

## Covestro Apec® 1603 High-Heat Polycarbonate

Category : Polymer , Thermoplastic , Polycarbonate (PC) , Polycarbonate, High Heat , Polycarbonate, Molded , Polycarbonate, UV Stabilized

### Material Notes:

This linear, amorphous copolycarbonate is most suitable for applications that must withstand high temperatures and exhibit toughness, impact resistance and high transparency. These properties, along with good dimensional stability, weatherability and flowability, allow Apec® to be utilized as a replacement for glass, metal or standard polycarbonate in high-heat applications. Main characteristics: • High toughness • Heat resistance • Glass-like transparency • High dimensional accuracy and stability • Good metallization • Good flowability • Good electrical properties. Grade characteristics: • UV stabilized • High viscosity. As of 1 September 2015, Bayer Material Science was separated from Bayer AG and officially adopted its new name – Covestro.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Covestro-Apec-1603-High-Heat-Polycarbonate.php](http://www.lookpolymers.com/polymer_Covestro-Apec-1603-High-Heat-Polycarbonate.php)

Physical Properties	Metric	English	Comments
Density	1.18 g/cc	0.0426 lb/in <sup>3</sup>	ISO 1183-1
Moisture Absorption at Equilibrium	0.20 %	0.20 %	ISO 62, 50% RH
Water Absorption at Saturation	0.40 %	0.40 %	ISO 62
Linear Mold Shrinkage, Flow	0.0075 cm/cm @Thickness 2.00 mm	0.0075 in/in @Thickness 0.0787 in	60x60x2 mm; ISO 294-4
Linear Mold Shrinkage, Transverse	0.0075 cm/cm @Thickness 2.00 mm	0.0075 in/in @Thickness 0.0787 in	60x60x2 mm; ISO 294-4
Melt Flow	26 g/10 min @Load 2.16 kg, Temperature 330 °C	26 g/10 min @Load 4.76 lb, Temperature 626 °F	ISO 1133

Mechanical Properties	Metric	English	Comments
Ball Indentation Hardness	115 MPa	16700 psi	ISO 2039-1
Tensile Strength, Yield	65.0 MPa	9430 psi	50 mm/min; ISO 527-1,-2
Elongation at Break	>= 50 %	>= 50 %	Nominal, 50 mm/min; ISO 527-1,-2
Elongation at Yield	7.0 %	7.0 %	50 mm/min; ISO 527-1,-2
Tensile Modulus	2.30 GPa	334 ksi	1 mm/min; ISO 527-1,-2
Flexural Strength	95.0 MPa	13800 psi	2 mm/min; ISO 178
Flexural Modulus	2.20 GPa	319 ksi	2 mm/min; ISO 178
	NB	NB	

Charpy Impact Unnotched Mechanical Properties	Metric @ Temperature 23.0 °C	English @ Temperature 73.4 °F	ISO 179-1eU Comments
	NB	NB	ISO 179-1eU
	@Temperature -30.0 °C	@Temperature -22.0 °F	

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	70.0 µm/m-°C @Temperature 23.0 - 55.0 °C	38.9 µin/in-°F @Temperature 73.4 - 131 °F	ISO 11359-1,-2
CTE, linear, Transverse to Flow	70.0 µm/m-°C @Temperature 23.0 - 55.0 °C	38.9 µin/in-°F @Temperature 73.4 - 131 °F	ISO 11359-1,-2
Maximum Service Temperature, Air	200 °C	392 °F	
Deflection Temperature at 0.46 MPa (66 psi)	151 °C	304 °F	ISO 75-1,-2
Deflection Temperature at 1.8 MPa (264 psi)	139 °C	282 °F	ISO 75-1,-2
Vicat Softening Point	159 °C @Load 5.10 kg	318 °F @Load 11.2 lb	120°C/h; ISO 306
Minimum Service Temperature, Air	-30.0 °C	-22.0 °F	
Flammability, UL94	HB @Thickness 1.50 mm	HB @Thickness 0.0591 in	
	HB @Thickness 3.00 mm	HB @Thickness 0.118 in	
Oxygen Index	24 %	24 %	Method A; IEC 4589-2
Glow Wire Test	850 °C	1560 °F	GWFI; IEC 60695-2-12

Optical Properties	Metric	English	Comments
Refractive Index	1.581	1.581	Procedure A; ISO 489
Transmission, Visible	90 % @Thickness 1.00 mm	90 % @Thickness 0.0394 in	ISO 13468-2

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+16 ohm-cm	1.00e+16 ohm-cm	IEC 60093
Surface Resistance	1.00e+16 ohm	1.00e+16 ohm	IEC 60093

Electrical Properties	Metric	English	Comments
Dielectric Constant	@Frequency 100 Hz	@Frequency 100 Hz	IEC 60250
	3.0	3.0	IEC 60250
Dielectric Strength	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	IEC 60250
	35.0 kV/mm	889 kV/in	IEC 60243-1
Dissipation Factor	@Thickness 1.00 mm	@Thickness 0.0394 in	
	0.0016	0.0016	IEC 60250
Comparative Tracking Index	@Frequency 100 Hz	@Frequency 100 Hz	IEC 60250
	0.0087	0.0087	IEC 60250
Comparative Tracking Index	<= 100 V	<= 100 V	CTI M; Solution B; IEC 60112
	250 V	250 V	Solution A; IEC 60112

Processing Properties	Metric	English	Comments
Melt Temperature	330 °C	626 °F	Injection molding; ISO 294
Mold Temperature	100 °C	212 °F	Injection molding; ISO 294
Injection Velocity	200 mm/sec	7.87 in/sec	ISO 294

Descriptive Properties	Value	Comments
Electrolytic Corrosion	A1	IEC 60426

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