

CALIBRE™ MEGARAD™ 2081-10

Polycarbonate Resin

Trinseo

Message:

CALIBRE™ MEGARAD 2081-10 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 2081-10 resin can reduce the color shift by 50% compared to general purpose polycarbonate resins. CALIBRE 2081-10 resin has undergone biocompatibility testing based on ISO 10993 (Biological Evaluation of Medical Devices) and is suitable for use in approved medical applications.

Main Characteristics

Stabilized for high energy radiation

Tested under ISO 10993

Transparent

Contains mold release

Applications:

Medical applications

General Information			
Additive	Mold Release		
Features	Biocompatible		
Uses	Electrical/Electronic Applications		
	General Purpose		
	Medical/Healthcare Applications		
Agency Ratings	ISO 10993 2		
Appearance	Clear/Transparent		
Forms	Pellets		
Processing Method	Injection Molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.20	g/cm³	ASTM D792, ISO 1183/A
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	10	g/10 min	ASTM D1238, ISO 1133
Molding Shrinkage - Flow	0.50 to 0.70	%	ASTM D955, ISO 294-4
Water Absorption			ASTM D570, ISO 62
23°C, 24 hr	0.15	%	
Equilibrium, 23°C, 50% RH	0.32	%	
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness			ASTM D785
M-Scale	73		
R-Scale	118		
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
-- ¹	2210	MPa	ASTM D638
--	2300	MPa	ISO 527-2/50
Tensile Strength			

Yield ²	62.1	MPa	ASTM D638
Yield	62.0	MPa	ISO 527-2/50
Break ³	68.3	MPa	ASTM D638
Break	68.0	MPa	ISO 527-2/50
Tensile Elongation			
Yield ⁴	6.0	%	ASTM D638
Yield	6.0	%	ISO 527-2/50
Break ⁵	150	%	ASTM D638
Break	150	%	ISO 527-2/50
Flexural Modulus			
-- ⁶	2410	MPa	ASTM D790
--	2400	MPa	ISO 178
Flexural Strength			
-- ⁷	96.5	MPa	ASTM D790
--	98.0	MPa	ISO 178
Taber Abrasion Resistance	45	%	ASTM D1044
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength (23°C)	35	kJ/m ²	ISO 179/1eA
Notched Izod Impact			
23°C	750	J/m	ASTM D256
23°C	78	kJ/m ²	ISO 180/A
Unnotched Izod Impact (23°C)	No Break		ASTM D256, ISO 180
Instrumented Dart Impact ⁸ (23°C, Total Energy)	81.3	J	ASTM D3763
Tensile Impact Strength	378	kJ/m ²	ASTM D1822
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, Annealed	140	°C	ASTM D648
1.8 MPa, Unannealed	122	°C	ASTM D648
1.8 MPa, Unannealed	121	°C	ISO 75-2/A
1.8 MPa, Annealed	137	°C	ASTM D648
Vicat Softening Temperature			
--	148	°C	ASTM D1525 ⁹
--	143	°C	ISO 306/B50
CLTE - Flow (-40 to 82°C)	6.8E-5	cm/cm/°C	ASTM D696
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity	2.0E+17	ohms · cm	ASTM D257
Dielectric Strength	17	kV/mm	ASTM D149, IEC 60243-1
Dielectric Constant			ASTM D150
60 Hz	3.00		
1 MHz	3.00		
Dissipation Factor			ASTM D150

50 Hz	1.0E-3		
1 MHz	2.0E-3		
Optical	Nominal Value	Unit	Test Method
Refractive Index	1.586		ASTM D542, ISO 489
Transmittance	85.0	%	ASTM D1003
Haze	1.0	%	ASTM D1003
NOTE			
1.	50 mm/min		
2.	50 mm/min		
3.	50 mm/min		
4.	50 mm/min		
5.	50 mm/min		
6.	Method I (3 point load), 2.0 mm/min		
7.	Method I (3 point load), 2.0 mm/min		
8.	3.39 m/sec		
9.	Rate A (50°C/h), Loading 2 (50 N)		

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