

## CALIBRE™ 2060-3 Polycarbonate Resin

### Overview

CALIBRE™ 2060-3 Polycarbonate resin is used in medical applications involving steam or ethylene oxide sterilization - though suitability for use in these applications is dependent upon autoclave cycle times and temperatures. CALIBRE 2060-3 provides exceptional clarity, heat resistance, impact strength and has low contamination levels. The CALIBRE 2000 series of resins have been evaluated with respect to ISO 10993-1 (Biological Evaluation of Medical Devices) and are suitable for use in approved medical applications.

#### Main Characteristics

- Tested under ISO 10993
- FDA 21 CFR 177.1580
- Lipid resistance

#### Applications

- Medical application
- Injection or extrusion applications

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	1.20 g/cm <sup>3</sup>	1.20 g/cm <sup>3</sup>	ASTM D792 ISO 1183/B
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	3.5 g/10 min	3.5 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			
-- <sup>1</sup>	360000 psi	2480 MPa	ASTM D638
--	360000 psi	2480 MPa	ISO 527-2/50
Tensile Strength			
Yield <sup>1</sup>	8700 psi	60.0 MPa	ASTM D638
Yield	8700 psi	60.0 MPa	ISO 527-2/50
Break <sup>1</sup>	10500 psi	72.4 MPa	ASTM D638
Break	10400 psi	72.0 MPa	ISO 527-2/50
Tensile Elongation			
Break <sup>1</sup>	150 %	150 %	ASTM D638
Break	150 %	150 %	ISO 527-2/50
Flexural Modulus			
-- <sup>2</sup>	350000 psi	2410 MPa	ASTM D790
-- <sup>3</sup>	350000 psi	2410 MPa	ISO 178
Flexural Strength			
-- <sup>2</sup>	14000 psi	96.5 MPa	ASTM D790
-- <sup>3</sup>	13900 psi	96.0 MPa	ISO 178
Taber Abrasion Resistance	45 %	45 %	ASTM D1044
Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Notched Izod Impact			
73°F (23°C)	18 ft-lb/in	960 J/m	ASTM D256
73°F (23°C)	44 ft-lb/in <sup>2</sup>	93 kJ/m <sup>2</sup>	ISO 180/A

<b>Impact</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>	<b>Test Method</b>
Unnotched Izod Impact (73°F (23°C))	No Break	No Break	ASTM D256 ISO 180
Instrumented Dart Impact 73°F (23°C), Total energy	830 in·lb	93.8 J	ASTM D3763
Tensile Impact Strength	300 ft·lb/in <sup>2</sup>	630 kJ/m <sup>2</sup>	ASTM D1822
<b>Hardness</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>	<b>Test Method</b>
Rockwell Hardness			ASTM D785
M-Scale	74	74	
R-Scale	118	118	
<b>Thermal</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>	<b>Test Method</b>
Deflection Temperature Under Load			
66 psi (0.45 MPa), Annealed	295 °F	146 °C	ASTM D648 ISO 75-2/B
264 psi (1.8 MPa), Unannealed	270 °F	132 °C	ASTM D648 ISO 75-2/A
264 psi (1.8 MPa), Annealed	289 °F	143 °C	ASTM D648 ISO 75-2/A
Vicat Softening Temperature	304 °F	151 °C	ISO 306/B50 ASTM D1525 <sup>4</sup>
CLTE - Flow (-40 to 180°F (-40 to 82°C))	3.8E-5 in/in/°F	6.8E-5 cm/cm/°C	ASTM D696
<b>Optical</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>	<b>Test Method</b>
Refractive Index	1.586	1.586	ASTM D542 ISO 489
Transmittance <sup>5</sup> (125 mil (3180 µm))	89.0 %	89.0 %	ASTM D1003
Haze <sup>5</sup> (125 mil (3180 µm))	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.

<sup>1</sup> 2.0 in/min (50 mm/min)

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

<sup>3</sup> 0.079 in/min (2.0 mm/min)

<sup>4</sup> Rate A (50°C/h), Loading 2 (50 N)

<sup>5</sup> 1/8 inch thickness plaque



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