



FLEX

TPU 65-85 SHORE A

FLEX is a fine powder based on polyurethane resin 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 "elastomer" with long life cycle.

<h1 style="font-size: 2em;">FLEX</h1> <h2 style="font-size: 1.5em;">TPU 65-85A</h2>	<p>Typical features :</p> <p>Elastomeric material with 65 - 85 Shore A adjustable shore based on energy</p> <p style="text-align: center;">High resolution Excellent operating costs tanks to refresh rate</p>	<p>Applications examples :</p> <ul style="list-style-type: none"> → Shock absorption applications → Elastic parts in many sectors → All sectors → Insole → Shoe → Luxury → Design → Automotive
	<p>Refresh rate :</p> <h1 style="text-align: center; font-size: 2em;">10 %</h1> <p style="text-align: center;">NO LIMIT except N² quality</p> <p style="font-size: 0.8em;">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.</p>	<p>Key Points :</p> <h2 style="text-align: center;">Elongation at break > 300%</h2>



General Properties :

Chemical Nature of the Preparation :	POLYURETHANE blend : Polyurethane, Presence of additives and stabilizers	
Physical State (20°C) and Color :	Solid (powder) Natural Grade : White to Cream	
Average Particle Size : Grain Size : Grain Size : Grain Size : Powder packed Density 23 °C : Part Density : 23°C Moisture absorption 24 hrs :	Diffraction laser : D10 D50 D90 Method FABULOUS : Method FABULOUS : ASTM D570	55 < _ < 75 µm NC NC NC > 0, 4 g/cm ³ 1,12 +/- 0,05 g/cm ³ NC

Mechanical Properties :

Young Modulus* Flexural Modulus* Tensile strength (Average XY)* Tensile strength (Average Z)* Elongation at break (Average XY)* Elongation at break (Average Z)* Charpy – Impact strength* <i>*statistics after several cycles >10 refresh</i>	ISO 527 ISO 178 ISO 527 ISO 527 ISO 527 ISO 527 ISO 179 (20°C)	60 - 90 MPa NC 7 +/- 1 MPa 5 +/- 2 MPa > 350% > 200 % NO BREAK dry/Cond.24 hrs KJ/m ² 50 cond. 24 hrs
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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.





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Thermal Properties :

T^f Melting Point : T^g Glazing Point : T° Process : According to machine Reading :	DSC DSC Glazing Method	100 < _ < 120 °C NC -11 +/- 2 °C (ex : 102 °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 : **NC**

Volume resistivity Horizontal surface Voluminal resistivity Vertical surface Voluminal resistivity	CEI 93 CEI 93 CEI 93	NC NC NC
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Surface Finish :

Natural Coloration : Shore A Hardness : Surface Ra/ Upper Facing processed & blasting : Surface Ra/ Upper Facing after Finishing :	Visual ISO 868 A (20°C) ISO 4287 ISO 4287	White to cream 70 +/-5 Shore A 13 +/- 2 µm 6 +/- 1 µm
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Chemical Properties :

Matrix in Elastomer with a good chemical resistance .
 Attack by the acids.

SOLUBILITY : WATER : Solvents : Odor : pH:	Insoluble in Water (20 °C) < 1 mg/m3 (estimated) Soluble in :Mineral acids, Phenols Insoluble in most organic solvents Under investigation. None NA
Melting Point / Range : Decomposition Temperature : Explosive Properties : Explosive Limits :	> 95 °C softening range: >80 °C Polymer: > 225 °C Dust may form explosive mixture in air (30 - 60 g/m3) Explosive in the presence of the following materials or conditions: open flames, sparks and static discharge. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition . Sources. Standard : ISO 6184/1 - ASTM E 1226 Lower : (in air 30 - 60 g/m3) Flashpoint : > 220°C Higher : In air Approximately 200 g/m3 (estimated)

Data Sheet_FLEX TPU65-85A_ May 2020.