

Kalix® 9945 HFFR

high performance polyamide

Kalix® 9945 HFFR is a 45% glass-fiber reinforced, halogen-free flame retardant High Performance Polyamide. It is hot-water moldable and intended for use in components requiring superior

mechanical properties, excellent surface quality and excellent flammability rating.

- Black: Kalix® 9945 BK000 HFFR

General

| | | |
|------------------------|--|--|
| Material Status | • Commercial: Active | |
| Availability | • Asia Pacific • Europe | • North America |
| Filler / Reinforcement | • Glass Fiber, 45% Filler by Weight | |
| Features | • Fast Molding Cycle • Good Dimensional Stability • Good Impact Resistance • Good Surface Finish • High Flow • High Stiffness | • High Strength • Hot Water Moldability • Low Warpage • Paintable • Platable |
| Uses | • Cell Phones • Electrical Parts | • Electrical/Electronic Applications • Thin-walled Parts |
| RoHS Compliance | • Contact Manufacturer | |
| Appearance | • Black • Colors Available | • Natural Color |
| Forms | • Pellets | |
| Processing Method | • Injection Molding | • Water-Heated Mold Injection Molding |

| Physical | Typical Value | Unit | Test method |
|--------------------------------|---------------|-------|-----------------|
| Density | 1.58 | g/cm³ | ISO 1183 |
| Molding Shrinkage ¹ | | | Internal Method |
| Across Flow | 0.50 | % | |
| Flow | 0.10 | % | |
| Water Absorption (24 hr, 23°C) | 0.37 | % | ASTM D570 |

| Mechanical | Typical Value | Unit | Test method |
|-------------------------------|---------------|------|-------------|
| Tensile Modulus | 17000 | MPa | ISO 527-1 |
| Tensile Stress (Yield) | 190 | MPa | ISO 527-2 |
| Tensile Strain (Break) | 1.9 | % | ISO 527-2 |
| Flexural Modulus | 15000 | MPa | ISO 178 |
| Flexural Stress (3.5% Strain) | 280 | MPa | ISO 178 |
| Flexural Strain at Break | 2.5 | % | ISO 178 |

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| Impact | Typical Value | Unit | Test method |
|--------------------------------|---------------|-------------------|-------------|
| Notched Izod Impact Strength | 12 | kJ/m ² | ISO 180/1A |
| Unnotched Izod Impact Strength | 45 | kJ/m ² | ISO 180 |

| Thermal | Typical Value | Unit | Test method |
|-----------------------------------|---------------|------|-------------|
| Deflection Temperature Under Load | | | |
| 0.45 MPa, Unannealed | 257 | °C | ISO 75-2/B |
| 1.8 MPa, Unannealed | 229 | °C | ISO 75-2/A |

| Electrical | Typical Value | Unit | Test method |
|---|---------------|------|-------------|
| Dielectric Constant ² (2.40 GHz) | 4.20 | | ASTM D2520 |
| Dissipation Factor ² (2.40 GHz) | 0.010 | | ASTM D2520 |

| Flammability | Typical Value | Unit | Test method |
|-------------------------------|---------------|------|-------------|
| Flame Rating (0.35 mm, Black) | V-0 | | UL 94 |

Additional Information

Typical values shown tested on Dry as Molded samples.

Standard Packaging and Labeling:

- Kalix® resin is packaged in foil lined, multiwall paper bags containing 25 kg (55 pounds) of material. Individual packages will be plainly marked with the product number, the color, the lot number, and the net weight.

| Injection | Typical Value | Unit |
|------------------------|---------------|------|
| Drying Temperature | 80 to 100 | °C |
| Drying Time | 4.0 to 12 | hr |
| Suggested Max Moisture | 0.070 | % |
| Rear Temperature | 265 to 270 | °C |
| Front Temperature | 280 to 290 | °C |
| Processing (Melt) Temp | 280 to 290 | °C |
| Mold Temperature | 80 to 120 | °C |

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Injection Notes

Storage:

- Kalix® compounds are shipped in moisture-resistant packages at moisture levels according to specifications. Sealed, undamaged bags should be preferably stored in a dry room at a maximum temperature of 50°C (122°F) and should be protected from possible damage. If only a portion of a package is used, the remaining material should be transferred into a sealable container. It is recommended that Kalix® resins be dried prior to molding following the recommendations found in this datasheet and/or in the Kalix® processing guide.

Drying:

- Kalix® compounds are supplied in sealed bags. It should be dried before molding because excessive moisture content will result in reduced mechanical properties and processing issues, such as excessive nozzle drooling, foaming and splay visible on the molded parts.
- Drying temperatures of up to 100°C may be used for dark colored resin (such as black) to achieve shorter drying times, if necessary. For lighter colored resin, 80°C drying temperature is recommended to minimize the risk of oxidative discoloring.
- Use of a desiccant dryer with -40°C dewpoint is strongly suggested to ensure Kalix® material has reached optimum moisture content before processing.

Injection Molding:

- Set injection pressure to give rapid injection. Adjust holding pressure to one-half injection pressure. Set hold time to maximize part weight. Transfer from injection to hold pressure at the screw position just before the part is completely filled.
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Notes

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

¹ Solvay Test Method. Shrink rates can vary with part design and processing conditions. Please consult a Solvay Technical Representative for more information.

² Method B

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Safety Data Sheets (SDS) are available by emailing us or contacting your sales representative. Always consult the appropriate SDS before using any of our products.

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