




DEEP

PA 11 BLACK & GLASS BEADS

FABULOUS
MATERIALS

DEEP is a fine composite powder charged with specific glass beads based on a polyamide 11 black in mass (thermoplastic) especially formulated to function on powder bed systems by laser sintering (SLS, LS). It enables to obtain productions of large and massive models with long cycle of life and excellent chemical resistance.

<h1>DEEP</h1> <h2>PA 11 Black GB</h2> 	<p>Typical features :</p> <p>PA11 Black in mass Filled with Glass beads Fine granulometry</p> <p>Specifically designed to produce large parts with excellent surface finish and detail</p>	<p>Applications examples :</p> <ul style="list-style-type: none"> → Outdoor use → parts in T°C → MotorSports Racing → Aerospace → Military industry → UAV component
	<p>Refresh rate :</p> <h1 style="text-align: center;">50 %</h1> <p style="text-align: center;">LIMITED TO MAX 10 CYCLES</p> <p>The process ability of the powder on your systems is optimized ; thus all the powder of a building can be reused after sifting. The refreshing factor for regeneration of this composite powder is lower than the usual rates giving a real economic advantage.</p>	<p>Key Points :</p> <h1 style="text-align: center;">Strength High T° Outdoor</h1>



MADE IN



General Properties :

<p>Chemical Nature of the Preparation :</p> <p>Physical State (20°C) and Color :</p>	<p>POLYAMIDE 11 black in mass composite with glass beads, Presence of additives</p> <p>Solid (powder) Grade : Deep Black</p>	
<p>Average Particle Size :</p> <p>Grain Size :</p> <p>Grain Size :</p> <p>Grain Size :</p> <p>Powder packed Density 23 ° C :</p> <p>Part Density :</p> <p>23°C Moisture absorption 24 hrs :</p>	<p>Diffraction laser :</p> <p>D10</p> <p>D50</p> <p>D90</p> <p>Method FABULOUS :</p> <p>Method FABULOUS :</p> <p>ASTM D570</p>	<p>30 <_ < 90 µm</p> <p>35 µm</p> <p>52 µm</p> <p>80 µm</p> <p>0,91 +/- 0,05 g/cm³</p> <p>1,38 +/- 0,05 g/cm³</p> <p>0,85 +/- 0,05 %</p>

Mechanical Properties :

<p>Young Modulus*</p> <p>Flexural Modulus*</p> <p>Tensile strength (Average XY)*</p> <p>Tensile strength (Average Z)*</p> <p>Elongation at break (Average XY)*</p> <p>Elongation at break (Average Z)*</p> <p>Charpy – Impact strength*</p> <p>*statistics after several cycles</p>	<p>ISO 527</p> <p>ISO 178</p> <p>ISO 527</p> <p>ISO 527</p> <p>ISO 527</p> <p>ISO 527</p> <p>ISO 179 (20°C)</p>	<p>> 2900 MPa</p> <p>> 2400 MPa</p> <p>45 +/- 3 MPa</p> <p>40 +/- 3 MPa</p> <p>Estimate 4-6 %</p> <p>Estimate 4 %</p> <p>NC</p> <p>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.



DEEP PA 11 GLASS BEADS

Thermal Properties :

T°f Melting Point :	DSC	196 <_ < 204 °C
T° Process : According to machine the Grey color offset the reading :	Glazing Method	-12 +/- 2 °C (ex : 186 °C +/-2)
Flammability – Fire Classification UL-94 following ASTM D618(ISO 921) with a barrel 125 x 13 x 13 mm	UL94 vertical & Horizontal test	Charged grade: HC Out Classification

Electrical Properties :

According to the value reach in CEI 93 the material is considered as : **ANTISTATIC to DISSIPATOR to be confirmed**

Volume resistivity	CEI 93	<i>around 2.1 E+11 Ohms/m</i>
Horizontal surface Voluminal resistivity	CEI 93	<i>around 1.7 E+11 Ohms</i>
Vertical surface Voluminal resistivity	CEI 93	<i>around 1.7 E+11 Ohms</i>

Surface Finish :

Natural Coloration :	Visual	Deep Black in Mass
Shore D Hardness :	ISO 868 (20°C)	80 +/- 2 Shore D
Surface Ra/ Upper Facing processed & blasting :	ISO 4287	10 +/- 2 µm
Surface Ra/ Upper Facing after Finishing :	ISO 4287	4 +/- 1 µm

Chemical Properties :

Matrix in Polyamide 11 with a good chemical resistance to alkaline, hydrocarbons, oils, gasoline, 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 (20 °C) < 1 mg/m3 (estimated) Soluble in :Mineral acids, Phenols Insoluble in most organic solvents Insoluble in : Chlorinated solvents ,Alkaline conditions Charge: Insoluble in almost all chemicals, except hydrofluoric acid None NA
Melting Point / Range : Decomposition Temperature : Explosive Properties : Explosive Limits :	160 °C < T < 220 °C > 400 °C Dust may form explosive mixture in air (30 - 60 g/m³) 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 30 - 60 g/m3 Higher : In air Approximately 200 g/m3 (estimated)

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