

Zytel® FR50 BK153J

NYLON RESIN

Zytel® FR50 BK153J is a 25% Glass Reinforced, Flame Retardant, Polyamide 66

Product information

| | | |
|----------------------|--|-----------|
| Resin Identification | PA66-GF25FR(17) | ISO 1043 |
| Part Marking Code | >PA66-GF25FR(17)< | ISO 11469 |
| ISO designation | ISO 16396-PA66,GF25 FR(17),M1CF1GR,S14-100 | |

Rheological properties

| | | | |
|------------------------------|--------------------------|--------------------|-----------------|
| | dry/cond. | | |
| Viscosity number | 150 ^{[1]/*[DS]} | cm ³ /g | ISO 307, 1628 |
| Moulding shrinkage, parallel | 0.3 / - | % | ISO 294-4, 2577 |
| Moulding shrinkage, normal | 0.7 / - | % | ISO 294-4, 2577 |

[DS]: Derived from similar grade

[1]: Sulfuric acid 96%

Typical mechanical properties

| | | | |
|--------------------------------------|-----------|-------------------|--------------|
| | dry/cond. | | |
| Tensile modulus | 10400 / - | MPa | ISO 527-1/-2 |
| Tensile stress at break, 5mm/min | 160 / - | MPa | ISO 527-1/-2 |
| Tensile strain at break, 5mm/min | 2.6 / - | % | ISO 527-1/-2 |
| Flexural modulus | 9160 / - | MPa | ISO 178 |
| Flexural strength | 240 / - | MPa | ISO 178 |
| Charpy impact strength, 23°C | 55 / - | kJ/m ² | ISO 179/1eU |
| Charpy notched impact strength, 23°C | 9.5 / - | kJ/m ² | ISO 179/1eA |
| Izod notched impact strength, 23°C | 11 / - | kJ/m ² | ISO 180/1A |
| Poisson's ratio | 0.34 / - | | |

Thermal properties

| | | | |
|---|----------------------|----|----------------|
| | dry/cond. | | |
| Melting temperature, 10°C/min | 260 ^{[2]/*} | °C | ISO 11357-1/-3 |
| Glass transition temperature, 10°C/min | 80 / 20 | °C | ISO 11357-1/-3 |
| Temperature of deflection under load, 1.8 MPa | 240 / * | °C | ISO 75-1/-2 |
| RTI, electrical, 0.75mm | 130 | °C | UL 746B |
| RTI, electrical, 1.5mm | 130 | °C | UL 746B |
| RTI, electrical, 3.0mm | 130 | °C | UL 746B |
| RTI, impact, 0.75mm | 105 | °C | UL 746B |
| RTI, impact, 1.5mm | 115 | °C | UL 746B |
| RTI, impact, 3.0mm | 115 | °C | UL 746B |
| RTI, strength, 0.75mm | 105 | °C | UL 746B |
| RTI, strength, 1.5mm | 115 / * | °C | UL 746B |
| RTI, strength, 3.0mm | 120 | °C | UL 746B |

[2]: 1st heating

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Flammability

| | dry/cond. | | |
|--------------------------------------|-----------|-------|----------------------|
| Burning Behav. at 1.5mm nom. thickn. | V-0/* | class | IEC 60695-11-10 |
| Thickness tested | 1.5/* | mm | IEC 60695-11-10 |
| UL recognition | yes/* | | UL 94 |
| Burning Behav. at thickness h | V-0/* | class | IEC 60695-11-10 |
| Thickness tested | 0.35/* | mm | IEC 60695-11-10 |
| UL recognition | yes/* | | UL 94 |
| Burning Behav. 5V at thickness h | 5VA/* | class | IEC 60695-11-20 |
| Thickness tested | 1.5/* | mm | IEC 60695-11-20 |
| UL recognition | yes/* | | UL 94 |
| FMVSS Class | DNI | | ISO 3795 (FMVSS 302) |
| Hot Wire Ignition, 0.75mm | 300/* | s | UL 746A |
| Hot Wire Ignition, 1.5mm | 300/* | s | UL 746A |
| Hot Wire Ignition, 3mm | 300/* | s | UL 746A |

Electrical properties

| | dry/cond. | | |
|--|-----------------------|-------|---------------|
| Volume resistivity | >1E13/2.7E10 | Ohm.m | IEC 62631-3-1 |
| Electric strength | 24/22 ^[DS] | kV/mm | IEC 60243-1 |
| Comparative tracking index | 275/- | | IEC 60112 |
| Comparative tracking index, 23 °C | 2/- | PLC | UL 746A |
| High Amperage Arc Ignition Resistance, 0.75 mm | 166/* | arcs | UL 746A |
| High Amperage Arc Ignition Resistance, 1.5 mm | 171/* | arcs | UL 746A |
| High Amperage Arc Ignition Category, 1.5 mm | 187/* | class | UL 746A |

[DS]: Derived from similar grade

Physical/Other properties

| | dry/cond. | | |
|---------------------------------|-----------------------|-------------------|----------------|
| Humidity absorption, 2mm | 1.3/* | % | Sim. to ISO 62 |
| Water absorption, 2mm | 3.4/* | % | Sim. to ISO 62 |
| Water absorption, Immersion 24h | 0.6 ^[3] /* | % | Sim. to ISO 62 |
| Density | 1570/- | kg/m ³ | ISO 1183 |

[3]: thickness 2mm

Injection

| | |
|---------------------------------|--------------|
| Drying Recommended | yes |
| Drying Temperature | 80 °C |
| Drying Time, Dehumidified Dryer | 2 - 4 h |
| Processing Moisture Content | ≤0.2 % |
| Melt Temperature Optimum | 290 °C |
| Min. melt temperature | 280 °C |
| Max. melt temperature | 300 °C |
| Screw tangential speed | ≤0.2 m/s |
| Mold Temperature Optimum | 100 °C |
| Min. mould temperature | 70 °C |
| Max. mould temperature | 120 °C |
| Hold pressure range | 50 - 100 MPa |
| Hold pressure time | 3 s/mm |
| Ejection temperature | 210 °C |

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Characteristics

Additives

Flame retardant

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