

Kalix® 5950 HFFR

high performance polyamide

PRELIMINARY DATA SHEET

Kalix® 5950 HFFR is a highly reinforced polyamide material specifically formulated for high strength and stiffness applications where good impact resistance and excellent dimensional stability after molding are required. The formulation also addresses warpage issues associated with

the anisotropic shrinkage of glass fiber reinforced materials so that close tolerance molding is more easily achieved. Its low viscosity and excellent flow properties make the material ideal for filling parts with thin-walled sections such as those encountered in the mobile electronics industry.

- Black: Kalix® 5950 HFFR

General

Material Status	• Limited Distribution: Developmental		
Availability	• Asia Pacific		
Filler / Reinforcement	• Glass Fiber Reinforcement, 50% Filler by Weight		
Features	<ul style="list-style-type: none"> • Good Dimensional Stability • Good Impact Resistance • Good Surface Finish • High Flow 	<ul style="list-style-type: none"> • High Stiffness • High Strength • Hot Water Moldability • Low Moisture Absorption 	<ul style="list-style-type: none"> • Low Warpage • Paintable • Platable
Uses	<ul style="list-style-type: none"> • Cell Phones • Electrical Parts 	<ul style="list-style-type: none"> • Electrical/Electronic Applications • Thin-walled Parts 	
RoHS Compliance	• RoHS Compliant		
Appearance	• Black		
Forms	• Pellets		
Processing Method	• Injection Molding	• Water-Heated Mold Injection Molding	

Physical	Typical Value	Unit	Test method
Density	1.68	g/cm ³	ISO 1183
Molding Shrinkage ¹			No Standard
Across Flow	0.18	%	
Flow	0.060	%	
Water Absorption (23°C, 24 hr)	0.11	%	ISO 62

Mechanical	Typical Value	Unit	Test method
Tensile Modulus	20000	MPa	ISO 527-2
Tensile Stress (Yield)	245	MPa	ISO 527-2
Tensile Strain (Break)	1.8	%	ISO 527-2
Flexural Modulus	19000	MPa	ISO 178
Flexural Strength	350	MPa	ISO 178
Flexural Strain at Break	2.2	%	ISO 178
Tensile Modulus - 50% RH, equilibrium	19.7	GPa	ISO 527-2
Tensile Strain at Break - 50% RH, equilibrium	1.7	%	ISO 527-2
Tensile Strength - 50% RH, equilibrium	183	MPa	ISO 527-2

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Impact	Typical Value	Unit	Test method
Notched Izod Impact Strength	15	kJ/m ²	ISO 180/1A
Unnotched Izod Impact Strength	50	kJ/m ²	ISO 180

Thermal	Typical Value	Unit	Test method
Glass Transition Temperature (DSC)	40.0	°C	ASTM D3418
Melting Temperature	223	°C	No Standard

Flammability	Typical Value	Unit	Test method
Flame Rating (0.400 mm)	V-0		UL 94

Additional Information

Typical values shown tested on Dry as Molded samples.

Standard Packaging and Labeling:

- Kalix® 5950 HFFR 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	80.0	°C
Drying Time	4.0 to 12	hr
Suggested Max Moisture	< 0.070	%
Rear Temperature	270	°C
Front Temperature	300	°C
Processing (Melt) Temp	280 to 285	°C
Mold Temperature	115 to 130	°C

Injection Notes

Drying:

- Kalix® 5950 HFFR is 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.
- Recommended drying conditions are as follows:
 - Type of drier: Desiccant
 - Temperature: 80°C (176°F)
 - Time: 4-12 hours
 - Dew point: -30°C (-22°F) or lower
- Polyamides oxidize in the presence of oxygen at high temperatures. Therefore drying temperatures above 80°C (176°F) should be avoided, particularly for light colors or color-controlled parts.

Injection Molding:

- Kalix® 5950 HFFR can be readily injection molded in most screw injection molding machines. A general purpose screw is recommended, with minimum back pressure. The melt temperature should be in the range 280°-285°C (535°F-545°F). Generally this can be achieved with barrel temperatures from 250°C (482°F) in the rear zone, gradually increasing to 280°C-290°C (535°F-554°F) in the front zone. Mold temperature heater set points should be in the range of 115°C-130°C (239°F-266°F) with surface finish improving as the temperature is increased.
- 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.

¹ 750 BAR

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