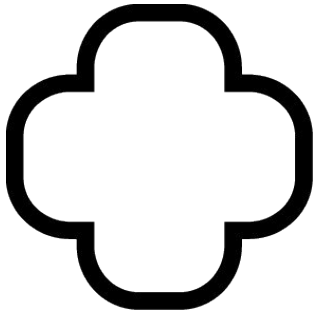


CARE
PA 11

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.

CARE PA 11



MADE IN



Typical features :

Bio-sourcing

(Castor oil) Better elasticity than PA12 with 75 shore A

High performances : ductility, elongation shock resistance
Recyclability network

Applications examples :

- Medical
- Dental (Class VI)
- Mechanical parts Automotive
- Industry requesting ductility and shock resistance : engine, fuel or oil tanks

Refresh rate :

Medical: 50% Other:40%

limited to 6 cycles

limited to 8-10 cycles

Key Points :

Medical grade USP Class VI **

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.

General Properties :

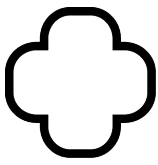
Chemical Nature of the Preparation :	POLYAMIDE 11, Presence of additives Natural grade = CARE	
Physical State (20°C) and Color :	Solid (powder) Natural Grade : White cream	
Average Particle Size :	Diffraction laser :	45 <_ < 60 μm
Grain Size :	D10	35 μm
Grain Size :	D50	50 μm
Grain Size :	D90	70 μm
Powder packed Density 23 °C :	Method FABULOUS :	0,55 +/- 0,05 g/cm³
Part Density :	Method FABULOUS :	1,02 +/- 0,05 g/cm³
23°C Moisture absorption 24 hrs :	ASTM D570	1,12 +/- 0,05 %

Mechanical Properties :

Young Modulus*	ISO 527	1300 - 1500 MPa
Flexural Modulus*	ISO 178	1100 - 1300 MPa
Tensile strength (Average XY)*	ISO 527	45 +/- 3 MPa
Tensile strength (Average Z)*	ISO 527	38 +/- 3 MPa
Elongation at break (Average XY)*	ISO 527	40 +/- 10 %
Elongation at break (Average Z)*	ISO 527	25 +/- 5 %
Charpy – Impact strength*	ISO 179 (20°C)	NO BREAK dry/Cond.24 hrs KJ/m²
<i>*statistics after several cycles >10 refresh</i>		50 cond. 24 hrs

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 :

T _f Melting Point : T _g Glazing Point : T° Process : According to machine Reading :	DSC DSC Glazing Method	196 < _ < 204 °C 40 < _ < 46 °C - 12 +/- 2 °C (ex : 186 °C +/-2)
Flammability – Fire Classification UL-94 following ASTM D618(ISO 921) with a barrel 125 mm x 13 mm, e=13 mm	UL94 vertical & Horizontal test	Natural grade: HC 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	CEI 93 CEI 93 CEI 93	1.3 E+13 Ohms/m 1.2 E+15 Ohms 1.5 E+15 Ohms
----------------------------------------------------------------------------------------------------------	----------------------------	---------------------------------------------------

Surface Finish :

Natural Coloration : Shore D Hardness : Surface Ra/ Upper Facing processed & blasting : Surface Ra/ Upper Facing after Finishing :	Visual ISO 868 (20°C) ISO 4287 ISO 4287	White cream 75 Shore D 10 +/- 2 µm 6 +/- 1 µm
---------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------	--------------------------------------------------------

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**.

SOLUBILITY : WATER : 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
Melting Point / Range : Decomposition Temperature : Explosive Properties : Explosive Limits :	> 180 °C Polymer: > 350 °C Dust may form explosive mixture in air (30 - 60 g/m3) 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 30 - 60 g/m3) Higher (*) : In air (*) Approximately 200 g/m3 (estimated)

Data Sheet_CARE PA11_ May 2020.