


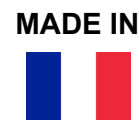


**CARE**  
**PA 11**

**FABULOUS**  
MATERIALS

CARE is a fine powder based on polyamide 11 (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.

<p><b>CARE</b> <b>PA 11</b></p> 	<p>Typical features :</p> <p><b>Bio-sourcing</b> (Castor oil) <b>Better elasticity</b> than PA12 with 75 shore A <b>High performances</b> : ductility, elongation shock resistance Recyclability network</p>	<p>Applications examples :</p> <ul style="list-style-type: none"> <li>→ Medical</li> <li>→ Dental (USP Class VI)</li> <li>→ Mechanical parts</li> <li>→ Industry requesting ductility and shock resistance : engine, fuel or oil tanks</li> </ul>
	<p>Refresh rate :</p> <p><b>Medical:50%</b>    <b>other:40%</b> limited to 6 cycles                      limited to 8-10 cycles</p> <p>The process ability of the powder on your systems is optimized ; thus <b>all the powder</b> of a building can be re-used after sifting.</p>	<p>Key Points :</p> <p><b>Medical grade USP Class VI</b></p>



**General Properties :**

<p><b>Chemical Nature of the Preparation :</b></p> <p><b>Physical State (20°C) and Color :</b></p>	<p>POLYAMIDE 11, Presence of additives Natural grade = CARE <b>Solid (powder) Natural Grade : white cream</b></p>	
<p><b>Average Particle Size :</b> Grain Size : Grain Size : Grain Size :</p> <p><b>Powder packed Density 23 ° C :</b> <b>Part Density :</b> 23°C Moisture absorption 24 hrs :</p>	<p><b>Diffraction laser :</b> D10 D50 D90</p> <p><b>Method FABULOUS :</b> <b>Method FABULOUS :</b> ASTDM D570</p>	<p>45 &lt;_ &lt; 60 μm 35 μm 45 μm 70 μm</p> <p>0,55 +/- 0,05 g/cm³ 1 +/- 0,05 g/cm³ 1,12 +/- 0,05 %</p>

**Mechanical Properties :**

<p><b>Young Modulus*</b> <b>Flexural Modulus*</b> <b>Tensile strength (Average XY)*</b> <b>Tensile strength (Average Z)*</b> <b>Elongation at break (Average XY)*</b> <b>Elongation at break (Average Z)*</b> <b>Charpy – Impact strength*</b> <i>*statistics after several cycles.</i></p>	<p>ISO 527 ISO 178 ISO 527 ISO 527 ISO 527 ISO 527 ISO 179 (20°C)</p>	<p>&gt; 1500 MPa &gt; 1300 MPa 45 +/- 3 MPa 40 +/- 3 MPa 40 +/- 5 % 20 +/- 3 % <b>NO BREAK</b> dry/Cond.24 hrs KJ/m² 50 cond. 24 hrs</p>
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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°f Melting Point :</b> T° Process : According to machine Reading :	<b>DSC</b>  Glazing Method	<b>196 &lt;_ &lt; 204 °C</b>  - 12 +/- 2 °C (ex : 186 °C +/-2)
<b>Flammability – Fire Classification UL-94</b> following ASTM D618(ISO 921) with a barrel 125 x 13 x 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	<b>CEI 93</b>	<b>1.3 E+13 Ohms/m</b>
Horizontal surface Voluminal resistivity	<b>CEI 93</b>	<b>1.2 E+15 Ohms</b>
Vertical surface Voluminal resistivity	<b>CEI 93</b>	<b>1.5 E+15 Ohms</b>

### 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 +/- 2 Shore D</b> 10 +/- 2 µm 6 +/- 1 µm
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### Chemical Properties :

Matrix in Polyamide 11 with a good chemical resistance to alkaline, hydrocarbons, oils, gasoline's, gas oil and solvents.  
Attack by the acids. Sealing of wall starting from **1.6 mm thickness**.

<b>SOLUBILITY :</b> <b>WATER :</b>  Solvents :  Odor : pH:	Insoluble in Water on the basis of its structure at 20 °C < 1 mg/m3 (estimated) Soluble in :Mineral acids, Phenols  Insoluble in most organic solvents Insoluble in : Chlorinated solvents, Alkaline conditions None NA
<b>Melting Point / Range :</b> <b>Decomposition Temperature :</b> <b>Explosive Properties :</b>          <b>Explosive Limits :</b>	> 180 °C Polymer: > 350 °C 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 CARE / 301 m.bar/s Explosibility class : St2 CARE. 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\_CARE PA11\_ Dec 2020.