

# Omnix® 4050

High Performance Polyamide  
Solvay Specialty Polymers

Message:

PRELIMINARY DATA SHEET

Omnix® 4050 is a 50% glass-fiber reinforced, high-performance polyamide (HPPA). It is particularly suited for replacing die-cast metal in a variety of mechanical applications and components used in automotive, consumer goods, E/E, and construction. Components injection molded from Omnix® 4050 display exceptional mechanical properties and excellent surface appearance even after moisture adsorption.

Black: Omnix® 4050 BK 000

Natural: Omnix® 4050 NT 000

General Information				
Features		Good dimensional stability		
		Rigidity, high		
		High strength		
		Impact resistance, good		
		Sprayable		
		Fast molding cycle		
		High liquidity		
		Hot water formability		
		Excellent appearance		
Uses		Electrical/Electronic Applications		
		Mechanical maintenance/repair		
		Automotive Electronics		
RoHS Compliance		RoHS compliance		
Appearance		Black		
		Natural color		
Forms		Particle		
Processing Method		Water temperature mold injection molding		
		Injection molding		
Part Marking Code (ISO 11469)		> (PA+PPA)-GF50		
Physical	Dry	Conditioned	Unit	Test Method
Specific Gravity	1.59	--	g/cm <sup>3</sup>	ASTM D792
Molding Shrinkage <sup>1</sup>				ISO 294-4
Vertical flow direction	0.50	--	%	ISO 294-4
Flow direction	0.10	--	%	ISO 294-4
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus	17000	--	MPa	ISO 527-2

Tensile Stress (Yield)	245	--	MPa	ISO 527-2
Tensile Strain (Break)	2.4	--	%	ISO 527-2
Flexural Modulus	15000	--	MPa	ISO 178
Flexural Stress	350	--	MPa	ISO 178
Impact	Dry	Conditioned	Unit	Test Method
Notched Izod Impact	14	--	kJ/m <sup>2</sup>	ISO 180/A
Unnotched Izod Impact Strength	90	--	kJ/m <sup>2</sup>	ISO 180
Thermal	Dry	Conditioned	Unit	Test Method
Melting Temperature	260	--	°C	ISO 11357-3
Flammability	Dry	Conditioned		Test Method
Flame Rating (0.800 mm)	HB	--		UL 94

#### Additional Information

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Typical values shown tested on Dry as Molded samples.

Standard Packaging and Labeling: Omnix® 4050 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	Dry	Unit
Drying Temperature	80.0	°C
Drying Time	4.0 - 12	hr
Rear Temperature	250	°C
Front Temperature	285	°C
Processing (Melt) Temp	275 - 290	°C
Mold Temperature	80.0 - 120	°C

#### Injection instructions

##### Drying:

Omnix® 4050 resin is 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 Omnix® resins be dried prior to molding following the recommendations found in this datasheet and/or in the Omnix® processing guide. 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 (175°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 should be avoided, particularly for light colors or color-controlled parts.

##### Injection Molding:

Omnix® 4050 resin 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 between 275°C and 290°C (527°F and 554°F). Generally this can be achieved with barrel temperatures from 250°C (482°F) in the rear zone gradually increasing to 285°C (545°F) in the front zone. Mold temperature should be between 80° and 120°C (176° and 248°F).

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.

##### Storage:

Omnix® 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 Omnix® resins be dried prior to molding following the recommendations found in this datasheet and/or in the Omnix® processing guide.

#### NOTE

1.

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

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#### Recommended distributors for this material

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