TOPAS® 9903D-10

Cyclic Olefin Copolymer

Topas Advanced Polymers, Inc.

Message:

Product Description
TOPAS 9903D-10 is a very low glass transition temperature (T g =33°C) film extrusion grade. It is designed to deliver high shrinkage at low temperatures in shrink packaging applications. It is a moderate clarity amorphous resin with high stiffness, moisture barrier, chemical resistance, thermoformability and purity for food and general purpose applications. It is used in blends in monolayer products, and alone or in blends in multilayer films. It can be used in both cast and blown film processes. The leading film applications are shrink films and labels. For property enhancement at elevated temperatures, higher glass transition temperature (Tg) grades of TOPAS are recommended. Due to the low glass transition temperature of this grade, shipment and storage of pellets at room temperature or below is strongly recommended.
Selected Applications
Shrink films and labels
Food packaging
Food contact
Leading Attributes
High shrink at low temperatures, low stress, toughness
Not manufactured with BPA, phthalates, or halogens
Broad regulatory compliance
Related Grades for Packaging and Film Extrusion
TOPAS 9506F-500 - robust low temperature (T g =65°C) extrusion grade
TOPAS 9506F-04 - high clarity extrusion grade

General Information	
Features	High purity
	Moisture proof
	Rigidity, high
	Copolymer
	Good chemical resistance
	Good toughness
	Compliance of Food Exposure
	High shrinkage
	General
	BPA-free
	amorphous
	Halogen-free
	Medium transparency
Uses	Packaging
	Films
	Label
	Multilayer film
	Mixing
	cast film
	Food packaging
	General

Agency Ratings	FDA FCN 405 Europe 10/1/2011 12:00:00 AM
Forms	Particle
Processing Method	Film extrusion Blow film cast film Thermoforming

Physical	Nominal Value	Unit	Test Method
Density	1.02	g/cm³	ISO 1183
Melt Mass-Flow Rate (MFR)			ISO 1133
190°C/2.16 kg	0.90	g/10 min	ISO 1133
230°C/2.16 kg	3.7	g/10 min	ISO 1133
260°C/2.16 kg	7.4	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR)			ISO 1133
190°C/2.16 kg	1.00	cm³/10min	ISO 1133
230°C/2.16 kg	4.00	cm³/10min	ISO 1133
260°C/2.16 kg	8.00	cm³/10min	ISO 1133
Water Absorption (Saturation, 23°C)	0.010	%	ISO 62
Films	**Nominal Value**	**Unit**	**Test Method**
Film Thickness - Tested	100	µm	
Tensile Modulus (100 µm, cast film)	1260	MPa	ISO 527-3/1
Tensile Stress			ISO 527-3/50
MD: Fracture, 100 µm, cast film	25.0	MPa	ISO 527-3/50
TD: Fracture, 100 µm, cast film	22.0	MPa	ISO 527-3/50
Tensile Elongation			ISO 527-3/50
MD: Fracture, 100 µm, cast film	> 150	%	ISO 527-3/50
TD: Fracture, 100 µm, cast film	> 100	%	ISO 527-3/50
Oxygen Permeability (23°C, 100 µm, extruded film, 50% RH)	39	cm³·mm/m²/atm/24 hr	ASTM D3985
Water Vapor Transmission Rate (100 µm, 23°C, Cast Film, 85% RH)	0.19	g·mm/m²/atm/24 hr	ASTM F1249
Thermal	**Nominal Value**	**Unit**	**Test Method**
Glass Transition Temperature	33.0	°C	ISO 11357-2
Optical	**Nominal Value**	**Unit**	**Test Method**
Gloss (60 °, 100 µm, cast film)	> 100		ISO 2813
Haze (100 µm, cast film)	< 1.0	%	ISO 14782
Extrusion	**Nominal Value**	**Unit**	
Feed part of extruder	20 - 60	°C	
Extruder Screw L/D Ratio	> 28:1		
Cylinder Zone 1 Temp.	210 - 220	°C	

Cylinder Zone 2 Temp.	230 - 240	°C
Cylinder Zone 3 Temp.	230 - 240	°C
Cylinder Zone 4 Temp.	230 - 240	°C
Die Temperature	230 - 240	°C

Extrusion instructions

Head Pressure: P >140 bar / 2000 psi; Fine screen packs as neededScrew Speed: RPM > 50% nominalScrew Design:
Multi-purpose or barrier screw with mixing section
Screw diameter > 60 mm / 2.5 inch

Recommended distributors for this material

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