Kalix® 5950 HFFR

High Performance Polyamide

Solvay Specialty Polymers

Message:

Kalix® 5950 HFFR is a halogen-free, flame retardant (UL-94 V0 at 0.4 mm), 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 BK 000 HFFR White: Kalix[®] 5950 WH 000 HFFR

General Information			
UL YellowCard	E95746-101619491		
Filler / Reinforcement	Glass fiber reinforced material, 50%	5 filler by weight	
Features	Good dimensional stability		
	Low warpage		
	Low hygroscopicity		
	Rigidity, high		
	High strength		
	Impact resistance, good		
	Electroplateable		
	Sprayable		
	High liquidity		
	Halogen-free		
	Excellent appearance		
	Flame retardancy		
Uses	Thin wall parts		
	Electrical/Electronic Applications		
	Electrical components		
	Mobile phone		
RoHS Compliance	RoHS compliance		
Appearance	White		
	Black		
Forms	Particle		
Processing Method	Injection molding		
Part Marking Code (ISO 11469)	>PAX6/MXD6-GF50		
Physical	Nominal Value	Unit	Test Method
Density	1.68	g/cm ³	ISO 1183

Molding Shrinkage ¹			Internal method
Vertical flow direction	0.18	%	Internal method
Flow direction	0.060	%	Internal method
Water Absorption (23°C, 24 hr)	0.11	%	ISO 62
Mechanical	Nominal 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 Stress	350	MPa	ISO 178
Flexural Strain at Break	2.2	%	ISO 178
Tensile strength-50% RH, balanced	183	MPa	ISO 527-2
Tensile fracture strain-50% RH, balanced	1.7	%	ISO 527-2
Tensile modulus-50% RH, balanced	19.7	GPa	ISO 527-2
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact	15	kJ/m²	ISO 180/1A
Unnotched Izod Impact Strength	50	kJ/m²	ISO 180
Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature			
0.45 MPa, not annealed	255	°C	ISO 75-2/B
1.8 MPa, not annealed	247	°C	ISO 75-2/A
Glass Transition Temperature	40.0	°C	ASTM D3418
Electrical	Nominal Value		Test Method
Dielectric Constant ² (2.40 GHz)	4.48		ASTM D2520
Dissipation Factor ³ (2.40 GHz)	0.011		ASTM D2520
Flammability	Nominal Value		Test Method
Flame Rating			UL 94
0.400, all colors	V-0		UL 94
1.50, all colors	5VA		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	Nominal Value	Unit
Drying Temperature	80.0	°C
Drying Time	4.0 - 12	hr
Suggested Max Moisture	< 0.070	%
Rear Temperature	270	°C
Front Temperature	300	°C
Processing (Melt) Temp	280 - 285	°C
Mold Temperature	115 - 130	°C
Injection instructions		

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® 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.

NOTE	
	Solvay test method. The shrinkage
	rate will change according to the
	design and processing conditions
	of components. Please contact
	Solvay's technical representative
1.	for more information.
2.	Method B
3.	Method B

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Recommended distributors for this material

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