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/cm³	1.20	g/cm³	ISO 1183
Apparent (Bulk) Density [2]	0.66	g/cm³	0.66	g/cm³	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	cm³/10min	15	cm³/10min	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/in²	14	kJ/m²	
73°F (23°C), Partial Break	33	ft·lb/in²	70	kJ/m²	
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/in²	12	kJ/m²	
73°F (23°C), Partial Break	31	ft·lb/in²	65	kJ/m²	
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/ft²/°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