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ExcelTec is an independent consultancy and engineering organization in Rapid Prototyping and Rapid Manufacturing. Exceltec is providing his expertise in Rapid Prototyping (RP) and Rapid Manufacturing (RM) technologies through a consultancy program for service bureau and international company including training course on request.

We developed and/or distribute different kind of products for SLS & SLA; for example: Exceltec is developing new fine polymer powders for SLS technology with partners.

These polyamide powders as the **Innov'PA** family, material by ExcelTec are especially designed for all laser sintering machines and enable to obtain models and functional parts in "engineering plastic" with long life's cycle and excellent chemical resistance. Innov'PA produces models that are functional with excellent chemical resistance. These properties make components more suitable for rapid manufacture, than other Nylon powders. This matrix PA powder product could then be individualized for fitting specific properties.

We have different grades in PA12 and/or PA11 with composite charge or not to fit to your requirements.

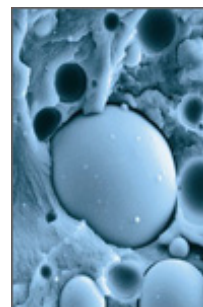
Please find here a selection of SLS materials "powdered" by ExcelTec !

- The **Innov'PA 1550** material developed by **ExcelTec** : is a completely new Nylon SLS powder producing parts with a superior surface finish. With the look and feel much closer to injection moulded components, Innov'PA 1550 is a cut above other Nylon SLS powders. This PA12 SLS powder 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 powders natural colour is white-cream.



The typical applications of Innov'PA 1550 are parts and models of design, functional, precise, requested mechanically, chemically and in temperature.

- The **Innov'PA 2550 GBAL** material by **ExcelTec** : is a composite SLS powder based on a new formulation with the improved mechanical characteristics and producing parts with a superior surface finish. This powder polyamide gives final productions of uniform gray color in mass. With the look and feel much closer to injection moulded components, very similar to an injected Polypropylene with 20% talc's, commonly use in the automotive industry with also an improved heat deflection temperatures (HDT). This PA12 composite SLS powder with its more "plastic like" behaviour, is based on a new formula and a radically different manufacturing process.



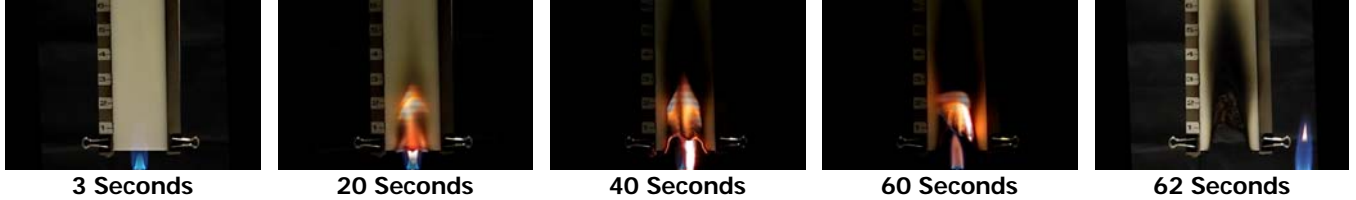
The whole of the improvements of the mechanical properties in the **Innov'PA powders** gives a better cohesion of the layers involving a more plastic behavior and responsive mechanics of the parts manufactured approaching the reinforced injected one. A completion by sand blasting is enough. These parts can be finished and painted if needed.

A refined specifies granulometry, precise and very tightened allows to obtain an excellent resolution of contour and surface. These innovative properties make possible to consider **Rapid Manufacturing**. The process ability of the powder on the rapid prototyping systems is optimized; thus all the powder of a building can be re-used after sifting. The refreshing factor for regeneration, because of the adapted formulation of **Innov'PA powders**, is lower than the usual rates used on the various systems of rapid prototyping.

We promote also specific grade as Fire Retardancy grade (FR) in PA 12 or PA 11 in this **Innov'PA powders**

- The **Innov'PA FAR25** is a polyamide blend PA11 specifically engineered for the production of parts exhibiting excellent fire retardancy without compromising mechanical properties. Parts manufactured using this new powder maintain superior toughness and impact resistance.

60 seconds vertical test FAR 25



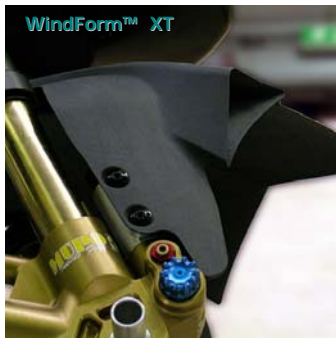
The **Innov'PA FAR25** parts can be manufactured to very low thickness, as low as 75 µm, without compromising fire retardant properties.

Even at very low thickness, **Innov'PA FAR25** has been shown to easily pass 60 second vertical burn testing while also passing smoke and toxicity testing.

Every batch of material is manufactured under high quality control standards. Detailed quality control test results are provided with each shipment of material to certify conformance for the more rigorous production specifications typically encountered in rapid manufacturing applications

We act also as sales and technical agent in Europe for some special SLS charge powders as **Windform™** from **CRP technology** or distributor.

- The **WindForm™ XT** material by **CRP Technology** : Opaque black colored compound polyamide and carbon based material with brilliant reflexes black, improved heat deflection temperatures (HDT), conductive material with resistance to extreme wear and tear and an really high tensile strength.



The material is characterized by stiffness and extremely high UTS, excellent surface finish, resistance to extreme wear and an optimal reproduction of detail.

WindForm™ XT is particularly suited to applications which require superior mechanical properties, extremely high performance, in rapid time.

Parts in WF XT for a GP 250 = racing part

For all this products Exceltec provide first installation starter kit on your site and on your SLS systems

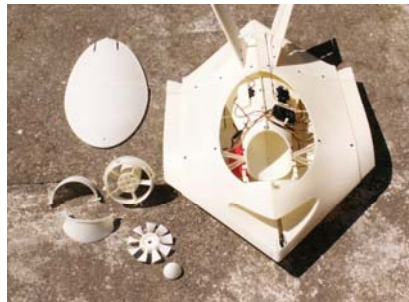
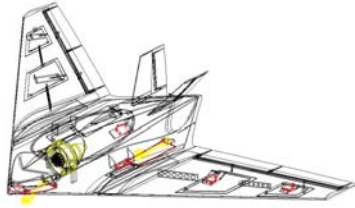
- Excellent resolution of contour and surface for Rapid Manufacturing
- Mechanical properties and mechanical behavior such as injected parts
- Exploitable on any type of system of prototyping: Pluri-manufacturers
- Use continues powder cycles sifting-regenerating
- Chemical resistance of Polyamide 12 and 11
- Regeneration factor lowered
- Economic cost of exploitation (ratio Q Powder/ Number of building)
- Provisioning independent of the manufacturers

To finally present this material Innov'PA 1550 in use please find here two applications from our customers :

1. **Example of one project followed and engineered by EXCELTEC:** demonstrating Drone (UCAV) with builds in several parts with our product Innov'PA 1550 by using RP and RM technology - extract from RM platform stakeholder presentation exceltec

www.rm-platform.com

UCAV Project : CAD concept with OL, building on an SLS system in 2 jobs of 360 mm high, with **Innov'PA 1550** fine polyamide 12 powder, testing the Ø 100 mm cold fan duct at 36 000 RPM !



2. **New Powder enables Vacuum Metallizing on to SLS at Malcolm Nicholls Limited** - extract from TCT magazine Vol15, issue 1

www.mnl.co.uk

Innov'PA 1550 has a finer surface finish that is reducing finishing, enabling for the first time, intricate SLS parts to be vacuum metallized.

In the past Malcolm Nicholls Limited has produced vacuum metallized parts, but this was a lengthy process. Firstly MNL would produce a master model using 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 silicon tool would be produced; into this tool a high-temp polyurethane resin would be poured, producing a perfect replica, suitable for the metallizing process. Vacuum metallizing onto SLA parts was not successful due to the high temperature involved in the Metallizing process. Metallizing early SLS parts were also not too successful either as the "furry" surface finish meant that a lot of detail was lost in the finishing process.



This however has all changed; MNL now offer a superior new SLS nylon, **Innov'PA 1550**. This material coupled with their Hi-Q Sinterstation gives the component a much improved surface finish, thus creating a better surface to apply our gloss technique. The silicon tooling and vacuum casting steps are no longer needed yielding typical savings of 30-40% on both cost and timescales.