

Nylon 11 Powder

Nylon 11 Powder for High Performance, High Impact

For ductile, robust parts, Nylon 11 Powder is a high performance, bio-based nylon material for functional prototyping and small batch production. Nylon 11 Powder is suitable for printing parts that need to bend or resist impact.

Nylon 11 Powder is specifically developed for use on the Fuse Series printers.



FLP11B01

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To the best of our knowledge the information contained herein is accurate. However, Formlabs, Inc. makes no warranty, expressed or implied, regarding the accuracy of these results to be obtained from the use thereof.

Material Properties	METRIC ^{1,2}	IMPERIAL ^{1,2}	METHOD
Tensile Properties	METRIC ^{1,2}	IMPERIAL ^{1,2}	METHOD
Ultimate Tensile Strength	49 MPa	7107 psi	ASTM D638-14 Type 1
Tensile Modulus	1.6 GPa	232 ksi	ASTM D638-14 Type 1
Elongation at Break (X/Y)	40%		ASTM D638-14 Type 1
Flexural Properties	METRIC ^{1,2}	IMPERIAL ^{1,2}	METHOD
Flexural Strength	55 MPa	7977 psi	ASTM D790-15
Flexural Modulus	1.4 GPa	203 ksi	ASTM D790-15
Impact Properties	METRIC ^{1,2}	IMPERIAL ^{1,2}	METHOD
Notched Izod	71 J/m	1.3 ft-lb/in	ASTM D256-10
Thermal Properties	METRIC ^{1,2}	IMPERIAL ^{1,2}	METHOD
Heat Deflection Temp. @ 1.8 MPa	46 °C	115 °F	ASTM D648-16
Heat Deflection Temp. @ 0.45 MPa	182 °C	360 °F	ASTM D648-16
Vicat Softening Temperature	189 °C	372°F	ASTM D1525
Other Properties	METRIC ^{1,2}	IMPERIAL ^{1,2}	METHOD
Moisture Content (powder)	0.37%		ISO 15512 Method D
Water Absorption (printed part)	0.07%		ASTM D570

Samples printed with Nylon 11 Powder have been evaluated in accordance with ISO 10993-1, and has passed the requirements for the following biocompatibility risks:

ISO Standard	Description ^{3,4}
ISO 10993-5:2009	Not cytotoxic
ISO 10993-10:2010/(R)2014	Not an irritant
ISO 10993-10:2010/(R)2014	Not a sensitizer

Flammability Properties

Testing Standard	Rating
UL 94 Section 7	HB *

* Thickness of the sample tested = 3.00mm

SOLVENT COMPATIBILITY

Percent weight gain over 24 hours for a printed and post-cured 1 x 1 x 1 cm cube immersed in respective solvent:

Solvent	24 hr weight gain, %	Solvent	24 hr weight gain, %
Acetic Acid 5%	0.1	Mineral oil (Light)	0.4
Acetone	0.1	Mineral oil (Heavy)	0.4
Bleach ~5% NaOCl	0.1	Salt Water (3.5% NaCl)	0.1
Butyl Acetate	0.1	Skydrol 5	0.2
Diesel Fuel	0.2	Sodium Hydroxide solution (0.025% pH 10)	0.1
Diethyl glycol Monomethyl Ether	0.4	Strong Acid (HCl conc)	1.0
Hydraulic Oil	0.5	Tripropylene glycol monomethyl ether	0.3
Hydrogen peroxide (3%)	< 0.1	Water	0.1
Isooctane (aka gasoline)	< 0.1	Xylene	0.1
Isopropyl Alcohol	0.1		

¹ Material properties may vary with part geometry, print orientation and temperature.

² Parts were printed using Fuse 1 with Nylon 11 Powder. Parts were conditioned at 50% relative humidity and 23 °C for 7 days before testing.

³ Material properties may vary based on part design and manufacturing practices. It is the manufacturer's responsibility to validate the suitability of the printed parts for the intended use.

⁴ Nylon 11 Powder was tested at NAMSA World Headquarters, OH, USA.