

Lexan* Resin HPB3144G

Americas: COMMERCIAL

Standard flow, transparent, high purity polycarbonate copolymer resin with reduced oxygen permeability and water vapor transmission rate. For medical devices and pharmaceutical applications. Healthcare management of change, biocompatible (ISO 10993 or USP Class VI), food contact compliant.

Property

| TYPICAL PROPERTIES ⁽¹⁾ | | | |
|--|-------|-------------------|--------------|
| MECHANICAL | Value | Unit | Standard |
| Tensile Stress, yld, Type I, 50 mm/min | 80 | MPa | ASTM D 638 |
| Tensile Stress, brk, Type I, 50 mm/min | 65 | MPa | ASTM D 638 |
| Tensile Strain, yld, Type I, 50 mm/min | 7 | % | ASTM D 638 |
| Tensile Strain, brk, Type I, 50 mm/min | 70 | % | ASTM D 638 |
| Tensile Modulus, 50 mm/min | 2900 | MPa | ASTM D 638 |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 120 | MPa | ASTM D 790 |
| Flexural Modulus, 1.3 mm/min, 50 mm span | 2600 | MPa | ASTM D 790 |
| Hardness, Rockwell L | 108 | - | ASTM D 785 |
| Hardness, Rockwell M | 93 | - | ASTM D 785 |
| Taber Abrasion, CS-17, 1 kg | 10 | mg/1000cy | ASTM D 1044 |
| Taber Abrasion, CS-17, 1 kg | 10 | mg/1000cy | SABIC Method |
| Tensile Stress, yield, 50 mm/min | 80 | MPa | ISO 527 |
| Tensile Stress, break, 50 mm/min | 60 | MPa | ISO 527 |
| Tensile Strain, yield, 50 mm/min | 7 | % | ISO 527 |
| Tensile Strain, break, 50 mm/min | 40 | % | ISO 527 |
| Tensile Modulus, 1 mm/min | 2450 | MPa | ISO 527 |
| Flexural Stress, yield, 2 mm/min | 108 | MPa | ISO 178 |
| Flexural Modulus, 2 mm/min | 2450 | MPa | ISO 178 |
| Hardness, H358/30 | 128 | MPa | ISO 2039-1 |
| Pencil Hardness test, 1kgf | H | - | ASTM D 3363 |
| Erichson scratch depth, 6N | 14 | micrometer | SABIC Method |
| IMPACT | Value | Unit | Standard |
| Izod Impact, unnotched, 23°C | NB | J/m | ASTM D 4812 |
| Izod Impact, notched, 23°C | 30 | J/m | ASTM D 256 |
| Izod Impact, notched, -30°C | 30 | J/m | ASTM D 256 |
| Instrumented Impact Total Energy, 23°C | 30 | J | ASTM D 3763 |
| Izod Impact, unnotched 80*10*3 +23°C | NB | kJ/m ² | ISO 180/1U |
| Izod Impact, unnotched 80*10*3 -30°C | 45 | kJ/m ² | ISO 180/1U |
| Izod Impact, notched 80*10*3 +23°C | 5 | kJ/m ² | ISO 180/1A |
| Izod Impact, notched 80*10*3 -30°C | 4 | kJ/m ² | ISO 180/1A |
| Izod Impact, unnotched 80*10*4 +23°C | NB | kJ/m ² | ISO 180/1U |
| Izod Impact, unnotched 80*10*4 -30°C | 47 | kJ/m ² | ISO 180/1U |
| Izod Impact, notched 80*10*4 -30°C | 3 | kJ/m ² | ISO 180/1A |
| Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm | 3 | kJ/m ² | ISO 179/1eA |
| Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm | 3 | kJ/m ² | ISO 179/1eA |
| Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm | NB | kJ/m ² | ISO 179/1eU |
| Charpy -30°C, Unnotch Edgew 80*10*3 sp=62mm | 47 | kJ/m ² | ISO 179/1eU |

| | | | |
|---|--------------|-------------------------|-----------------|
| Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm | 3 | kJ/m ² | ISO 179/1eA |
| Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm | NB | kJ/m ² | ISO 179/1eU |
| Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm | 47 | kJ/m ² | ISO 179/1eU |
| THERMAL | Value | Unit | Standard |
| Vicat Softening Temp, Rate B/50 | 139 | °C | ASTM D 1525 |
| HDT, 0.45 MPa, 3.2 mm, unannealed | 133 | °C | ASTM D 648 |
| HDT, 1.82 MPa, 3.2mm, unannealed | 119 | °C | ASTM D 648 |
| HDT, 0.45 MPa, 6.4 mm, unannealed | 133 | °C | ASTM D 648 |
| HDT, 1.82 MPa, 6.4 mm, unannealed | 119 | °C | ASTM D 648 |
| CTE, -40°C to 95°C, flow | 7.E-05 | 1/°C | ASTM E 831 |
| CTE, -40°C to 95°C, xflow | 7.E-05 | 1/°C | ASTM E 831 |
| Specific Heat | 1.4 | J/g-°C | ASTM C 351 |
| Thermal Conductivity | 0.2 | W/m-°C | ASTM C 177 |
| Thermal Conductivity | 0.2 | W/m-°C | ISO 8302 |
| CTE, 23°C to 80°C, flow | 7.E-05 | 1/°C | ISO 11359-2 |
| CTE, 23°C to 80°C, xflow | 7.E-05 | 1/°C | ISO 11359-2 |
| Ball Pressure Test, 125°C +/- 2°C | PASSES | - | IEC 60695-10-2 |
| Ball Pressure Test, approximate maximum | 140 | °C | IEC 60695-10-2 |
| Vicat Softening Temp, Rate B/50 | 138 | °C | ISO 306 |
| Vicat Softening Temp, Rate B/120 | 140 | °C | ISO 306 |
| HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm | 131 | °C | ISO 75/Be |
| HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm | 118 | °C | ISO 75/Ae |
| PHYSICAL | Value | Unit | Standard |
| Specific Gravity | 1.2 | - | ASTM D 792 |
| Specific Volume | 0.85 | cm ³ /g | ASTM D 792 |
| Density | 1.17 | g/cm ³ | ASTM D 792 |
| Water Absorption, 24 hours | 0.08 | % | ASTM D 570 |
| Water Absorption, equilibrium, 23C | 0.28 | % | ASTM D 570 |
| Water Absorption, 50% RH, equilib | 0.13 | % | ASTM D 570 |
| Moisture Absorption, 50% RH, 24 hrs | 0.04 | % | ASTM D 570 |
| Mold Shrinkage, flow, 3.2 mm (5) | 0.5 - 0.8 | % | SABIC Method |
| Melt Flow Rate, 300°C/1.2 kgf | 14.5 | g/10 min | ASTM D 1238 |
| Density | 1.17 | g/cm ³ | ISO 1183 |
| Water Absorption, (23°C/sat) | 0.27 | % | ISO 62 |
| Moisture Absorption (23°C / 50% RH) | 0.13 | % | ISO 62 |
| Melt Volume Rate, MVR at 300°C/1.2 kg | 13 | cm ³ /10 min | ISO 1133 |
| OPTICAL | Value | Unit | Standard |
| Light Transmission, 2.54 mm | 88 | % | ASTM D 1003 |
| Haze, 2.54 mm | <0.8 | % | ASTM D 1003 |
| Refractive Index | 1.584 | - | ASTM D 542 |
| Refractive Index | 1.584 | - | ISO 489 |
| ELECTRICAL | Value | Unit | Standard |
| Volume Resistivity | >1.E+17 | Ohm-cm | ASTM D 257 |
| Relative Permittivity, 50/60 Hz | 2.9 | - | ASTM D 150 |
| Relative Permittivity, 1 MHz | 2.8 | - | ASTM D 150 |
| Comparative Tracking Index (UL) {PLC} | 2 | PLC Code | UL 746A |

Source GMD, last updated:2010/07/06

Processing

| Parameter | Value | Unit |
|--------------------------|-------|------|
| Injection Molding | | |
| Drying Temperature | 120 | °C |
| Drying Time | 3 - 4 | hrs |
| Maximum Moisture Content | 0.02 | % |

| | | |
|-----------------------------|-----------|----|
| Melt Temperature | 295 - 315 | °C |
| Nozzle Temperature | 290 - 310 | °C |
| Front - Zone 3 Temperature | 295 - 315 | °C |
| Middle - Zone 2 Temperature | 280 - 305 | °C |
| Rear - Zone 1 Temperature | 260 - 280 | °C |
| Hopper Temperature | 60 - 80 | °C |
| Mold Temperature | 70 - 95 | °C |

Source GMD, last updated:2010/07/06

THESE PROPERTY VALUES ARE NOT INTENDED FOR SPECIFICATION PURPOSES.

PLEASE CHECK WITH YOUR [\(LOCAL SALES OFFICE\)](#) FOR AVAILABILITY IN YOUR REGION

(1) Typical values only. Variations within normal tolerances are possible for various colors. All values are measured after at least 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume and melt flow rates, are measured on injection molded samples. All samples tested under ISO test standards are prepared according to ISO 294.

(2) Only typical data for selection purposes. Not to be used for part or tool design.

(3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

(4) Internal measurements according to UL standards.

(5) Measurements made from laboratory test coupon. Actual shrinkage may vary outside of range due to differences in processing conditions, equipment, part geometry and tool design. It is recommended that mold shrinkage studies be performed with surrogate or legacy tooling prior to cutting tools for new molded article.

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