TOPAS® 6013S-04

Cyclic Olefin Copolymer

Topas Advanced Polymers, Inc.

Message:

Product Description
TOPAS 6013S-04 is a general purpose injection molding grade with a 130°C heat distortion temperature. 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 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 a high heat distortion temperature to withstand 121°C steam sterilization protocols, as well as gamma and EtO procedures.
Selected Applications
Drug delivery
Labware
Optics
Electronics
Food packaging
Healthcare and food contact
Leading Attributes
Low leachables & extractables, low water transmission
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 version especially suited for IBM/ISBM
TOPAS 6015S-04 - higher heat distortion temperature (150°C) for 134°C protocols
TOPAS 5013L-10 - high flow grade, lubricated for greater processing versatility
TOPAS 5013S-04 - high flow grade without lubricant
TOPAS IT X1 - impact grade for applications requiring extra toughness

General Information	
Features	High purity
	Low extract
	Moisture proof
	Radiation disinfection
	Copolymer
	Ethylene oxide disinfection
	Good chemical resistance
	Heat resistance, high
	Definition, high
	Compliance of Food Exposure
	General
	BPA-free
	amorphous
	Halogen-free
	Disinfect with steam

Uses	Electrical/Electronic Applications Optical applications Laboratory apparatus Food packaging General 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)	13	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (260°C/2.16 kg)	14.0	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	2900	MPa	ISO 527-2/1A/1
Tensile Stress (Yield)	63.0	MPa	ISO 527-2/1A/50
Tensile Strain (Yield)	2.7	%	ISO 527-2/1A/50
Impact	**Nominal Value**	**Unit**	**Test Method**
Charpy Notched Impact Strength (23°C)	1.8	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)	130	°C	ISO 75-2/B
Glass Transition Temperature	138	°C	ISO 11357-2
Vicat Softening Temperature	137	°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	100	°C	
Drying Time	4.0 - 6.0	hr	
Rear Temperature	230 - 260	°C	
Middle Temperature	240 - 280	°C	
Front Temperature	260 - 290	°C	
Nozzle Temperature	240 - 300	°C	
Processing (Melt) Temp	240 - 300	°C	
Mold Temperature	95.0 - 130	°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: <100°C (<212°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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