

Makrolon® 3108

Polycarbonate

Covestro - Polycarbonates

Message:

MVR (300 °C/1.2 kg) 6.0 cm³/10 min; medical devices; suitable for ETO and steam sterilization at 121 °C; biocompatible according to many ISO 10993-1 test requirements; high viscosity; injection molding - melt temperature 280 - 320 °C; available in transparent and opaque colors

General Information			
UL YellowCard	E41613-233143		
Features	Biocompatible		
	Ethylene Oxide Sterilizable		
	High Viscosity		
	Steam Sterilizable		
Uses	Medical Devices		
	Medical/Healthcare Applications		
Agency Ratings	ISO 10993-Part 1		
RoHS Compliance	RoHS Compliant		
Appearance	Clear/Transparent		
	Colors Available		
	Opaque		
Processing Method	Injection Molding		
Multi-Point Data	Creep Modulus vs. Time (ISO 11403-1)		
	Isochronous Stress vs. Strain (ISO 11403-1)		
	Isothermal Stress vs. Strain (ISO 11403-1)		
	Secant Modulus vs. Strain (ISO 11403-1)		
	Specific Volume vs Temperature (ISO 11403-2)		
	Viscosity vs. Shear Rate (ISO 11403-2)		
Physical	Nominal Value	Unit	Test Method
Density (23°C)	1.20	g/cm ³	ISO 1183
Apparent Density ¹	0.66	g/cm ³	ISO 60
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	6.5	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (300°C/1.2 kg)	6.00	cm ³ /10min	ISO 1133
Molding Shrinkage			
Across Flow	0.60 to 0.80	%	ISO 2577
Flow	0.60 to 0.80	%	ISO 2577
Across Flow : 2.00 mm ²	0.75	%	ISO 294-4

Flow : 2.00 mm ³	0.70	%	ISO 294-4
Water Absorption			ISO 62
Saturation, 23°C	0.30	%	
Equilibrium, 23°C, 50% RH	0.12	%	
Hardness	Nominal Value	Unit	Test Method
Ball Indentation Hardness	111	MPa	ISO 2039-1
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (23°C)	2350	MPa	ISO 527-2/1
Tensile Stress			ISO 527-2/50
Yield, 23°C	65.0	MPa	
Break, 23°C	75.0	MPa	
Tensile Strain			ISO 527-2/50
Yield, 23°C	6.3	%	
Break, 23°C	120	%	
Nominal Tensile Strain at Break (23°C)	> 50	%	ISO 527-2/50
Tensile Creep Modulus			ISO 899-1
1 hr	2200	MPa	
1000 hr	1900	MPa	
Flexural Modulus ⁴ (23°C)	2350	MPa	ISO 178
Flexural Stress ⁵			ISO 178
3.5% Strain, 23°C	72.0	MPa	
23°C	96.0	MPa	
Flexural Strain at Flexural Strength ⁶ (23°C)	7.2	%	ISO 178
Flash Ignition Temperature	480	°C	ASTM D1929
Self Ignition Temperature	550	°C	ASTM D1929
ISO Shortname	ISO 7391-PC,M,(,)-09-9		
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength ⁷			ISO 7391
-30°C, Complete Break	18	kJ/m ²	
23°C, Partial Break	80	kJ/m ²	
Charpy Unnotched Impact Strength			ISO 179/1eU
-60°C	No Break		
-30°C	No Break		
23°C	No Break		
Notched Izod Impact Strength ⁸			ISO 180/A
-30°C, Complete Break	16	kJ/m ²	
23°C, Partial Break	90	kJ/m ²	
Multi-Axial Instrumented Impact Energy			ISO 6603-2
-30°C	70.0	J	
23°C	60.0	J	
Multi-Axial Instrumented Impact Peak Force			ISO 6603-2

-30°C	6500	N	
23°C	5600	N	
Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature			
0.45 MPa, Unannealed	141	°C	ISO 75-2/B
1.8 MPa, Unannealed	129	°C	ISO 75-2/A
Glass Transition Temperature ⁹	149	°C	ISO 11357-2
Vicat Softening Temperature			
--	149	°C	ISO 306/B50
--	150	°C	ISO 306/B120
Ball Pressure Test (140°C)	Pass		IEC 60695-10-2
CLTE			ISO 11359-2
Flow : 23 to 55°C	6.5E-5	cm/cm/°C	
Transverse : 23 to 55°C	6.5E-5	cm/cm/°C	
Thermal Conductivity ¹⁰ (23°C)	0.20	W/m/K	ISO 8302
Optical	Nominal Value	Unit	Test Method
Refractive Index ¹¹	1.587		ISO 489
Transmittance			ISO 13468-2
1000 μm	89.0	%	
2000 μm	89.0	%	
3000 μm	88.0	%	
4000 μm	87.0	%	
Haze (3000 μm)	< 0.80	%	ISO 14782
NOTE			
1.	Pellets		
2.	60x60x2 mm, 500 bar		
3.	60x60x2 mm, 500 bar		
4.	2.0 mm/min		
5.	2.0 mm/min		
6.	2 mm/min		
7.	Based on ISO 179-1eA, 3 mm		
8.	3.2 mm		
9.	10°C/min		
10.	Cross-flow		
11.	Method A		

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