

Technical Information



CALIBRE™ MEGARAD™ 2081-6LR

Polycarbonate Resin

Overview

CALIBRE™ MEGARAD™ 2081-6LR Polycarbonate resin was developed for medical applications requiring improved resistance to lipids over standard polycarbonate resins. When exposed to a 20% intralipid emulsion solution under strained conditions, CALIBRE MEGARAD 2081-6LR exhibits significant property retention compared to standard polycarbonate. It also provides end-users of radiation sterilized medical devices a color closer to the water-clear look of the natural resin. When exposed to high energy radiation (gamma or electron beam), CALIBRE MEGARAD 2081-6LR can reduce the color shift by 50% compared to general purpose polycarbonate resins.

CALIBRE MEGARAD 2081-6LR has been evaluated with respect to ISO 10993 (Biological Evaluation of Medical Devices) and is suitable for use in approved medical applications.

Main Characteristics

- Improved lipid resistance
- Stabilized for high-energy radiation
- Transparent
- Contains mold release
- Tested under ISO 10993

Applications

- Medical applications
- Fluid Delivery applications

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	1.20 g/cm ³	1.20 g/cm ³	ASTM D792 ISO 1183
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	6.0 g/10 min	6.0 g/10 min	ASTM D1238 ISO 1133
Molding Shrinkage - Flow	5.0E-3 to 7.0E-3 in/in	0.50 to 0.70 %	ASTM D955
Water Absorption			
24 hr, 73°F (23°C)	0.15 %	0.15 %	ASTM D570 ISO 62
Equilibrium, 73°F (23°C), 50% RH	0.32 %	0.32 %	ASTM D570
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus ¹	340000 psi	2340 MPa	ASTM D638
Tensile Strength ²			ASTM D638
Yield	9570 psi	66.0 MPa	
Break	9860 psi	68.0 MPa	
Tensile Elongation ²			ASTM D638
Yield	6.0 %	6.0 %	
Break	130 %	130 %	
Flexural Modulus	350000 psi	2410 MPa	ASTM D790
Flexural Strength	14000 psi	96.5 MPa	ASTM D790
Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Notched Izod Impact (73°F (23°C))	16 ft-lb/in	850 J/m	ASTM D256
Instrumented Dart Impact ³			ASTM D3763
73°F (23°C), Total Energy	790 in-lb	89.3 J	
Tensile Impact Strength	270 ft-lb/in ²	567 kJ/m ²	ASTM D1822
Hardness	Nominal Value (English)	Nominal Value (SI)	Test Method
Rockwell Hardness (R-Scale)	118	118	ASTM D785

Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load			ASTM D648
66 psi (0.45 MPa), Unannealed	275 °F	135 °C	
264 psi (1.8 MPa), Unannealed	252 °F	122 °C	
Vicat Softening Temperature			
--	298 °F	148 °C	ASTM D1525 ⁴
--	284 °F	140 °C	ISO 306/B50
CLTE - Flow (-40 to 176°F (-40 to 80°C))	3.8E-5 in/in/°F	6.8E-5 cm/cm/°C	ASTM D696
Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Volume Resistivity	2.0E+17 ohms-cm	2.0E+17 ohms-cm	ASTM D257
Dielectric Strength			
--	420 V/mil	17 kV/mm	ASTM D149
--	430 V/mil	17 kV/mm	IEC 60243-1
Dielectric Constant			ASTM D150
60 Hz	3.00	3.00	
1 MHz	3.00	3.00	
Dissipation Factor			ASTM D150
50 Hz	1.0E-3	1.0E-3	
1 MHz	2.0E-3	2.0E-3	
Optical	Nominal Value (English)	Nominal Value (SI)	Test Method
Refractive Index	1.586	1.586	ASTM D542 ISO 489
Light Transmittance	71.0 to 85.0 %	71.0 to 85.0 %	ASTM D1003
Haze	< 2.00 %	< 2.00 %	ASTM D1003
Injection	Nominal Value (English)	Nominal Value (SI)	
Drying Temperature	248 °F	120 °C	
Drying Time	4.0 hr	4.0 hr	
Processing (Melt) Temp	554 to 626 °F	290 to 330 °C	
Mold Temperature	176 to 230 °F	80 to 110 °C	

Notes

These are typical properties only and are not to be construed as specifications. Users should confirm results by their own tests.

¹ 0.039 in/min (1.0 mm/min)

² 2.0 in/min (50 mm/min)

³ 11.1 ft/sec (3.39 m/sec)

⁴ Rate B (120°C/h), Loading 1 (10 N)

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