

Bayer MaterialScience Apec® 1745 Polycarbonate

Categories: [Polymer](#); [Thermoplastic](#); [Polycarbonate \(PC\)](#); [Polycarbonate, Molded](#)

Material Notes:

- Easy to demold
- suitable for superheated steam sterilization up to 143 °C as well as for pharmaceutical applications according to United States Pharmacopeia (USP) XXII Class VI
- softening temperature (VST/B 120)=170 °C

Preprocessing

Max. Water content 0.02 %

Drying temperature 130 °C

Drying time

Circulating air drying oven (50 % fresh air) 4-12 h

Fresh air dryer (high speed dryer) 2-4 h

Dry air dryer 2-3 h

Processing

Melt temperature 320-340 °C

Mold temperature 110-130 °C

Open nozzles of the free-flow type with a relatively large cross-section have proved successful.

Vendors: No vendors are listed for this material. Please [click here](#) if you are a supplier and would like information on how to add your listing to this material.

Physical Properties	Metric	English	Comments
Density	1.17 g/cc	0.0423 lb/in ³	ISO 1183
	0.995 g/cc @Temperature 330 °C	0.0359 lb/in ³ @Temperature 626 °F	Melt
Water Absorption	0.30 %	0.30 %	Similar to ISO 62
Moisture Absorption at Equilibrium	0.12 %	0.12 %	Similar to ISO 62
Melt Flow	17 g/10 min @Load 2.16 kg, Temperature 330 °C	17 g/10 min @Load 4.76 lb, Temperature 626 °F	ISO 1133

Mechanical Properties	Metric	English	Comments
Tensile Strength, Yield	70.0 MPa	10200 psi	ISO 527-1/-2
Elongation at Break	>= 50 %	>= 50 %	Nominal; ISO 527-1/-2
Elongation at Yield	6.4 %	6.4 %	ISO 527-1/-2
Tensile Modulus	2.40 GPa	348 ksi	ISO 527-1/-2
Charpy Impact Unnotched	NB	NB	ISO 179/1eU
	NB @Temperature -30.0 °C	NB @Temperature -22.0 °F	ISO 179/1eU
Impact	5500	5500	Puncture - maximum force (N); ISO 6603-2
	6400 @Temperature -30.0 °C	6400 @Temperature -22.0 °F	Puncture - maximum force (N); ISO 6603-2
Puncture Energy	60.0 J	44.3 ft-lb	ISO 6603-2
	65.0 J @Temperature -30.0 °C	47.9 ft-lb @Temperature -22.0 °F	ISO 6603-2

Electrical Properties	Metric	English	Comments
Volume Resistivity	>= 1.00e+13 ohm-cm	>= 1.00e+13 ohm-cm	IEC 60093
Surface Resistance	>= 1.00e+15 ohm	>= 1.00e+15 ohm	IEC 60093
Dielectric Constant 	3.0 @Frequency 100 Hz	3.0 @Frequency 100 Hz	IEC 60250

	3.0 @Frequency 1.00e+6 Hz	3.0 @Frequency 1.00e+6 Hz	IEC 60250
Dielectric Strength	35.0 kV/mm	889 kV/in	IEC 60243-1
Dissipation Factor 	0.00070 @Frequency 100 Hz	0.00070 @Frequency 100 Hz	IEC 60250
	0.0080 @Frequency 1.00e+6 Hz	0.0080 @Frequency 1.00e+6 Hz	IEC 60250
Comparative Tracking Index	275 V	275 V	IEC 60112

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	70.0 µm/m-°C	38.9 µin/in-°F	ISO 11359-1/-2
CTE, linear, Transverse to Flow	70.0 µm/m-°C	38.9 µin/in-°F	ISO 11359-1/-2
Specific Heat Capacity	1.70 J/g-°C	0.406 BTU/lb-°F	Melt
Thermal Conductivity	0.169 W/m-K	1.17 BTU-in/hr-ft²-°F	Melt
Deflection Temperature at 0.46 MPa (66 psi)	160 °C	320 °F	ISO 75-1/-2
Deflection Temperature at 1.8 MPa (264 psi)	146 °C	295 °F	ISO 75-1/-2
Flammability, UL94	HB @Thickness 1.50 mm	HB @Thickness 0.0591 in	IEC 60695-11-10
Oxygen Index	25 %	25 %	ISO 4589-1/-2

Optical Properties	Metric	English	Comments
Transmission, Visible	80 %	80 %	transparent; thickness unknown

Processing Properties	Metric	English	Comments
Melt Temperature	320 - 340 °C	608 - 644 °F	
	330 °C	626 °F	Injection Molding; ISO 294
Mold Temperature	100 °C	212 °F	Injection Molding; ISO 10724
	110 - 130 °C	230 - 266 °F	
Ejection Temperature	150 °C	302 °F	
Injection Velocity	200 mm/sec	7.87 in/sec	ISO 294

Descriptive Properties

Availability	Europe Near East/Africa North America South and Central America
Eff. thermal diffusivity (m²/s)	1E-07
Feature	Release agent
Form	Pellets
Process	Film Extrusion Injection Molding Profile Extrusion Sheet Extrusion
UL recognition	ULV1.5n

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