracking Index	> 600	V	IEC 60112
Flammability	Nominal Value	Unit	Test Method
Flame Rating (1.60 mm)	HB		UL 94
Optical	Nominal Value	Unit	Test Method
Refractive Index	1.530		ISO 489
Transmittance	91.0	%	ISO 13468-2
Injection	Nominal Value	Unit	
Drying Temperature	60.0	°C	
Drying Time	4.0 - 6.0	hr	
Rear Temperature	250 - 280	°C	
Middle Temperature	260 - 310	°C	
Front Temperature	270 - 320	°C	
Nozzle Temperature	260 - 320	°C	
Processing (Melt) Temp	270 - 320	°C	
Mold Temperature	120 - 160	°C	
Injection Pressure	50.0 - 110	MPa	
Injection Rate	Moderate-Fast		
Holding Pressure	30.0 - 60.0	MPa	
Back Pressure	< 15.2	MPa	
Screw Speed	50 - 200	rpm	
Injection instructions			
Feed temperature: <110°C (<230°F)Max. residence time: 10 minutes, reduce Tx = 170°C (338°F)Injection speed: 50 - 150 mm/sec (2.0 - 6.0 in/sec)Nozzle type: Free flow			
NOTE			
1.	Dependent on processing conditions and part design.		

Recommended distributors for this material

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