



CALIBRE™ MEGARAD™ 2081-6LR

Trinseo - Polycarbonate Resin

General Information

Product Description

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

General

Additive	• Mold Release
Features	• Biocompatible • Radiation Sterilizable
Uses	• Medical Devices • Medical/Healthcare Applications • Surgical Instruments
Agency Ratings	• ISO 10993 ¹
Appearance	• Clear/Transparent
Forms	• Pellets
Processing Method	• Injection Molding

Properties²

Physical	Nominal Value	Unit	Test Method
Density / Specific Gravity	1.20		ASTM D792
Density	1.20	g/cm ³	ISO 1183
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	6.0	g/10 min	ASTM D1238
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	6.0	g/10 min	ISO 1133
Molding Shrinkage - Flow	5.0E-3 to 7.0E-3	in/in	ASTM D955
Water Absorption (24 hr, 73°F)	0.15	%	ASTM D570
Water Absorption (24 hr, 73°F)	0.15	%	ISO 62
Water Absorption (Equilibrium, 73°F, 50% RH)	0.32	%	ASTM D570
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus ³	340000	psi	ASTM D638
Tensile Strength ⁴ (Yield)	9570	psi	ASTM D638
Tensile Strength ⁴ (Break)	9860	psi	ASTM D638
Tensile Elongation ⁴ (Yield)	6.0	%	ASTM D638
Tensile Elongation ⁴ (Break)	130	%	ASTM D638

CALIBRE™ MEGARAD™ 2081-6LR

Trinseo - Polycarbonate Resin

Mechanical	Nominal Value	Unit	Test Method
Flexural Modulus	350000	psi	ASTM D790
Flexural Strength	14000	psi	ASTM D790
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact (73°F)	16	ft-lb/in	ASTM D256
Instrumented Dart Impact ⁵ (73°F, Total Energy)	790	in-lb	ASTM D3763
Tensile Impact Strength	270	ft-lb/in ²	ASTM D1822
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale)	118		ASTM D785
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load (66 psi, Unannealed)	275	°F	ASTM D648
Deflection Temperature Under Load 264 psi, Unannealed	252	°F	ASTM D648
Vicat Softening Temperature	298	°F	ASTM D1525 ⁶
Vicat Softening Temperature	284	°F	ISO 306/B50
CLTE - Flow (-40 to 176°F)	3.8E-5	in/in/°F	ASTM D696
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity	2.0E+17	ohms-cm	ASTM D257
Dielectric Strength	420	V/mil	ASTM D149
Electric Strength	430	V/mil	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
Refractive Index	1.586		ISO 489
Light Transmittance	71.0 to 85.0	%	ASTM D1003
Haze	< 2.00	%	ASTM D1003

Processing Information

Injection	Nominal Value	Unit
Drying Temperature	248	°F
Drying Time	4.0	hr
Processing (Melt) Temp	554 to 626	°F
Mold Temperature	176 to 230	°F

Notes

¹ Biocompatibility testing following ISO Guidelines 10993 has been completed on select classic resins in this series. Please consult Trinseo for details. ISO guidelines include a sensitization test.

² Typical properties: these are not to be construed as specifications.

³ 0.039 in/min

⁴ 2.0 in/min

⁵ 11.1 ft/sec

⁶ Rate B (120°C/h), Loading 1 (10 N)