

Makrolon® Rx1805

Polycarbonate

Bayer MaterialScience - Polycarbonates

TechnicalData

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

MaterialStatus	•Commercial:Active		
Literature 1	• TechnicalDatasheet(Chinese(Traditional)) • Technical Datasheet (Chinese) • TechnicalDatasheet(English) • TechnicalDatasheet(German)		
SearchforULYellowCard	•BayerMaterialScience-Polycarbonates • Makrolon®		
Availability	•Africa&MiddleEast •AsiaPacific	•Europe •LatinAmerica	•NorthAmerica
Features	•RadiationSterilizable		
Uses	•Medical/HealthcareApplications		
AgencyRatings	•ISO10993		
RoHSCompliance	•RoHSCompliant		
Appearance	•Clear/Transparent		
Forms	•Pellets		
Multi-PointData	•SpecificVolumevs Temperature(ISO11403-2)	•Viscosityvs.ShearRate(ISO 11403-2)	

Physical	NominalValue(English)	NominalValue(SI)	TestMethod
Density	1.20g/cm³	1.20g/cm³	ISO1183
ApparentDensity 3	0.66g/cm³	0.66g/cm³	ISO60
MeltMass-FlowRate(MFR)(300°C/1.2kg)	6.5g/10min	6.5g/10min	ISO1133
MeltVolume-FlowRate(MVR)(300°C/1.2kg)	0.366in³/10min	6.00cm³/10min	ISO1133
MoldingShrinkage			
AcrossFlow	0.60to0.80%	0.60to0.80%	ISO2577
Flow	0.60to0.80%	0.60to0.80%	ISO2577
AcrossFlow:0.0787in(2.00mm) 4	0.70%	0.70%	ISO294-4
Flow:0.0787in(2.00mm) 4	0.70%	0.70%	ISO294-4
WaterAbsorption			ISO62
Saturation,73°F(23°C)	0.30%	0.30%	
Equilibrium,73°F(23°C),50%RH	0.12%	0.12%	

Mechanical	NominalValue(English)	NominalValue(SI)	TestMethod
TensileModulus(73°F(23°C))	348000psi	2400MPa	ISO527-2/1
TensileStress			ISO527-2/50
Yield,73°F(23°C)	9720psi	67.0MPa	
Break,73°F(23°C)	10900psi	75.0MPa	
TensileStrain			ISO527-2/50
Yield,73°F(23°C)	6.3%	6.3%	
Break,73°F(23°C)	130%	130%	
NominalTensileStrainatBreak			ISO527-2/50
73°F(23°C)	>50%	>50%	
FlexuralModulus 5(73°F(23°C))	348000psi	2400MPa	ISO178
FlexuralStrength 5			ISO178
73°F(23°C)	14200psi	98.0MPa	
3.5%Strain,73°F(23°C)	10600psi	73.0MPa	

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Mechanical	Nominal Value (English)	Nominal Value (SI)	TestMethod
Flexural Strain at Flexural Strength 6 73°F (23°C)	7.1%	7.1%	ISO 178
Impact	Nominal Value (English)	Nominal Value (SI)	TestMethod
Charpy Notched Impact Strength 7 -22°F (-30°C), Complete Break 73°F (23°C), Partial Break	7.6 ft·lb/in ² 38 ft·lb/in ²	16 kJ/m ² 80 kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength -76°F (-60°C) -22°F (-30°C) 73°F (23°C)	No Break No Break No Break	No Break No Break No Break	ISO 179/1eU
Notched Izod Impact Strength 8 -22°F (-30°C), Complete Break 73°F (23°C), Partial Break	6.7 ft·lb/in ² 43 ft·lb/in ²	14 kJ/m ² 90 kJ/m ²	ISO 180/A
Multi-Axial Instrumented Impact Energy -22°F (-30°C) 73°F (23°C)	51.6 ft·lb 47.9 ft·lb	70.0 J 65.0 J	ISO 6603-2
Multi-Axial Instrumented Impact Peak Force -22°F (-30°C) 73°F (23°C)	1480 lbf 1280 lbf	6600 N 5700 N	ISO 6603-2
Hardness	Nominal Value (English)	Nominal Value (SI)	TestMethod
Ball Indentation Hardness	16500 psi	114 MPa	ISO 2039-1
Thermal	Nominal Value (English)	Nominal Value (SI)	TestMethod
Heat Deflection Temperature 66 psi (0.45 MPa), Unannealed 264 psi (1.8 MPa), Unannealed	280 °F 259 °F	138 °C 126 °C	ISO 75-2/B ISO 75-2/A ISO 11357-2
Glass Transition Temperature 9	293 °F	145 °C	ISO 306/B50
Vicat Softening Temperature -- --	291 °F 293 °F	144 °C 145 °C	ISO 306/B120 IEC 60695-10-2 ISO 11359-2
Ball Pressure Test (275°F (135°C))	Pass	Pass	
CLTE Flow : 73 to 131°F (23 to 55°C) Transverse : 73 to 131°F (23 to 55°C)	0.000036 in/in/°F 0.000036 in/in/°F	0.000065 cm/cm/°C 0.000065 cm/cm/°C	
Thermal Conductivity 10 (73°F (23°C))	1.4 Btu·in/hr/ft ² /°F	0.20 W/m/K	ISO 8302
Flammability	Nominal Value (English)	Nominal Value (SI)	TestMethod
Oxygen Index 11	27%	27%	ISO 4589-2
Flash Ignition Temperature	896 °F	480 °C	ASTM D1929
Self Ignition Temperature	1022 °F	550 °C	ASTM D1929
Injection	Nominal Value (English)	Nominal Value (SI)	
Processing (Melt) Temp	536 to 608 °F	280 to 320 °C	

Notes

¹ These links provide you with access to supplier literature. We work hard to keep them up to date; however you may find the most current literature from the supplier.

² Typical properties: these are not to be construed as specifications.

³ Pellets

⁴ 60x60x2 mm, 500 bar

⁵ 0.079 in/min (2.0 mm/min)

⁶ 2 mm/min

⁷ 3mm

⁸ 3.2 mm

⁹ 10°C/min

¹⁰ Cross-flow, 50% RH

¹¹ Procedure A