

Lexan* Resin 151R

Americas: COMMERCIAL

Lexan 151R resin is a high viscosity, nonhalogenated resin designed to be a candidate for applications produced via extrusion or blow molding processing.

Property

| TYPICAL PROPERTIES ⁽¹⁾ | | | |
|--|-----------|--------------------|--------------|
| MECHANICAL | Value | Unit | Standard |
| Tensile Stress, yld, Type I, 50 mm/min | 62 | 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 | 110 | % | ASTM D 638 |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 93 | MPa | ASTM D 790 |
| Flexural Modulus, 1.3 mm/min, 50 mm span | 2340 | MPa | ASTM D 790 |
| Hardness, Rockwell M | 70 | - | ASTM D 785 |
| Hardness, Rockwell R | 118 | - | ASTM D 785 |
| Taber Abrasion, CS-17, 1 kg | 10 | mg/1000cy | ASTM D 1044 |
| IMPACT | Value | Unit | Standard |
| Izod Impact, unnotched, 23°C | 3204 | J/m | ASTM D 4812 |
| Izod Impact, notched, 23°C | 747 | J/m | ASTM D 256 |
| Tensile Impact, Type S | 630 | kJ/m ² | ASTM D 1822 |
| Falling Dart Impact (D 3029), 23°C | 169 | J | ASTM D 3029 |
| THERMAL | Value | Unit | Standard |
| HDT, 0.45 MPa, 6.4 mm, unannealed | 137 | °C | ASTM D 648 |
| HDT, 1.82 MPa, 6.4 mm, unannealed | 132 | °C | ASTM D 648 |
| CTE, -40°C to 95°C, flow | 6.84E-05 | 1/°C | ASTM E 831 |
| Specific Heat | 1.25 | J/g-°C | ASTM C 351 |
| Thermal Conductivity | 0.19 | W/m-°C | ASTM C 177 |
| PHYSICAL | Value | Unit | Standard |
| Specific Gravity | 1.2 | - | ASTM D 792 |
| Specific Volume | 0.83 | cm ³ /g | ASTM D 792 |
| Density | 1.19 | g/cm ³ | ASTM D 792 |
| Water Absorption, 24 hours | 0.15 | % | ASTM D 570 |
| Water Absorption, equilibrium, 23C | 0.35 | % | ASTM D 570 |
| Water Absorption, equilibrium, 100°C | 0.58 | % | ASTM D 570 |
| Mold Shrinkage, flow, 3.2 mm (5) | 0.5 - 0.7 | % | SABIC Method |
| Melt Flow Rate, 300°C/1.2 kgf | 2.5 | g/10 min | ASTM D 1238 |
| OPTICAL | Value | Unit | Standard |
| Light Transmission, 2.54 mm | 88 | % | ASTM D 1003 |
| Haze, 2.54 mm | 1 | % | ASTM D 1003 |
| Refractive Index | 1.586 | - | ASTM D 542 |
| ELECTRICAL | Value | Unit | Standard |
| Volume Resistivity | >1.E+16 | Ohm-cm | ASTM D 257 |
| Dielectric Strength, in air, 3.2 mm | 14.9 | kV/mm | ASTM D 149 |
| Relative Permittivity, 50/60 Hz | 3.17 | - | ASTM D 150 |
| Relative Permittivity, 1 MHz | 2.96 | - | ASTM D 150 |

| | | | |
|------------------------------|--------|---|------------|
| Dissipation Factor, 50/60 Hz | 0.0009 | - | ASTM D 150 |
| Dissipation Factor, 1 MHz | 0.01 | - | ASTM D 150 |

Source GMD, last updated:2009/07/20

Processing

| Parameter | Value | Unit |
|-----------------------------|---------------|------|
| Injection Molding | | |
| Drying Temperature | 120 | °C |
| Drying Time | 3 - 4 | hrs |
| Drying Time (Cumulative) | 48 | hrs |
| Maximum Moisture Content | 0.02 | % |
| Melt Temperature | 320 - 345 | °C |
| Nozzle Temperature | 315 - 340 | °C |
| Front - Zone 3 Temperature | 320 - 345 | °C |
| Middle - Zone 2 Temperature | 310 - 330 | °C |
| Rear - Zone 1 Temperature | 300 - 320 | °C |
| Mold Temperature | 80 - 115 | °C |
| Back Pressure | 0.3 - 0.7 | MPa |
| Screw Speed | 40 - 70 | rpm |
| Shot to Cylinder Size | 40 - 60 | % |
| Vent Depth | 0.025 - 0.076 | mm |

| Parameter | Value | Unit |
|------------------------------|-----------|------|
| Extrusion Blow Molding | | |
| Drying Temperature | 120 | °C |
| Drying Time | 2 - 4 | hrs |
| Maximum Moisture Content | 0.02 | % |
| Minimum Moisture Content | 0.01 | % |
| Melt Temperature (Parison) | 265 - 280 | °C |
| Barrel - Zone 1 Temperature | 260 - 290 | °C |
| Barrel - Zone 2 Temperature | 260 - 290 | °C |
| Barrel - Zone 3 Temperature | 260 - 290 | °C |
| Barrel - Zone 4 Temperature | 260 - 290 | °C |
| Adapter - Zone 5 Temperature | 260 - 290 | °C |
| Mold Temperature | 60 - 100 | °C |

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- Uncontaminated regrind up to 25% is allowed.
- Screw configuration affects melt temperature. A low shear, 2.5:1
- Mold temperatures of 65°C - 95°C (150°F - 200°F) produce best surface appearance.
- 15-50 rpm screw speed suggested. Adjust actual rpm for desired output while maintaining desired melt temperature range. Increasing screw speed increases shear heating; use a hand-held pyrometer to measure melt temperature. Adjust barrel temperatures to maintain recommended melt temperature range.

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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