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# VALOX™ RESIN SHF4320

REGION EUROPE

## DESCRIPTION

VALOX SHF4320 is a 10% glass fibre reinforced PBT injection moulding resin with excellent electrical properties combined with good flow, mechanical and heat characteristics.
Applications: Thin wall (high voltage) automotive connectors.

## TYPICAL PROPERTY VALUES

Revision 20260330

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| **MECHANICAL** | | | |
| Tensile Stress, yield, 5 mm/min | 80 | MPa | ISO 527 |
| Tensile Stress, break, 5 mm/min | 80 | MPa | ISO 527 |
| Tensile Strain, yield, 5 mm/min | 3.4 | % | ISO 527 |
| Tensile Strain, break, 5 mm/min | 3.4 | % | ISO 527 |
| Tensile Modulus, 1 mm/min | 4350 | MPa | ISO 527 |
| Flexural Stress, yield, 2 mm/min | 120 | MPa | ISO 178 |
| Flexural Stress, break, 2 mm/min | 115 | MPa | ISO 178 |
| Flexural Strain, break, 2 mm/min | 5 | % | ISO 178 |
| Flexural Modulus, 2 mm/min | 3750 | MPa | ISO 178 |
| Tensile Stress, brk, Type I, 5 mm/min | 80 | MPa | ASTM D638 |
| Tensile Stress, yld, Type I, 5 mm/min | 80 | MPa | ASTM D638 |
| Tensile Strain, brk, Type I, 5 mm/min | 3.4 | % | ASTM D638 |
| Tensile Strain, yld, Type I, 5 mm/min | 3.4 | % | ASTM D638 |
| Tensile Modulus, 5 mm/min | 4400 | MPa | ASTM D638 |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 120 | MPa | ASTM D790 |
| Flexural Stress, brk, 1.3 mm/min, 50 mm span | 112 | MPa | ASTM D790 |
| Flexural Modulus, 1.3 mm/min, 50 mm span | 3700 | MPa | ASTM D790 |
| Ball Indentation Hardness, H358/30 | 110 | MPa | ISO 2039-1 |
| Hardness, Rockwell R | 120 | - | ISO 2039-2 |
| **IMPACT** | | | |
| Izod Impact, unnotched 80*10*4 +23°C | 35 | kJ/m² | ISO 180/1U |
| Izod Impact, unnotched 80*10*4 -30°C | 30 | kJ/m² | ISO 180/1U |
| Izod Impact, notched 80*10*4 +23°C | 7 | kJ/m² | ISO 180/1A |
| Izod Impact, notched 80*10*4 -30°C | 5 | kJ/m² | ISO 180/1A |
| Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm | 6 | kJ/m² | ISO 179/1eA |
| Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm | 5 | kJ/m² | ISO 179/1eA |
| Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm | 35 | kJ/m² | ISO 179/1eU |
| Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm | 30 | kJ/m² | ISO 179/1eU |
| Izod Impact, notched, 23°C | 45 | J/m | ASTM D256 |
| Izod Impact, unnotched, 23°C | 505 | J/m | ASTM D4812 |
| **THERMAL** | | | |
| Vicat Softening Temp, Rate A/50 | 220 | °C | ISO 306 |
| Vicat Softening Temp, Rate B/50 | 200 | °C | ISO 306 |
| Vicat Softening Temp, Rate B/120 | 195 | °C | ISO 306 |



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| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm | 185 | °C | ISO 75/Af |
| HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm | 215 | °C | ISO 75/Bf |
| CTE, 23°C to 150°C, flow | 4.50E-05 | 1/°C | ISO 11359-2 |
| CTE, 23°C to 150°C, xflow | 2.05E-04 | 1/°C | ISO 11359-2 |
| Ball Pressure Test, 125°C +/- 2°C | PASSES | - | IEC 60695-10-2 |
| Vicat Softening Temp, Rate A/50 | 220 | °C | ASTM D1525 |
| Vicat Softening Temp, Rate B/50 | 200 | °C | ASTM D1525 |
| HDT, 0.45 MPa, 3.2 mm, unannealed | 215 | °C | ASTM D648 |
| HDT, 1.82 MPa, 3.2mm, unannealed | 185 | °C | ASTM D648 |
| CTE, 23°C to 150°C, flow | 4.50E-05 | 1/°C | ASTM E831 |
| CTE, 23°C to 150°C, xflow | 2.05E-04 | 1/°C | ASTM E831 |
| PHYSICAL | | | |
| Density | 1.35 | g/cm³ | ISO 1183 |
| Moisture Absorption (23°C / 50% RH) | 0.07 | % | ISO 62 |
| Water Absorption, (23°C/saturated) | 0.2 | % | ISO 62-1 |
| Mold Shrinkage, flow | 0.7 – 1.1 | % | SABIC method |
| Mold Shrinkage, xflow | 1.1 – 1.5 | % | SABIC method |
| Melt Volume Rate | | | |
| 250°C/2.16 kg | 23 | cm³/10 min | ISO 1133 |
| 250°C/2.16 kg | 22 | cm³/10 min | ASTM D1238 |
| Melt Viscosity, 260°C, 1500 sec-1 | 100 | Pa-s | ISO 11443 |
| Specific Gravity | 1.35 | - | ASTM D792 |
| Filler Content | 10 | % | ASTM D229 |
| Moisture Absorption, (23°C/50% RH/24 hrs) | 0.06 | % | ASTM D570 |
| Water Absorption, (23°C/24hrs) | 0.18 | % | ASTM D570 |
| Melt Flow Rate | | | |
| 250°C/2.16 kgf | 25 | g/10 min | ASTM D1238 |
| ELECTRICAL | | | |
| Volume Resistivity | >1.E+15 | Ω.cm | ASTM D257 |
| Dielectric Strength, in oil, 0.8 mm | 30 | kV/mm | ASTM D149 |
| Dielectric Strength, in oil, 1.6 mm | 23 | kV/mm | ASTM D149 |
| Dielectric Strength, in oil, 3.2 mm | 18 | kV/mm | ASTM D149 |
| Relative Permittivity, 1 MHz | 3.4 | - | ASTM D150 |
| Dissipation Factor, 1 MHz | 0.015 | - | ASTM D150 |
| Volume Resistivity | >1.E+15 | Ω.cm | IEC 60093 |
| Surface Resistivity, ROA | >1.E+15 | Ω | IEC 60093 |
| Dielectric Strength, in oil, 0.8 mm | 30 | kV/mm | IEC 60243-1 |
| Dielectric Strength, in oil, 1.6 mm | 23 | kV/mm | IEC 60243-1 |
| Dielectric Strength, in oil, 3.2 mm | 18 | kV/mm | IEC 60243-1 |
| Relative Permittivity, 1 MHz | 3.4 | - | IEC 60250 |
| Dissipation Factor, 50/60 Hz | 0.001 | - | IEC 60250 |
| Dissipation Factor, 1 MHz | 0.015 | - | IEC 60250 |
| Comparative Tracking Index | 600 | V | IEC 60112 |
| Relative Permittivity, 50/60 Hz | 3.1 | - | IEC 60250 |
| Comparative Tracking Index (UL) {PLC} | 0 | PLC Code | UL 746A |
| Hot Wire Ignition {PLC} | 1 | PLC Code | UL 746A |



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|---|---|---|---|
| High Ampere Arc Ign, surface {PLC} | 0 | PLC Code | UL 746A |
| FLAME CHARACTERISTICS | | | |
| UL Yellow Card Link | E45329-104622916 | - | - |
| UL Recognized, 94HB Flame Class Rating | 1.5 | mm | UL 94 |
| INJECTION MOLDING | | | |
| Drying Temperature | 110 – 120 | °C | |
| Drying Time | 2 – 4 | Hrs | |
| Maximum Moisture Content | 0.02 | % | |
| Melt Temperature | 250 – 270 | °C | |
| Nozzle Temperature | 240 – 260 | °C | |
| Front - Zone 3 Temperature | 245 – 265 | °C | |
| Middle - Zone 2 Temperature | 240 – 255 | °C | |
| Rear - Zone 1 Temperature | 230 – 245 | °C | |
| Hopper Temperature | 40 – 60 | °C | |
| Mold Temperature | 40 – 100 | °C | |