

Technical Information



CALIBRE™ EV32 GF20 Advanced Resin

Overview

CALIBRE™ EV32 GF20 Advanced Resin is an ignition-resistant, 20 % glass reinforced polycarbonate resin. This resin does not contain brominated or chlorinated flame retardant additives (DIN VDE-0472/Part 815). It is a medium flow PC resin with a mold release system, intended for injection molding applications requiring high stiffness, thin wall. CALIBRE™ EV32 GF20 has a UL94 V-0 rating at 1.5 mm.

Applications:

- Battery module endplate

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	1.33 g/cm ³	1.33 g/cm ³	ASTM D792
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	15 g/10 min	15 g/10 min	ASTM D1238 ISO 1133
Molding Shrinkage			
Flow	2.0E-3 to 5.0E-3 in/in	0.20 to 0.50 %	ASTM D955
Across Flow	4.0E-3 to 6.0E-3 in/in	0.40 to 0.60 %	ASTM D955
Flow	2.0E-3 to 4.0E-3 in/in	0.20 to 0.40 %	ISO 294-4
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus			
-- 1	841000 psi	5800 MPa	ASTM D638
--	841000 psi	5800 MPa	ISO 527-1/1
Tensile Stress			
Yield	14500 psi	100 MPa	ISO 527-2/5
Break ²	14500 psi	100 MPa	ASTM D638
Break	13100 psi	90.0 MPa	ISO 527-2/5
Tensile Elongation			
Break ²	1.5 %	1.5 %	ASTM D638
Break	3.5 %	3.5 %	ISO 527-2/5
Flexural Modulus			
-- 3	769000 psi	5300 MPa	ASTM D790
-- 4	798000 psi	5500 MPa	ISO 178
Flexural Strength			
-- 3	17400 psi	120 MPa	ASTM D790
-- 4	21800 psi	150 MPa	ISO 178
Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Charpy Notched Impact Strength (73°F (23°C))	4.0 ft-lb/in ²	8.5 kJ/m ²	ISO 179/1eA
Notched Izod Impact			
73°F (23°C)	2.1 ft-lb/in	110 J/m	ASTM D256
73°F (23°C)	3.8 ft-lb/in ²	8.0 kJ/m ²	ISO 180/1A

Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load			
66 psi (0.45 MPa), Unannealed	293 °F	145 °C	ASTM D648
66 psi (0.45 MPa), Unannealed	289 °F	143 °C	ISO 75-2/B
66 psi (0.45 MPa), Annealed	298 °F	148 °C	ISO 75-2/B
264 psi (1.8 MPa), Unannealed	273 °F	134 °C	ASTM D648
264 psi (1.8 MPa), Unannealed	280 °F	138 °C	ISO 75-2/A
264 psi (1.8 MPa), Annealed	289 °F	143 °C	ASTM D648 ISO 75-2/A
Vicat Softening Temperature	302 °F	150 °C	ISO 306/B50
Ball Indentation Temperature	> 275 °F	> 135 °C	IEC 60335-1
CLTE - Flow	1.4E-5 in/in/°F	2.5E-5 cm/cm/°C	ISO 11359-2
Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Surface Resistivity	3.0E+14 ohms	3.0E+14 ohms	IEC 60093
Volume Resistivity	1.0E+16 ohms·cm	1.0E+16 ohms·cm	IEC 60093
Dielectric Strength	690 V/mil	27 kV/mm	ASTM D149 IEC 60243-1
Dielectric Constant			ASTM D150
0.0630 in (1.60 mm), 1 MHz	3.10	3.10	
Comparative Tracking Index			IEC 60112
0.118 in (3.00 mm), Solution A	175 V	175 V	
Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Flame Rating ⁵			UL 94
0.030 in (0.75 mm)	V-2	V-2	
0.06 in (1.5 mm)	V-0	V-0	
0.12 in (3.0 mm)	5VA	5VA	
Glow Wire Ignition Temperature ⁵			IEC 60695-2-13
0.04 in (1.0 mm)	1760 °F	960 °C	
0.08 in (2.0 mm)	1760 °F	960 °C	
0.12 in (3.0 mm)	1760 °F	960 °C	
Oxygen Index ⁵	35 %	35 %	ISO 4589-2
Injection	Nominal Value (English)	Nominal Value (SI)	
Drying Temperature	248 °F	120 °C	
Drying Time	3.0 to 4.0 hr	3.0 to 4.0 hr	
Processing (Melt) Temp	545 to 599 °F	285 to 315 °C	
Mold Temperature	176 to 230 °F	80 to 110 °C	

Notes

These are typical properties only and are not to be construed as specifications. Users should confirm results by their own tests.

¹ 0.039 in/min (1.0 mm/min)

² 0.20 in/min (5.0 mm/min)

³ 0.051 in/min (1.3 mm/min)

⁴ 0.079 in/min (2.0 mm/min)

⁵ This rating not intended to reflect hazards presented by this or any other material under actual fire conditions.

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