# Veradel® 3320GF

## polyethersulfone

Veradel® 3320GF is a 20% glass fiber reinforced grade of polyethersulfone (PESU). Adding glass fiber to polyethersulfone substantially increases the rigidity, tensile strength, creep resistance, dimensional stability and chemical resistance of the material, while maintaining most of its other basic characteristics. The combination of structural properties and cost effectiveness make this resin an attractive alternative to metals in many engineering applications. Veradel® 3320GF is an opaque, grayish material in its natural form and can be readily colored.

This grade was formerly marketed as Gafone™ PESU.

| General | | |
|---|---|---|
| Material Status | • Commercial: Active | |
| Availability | • Africa & Middle East<br>• Asia Pacific<br>• Europe | • Latin America<br>• North America |
| Filler / Reinforcement | • Glass Fiber, 20% Filler by Weight | |
| Features | • Acid Resistant<br>• Creep Resistant<br>• Flame Retardant<br>• Good Adhesion<br>• Good Dimensional Stability | • High Rigidity<br>• High Tensile Strength<br>• Hydrolysis Resistant<br>• Medium Flow<br>• Medium Molecular Weight |
| Uses | • Metal Replacement | |
| RoHS Compliance | • RoHS Compliant | |
| Appearance | • Colors Available | • Opaque |
| Forms | • Pellets | |
| Processing Method | • Injection Molding | |

| Physical | Typical Value | Unit | Test method |
|---|---|---|---|
| Density / Specific Gravity | 1.49 | | ASTM D792 |
| Molding Shrinkage - Flow | 0.30 | % | ASTM D955 |
| Water Absorption (24 hr) | 0.50 | % | ASTM D570 |

| Mechanical | Typical Value | Unit | Test method |
|---|---|---|---|
| Tensile Modulus | 7000 | MPa | ASTM D638 |
| Tensile Strength | 120 | MPa | ASTM D638 |
| Tensile Elongation (Break) | 2.8 | % | ASTM D638 |
| Flexural Modulus | 6500 | MPa | ASTM D790 |
| Flexural Strength | 170 | MPa | ASTM D790 |

| Impact | Typical Value | Unit | Test method |
|---|---|---|---|
| Notched Izod Impact | 70 | J/m | ASTM D256 |

| Thermal | Typical Value | Unit | Test method |
|---|---|---|---|
| Deflection Temperature Under Load | | | ASTM D648 |
| 1.8 MPa, Annealed | 210 | °C | |
| Continuous Use Temperature [1] | 190 | °C | ASTM D794 |
| CLTE - Flow | 2.5E-5 | cm/cm/°C | ASTM D696 |

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| Electrical | Typical Value | Unit | Test method |
|---|---|---|---|
| Surface Resistivity | 1.0E+14 | ohms | ASTM D257 |
| Volume Resistivity | 1.0E+16 | ohms·cm | ASTM D257 |
| Dielectric Strength | 20 | kV/mm | ASTM D149 |
| Arc Resistance | 110 | sec | ASTM D495 |
| Comparative Tracking Index (CTI) | 150 | V | UL 746 |

| Flammability | Typical Value | Unit | Test method |
|---|---|---|---|
| Flame Rating (0.8 mm) | V-0 | | UL 94 |
| Oxygen Index | 42 | % | ASTM D2863 |

## Additional Information

1. These properties has been determined from injection molded test specimen under ideal processing parameters and conditioned at 23+/- 2°C and 50%RH.

| Injection | Typical Value | Unit |
|---|---|---|
| Drying Temperature | 150 | °C |
| Drying Time | 3.0 | hr |
| Processing (Melt) Temp | 340 to 380 | °C |
| Mold Temperature | 120 to 160 | °C |
| Screw Speed | 20 to 50 | rpm |

| Extrusion | Typical Value | Unit |
|---|---|---|
| Die Temperature | 300 to 320 | °C |

## Notes

Typical properties: these are not to be construed as specifications.

[1] Expected value.

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