

SABIC Innovative Plastics Lexan® 104R PC

Category : Polymer , Thermoplastic , Polycarbonate (PC)

Material Notes:

UL rated HB. 200 series recommended when V-2 rating required. 7.0 MFR, for thicker sections without sinks. Internal mold release. FDA food contact compliant in limited colors. Effective January 15th, 2007 this grade will no longer be supported with biocompatibility information and should not be used for medical applications which require biocompatibility. Alternative grade HP6.

Order this product through the following link:

http://www.lookpolymers.com/polymer_SABIC-Innovative-Plastics-Lexan-104R-PC.php

| Physical Properties | Metric | English | Comments |
|------------------------------------|--|--|---|
| Specific Gravity | 1.20 g/cc | 1.20 g/cc | ASTM D792 |
| Density | 1.19 g/cc | 0.0430 lb/in ³ | ASTM D792 |
| | 1.20 g/cc | 0.0434 lb/in ³ | ISO 1183 |
| Water Absorption | 0.15 % @Time 86400 sec | 0.15 % @Time 24.0 hour | ASTM D570 |
| Moisture Absorption | 0.150 % | 0.150 % | 23°C / 50% RH; ISO 62 |
| Moisture Absorption at Equilibrium | 0.35 % | 0.35 % | ASTM D570 |
| | 0.58 % @Temperature 100 °C | 0.58 % @Temperature 212 °F | ASTM D570 |
| Water Absorption at Saturation | 0.35 % | 0.35 % | ISO 62 |
| Linear Mold Shrinkage, Flow | 0.0050 - 0.0070 cm/cm @Thickness 3.20 mm | 0.0050 - 0.0070 in/in @Thickness 0.126 in | SABIC Method |
| Melt Flow | 7.0 g/10 min @Load 1.20 kg, Temperature 300 °C | 7.0 g/10 min @Load 2.65 lb, Temperature 572 °F | ASTM D1238 |
| Melt Index of Compound | 4.0 g/10 min @Load 5.00 kg, Temperature 220 °C | 4.0 g/10 min @Load 11.0 lb, Temperature 428 °F | MVR [cm ³ /10 min]; ISO 1133 |
| | 6.0 g/10 min @Load 1.20 kg, Temperature 300 °C | 6.0 g/10 min @Load 2.65 lb, Temperature 572 °F | MVR [cm ³ /10 min]; ISO 1133 |

| Mechanical Properties | Metric | English | Comments |
|-----------------------|--------|---------|-----------|
| Hardness, Rockwell M | 70 | 70 | ASTM D785 |

| Mechanical Properties | Metric | English | Comments |
|----------------------------|------------------------|----------------------------|------------------------------------|
| Hardness, H358/30 | 95.0 MPa | 13800 psi | ISO 2039-1 |
| Tensile Strength at Break | 68.0 MPa | 9860 psi | Type I, 50 mm/min; ASTM D638 |
| | 70.0 MPa | 10200 psi | 50 mm/min; ISO 527 |
| Tensile Strength, Yield | 62.0 MPa | 8990 psi | Type I, 50 mm/min; ASTM D638 |
| | 63.0 MPa | 9140 psi | 50 mm/min; ISO 527 |
| Elongation at Break | 120 % | 120 % | 50 mm/min; ISO 527 |
| | 135 % | 135 % | Type I, 50 mm/min; ASTM D638 |
| Elongation at Yield | 6.0 % | 6.0 % | 50 mm/min; ISO 527 |
| | 7.0 % | 7.0 % | Type I, 50 mm/min; ASTM D638 |
| Tensile Modulus | 2.31 GPa | 335 ksi | 5 mm/min; ASTM D638 |
| | 2.35 GPa | 341 ksi | 1 mm/min; ISO 527 |
| Flexural Yield Strength | 90.0 MPa | 13100 psi | 2 mm/min; ISO 178 |
| | 97.0 MPa | 14100 psi | 1.3 mm/min, 50 mm span; ASTM D790 |
| Flexural Modulus | 2.30 GPa | 334 ksi | 2 mm/min; ISO 178 |
| | 2.34 GPa | 339 ksi | 1.3 mm/min, 50 mm span; ASTM D790 |
| Izod Impact, Notched | 9.07 J/cm | 17.0 ft-lb/in | ASTM D256 |
| | 1.39 J/cm | 2.60 ft-lb/in | ASTM D256 |
| | @Temperature -30.0 °C | @Temperature -22.0 °F | |
| Izod Impact, Unnotched | 32.04 J/cm | 60.02 ft-lb/in | ASTM D4812 |
| Izod Impact, Notched (ISO) | 65.0 kJ/m ² | 30.9 ft-lb/in ² | 80*10*4; ISO 180/1A |
| | 10.0 kJ/m ² | 4.76 ft-lb/in ² | 80*10*4; ISO 180/1A |
| | @Temperature -30.0 °C | @Temperature -22.0 °F | |
| Charpy Impact, Notched | 3.50 J/cm ² | 16.7 ft-lb/in ² | ISO 179/2C |
| | 9.50 J/cm ² | 45.2 ft-lb/in ² | Edgew 80*10*4 sp=62mm; ISO 179/1eA |
| Tensile Impact Strength | 630 kJ/m ² | 300 ft-lb/in ² | Type S; ASTM D1822 |
| Dart Drop, Total Energy | 169 J | 125 ft-lb | ASTM D3029 |

| Mechanical Properties | 65.0 J Metric | 47.9 ft-lb English | Comments ASTM D3763 |
|--------------------------------|----------------------|-----------------------|---------------------------|
| | @Temperature 23.0 °C | @Temperature 73.4 °F | |
| Taber Abrasion, mg/1000 Cycles | 10 | 10 | CS-17, 1 kg; ASTM D1044 |
| | 10 | 10 | CS-17, 1 kg; SABIC Method |

| Thermal Properties | Metric | English | Comments |
|---|------------------------------|------------------------------------|------------------------------------|
| CTE, linear, Parallel to Flow | 60.0 µm/m-°C | 33.3 µin/in-°F | ISO 11359-2 |
| | @Temperature -40.0 - 40.0 °C | @Temperature -40.0 - 104 °F | |
| | 62.0 µm/m-°C | 34.4 µin/in-°F | ASTM E 831 |
| | @Temperature -40.0 - 40.0 °C | @Temperature -40.0 - 104 °F | |
| | 70.0 µm/m-°C | 38.9 µin/in-°F | ISO 11359-2 |
| | @Temperature 23.0 - 80.0 °C | @Temperature 73.4 - 176 °F | |
| CTE, linear, Transverse to Flow | 57.0 µm/m-°C | 31.7 µin/in-°F | ASTM E 831 |
| | @Temperature -40.0 - 40.0 °C | @Temperature -40.0 - 104 °F | |
| | 60.0 µm/m-°C | 33.3 µin/in-°F | ISO 11359-2 |
| | @Temperature -40.0 - 40.0 °C | @Temperature -40.0 - 104 °F | |
| Specific Heat Capacity | 1.25 J/g-°C | 0.299 BTU/lb-°F | ASTM C351 |
| Thermal Conductivity | 0.190 W/m-K | 1.32 BTU-in/hr-ft ² -°F | ASTM C177 |
| | 0.200 W/m-K | 1.39 BTU-in/hr-ft ² -°F | |
| Hot Ball Pressure Test | <= 140 °C | <= 284 °F | IEC 60695-10-2 |
| Deflection Temperature at 0.46 MPa (66 psi) | 138 °C | 280 °F | Edgew 120*10*4 sp=100mm; ISO 75/Be |
| | 137 °C | 279 °F | |
| | @Thickness 6.40 mm | @Thickness 0.252 in | unannealed; ASTM D648 |
| Deflection Temperature at 1.8 MPa (264 psi) | 124 °C | 255 °F | Flatw 80*10*4 sp=64mm; ISO 75/Af |
| | 127 °C | 261 °F | |
| | 127 °C | 261 °F | Edgew 120*10*4 sp=100mm; ISO 75/Ae |
| | 132 °C | 270 °F | unannealed; ASTM D648 |
| | @Thickness 6.40 mm | @Thickness 0.252 in | |

| Vicat Softening Point Thermal Properties | 144 °C Metric | 291 °F English | Rate B/50; ISO 306 Comments |
|---|------------------|-------------------|--------------------------------|
| | 145 °C | 293 °F | Rate B/120; ISO 306 |

| Electrical Properties | Metric | English | Comments |
|----------------------------|---------------------------|---------------------------|---------------------|
| Volume Resistivity | >= 1.00e+17 ohm-cm | >= 1.00e+17 ohm-cm | ASTM D257 |
| Dielectric Constant | 2.7 | 2.7 | IEC 60250 |
| | @Frequency 1.00e+6 Hz | @Frequency 1.00e+6 Hz | |
| | 2.7 | 2.7 | IEC 60250 |
| | @Frequency 50.0 - 60.0 Hz | @Frequency 50.0 - 60.0 Hz | |
| | 2.96 | 2.96 | ASTM D150 |
| | @Frequency 1.00e+6 Hz | @Frequency 1.00e+6 Hz | |
| | 3.17 | 3.17 | ASTM D150 |
| | @Frequency 50.0 - 60.0 Hz | @Frequency 50.0 - 60.0 Hz | |
| Dielectric Strength | 14.9 kV/mm | 378 kV/in | in air; ASTM D149 |
| | @Thickness 3.20 mm | @Thickness 0.126 in | |
| | 17.0 kV/mm | 432 kV/in | in oil; IEC 60243-1 |
| | @Thickness 3.20 mm | @Thickness 0.126 in | |
| Dissipation Factor | 0.00090 | 0.00090 | ASTM D150 |
| | @Frequency 50.0 - 60.0 Hz | @Frequency 50.0 - 60.0 Hz | |
| | 0.0010 | 0.0010 | IEC 60250 |
| | @Frequency 50.0 - 60.0 Hz | @Frequency 50.0 - 60.0 Hz | |
| | 0.010 | 0.010 | IEC 60250 |
| | @Frequency 1.00e+6 Hz | @Frequency 1.00e+6 Hz | |
| | 0.010 | 0.010 | ASTM D150 |
| | @Frequency 1.00e+6 Hz | @Frequency 1.00e+6 Hz | |
| Comparative Tracking Index | 250 - 400 V | 250 - 400 V | UL 746A |
| Hot Wire Ignition, HWI | 30 - 60 sec | 30 - 60 sec | UL 746A |

| High Amp Arc Ignition, HAI Electrical Properties | 60 - 120 arcs Metric | 60 - 120 arcs English | UL 746A Comments |
|---|-------------------------|--------------------------|---------------------|
| High Voltage Arc-Tracking Rate, HVTR | 25.4 - 80.0 mm/min | 1.00 - 3.15 in/min | UL 746A |

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