

Covestro Makrolon® 3158 Polycarbonate

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

Material Notes:

Main characteristics:• High toughness• Good heat resistance• Glass-like transparency, optical quality• High dimensional accuracy and stability
Grade characteristics:• Medical devices - biocompatible ISO 10993-1• High viscosity; easy release
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-Makrolon-3158-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
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	6.5 g/10 min @Load 1.20 kg, Temperature 300 °C	6.5 g/10 min @Load 2.65 lb, Temperature 572 °F	ISO 1133

Mechanical Properties	Metric	English	Comments
Puncture Resistance	5600 N @Temperature 23.0 °C	1260 lb (f) @Temperature 73.4 °F	ISO 6603-2
	6500 N @Temperature -30.0 °C	1460 lb (f) @Temperature -22.0 °F	ISO 6603-2
Ball Indentation Hardness	113 MPa	16400 psi	ISO 2039-1
Tensile Strength at Break	70.0 MPa	10200 psi	50 mm/min; ISO 527-1,-2
Tensile Strength, Yield	66.0 MPa	9570 psi	50 mm/min; ISO 527-1,-2
Elongation at Break	>= 50 %	>= 50 %	Nominal, 50 mm/min; ISO 527-1,-2
	120 %	120 %	50 mm/min; b.o. ISO 527-1,-2

Elongation at Yield Mechanical Properties	6.2 % Metric	6.2 % English	50 mm/min; ISO 527-1,-2 Comments
Tensile Modulus	2.40 GPa	348 ksi	1 mm/min; ISO 527-1,-2
Flexural Strength	97.0 MPa	14100 psi	2 mm/min; ISO 178
Flexural Yield Strength	73.0 MPa @Strain 3.50 %	10600 psi @Strain 3.50 %	2 mm/min; ISO 178
Flexural Modulus	2.40 GPa	348 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
	90.0 kJ/m ² @Thickness 3.20 mm, Temperature 23.0 °C	42.8 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	1.60 J/cm ² @Thickness 3.00 mm, Temperature -30.0 °C	7.61 ft-lb/in ² @Thickness 0.118 in, Temperature -22.0 °F	complete break; ISO 7391/b.o. ISO 179-1eA
	8.00 J/cm ² @Thickness 3.00 mm, Temperature 23.0 °C	38.1 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
	70.0 J @Temperature -30.0 °C	51.6 ft-lb @Temperature -22.0 °F	ISO 6603-2
Tensile Creep Modulus, 1 hour	2200 MPa	319000 psi	ISO 899-1
Tensile Creep Modulus, 1000 hours	1900 MPa	276000 psi	ISO 899-1

Thermal Properties	Metric	English	Comments
	65.0 µm/m-°C	36.1 µin/in-°F	

CTE, linear, Parallel to Flow Thermal Properties	Metric @Temperature 23.0 - 55.0 °C	English @Temperature 73.4 - 131 °F	ISO 11359-1,-2 Comments
	65.0 µm/m-°C	36.1 µin/in-°F	ISO 11359-1,-2
CTE, linear, Transverse to Flow	@Temperature 23.0 - 55.0 °C	@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	147 °C @Load 5.10 kg	297 °F @Load 11.2 lb	50°C/h; ISO 306
	148 °C @Load 5.10 kg	298 °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
Flash Point	480 °C	896 °F	ASTM D 1929
	550 °C	1020 °F	self ignition; ASTM D 1929

Optical Properties	Metric	English	Comments
Refractive Index	1.587	1.587	Procedure A; ISO 489
Haze	<= 0.80 % @Thickness 3.00 mm	<= 0.80 % @Thickness 0.118 in	ISO 14782
Transmission, Visible	87 % @Thickness 4.00 mm	87 % @Thickness 0.157 in	ISO 13468-2
	88 % @Thickness 3.00 mm	88 % @Thickness 0.118 in	ISO 13468-2
	89 % @Thickness 1.00 mm	89 % @Thickness 0.0394 in	ISO 13468-2
	89 % @Thickness 2.00 mm	89 % @Thickness 0.0787 in	ISO 13468-2

Processing Properties	Metric	English	Comments
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Melt Temperature Processing Properties	300 °C Metric	572 °F English	Injection molding; ISO 294 Comments
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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