

Polypropylene Powder

Genuine, 3D Printed Polypropylene In-House

Produce works-like prototypes and durable end-use parts in-house with this high ductility material that can withstand repeated bending and flexing while ensuring durability. Parts showcase excellent chemical resistance and can be welded to other polypropylene parts.

Polypropylene Powder is specifically developed for use on the Fuse 1+ 30W printer.

**FLPLPG01**

* May not be available in all regions

Prepared 13/12/2023

Rev. 02 29/04/2024

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

Mechanical Properties	METRIC ^{1,2}	IMPERIAL ^{1,2}	METHOD
Ultimate Tensile Strength	29 MPa	4206 psi	ASTM D638-14 Type 1
Tensile Modulus	1640 MPa	239 ksi	ASTM D638-14 Type 1
Elongation at Break (X/Y)	34 %		ASTM D638-14 Type 1
Elongation at Break (Z)	16 %		ASTM D638-14 Type 1
Flexural Strength	37 MPa	5366 psi	ASTM D790-17
Flexural Modulus	1330 MPa	192 ksi	ASTM D790-17
Notched Izod	31 J/m	0.58 ft-lb/in	ASTM D256-10
Thermal Properties	METRIC ^{1,2}	IMPERIAL ^{1,2}	METHOD
Heat Deflection Temp. @ 1.8 MPa	58 °C	136 °F	ASTM D648-16
Heat Deflection Temp. @ 0.45 MPa	113 °C	235 °F	ASTM D648-16
Vicat Softening Temperature	132 °C	269 °F	ASTM D1525
Other Properties	METRIC ^{1,2}	IMPERIAL ^{1,2}	METHOD
Moisture Content (powder)	0.06 %		ISO 15512:2019
Water Absorption (printed part)	0.25 %		ASTM D570
Bulk Density (powder)	0.33 g/cm ³	20.6 lb/ft ³	In-house method
Bulk Density (sintered)	0.89 g/cm ³	55.6 lb/ft ³	
Dielectric Properties	METRIC ^{1,2}	IMPERIAL ^{1,2}	METHOD
Dielectric Constant, Dk (300 MHz)	2.19		ASTM D150-22
Dielectric Loss, Df (300 MHz)	< 0.003		ASTM D150-22
Dielectric Constant, Dk (1 GHz)	2.27		ASTM D150-22
Dielectric Loss, Df (1 GHz)	< 0.001		ASTM D150-22

Samples printed with Polypropylene Powder have been evaluated in accordance with ISO 10993-1:2018, and has passed the requirements for the following biocompatibility risks:

ISO Standard	Description ^{3,4}
ISO 10993-5: 2009	Non-cytotoxic
ISO 10993-23:2021	Non-irritant
ISO 10993-10:2021	Non-sensitizer

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

² Parts were printed using Fuse 1+ 30W, with Polypropylene Powder. Parts were conditioned at 23±2°C, 50±10% R.H. for 40+ hours.

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 Polypropylene Powder was tested at NAMSA World Headquarters, OH, USA.

SOLVENT COMPATIBILITY

Percent weight gain over 24 hours for a printed 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)	1.4
Acetone	0.2	Mineral oil (Heavy)	1.6
Bleach ~5% NaOCl	0.1	Salt Water (3.5% NaCl)	< 0.1
Butyl Acetate	0.7	Skydrol 5	1.1
Diesel Fuel	1.1	Sodium Hydroxide solution (0.025% pH 10)	< 0.1
Diethyl glycol monomethyl ether	0.9	Strong Acid (HCl conc)	< 0.1
Hydraulic Oil	1.5	Tripropylene glycol monomethyl ether	0.9
Hydrogen peroxide (3%)	0.3	Water	< 0.1
Isooctane	0.9	Xylene	3.0
Isopropyl Alcohol	< 0.1		