

Technical Information



CALIBRE™ 30xEP-31

Polycarbonate Resin

Overview

CALIBRE™ 30xEP-31 MFR Polycarbonate is a high flow injection moulding resin that offers exceptional impact resistance, heat distortion resistance and optical clarity. The high melt flow rate allows complex, thin or long parts to be easily molded. The CALIBRE 300EP-31 series products are available in 2 additive packages: CALIBRE 301EP: Mold release. CALIBRE 303EP: Mold release and UV stabilizer. Material is transparent but can be custom colored.

Govt. and Industry Standards:

- Underwriters Laboratory, Inc. (UL)

Applications:

- Appliances
- Storage media housings
- Electrical & lighting components
- Light diffusers
- Transportation
- Automotive applications
- Houseware
- Recreation
- Packaging applications

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	1.20 g/cm ³	1.20 g/cm ³	ASTM D792 ISO 1183
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	31 g/10 min	31 g/10 min	ASTM D1238 ISO 1133
Molding Shrinkage - Flow	5.0E-3 to 7.0E-3 in/in	0.50 to 0.70 %	ISO 294-4
Water Absorption			ISO 62
Saturation, 73°F (23°C)	0.32 %	0.32 %	
Equilibrium, 73°F (23°C), 50% RH	0.12 %	0.12 %	
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus			
-- ¹	334000 psi	2300 MPa	ASTM D638
--	334000 psi	2300 MPa	ISO 527-1/1
Tensile Strength			
Yield ²	8700 psi	60.0 MPa	ASTM D638
Yield	8700 psi	60.0 MPa	ISO 527-2/50
Break ²	9430 psi	65.0 MPa	ASTM D638
Break	9430 psi	65.0 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	110 %	110 %	ASTM D638
Break	110 %	110 %	ISO 527-2/50
Flexural Modulus			
--	350000 psi	2410 MPa	ASTM D790
-- ³	348000 psi	2400 MPa	ISO 178

Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Flexural Strength			
--	14000 psi	96.5 MPa	ASTM D790
-- ³	14100 psi	97.0 MPa	ISO 178
Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Charpy Notched Impact Strength			ISO 179/1eA
-22°F (-30°C)	5.2 ft-lb/in ²	11 kJ/m ²	
73°F (23°C)	7.1 ft-lb/in ²	15 kJ/m ²	
Notched Izod Impact			
73°F (23°C)	11 ft-lb/in	580 J/m	ASTM D256
73°F (23°C)	33 ft-lb/in ²	69 kJ/m ²	ISO 180/1A
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	286 °F	141 °C	ASTM D648 ISO 75-2/B
264 psi (1.8 MPa), Unannealed	257 °F	125 °C	ASTM D648
264 psi (1.8 MPa), Unannealed	250 °F	121 °C	ISO 75-2/A
264 psi (1.8 MPa), Annealed	280 °F	138 °C	ASTM D648 ISO 75-2/A
Vicat Softening Temperature	293 °F	145 °C	ISO 306/B50 ASTM D1525 ⁴
Ball Indentation Temperature	> 257 °F	> 125 °C	IEC 60335-1
CLTE - Flow (-40 to 176°F (-40 to 80°C))	3.8E-5 in/in/°F	6.8E-5 cm/cm/°C	ISO 11359-2
Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Volume Resistivity	> 1.0E+15 ohms-cm	> 1.0E+15 ohms-cm	IEC 60093
Dielectric Strength			
--	420 V/mil	17 kV/mm	ASTM D149
--	430 V/mil	17 kV/mm	IEC 60243-1
Relative Permittivity			IEC 60250
100 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	
Comparative Tracking Index			IEC 60112
0.0787 in (2.00 mm), Solution A	250 V	250 V	
Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Flame Rating ⁵			UL 94
0.06 in (1.5 mm)	V-2	V-2	
0.12 in (3.0 mm)	V-2	V-2	
Glow Wire Flammability Index ⁵			IEC 60695-2-12
0.04 in (1.0 mm)	1650 °F	900 °C	
0.08 in (2.0 mm)	1610 °F	875 °C	
0.12 in (3.0 mm)	1610 °F	875 °C	
Glow Wire Ignition Temperature ⁵			IEC 60695-2-13
0.04 in (1.0 mm)	1470 °F	800 °C	
0.08 in (2.0 mm)	1430 °F	775 °C	
0.12 in (3.0 mm)	1430 °F	775 °C	
Oxygen Index ⁵	26 %	26 %	ISO 4589-2

Optical	Nominal Value (English)	Nominal Value (SI)	Test Method
Refractive Index	1.586	1.586	ISO 489
Light Transmittance (118.1 mil (3000 µm))	87.0 to 91.0 %	87.0 to 91.0 %	ASTM D1003
Haze	< 1.00 %	< 1.00 %	ASTM D1003

Injection	Nominal Value (English)	Nominal Value (SI)
Drying Temperature	248 °F	120 °C
Drying Time	4.0 hr	4.0 hr

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 2.0 in/min (50 mm/min)

³ 0.079 in/min (2.0 mm/min)

⁴ Rate A (50°C/h), Loading 2 (50 N)

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

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