

Lexan* Resin HPS1S

Americas: COMMERCIAL

High flow polycarbonate. For medical devices and pharmaceutical applications. Healthcare management of change, biocompatible (ISO10993 or USP Class VI). EtO, e-beam and gamma sterilizable. Contains a higher amount of mold release than HPS1R.

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 | 6 | % | ASTM D 638 |
| Tensile Strain, brk, Type I, 50 mm/min | 120 | % | ASTM D 638 |
| Tensile Modulus, 50 mm/min | 2370 | MPa | 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 | 2300 | 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 |
| Tensile Stress, yield, 50 mm/min | 63 | MPa | ISO 527 |
| Tensile Stress, break, 50 mm/min | 50 | MPa | ISO 527 |
| Tensile Strain, yield, 50 mm/min | 6 | % | ISO 527 |
| Tensile Strain, break, 50 mm/min | 70 | % | ISO 527 |
| Tensile Modulus, 1 mm/min | 2350 | MPa | ISO 527 |
| Flexural Stress, yield, 2 mm/min | 90 | MPa | ISO 178 |
| Flexural Modulus, 2 mm/min | 2300 | MPa | ISO 178 |
| Hardness, H358/30 | 95 | MPa | ISO 2039-1 |
| IMPACT | Value | Unit | Standard |
| Izod Impact, unnotched, 23°C | 3204 | J/m | ASTM D 4812 |
| Izod Impact, notched, -30°C | 120 | J/m | ASTM D 256 |
| Izod Impact, notched (natural, tints) | 640 | J/m | ASTM D 256 |
| Izod Impact, notched (colors) | 106 | J/m | ASTM D 256 |
| Tensile Impact, Type "S" | 378 | kJ/m ² | ASTM D 1822 |
| Falling Dart Impact (D 3029), 23°C | 169 | J | ASTM D 3029 |
| Instrumented Impact Energy @ peak, 23°C | 60 | J | ASTM D 3763 |
| Instrumented Impact Total Energy, 23°C | 64 | 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 | NB | kJ/m ² | ISO 180/1U |
| Izod Impact, notched 80*10*3 +23°C | 12 | kJ/m ² | ISO 180/1A |
| Izod Impact, notched 80*10*3 -30°C | 10 | kJ/m ² | ISO 180/1A |
| Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm | 12 | kJ/m ² | ISO 179/1eA |
| Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm | 10 | 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 | NB | 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, 6.4 mm, unannealed | 137 | °C | ASTM D 648 |

| | | | |
|---|--------------|-------------|-----------------|
| HDT, 1.82 MPa, 6.4 mm, unannealed | 126 | °C | ASTM D 648 |
| CTE, -40°C to 40°C, xflow | 7.E-05 | 1/°C | ASTM E 831 |
| 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 |
| Thermal Conductivity | 0.2 | W/m-°C | ISO 8302 |
| CTE, -40°C to 40°C, xflow | 7.E-05 | 1/°C | ISO 11359-2 |
| CTE, 23°C to 80°C, flow | 7.E-05 | 1/°C | ISO 11359-2 |
| Ball Pressure Test, 125°C +/- 2°C | PASSES | - | IEC 60695-10-2 |
| Vicat Softening Temp, Rate B/50 | 139 | °C | ISO 306 |
| Vicat Softening Temp, Rate B/120 | 140 | °C | ISO 306 |
| HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm | 133 | °C | ISO 75/Be |
| HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm | 121 | °C | ISO 75/Ae |
| PHYSICAL | Value | Unit | Standard |
| Specific Gravity | 1.2 | - | ASTM D 792 |
| Specific Volume | 0.83 | cm³/g | ASTM D 792 |
| Density | 1.19 | g/cm³ | ASTM D 792 |
| 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 | 0.5 - 0.7 | % | SABIC Method |
| Melt Flow Rate, 300°C/1.2 kgf | 25 | g/10 min | ASTM D 1238 |
| Density | 1.2 | g/cm³ | ISO 1183 |
| Water Absorption, (23°C/sat) | 0.15 | % | ISO 62 |
| Moisture Absorption (23°C / 50% RH) | 0.15 | % | ISO 62 |
| Melt Volume Rate, MVR at 300°C/1.2 kg | 23 | cm³/10 min | ISO 1133 |
| OPTICAL | Value | Unit | Standard |
| Light Transmission | 88 | % | ASTM D 1003 |
| Haze | 1 | % | ASTM D 1003 |
| Refractive Index | 1.586 | - | ASTM D 542 |
| ELECTRICAL | Value | Unit | Standard |
| Volume Resistivity | >1.E+17 | 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 |
| Volume Resistivity | >1.E+15 | Ohm-cm | IEC 60093 |
| Surface Resistivity, ROA | >1.E+15 | Ohm | IEC 60093 |
| Dielectric Strength, in oil, 3.2 mm | 17 | kV/mm | IEC 60243-1 |
| Relative Permittivity, 50/60 Hz | 2.7 | - | IEC 60250 |
| Relative Permittivity, 1 MHz | 2.7 | - | IEC 60250 |
| Dissipation Factor, 50/60 Hz | 0.001 | - | IEC 60250 |
| Dissipation Factor, 1 MHz | 0.01 | - | IEC 60250 |
| FLAME CHARACTERISTICS | Value | Unit | Standard |
| Oxygen Index (LOI) | 25 | % | ISO 4589 |

Source GMD, last updated:04/02/2008

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 | 270 - 295 | °C |
| Nozzle Temperature | 265 - 290 | °C |
| Front - Zone 3 Temperature | 270 - 295 | °C |
| Middle - Zone 2 Temperature | 260 - 280 | °C |
| Rear - Zone 1 Temperature | 250 - 270 | °C |
| Mold Temperature | 70 - 95 | °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 |

Source GMD, last updated:04/02/2008

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.

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