

# CALIBRE™ 2060-3

## Trinseo - Polycarbonate Resin

### General Information

#### Product Description

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

#### General

Features	<ul style="list-style-type: none"> <li>• Autoclave Sterilizable</li> <li>• Biocompatible</li> <li>• Ethylene Oxide Sterilizable</li> </ul>	<ul style="list-style-type: none"> <li>• High Clarity</li> <li>• High Heat Resistance</li> <li>• High Impact Resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Steam Sterilizable</li> </ul>
Uses	<ul style="list-style-type: none"> <li>• Medical/Healthcare Applications</li> </ul>		
Agency Ratings	<ul style="list-style-type: none"> <li>• ISO 10993<sup>1</sup></li> </ul>		
Appearance	<ul style="list-style-type: none"> <li>• Clear/Transparent</li> </ul>		
Forms	<ul style="list-style-type: none"> <li>• Pellets</li> </ul>		
Processing Method	<ul style="list-style-type: none"> <li>• Film Extrusion</li> </ul>	<ul style="list-style-type: none"> <li>• Injection Molding</li> </ul>	

### Properties<sup>2</sup>

Physical	Nominal Value	Unit	Test Method
Density / Specific Gravity	1.20		ASTM D792
Density	1.20	g/cm <sup>3</sup>	ISO 1183
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	3.5	g/10 min	ASTM D1238
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	3.5	g/10 min	ISO 1133
Molding Shrinkage - Flow	5.0E-3 to 7.0E-3	in/in	ASTM D955
Molding Shrinkage - Flow	0.50 to 0.70	%	ISO 294-4
Water Absorption (Saturation, 73°F)	0.32	%	ISO 62
Water Absorption (Equilibrium, 73°F, 50% RH)	0.12	%	ISO 62
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus <sup>3</sup>	360000	psi	ASTM D638
Tensile Modulus	334000	psi	ISO 527-1/1
Tensile Strength <sup>4</sup> (Yield)	8700	psi	ASTM D638
Tensile Stress (Yield)	8700	psi	ISO 527-2/50
Tensile Strength <sup>4</sup> (Break)	10400	psi	ASTM D638
Tensile Stress (Break)	10400	psi	ISO 527-2/50
Tensile Elongation <sup>4</sup> (Yield)	6.0	%	ASTM D638
Tensile Elongation <sup>4</sup> (Break)	140	%	ASTM D638
Tensile Strain (Break)	150	%	ISO 527-2/50

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<b>Mechanical</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
Flexural Modulus	350000	psi	ASTM D790
Flexural Modulus <sup>5</sup>	348000	psi	ISO 178
Flexural Strength	14000	psi	ASTM D790
Flexural Stress <sup>5</sup>	14100	psi	ISO 178
<b>Impact</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
Charpy Notched Impact Strength			ISO 179/1eA
-22°F	6.7	ft·lb/in <sup>2</sup>	
73°F	26	ft·lb/in <sup>2</sup>	
Notched Izod Impact (73°F)	18	ft·lb/in	ASTM D256
Notched Izod Impact Strength (73°F)	44	ft·lb/in <sup>2</sup>	ISO 180/1A
Instrumented Dart Impact (73°F, Total energy)	830	in·lb	ASTM D3763
Tensile Impact Strength	300	ft·lb/in <sup>2</sup>	ASTM D1822
<b>Hardness</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
Rockwell Hardness			ASTM D785
M-Scale	74		
R-Scale	118		
<b>Thermal</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
Deflection Temperature Under Load (66 psi, Annealed)	295	°F	ASTM D648
Deflection Temperature Under Load (66 psi, Annealed)	295	°F	ISO 75-2/B
Deflection Temperature Under Load			ASTM D648
264 psi, Unannealed	270	°F	
Deflection Temperature Under Load			ISO 75-2/A
264 psi, Unannealed	266	°F	
Deflection Temperature Under Load (264 psi, Annealed)	289	°F	ASTM D648
Deflection Temperature Under Load (264 psi, Annealed)	289	°F	ISO 75-2/A
Vicat Softening Temperature	304	°F	ASTM D1525 <sup>6</sup>
CLTE - Flow (-40 to 176°F)	3.8E-5	in/in/°F	ASTM D696
CLTE - Flow	3.9E-5	in/in/°F	ISO 11359-2
<b>Optical</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
Refractive Index	1.586		ASTM D542
Refractive Index	1.586		ISO 489
Light Transmittance	87.0 to 91.0	%	ASTM D1003
Haze	< 1.00	%	ASTM D1003

**Processing Information**

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