



Makrolon® Rx2530

Covestro - Polycarbonates - Polycarbonate

Wednesday, January 29, 2020

General Information

Product Description

MVR (300°C/1.2 kg) 15 cm³/10 min; medical devices; suitable for sterilization with high-energy radiation; biocompatible according to many ISO 10993-1 test requirements; medium viscosity; injection molding - melt temperature 280 - 320°C; transparent parts for medical devices

General

Material Status	• Commercial: Active		
Regional Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Features	• Biocompatible	• Medium Viscosity	• Radiation Sterilizable
Uses	• Medical Devices • Medical/Healthcare Applications		
Agency Ratings	• ISO 10993-Part 1		
RoHS Compliance	• RoHS Compliant		
Processing Method	• Injection Molding		

ASTM & ISO Properties ¹

Physical	Typical Value (English)	Typical Value (SI)	Test Method
Density (73°F (23°C))	1.20 g/cm ³	1.20 g/cm ³	ISO 1183
Apparent (Bulk) Density ²	0.66 g/cm ³	0.66 g/cm ³	ISO 60
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	16 g/10 min	16 g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (300°C/1.2 kg)	15 cm ³ /10min	15 cm ³ /10min	ISO 1133
Molding Shrinkage			
Across Flow	0.60 to 0.80 %	0.60 to 0.80 %	ISO 2577
Flow	0.60 to 0.80 %	0.60 to 0.80 %	ISO 2577
Across Flow : 536°F (280°C), 0.0787 in (2.00 mm) ³	0.65 %	0.65 %	ISO 294-4
Flow : 0.0787 in (2.00 mm) ³	0.60 %	0.60 %	ISO 294-4
Water Absorption			ISO 62
Saturation, 73°F (23°C)	0.30 %	0.30 %	
Equilibrium, 73°F (23°C), 50% RH	0.12 %	0.12 %	
Mechanical	Typical Value (English)	Typical Value (SI)	Test Method
Tensile Modulus (73°F (23°C))	348000 psi	2400 MPa	ISO 527-2/1
Tensile Stress			ISO 527-2/50
Yield, 73°F (23°C)	9720 psi	67.0 MPa	
Break, 73°F (23°C)	10900 psi	75.0 MPa	
Tensile Strain			ISO 527-2/50
Yield, 73°F (23°C)	6.1 %	6.1 %	
Break, 73°F (23°C)	130 %	130 %	
Nominal Tensile Strain at Break			ISO 527-2/50
73°F (23°C)	> 50 %	> 50 %	
Flexural Modulus ⁴ (73°F (23°C))	348000 psi	2400 MPa	ISO 178

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Mechanical	Typical Value (English)	Typical Value (SI)	Test Method
Flexural Stress ⁴			ISO 178
73°F (23°C)	14500 psi	100 MPa	
3.5% Strain, 73°F (23°C)	10700 psi	74.0 MPa	
Flexural Strain at Flexural Strength ⁵			ISO 178
73°F (23°C)	7.0 %	7.0 %	
Impact	Typical Value (English)	Typical Value (SI)	Test Method
Charpy Notched Impact Strength ⁶			ISO 179/1eA
-22°F (-30°C), Complete Break	6.7 ft-lb/in ²	14 kJ/m ²	
73°F (23°C), Partial Break	33 ft-lb/in ²	70 kJ/m ²	
Charpy Unnotched Impact Strength			ISO 179/1eU
-76°F (-60°C)	No Break	No Break	
-22°F (-30°C)	No Break	No Break	
73°F (23°C)	No Break	No Break	
Notched Izod Impact Strength ⁶			ISO 180/A
-22°F (-30°C), Complete Break	5.7 ft-lb/in ²	12 kJ/m ²	
73°F (23°C), Partial Break	31 ft-lb/in ²	65 kJ/m ²	
Multi-Axial Instrumented Impact Energy			ISO 6603-2
-22°F (-30°C)	51.6 ft-lb	70.0 J	
73°F (23°C)	44.3 ft-lb	60.0 J	
Multi-Axial Instrumented Impact Peak Force			ISO 6603-2
-22°F (-30°C)	1390 lbf	6200 N	
73°F (23°C)	1190 lbf	5300 N	
Hardness	Typical Value (English)	Typical Value (SI)	Test Method
Ball Indentation Hardness	17100 psi	118 MPa	ISO 2039-1
Thermal	Typical Value (English)	Typical Value (SI)	Test Method
Heat Deflection Temperature			
66 psi (0.45 MPa), Unannealed	273 °F	134 °C	ISO 75-2/B
264 psi (1.8 MPa), Unannealed	252 °F	122 °C	ISO 75-2/A
Glass Transition Temperature ⁷	288 °F	142 °C	ISO 11357-2
Vicat Softening Temperature			
--	288 °F	142 °C	ISO 306/B120
--	286 °F	141 °C	ISO 306/B50
Ball Pressure Test (270°F (132°C))	Pass	Pass	IEC 60695-10-2
CLTE			ISO 11359-2
Flow : 73 to 131°F (23 to 55°C)	3.6E-5 in/in/°F	6.5E-5 cm/cm/°C	
Transverse : 73 to 131°F (23 to 55°C)	3.6E-5 in/in/°F	6.5E-5 cm/cm/°C	
Thermal Conductivity ⁸ (73°F (23°C))	1.4 Btu·in/hr/ft ² /°F	0.20 W/m/K	ISO 8302
Electrical	Typical Value (English)	Typical Value (SI)	Test Method
Surface Resistivity	1.0E+16 ohms	1.0E+16 ohms	IEC 60093
Volume Resistivity (73°F (23°C))	1.0E+16 ohms·cm	1.0E+16 ohms·cm	IEC 60093
Flammability	Typical Value (English)	Typical Value (SI)	Test Method
Oxygen Index ⁹	27 %	27 %	ISO 4589-2
Flash Ignition Temperature	896 °F	480 °C	ASTM D1929
Self Ignition Temperature	1022 °F	550 °C	ASTM D1929

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Additional Information	Typical Value (English)	Typical Value (SI)
ISO Shortname	ISO 7391-PC,M,(,,-)18- 9	ISO 7391-PC,M,(,,-)18- 9

Processing Information		
Injection	Typical Value (English)	Typical Value (SI)
Drying Temperature - Dry Air Dryer	248 °F	120 °C
Drying Time - Dry Air Dryer	4.0 hr	4.0 hr
Suggested Max Moisture	< 0.020 %	< 0.020 %
Suggested Shot Size	30 to 70 %	30 to 70 %
Rear Temperature	482 to 518 °F	250 to 270 °C
Middle Temperature	518 to 554 °F	270 to 290 °C
Front Temperature	545 to 581 °F	285 to 305 °C
Nozzle Temperature	518 to 581 °F	270 to 305 °C
Processing (Melt) Temp	536 to 608 °F	280 to 320 °C
Mold Temperature	158 to 230 °F	70 to 110 °C
Back Pressure	1450 to 2900 psi	10.0 to 20.0 MPa
Vent Depth	9.8E-4 to 3.0E-3 in	0.025 to 0.075 mm

Injection Notes

Standard Melt Temperature: 300°C
 Peripheral Screw Speed: 0.05 - 0.2 m/s
 Hold Pressure (% of Injection Pressure): 50 - 75%

Notes

- ¹ Typical properties: these are not to be construed as specifications.
- ² Pellets
- ³ 60x60x2mm, 500 bar
- ⁴ 0.079 in/min (2.0 mm/min)
- ⁵ 2 mm/min
- ⁶ 3 mm
- ⁷ 10°C/min
- ⁸ Across Flow
- ⁹ Procedure A