

Covestro Makrolon® LED2643 Polycarbonate

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

Material Notes:

Main characteristics:• High toughness• Good heat resistance• Glass-like transparency, optical quality• High dimensional accuracy and stability
Grade characteristics:• LED lighting, optics, and lenses• Highest transmission• Medium viscosity• UV stabilized
As of 1 September 2015, Bayer MaterialScience 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-Makrolon-LED2643-Polycarbonate.php

Physical Properties	Metric	English	Comments
Bulk Density	0.660 g/cc	0.0238 lb/in ³	pellets; ISO 60
Density	1.20 g/cc	0.0434 lb/in ³	ISO 1183-1
Moisture Absorption at Equilibrium	0.12 %	0.12 %	ISO 62, 50% RH
Water Absorption at Saturation	0.30 %	0.30 %	ISO 62
Oxygen Transmission	67.0 cc-mm/m ² -24hr-atm @Thickness 0.100 mm	170 cc-mil/100 in ² -24hr-atm @Thickness 0.00394 in	670 cc/m ² -24hr-bar; film; b.o. ISO 2556
Nitrogen Transmission	12.0 cc-mm/m ² -24hr-atm @Thickness 0.100 mm	30.5 cc-mil/100 in ² -24hr-atm @Thickness 0.00394 in	120 cc/m ² -24hr-bar; film; b.o. ISO 2556
Carbon Dioxide Transmission	380 cc-mm/m ² -24hr-atm @Thickness 0.100 mm	965 cc-mil/100 in ² -24hr-atm @Thickness 0.00394 in	3800 cc/m ² -24hr-bar; film; b.o. ISO 2556
Linear Mold Shrinkage, Flow	0.0070 cm/cm @Thickness 2.00 mm	0.0070 in/in @Thickness 0.0787 in	60x60x2 mm; 500 bar; 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; 500 bar; ISO 294-4
Melt Flow	13 g/10 min @Load 1.20 kg, Temperature 300 °C	13 g/10 min @Load 2.65 lb, Temperature 572 °F	ISO 1133

Mechanical Properties	Metric	English	Comments
Puncture Resistance	5400 N @Temperature 23.0 °C	1210 lb (f) @Temperature 73.4 °F	ISO 6603-2
	6300 N	1420 lb (f)	

Mechanical Properties	Metric @ Temperature -30.0 °C	English @ Temperature -22.0 °F	ISO 6603-2 Comments
Ball Indentation Hardness	115 MPa	16700 psi	ISO 2039-1
Tensile Strength at Break	70.0 MPa	10200 psi	50 mm/min; ISO 527-1,-2
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
	130 %	130 %	50 mm/min; b.o. ISO 527-1,-2
Elongation at Yield	6.3 %	6.3 %	50 mm/min; ISO 527-1,-2
Tensile Modulus	2.35 GPa	341 ksi	1 mm/min; ISO 527-1,-2
Flexural Strength	96.0 MPa	13900 psi	2 mm/min; ISO 178
Flexural Yield Strength	72.0 MPa @Strain 3.50 %	10400 psi @Strain 3.50 %	2 mm/min; ISO 178
Flexural Modulus	2.35 GPa	341 ksi	2 mm/min; ISO 178
Izod Impact, Notched (ISO)	14.0 kJ/m ² @Thickness 3.20 mm, Temperature -30.0 °C	6.66 ft-lb/in ² @Thickness 0.126 in, Temperature -22.0 °F	complete break; b.o. ISO 180-A
	80.0 kJ/m ² @Thickness 3.20 mm, Temperature 23.0 °C	38.1 ft-lb/in ² @Thickness 0.126 in, Temperature 73.4 °F	partial break; b.o. ISO 180-A
Charpy Impact Unnotched	NB @Temperature 23.0 °C	NB @Temperature 73.4 °F	ISO 179-1eU
	NB @Temperature -30.0 °C	NB @Temperature -22.0 °F	ISO 179-1eU
	NB @Temperature -60.0 °C	NB @Temperature -76.0 °F	ISO 179-1eU
Charpy Impact, Notched	1.40 J/cm ² @Thickness 3.00 mm, Temperature -30.0 °C	6.66 ft-lb/in ² @Thickness 0.118 in, Temperature -22.0 °F	complete break; ISO 7391/b.o. ISO 179-1eA
	7.00 J/cm ² @Thickness 3.00 mm, Temperature 23.0 °C	33.3 ft-lb/in ² @Thickness 0.118 in, Temperature 73.4 °F	partial break; ISO 7391/b.o. ISO 179-1eA
Puncture Energy	60.0 J @Temperature 23.0 °C	44.3 ft-lb @Temperature 73.4 °F	ISO 6603-2

Mechanical Properties	Metric	English	Comments
	@Temperature -30.0 °C	@Temperature -22.0 °F	ISO 6603-2

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	65.0 $\mu\text{m}/\text{m}\cdot\text{°C}$ @Temperature 23.0 - 55.0 °C	36.1 $\mu\text{in}/\text{in}\cdot\text{°F}$ @Temperature 73.4 - 131 °F	ISO 11359-1,-2
CTE, linear, Transverse to Flow	65.0 $\mu\text{m}/\text{m}\cdot\text{°C}$ @Temperature 23.0 - 55.0 °C	36.1 $\mu\text{in}/\text{in}\cdot\text{°F}$ @Temperature 73.4 - 131 °F	ISO 11359-1,-2
Thermal Conductivity	0.200 W/m-K	1.39 BTU-in/hr-ft ² -°F	cross-flow; ISO 8302
Hot Ball Pressure Test	138 °C	280 °F	IEC 60695-10-2
Deflection Temperature at 0.46 MPa (66 psi)	138 °C	280 °F	ISO 75-1,-2
Deflection Temperature at 1.8 MPa (264 psi)	126 °C	259 °F	ISO 75-1,-2
Vicat Softening Point	145 °C @Load 5.10 kg	293 °F @Load 11.2 lb	50°C/h; ISO 306
	146 °C @Load 5.10 kg	295 °F @Load 11.2 lb	120°C/h; ISO 306
Glass Transition Temp, Tg	146 °C	295 °F	10°C/min; ISO 11357-1,-2
UL RTI, Electrical	125 °C	257 °F	UL 746B
UL RTI, Mechanical with Impact	115 °C	239 °F	UL 746B
UL RTI, Mechanical without Impact	125 °C	257 °F	UL 746B
Flammability, UL94	HB @Thickness 2.50 mm	HB @Thickness 0.0984 in	
	V-2 @Thickness 0.750 mm	V-2 @Thickness 0.0295 in	
Flash Point	480 °C	896 °F	ASTM D 1929
	550 °C	1020 °F	self ignition; ASTM D 1929
Oxygen Index	27 %	27 %	Method A; ISO 4589-2
Glow Wire Test	850 °C	1560 °F	GWFI; IEC 60695-2-12

Thermal Properties	@Thickness 1.50 mm Metric	@Thickness 0.0591 in English	Comments
	850 °C	1560 °F	GWFI; IEC 60695-2-12
	@Thickness 2.20 mm	@Thickness 0.0866 in	
	875 °C	1610 °F	GWIT; IEC 60695-2-13
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	875 °C	1610 °F	GWIT; IEC 60695-2-13
	@Thickness 2.20 mm	@Thickness 0.0866 in	
	875 °C	1610 °F	GWIT; IEC 60695-2-13
	@Thickness 3.00 mm	@Thickness 0.118 in	
	960 °C	1760 °F	GWFI; IEC 60695-2-12
	@Thickness 3.00 mm	@Thickness 0.118 in	

Optical Properties	Metric	English	Comments
Refractive Index	1.586	1.586	Procedure A; ISO 489
Haze	<= 1.0 %	<= 1.0 %	ISO 14782
	@Thickness 3.00 mm	@Thickness 0.118 in	
Transmission, Visible	>= 89 %	>= 89 %	ISO 13468-2
	@Thickness 3.00 mm	@Thickness 0.118 in	
	>= 89 %	>= 89 %	ISO 13468-2
	@Thickness 4.00 mm	@Thickness 0.157 in	
	90 %	90 %	ISO 13468-2
	@Thickness 1.00 mm	@Thickness 0.0394 in	
	90 %	90 %	ISO 13468-2
	@Thickness 2.00 mm	@Thickness 0.0787 in	

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
Dielectric Constant	3.0	3.0	IEC 60250
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	3.1	3.1	IEC 60250

Electrical Properties	@Frequency 100 Hz Metric	@Frequency 100 Hz English	Comments
Dielectric Strength	34.0 kV/mm @Thickness 1.00 mm	864 kV/in @Thickness 0.0394 in	IEC 60243-1
Dissipation Factor	0.00050 @Frequency 100 Hz	0.00050 @Frequency 100 Hz	IEC 60250
	0.0095 @Frequency 1.00e+6 Hz	0.0095 @Frequency 1.00e+6 Hz	IEC 60250
Comparative Tracking Index	125 V	125 V	CTI M; Solution B; IEC 60112
	250 V	250 V	Solution A; IEC 60112

Processing Properties	Metric	English	Comments
Melt Temperature	290 °C	554 °F	Injection molding; ISO 294
Mold Temperature	80.0 °C	176 °F	Injection molding; ISO 294
Injection Velocity	200 mm/sec	7.87 in/sec	ISO 294

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