



SELECTIVE LASER SINTERING - INNOV'PA 1550

Innov'PA 1550 is a completely new Nylon SLS powder producing parts with an improved surface finish. With the look and feel much closer to injection moulded components, Innov'PA 1550 is superior to other Nylon SLS powders.

Innov'PA 1550, with its more "plastic like" behaviour, is based on a new formula and a radically different manufacturing process. The improvement in the mechanical properties, and its ability to produce finer detail is down to a smaller grain size resulting in better cohesion between layers. This polyamide powder's natural colour is white-cream. Innov'PA produces models that are functional with excellent chemical resistance. These properties make components more suitable for rapid manufacture, than other Nylon powders.

- Grain size, average size approx 45 μm
- Mechanical properties and mechanical behaviour that simulate injection moulded components
- Excellent resolution of contour and surface for Rapid Manufacturing
- Superior surface finish
- Labour/Cost saving – Surface finish needs a lot less finishing than other powders in the RP market today
- Superior resolution of fine detail, and very low porosity

New Powder enables Vacuum Metallizing on to SLS

In the past MNL has produced vacuum metallized parts, but this was a lengthy process. Firstly MNL would produce a master model using SLA-(Stereolithography). Hand finishing followed using our skilled model makers to apply a perfect gloss finish to the model. This itself can take some time to get the end result just right. From this master a silicone tool would be produced; into this tool a high-temp polyurethane resin would be poured, producing a perfect replica, suitable for the Metallizing process. This however has all changed; MNL now offer the above material- SLS - Innov'PA. This material gives the component a much improved surface finish, thus creating a better surface to apply our gloss technique. The silicone tooling and vacuum casting steps are no longer needed yielding typical savings of 30-40% on both cost and timescales.

Applications for Vacuum Metallizing in Product Development are:

- Taps and other kitchen/bathroom hardware
- Logos or raised lettering on a component
- Reflectors such as vehicle headlamps
- Components that are bright chrome/metal in production

Using this process you would eliminate higher costs and longer timescale associated with producing metals



Many colours are available, gold, chrome etc.(Imagine a Christmas bauble and all their possible colours)
Instead of waiting weeks for your metal effect you could now have this within DAYS.

This material can be finished with a variety of surface finishes including matt, satin, spark or high gloss if required.

SLS INNOV'PA 1550

Material Data Sheet **Preliminary**

General Properties

<i>Measurement</i>	<i>Method & Condition</i>	
Average Particle size	Diffraction Laser	40 to 50 μm
Powder packed density	Manufacture Method	0.5 ± 0.05
Part Density 23°C	Manufacture Method	0.98 ± 0.05
Moisture absorption 24 hrs 50% RH, 23°C	ASTM D570	0.5 ± 0.05

Thermal Properties

<i>Measurement</i>	<i>Method & Condition</i>	
T ^f Melting Point	DSC	$181 < _ < 185$
T ^g Glazing Point	DSC	34 ± 2
Heat Deflection Temperature at 1.82 MPa	ASTM D648	86 ± 1
T ^o Process <i>* according to machine reading</i>	Glazing Method	-14 ± 2 <i>(ex:174 °C \pm 2) *</i>

Mechanical Properties

<i>Measurement</i>	<i>Method & Condition</i>	
Tensile Strength	ISO 527	45 ± 1
Young Modulus	ISO 527	$1\ 550 \pm 150$
Elongation at break	ISO 527	16 ± 2
Flexural Modulus	ISO 178	$1,350 \pm 25$
Charpy - Impact strength	ISO 180	34 ± 2
Charpy - Notched impact strength	ISO 180	6 ± 0.5
Shore Test (Shore D) <i>* statistics after several cycles >10 refresh</i>	ISO R 868	68 ± 3

Chemical Resistance

Matrix in Polyamide 12 with a good chemical resistance to alkaline, hydrocarbons, oils, gasolines, gas oil and solvents. May be attacked by acids. No through porosity with sections greater than 1.6mm thick.

Electrical Properties

<i>Measurement</i>	<i>Method & Condition</i>	
Volume resistivity 50% HR, 23°C	CEI 93	1.2 E^{13}
	CEI 93	1.5 E^{15}

Surface Finish

<i>Measurement</i>	<i>Method & Condition</i>	
Natural Colouration	Visual	white - cream
Upper Facing processed & Blasting, surface Ra S Ra	ISO 4287	9 ± 1
	ISO 4287	$< 1 \pm 0.5$

The mechanical properties can vary according to the positioning of the tensile bars, operating conditions and exposure parameters of the system used. This data is correct according to the current state of our knowledge. They do not give exact characteristics of material and do not represent a guarantee.