SELECTIVE LASER SINTERING

Nylon PA12 (Evonik INFINAM PA 6002 P)

Engineering-Grade Thermoplastic for Production Parts



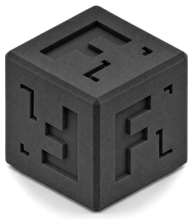
Nylon PA12 is a production-grade SLS 3D printing material valued for its strength, durability, dimensional stability, and chemical resistance. It is widely used for functional prototypes, end-use components, and repeatable low-volume production parts that need reliable mechanical performance and complex geometry freedom. Evonik INFINAM PA 6002 P is the PA12 for tough, finely detailed parts, with crisp surfaces and small features that print cleanly. It is made from a food-contact-grade white powder with a lower environmental footprint.

SURFACE FINISHES



Standard Finish Natural White

Parts are depowdered by media blasting to a fine-textured matte finish in bright white. The surface is durable and uniform with well-defined detail, though the porous nature of PA12 leaves a slightly rough feel that post-processing can improve.



Deep Color Dye Enhanced Finish

DyeMansion deep colour dyeing gives a rich, uniform colour across the entire part, even on complex geometries and intricate designs. The dye also improves scratch resistance, making parts more durable in handling and use.



Vapour Finishing Smoothed Surface

Parts are sealed inside and out on a DyeMansion Powerfuse S, including channels and cavities, for a smooth, semi-gloss surface close to injection molding. Sealed parts repel water, wash clean and slide with less friction, while fine details soften slightly. Finished parts are suitable for repeated food contact under FDA regulations.



Performance Paint Premium Finish

A highly durable, automotive-grade coating, hand-finished for smooth surfaces and applied with professional-grade equipment for exceptional adhesion. It comes in matte to semi-gloss, with custom colour matching for parts that need specific branding or visual impact.

BUILD VOLUME	LEAD TIME	LAYER HEIGHT	TOLERANCE
340 × 340 × 600 mm	2-4 business days	0.06–0.10 mm	±0.3% (min ±0.3 mm)

MECHANICAL PROPERTIES

Nylon PA12 delivers dependable strength and impact resistance, giving teams a proven SLS baseline for production-ready aerospace, automotive and industrial applications. Its balanced mechanical profile handles demanding load conditions without turning brittle in critical parts.

It holds its dimensions over time and keeps its integrity under repeated stress and changing temperatures, which suits aircraft ducting and brackets, automotive fuel lines and air ducts, and medical prosthetics and surgical guides that need precise geometry and tight tolerances.

PROPERTY	VALUE	TEST STANDARD
Tensile Strength (X / Y / Z)	**50 MPa**	ISO 527
Tensile Modulus (X / Y / Z)	**1700 MPa**	ISO 527
Elongation at Break (X)	**16 %**	ISO 527
Elongation at Break (Y / Z)	**8 %**	ISO 527

THERMAL PROPERTIES

Nylon PA12 maintains dimensional accuracy and mechanical properties through temperature swings and repeated thermal cycling, which suits aerospace and automotive programs, from under-hood automotive components to industrial equipment exposed to heat sources.

PROPERTY	VALUE	TEST STANDARD
Melting Temperature (powder, DSC 1st heating)	**187 °C**	ISO 11357

PHYSICAL PROPERTIES

INFINAM PA 6002 P is specified by its powder: its flow and particle size give consistent, well-packed builds, and parts keep the low density and low moisture uptake of PA12.

PROPERTY	VALUE	TEST STANDARD
Bulk Density (powder)	**470 g/L**	EN ISO 60
Particle Size D50	**58 µm**	ISO 13320
Powder Flow Time	**25 s**	ISO 6186
Relative Solution Viscosity	**1.65**	ISO 307

CHEMICAL PROPERTIES

Nylon PA12 was tested for six months at 20 °C and four weeks at 60 °C. It resists petrol, fuel oil, brake fluid, glycol antifreeze, acetone, sea water and strong alkalis, while strong mineral acids attack it.

Chemical ratings are screening guidance; confirm them with application-specific testing before production release.

Supplier data for EOS PA 2200

CHEMICAL	20 °C, 6 MONTHS	60 °C, 4 WEEKS
Petrol (gasoline)	**Resistant**	**Resistant**
Fuel oil	**Resistant**	**Resistant**
Brake fluid	**Resistant**	**Resistant**
Glycol antifreeze	**Resistant**	**Resistant**
Silicone oil	**Resistant**	**Resistant**

Paraffin	**Resistant**	**Resistant**
Acetone	**Resistant**	**Resistant**
Sea water	**Resistant**	**Resistant**
Sodium hydroxide 50%	**Resistant**	**Resistant**
Ethanol 100%	**Resistant**	**Practically resistant**
Methanol	**Resistant**	**Practically resistant**
Xylene	**Resistant**	**Conditionally resistant**
Toluene	**Resistant**	**Little resistant**
Acetic acid 10%	**Resistant**	**Little resistant**
Hydrogen peroxide 30%	**Resistant**	**Not tested**
Sulfuric acid 10%	**Practically resistant**	**Little resistant**
Sodium hypochlorite 5%	**Practically resistant**	**Little resistant**
Battery acid	**Little resistant**	**Not resistant**
Hydrochloric acid 10%	**Not resistant**	**Not resistant**
Nitric acid 10%	**Not resistant**	**Not resistant**

COMPLIANCE

INFINAM PA 6002 P is a food-contact-grade powder. Food-contact status covers natural, undyed parts and is confirmed for the finished part's intended use; it has no biocompatibility test data.

STANDARD	STATUS
Food contact Evonik lists the powder as conforming for food contact; no regulation is named	Evonik product information

SUPPORTING DOCUMENTS

Vapour finishing FDA declaration

Vapour solvent safety data sheet