CALIBRE™ MEGARAD™ 2081-10
Polycarbonate Resin

Overview

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

Physical	Nominal Value	(English)	Nominal Value	(SI)	Test Method
Density	1.20	g/cm³	1.20	g/cm³	ASTM D792 ISO 1183/A
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	10	g/10 min	10	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 ISO 294-4
Water Absorption					ASTM D570 ISO 62
24 hr, 73°F (23°C)	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					
-- [1]	320000	psi	2210	MPa	ASTM D638
--	334000	psi	2300	MPa	ISO 527-2/1
Tensile Strength					
Yield [2]	9000	psi	62.1	MPa	ASTM D638
Yield	8990	psi	62.0	MPa	ISO 527-2/50
Break [2]	9900	psi	68.3	MPa	ASTM D638
Break	9860	psi	68.0	MPa	ISO 527-2/50
Tensile Elongation					
Yield [2]	6.0	%	6.0	%	ASTM D638
Yield	6.0	%	6.0	%	ISO 527-2/50
Break [2]	150	%	150	%	ASTM D638
Break	150	%	150	%	ISO 527-2/50
Flexural Modulus					
-- [3]	350000	psi	2410	MPa	ASTM D790
-- [4, 5]	348000	psi	2400	MPa	ISO 178
Flexural Strength					
-- [3]	14000	psi	96.5	MPa	ASTM D790
-- [4, 5]	14200	psi	98.0	MPa	ISO 178
Taber Abrasion Resistance	45	%	45	%	ASTM D1044

Impact	Nominal Value	(English)	Nominal Value	(SI)	Test Method
Charpy Notched Impact Strength (73°F (23°C))	17	ft·lb/in²	35	kJ/m²	ISO 179/1eA
Notched Izod Impact					
73°F (23°C)	14	ft·lb/in	750	J/m	ASTM D256
73°F (23°C)	37	ft·lb/in²	78	kJ/m²	ISO 180/A
Unnotched Izod Impact (73°F (23°C))	No Break		No Break		ASTM D256 ISO 180
Instrumented Dart Impact [6]					ASTM D3763
73°F (23°C), Total Energy	720	in·lb	81.3	J	
Tensile Impact Strength	180	ft·lb/in²	378	kJ/m²	ASTM D1822
Hardness	**Nominal Value**	**(English)**	**Nominal Value**	**(SI)**	**Test Method**
Rockwell Hardness					ASTM D785
M-Scale	73		73		
R-Scale	118		118		
Thermal	**Nominal Value**	**(English)**	**Nominal Value**	**(SI)**	**Test Method**
Deflection Temperature Under Load					
66 psi (0.45 MPa), Annealed	284	°F	140	°C	ASTM D648
264 psi (1.8 MPa), Unannealed	252	°F	122	°C	ASTM D648
264 psi (1.8 MPa), Unannealed	250	°F	121	°C	ISO 75-2/A
264 psi (1.8 MPa), Annealed	279	°F	137	°C	ASTM D648
Vicat Softening Temperature					
--	298	°F	148	°C	ASTM D1525 [7]
--	289	°F	143	°C	ISO 306/B50
CLTE - Flow (-40 to 180°F (-40 to 82°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
Transmittance	85.0	%	85.0	%	ASTM D1003
Haze	1.00	%	1.00	%	ASTM D1003