

CALIBRE™ MEGARAD™ 2081-15

Polycarbonate Resin

Overview

CALIBRE™ MEGARAD 2081-15 Polycarbonate resin 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 2081-15 resin can reduce the color shift by 50% compared to general purpose polycarbonate resins. CALIBRE 2081-15 resin has undergone biocompatibility testing based on ISO 10993 (Biological Evaluation of Medical Devices) and is suitable for use in approved medical applications. This product contains mold release.

Main Characteristics:

- ISO 10993

Applications:

- Medical 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/A
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	15 g/10 min	15 g/10 min	ASTM D1238 ISO 1133
Molding Shrinkage - Flow	0.0050 to 0.0070 in/in	0.50 to 0.70 %	ASTM D955 ISO 294-4
Water Absorption			ASTM D570 ISO 62
73°F (23°C), 24 hr	0.15 %	0.15 %	
Equilibrium, 73°F (23°C), 50% RH	0.32 %	0.32 %	
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus			
--	320000 psi	2210 MPa	ASTM D638 ¹
--	334000 psi	2300 MPa	ISO 527-2/50
Tensile Strength			
Yield	9000 psi	62.1 MPa	ASTM D638 ¹
Yield	8990 psi	62.0 MPa	ISO 527-2/50
Break	9900 psi	68.3 MPa	ASTM D638 ¹
Break	9860 psi	68.0 MPa	ISO 527-2/50
Tensile Elongation			ISO 527-2/50
Yield	6.0 %	6.0 %	ASTM D638 ¹
Break	150 %	150 %	ASTM D638 ¹
Flexural Modulus			
--	350000 psi	2410 MPa	ASTM D790 ²
--	348000 psi	2400 MPa	ISO 178 ^{3, 4}
Flexural Strength			
--	14000 psi	96.5 MPa	ASTM D790 ²
--	14200 psi	98.0 MPa	ISO 178 ^{3, 4}
Taber Abrasion Resistance	45 %	45 %	ASTM D1044
Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Charpy Notched Impact Strength (73°F (23°C))	12 ft-lb/in ²	25 kJ/m ²	ISO 179/1eA
Notched Izod Impact (73°F (23°C))	14 ft-lb/in	750 J/m	ASTM D256 ISO 180/A
Unnotched Izod Impact (73°F (23°C))	No Break	No Break	ASTM D256 ISO 180

Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Instrumented Dart Impact 73°F (23°C), Total Energy	720 in·lb	81.3 J	ASTM D3763 ⁵
Tensile Impact Strength	180 ft·lb/in ²	378 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
Heat Deflection Temperature			
66 psi (0.45 MPa), Annealed	282 °F	139 °C	ISO 75-2/B
264 psi (1.8 MPa), Unannealed	252 °F	122 °C	ASTM D648
264 psi (1.8 MPa), Unannealed	248 °F	120 °C	ISO 75-2/A
264 psi (1.8 MPa), Annealed	277 °F	136 °C	ISO 75-2/A
Vicat Softening Temperature			
--	298 °F	148 °C	ASTM D1525 ⁶
--	289 °F	143 °C	ISO 306/B50
CLTE - Flow (-40 to 180°F (-40 to 82°C))	0.000038 in/in/°F	0.000068 cm/cm/°C	ASTM D696
Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Volume Resistivity	2.0E+17 ohm·cm	2.0E+17 ohm·cm	ASTM D257
Dielectric Strength	420 V/mil	17 kV/mm	ASTM D149
Dielectric Constant			ASTM D150
60 Hz	3.00	3.00	
1 MHz	3.00	3.00	
Dissipation Factor			ASTM D150
50 Hz	0.0010	0.0010	
1 MHz	0.0020	0.0020	
Optical	Nominal Value (English)	Nominal Value (SI)	Test Method
Refractive Index	1.586	1.586	ASTM D542 ISO 489
Transmittance	89.0 %	89.0 %	ASTM D1003
Haze	1.0 %	1.0 %	ASTM D1003

Notes

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

¹ 2.0 in/min (50 mm/min)

² Method I (3 point load), 0.079 in/min (2.0 mm/min)

³ 0.079 in/min (2.0 mm/min)

⁴ 3-points

⁵ 11.1 ft/sec (3.39 m/sec)

⁶ Rate A (50°C/h), Loading 2 (50 N)

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