

CALIBRE™ MEGARAD™ 2081-12

Polycarbonate Resin

Trinseo

Message:

CALIBRE™ MEGARAD 2081-12 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 2081-12 resin can reduce the color shift by 50% compared to general purpose polycarbonate resins. CALIBRE 2081-12 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 and USP

Transparent

Contains mold release

Applications:

Medical applications

General Information			
Additive	Gamma Stabilizer		
	Mold Release		
Features	Biocompatible		
	E-beam Sterilizable		
	High Clarity		
	Radiation Sterilizable		
Uses	Medical/Healthcare Applications		
Agency Ratings	ISO 10993		
	USP Unspecified Rating		
Appearance	Clear/Transparent		
Forms	Pellets		
Processing Method	Injection Molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.20	g/cm ³	ASTM D792, ISO 1183/A
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	12	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	2270	MPa	ASTM D638
--	2300	MPa	ISO 527-2/50
Tensile Strength			
Yield ²	64.3	MPa	ASTM D638
Yield	65.2	MPa	ISO 527-2/50
Break ³	69.1	MPa	ASTM D638
Break	69.6	MPa	ISO 527-2/50
Tensile Elongation			
Yield ⁴	6.3	%	ASTM D638
Yield	6.1	%	ISO 527-2/50
Break ⁵	150	%	ASTM D638
Break	150	%	ISO 527-2/50
Flexural Modulus			
-- ⁶	2200	MPa	ASTM D790
--	2300	MPa	ISO 178
Flexural Strength			
-- ⁷	100	MPa	ASTM D790
--	95.8	MPa	ISO 178
Taber Abrasion Resistance	45	%	ASTM D1044
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength (23°C)	25	kJ/m ²	ISO 179/1eA
Notched Izod Impact			
23°C	750	J/m	ASTM D256
23°C	65	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)	86.9	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	134	°C	ASTM D648
1.8 MPa, Unannealed	121	°C	ASTM D648
1.8 MPa, Unannealed	123	°C	ISO 75-2/A
1.8 MPa, Annealed	125	°C	ASTM D648
Vicat Softening Temperature	141	°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		

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