

Omnix[®]



SOLVAY

asking more from chemistry[®]

Omnix[®] HPPA
High-Performance Polyamides

**SPECIALTY
POLYMERS**

Omnix® HPPA is a family of high-performance polyamides (HPPA) that bridge the cost-performance gap between lower performing, aliphatic polyamides (PA) and higher performing, aromatic polyphthalamides (PPA). Thanks to low moisture absorption, these materials retain their mechanical properties and offer low warpage and dimensional stability, making them particularly suited to replace metal in structural applications.

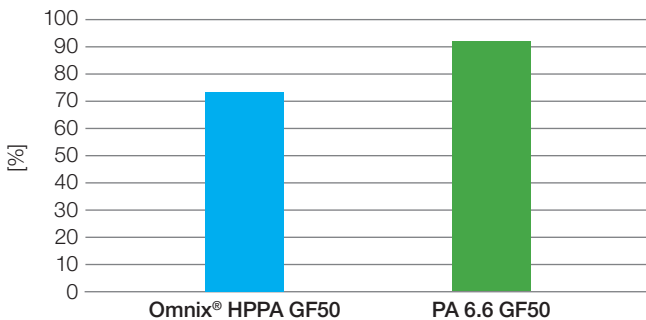
Omnix® HPPA can be injection molded using PA 6.6 tooling without any modifications or special mold heating equipment. There are only minor variations in the dimensions of molded parts part as the material's shrinkage and flow properties are similar to PA 6.6.

Omnix® HPPA vs. PA 6.6

- Lower moisture absorption
- Higher strength and stiffness
- Better dimensional stability
- Lower warpage
- More aesthetic surface appearance

Surface appearance

Gloss 60°, ASTM D2457



Omnix® HPPA Portfolio

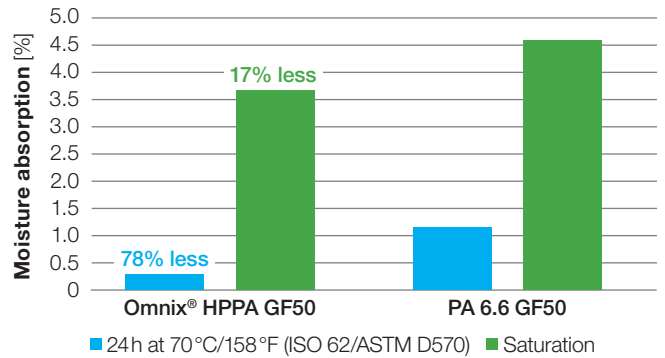
The Omnix® HPPA product line is built on two base resins, each offering distinct product and processing features. Products are available in a variety of glass-filled, food contact and potable water grades.

Omnix® HPPA resins are available in black and natural grades. The off-white color of the natural resin provides excellent colorability.

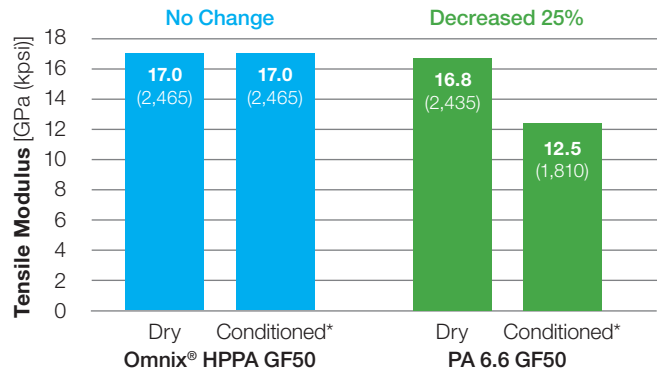
Omnix® HPPA base resins

Base Resin	Formulation	Description
4000 series	Hot water moldable, based on Amodel® PPA	20%, 25% HFFR, 30% and 50% glass fiber, good impact strength, good surface finish
9000 series	Hot water moldable, based on Ixef® PARA	50% glass fiber, better fluidity

Moisture absorption

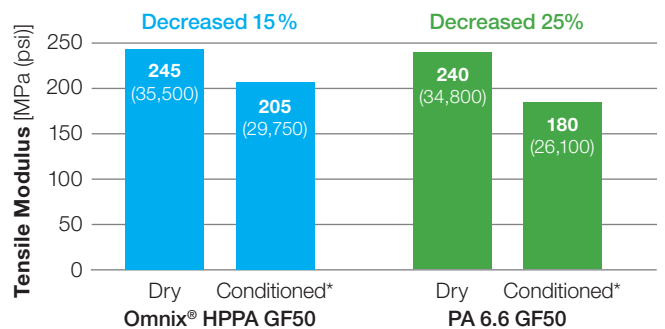


Effect of moisture absorption on tensile modulus



* ISO 1110 (70°C/158°F, 62% RH)

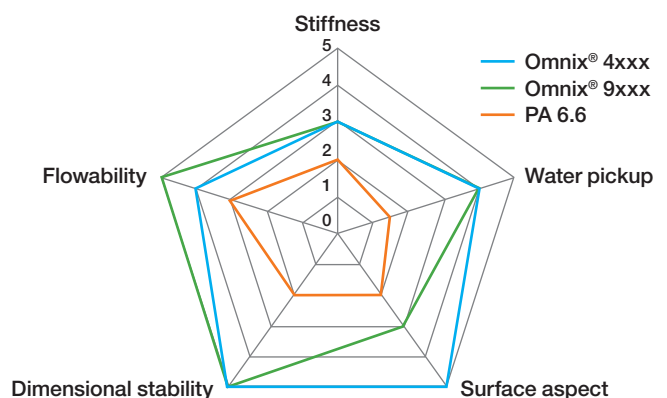
Effect of moisture absorption on tensile strength



* ISO 1110 (70°C/158°F, 62% RH)

Processing

For standard grades of Omnix® HPPA, melt temperatures range from 285 to 305°C (545 to 580°F), and mold temperatures range from 80°C (175°F). There are only minor variations in part dimensions as the material's shrinkage and flow properties are similar to that of PA 6.6.



Typical properties of Omnix® HPPA

	Dry/ Conditioned	Unit	FC-4020 20% GF	FC-4030 30% GF	4050 DW-4050 FC-4050 50% GF	6025 HFFR 25% GF	9050 FC-9050 50% GF	Test Method
Physical								
Density	Dry	g/cm ³	1.32	1.41	1.59	–	1.60	ASTM D792
Molding shrinkage								
Across flow	Dry	%	–	–	0.30	–	0.50	Solvay Method
Flow	Dry	%	–	–	0.10	–	0.20	Solvay Method
Moisture absorption								
23 °C/24 h		%	–	–	0.24	–	0.27	ISO 62
Saturation		%			3.80	–	3.80	Solvay Method
Mechanical								
Tensile modulus	Dry	MPa (ksi)	7,600 (1,100)	10,000 (1,450)	17,000 (2,470)	10,000 (1,450)	17,000 (2,470)	ISO 527-4
	Conditioned	MPa (ksi)	– –	– –	17,000 (2,470)	– –	– –	ISO 1110
Tensile stress at break	Dry	MPa (psi)	140 (20,300)	170 (24,700)	245 (35,500)	135 (19,600)	235 (34,100)	ISO 527-4
	Conditioned	MPa (psi)	– –	– –	205 (29,700)	– –	– –	ISO 1110
Tensile strain at break	Dry	%	2.7	2.5	2.6	2.8	2.1	ISO 527-4
	Conditioned	%	–	–	2.7	–	–	ISO 1110
Flexural modulus	Dry	MPa (ksi)	6,700 (970)	9,000 (1,300)	15,000 (2,180)	9,200 (13,300)	15,000 (2,180)	ISO 179
Flexural stress	Dry	MPa (psi)	200 (29,000)	260 (37,700)	350 (50,800)	200 (29,000)	340 (49,300)	ISO 179
Impact								
Charpy impact strength, notched	Dry	kJ/m ² (ft-lb/in ²)	5 (2.4)	7 (3.3)	13 (6.2)	– –	13 (6.2)	ISO 179
	Conditioned	kJ/m ² (ft-lb/in ²)	– –	– –	13 (6.2)	– –	– –	ISO 1110
Charpy impact strength, unnotched	Dry	kJ/m ² (ft-lb/in ²)	30 (14)	47 (22)	100 (48)	– –	75 (36)	ISO 179
	Conditioned	kJ/m ² (ft-lb/in ²)	– –	– –	95 (45)	– –	– –	ISO 1110
Thermal								
Melting temperature	Dry	°C (°F)	262 (504)	262 (504)	260 (504)	260 (500)	260 (500)	ISO 11357-3
Flammability								
Flame rating (0.8 mm) Dry			HB	HB	HB	V-0	HB	UL 94

FC: Food Contact approved DW: Potable Water approved GF: Glass Fiber





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