

Formlabs Nylon 12 White Powder

Selective Laser Sintering | PA12 | powder

Compiled by FabDigit from manufacturer technical data. Values below belong to this named product; unreported properties are omitted.

Manufacturer: Formlabs

Source revision: Rev 01 2024-08-10

Recorded system family: Fuse 1+ 30W

As-printed colour: White. Prints white; finish and colour closer to MJF parts than traditional SLS

Test values are typical reported results, not guaranteed design allowables or finished-part certification. Review the complete source for specimen preparation, orientation and conditioning.

Test basis: Fuse 1+ 30W on a bed-temperature-tuned printer; specimens conditioned at 23 deg C and 50% relative humidity for 40 hours.

Direction: Elongation is reported separately for X/Y (8%) and Z (6%). The other table values do not state an orientation.

Mechanical

PROPERTY	VALUE	TEST / CONDITION
Tensile Strength (Ultimate)	47 MPa	per ASTM D638-14 Type 1
Elastic (Young's) Modulus	1.95 GPa	per ASTM D638-14 Type 1
Elongation at Break	8 %	per ASTM D638-14 Type 1; X/Y 8 / Z 6
Flexural Strength	56 MPa	per ASTM D790-17
Flexural Modulus	1.5 GPa	per ASTM D790-17
Izod Impact, Notched	28 J/m	per ASTM D256-10

Thermal

PROPERTY	VALUE	TEST / CONDITION
Heat Deflection Temp. @ 1.8 MPa	87 deg C	per ASTM D648-16
Heat Deflection Temp. @ 0.45 MPa	177 deg C	per ASTM D648-16
Vicat Softening Point (B50)	177 deg C	per ASTM D1525
Flammability (UL 94)	HB	3.00 mm

Physical

PROPERTY	VALUE	TEST / CONDITION
Water absorption (manufacturer test)	1.4 %	per ASTM D570; printed part

Solvent compatibility screen

24 h immersion mass change reported by the manufacturer

Solvent	24 h weight gain
Acetic acid 5%	0.2%
Acetone	0.2%
Bleach (~5% NaOCl)	0.2%
Butyl acetate	0.2%
Diesel fuel	1.3%
Diethyl glycol monomethyl ether	1.0%
Hydraulic oil	1.7%
Hydrogen peroxide (3%)	0.1%
Isooctane	0.3%

Solvent compatibility screen - continued

Solvent	24 h weight gain
Isopropyl alcohol	0.2%
Mineral oil (heavy)	2.2%
Mineral oil (light)	2.0%
Salt water (3.5% NaCl)	0.1%
Skydrol 5	1.9%
Sodium hydroxide solution (0.025%, pH 10)	0.1%
Strong acid (concentrated HCl)	4.8%
TPM	1.1%
Water	0.1%
Xylene	0.2%

TDS test article: printed 1 x 1 x 1 cm cube. Weight change alone does not establish sealing, retained strength, or long-term chemical life.

Biocompatibility endpoint results

ISO 10993 endpoints listed in the manufacturer TDS

Standard / endpoint	Result
ISO 10993-11:2017 - systemic toxicity	No systemic toxicity
ISO 10993-5:2009	Not cytotoxic
ISO 10993-23:2021	Not an irritant
ISO 10993-10:2021	Not a sensitizer
ISO 10993-11:2017 - pyrogenicity	Nonpyrogenic

Manufacturer material-sample result. It does not qualify a finished part or device for its intended use.

Selection and finishing

White SLS PA12 for detailed, customer-facing parts that need a clean base colour or a controlled dyeing step.

Design: Use the Fuse 1+ 30W process basis, preserve the published X/Y-versus-Z distinction for loaded features, and plan the required powder-aging and bed-temperature setup before production.

Finishing: White is the as-printed colour. Dyeing can add colour as a separate post-process, but the requested colour and application compatibility still need confirmation; blasting or tumbling can also change edge definition and surface texture.

Source and document scope

Formlabs manufacturer source reference - Rev 01 2024-08-10

https://formlabs-media.formlabs.com/datasheets/TDS_-_Nylon_12_White.pdf

The reviewed reference copy retains manufacturer document ID 2401996; the current live official PDF uses a descriptive filename.

FabDigit product page: <https://www.fabdigit.com/materials/polymer-pa12/formlabs-nylon-12-white/>

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