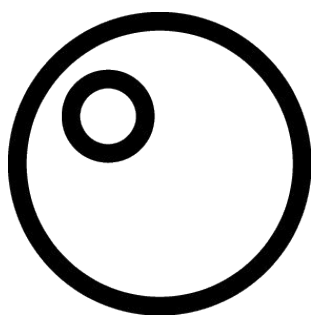


**PURE**  
PA 12

**FABULOUS**  
MATERIALS

PURE is a fine powder based on polyamide 12 (thermoplastic) especially formulated to function on rapid prototyping systems by laser sintering (SLS, LS) or radiation (IRS, MJF). It enables to obtain productions of models and functional parts in "plastic engineering" with long cycle of life and excellent chemical resistance.

**PURE PA 12**



Typical features :

**100% PA12**

Fine granulometry  
Excellent surface finishing  
Low porosity  
UV stable  
Excellent operating costs

Applications examples :

- Small series
- Luxury
- Formula 1
- Automotive
- Detailing parts

Refresh rate :

**25 %**

**IN CONTINUOUS CYCLES**

The process ability of the powder on your systems is optimized ; thus **all the powder** of a building can be re-used after sifting. The refreshing factor for regeneration is lower than the usual rates giving a real economic advantage.

Key Points :

**Fine resolution**  
**42 μm**

Excellent Resolution =  
Less Finishing

**General Properties :**

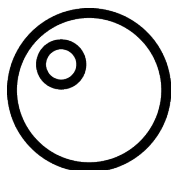
<b>Chemical Nature of the Preparation :</b>	POLYAMIDE 12, Presence of additives	
<b>Physical State (20°C) and Color :</b>	Natural grade = PURE Solid (powder) Natural Grade : White cream	
<b>Average Particle Size :</b>	<b>Diffraction laser :</b>	<b>35 &lt;_ &lt; 45 μm</b>
Grain Size :	D10	30 μm
Grain Size :	D50	40 μm
Grain Size :	D90	55 μm
<b>Powder packed Density 23 °C :</b>	<b>Method FABULOUS :</b>	<b>0,50 +/- 0,05 g/cm³</b>
<b>Part Density :</b>	<b>Method FABULOUS :</b>	<b>0,98 +/- 0,05 g/cm³</b>
<b>23°C Moisture absorption 24 hrs :</b>	<b>ASTM D570</b>	<b>0,50 +/- 0,05 %</b>

**Mechanical Properties :**

<b>Young Modulus*</b>	<b>ISO 527</b>	<b>1450 - 1750 MPa</b>
<b>Flexural Modulus*</b>	<b>ISO 178</b>	<b>1300 - 1400 MPa</b>
<b>Tensile strength (Average XY)*</b>	<b>ISO 527</b>	<b>45 +/- 3 MPa</b>
<b>Tensile strength (Average Z)*</b>	<b>ISO 527</b>	<b>40 +/- 3 MPa</b>
<b>Elongation at break (Average XY)*</b>	<b>ISO 527</b>	<b>14 +/- 5 %</b>
<b>Elongation at break (Average Z)*</b>	<b>ISO 527</b>	<b>9 +/- 3 %</b>
<b>Charpy – Impact strength*</b>	<b>ISO 179 (20°C)</b>	<b>80 dry / *2 KJ/m²</b>
<i>*statistics after several cycles &gt;10 refresh</i>		<b>50 cond. 24 hrs</b>

The mechanical properties can vary according to the positioning of the tensile bars, operating conditions and exposure parameters of the systems used. These data rest on the current state of our knowledge. They do not give the exact characteristics of material and does not represent a guarantee.





### Thermal Properties :

<b>T<sub>f</sub> Melting Point :</b> <b>T<sub>g</sub> Glazing Point :</b> <b>T° Process :</b> According to machine Reading :	<b>DSC</b> <b>DSC</b> Glazing Method	<b>180 &lt;_ &lt; 186 °C</b> <b>32 &lt;_ &lt; 37 °C</b> <b>-14 +/- 2 °C</b> (ex : 174 °C +/-2)
<b>Flammability – Fire Classification UL-94</b> following ASTM D618(ISO 921) with a barrel 125 mm x 13 mm, e=13 mm	<b>UL94</b> vertical & Horizontal test	<b>Natural grade: HC</b> Out Classification

### Electrical Properties :

According to the value reach in CEI 93 the material is considered as : **ISOLANT**

Volume resistivity Horizontal surface Voluminal resistivity Vertical surface Voluminal resistivity	<b>CEI 93</b> <b>CEI 93</b> <b>CEI 93</b>	<b>1.2 E+13 Ohms/m</b> <b>1.4 E+15 Ohms</b> <b>1.7 E+15 Ohms</b>
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### Surface Finish :

<b>Natural Coloration :</b> <b>Shore D Hardness :</b> Surface Ra/ Upper Facing processed & blasting : Surface Ra/ Upper Facing after Finishing :	<b>Visual</b> <b>ISO 868 (20°C)</b> ISO 4287 ISO 4287	<b>White cream</b> <b>80 Shore D</b> 9 +/- 1 µm 1 +/- 0.5 µm
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### Chemical Properties :

Matrix in Polyamide 12 with a good chemical resistance to alkaline, hydrocarbons, oils, gasoline's, gas oil and solvents.  
 Attack by the acids. Sealing of wall starting from **1.4 mm thickness**.

<b>SOLUBILITY :</b> <b>WATER :</b>  <b>Solvents :</b>  <b>Odor :</b> <b>pH:</b>	Insoluble in Water (20 °C) < 1 mg/m3 (estimated) Soluble in :Mineral acids, Phenols Insoluble in most organic solvents Insoluble in : Chlorinated solvents ,Alkaline conditions Slight 3 - 7,5 (aqueous suspension)
<b>Melting Point / Range :</b> <b>Decomposition Temperature :</b> <b>Explosive Properties :</b>    <b>Explosive Limits :</b>	<b>130 °C &lt; T &lt; 220 °C</b> <b>&gt; 400 °C</b> Dust may form explosive mixture in air ( <b>30 - 60 g/m³</b> ) Test of dust behavior in explosions : KSt = 200 - 250 m.bar/s PURE/ 301 m.bar/s Explosibility class : St2 PURE Standard : ISO 6184/1 - ASTM E 1226 Lower : (in air <b>30 - 60 g/m3</b> ) Higher : In air Approximately 200 g/m3 (estimated)

Data Sheet \_PURE PA 12\_ May 2020.