Technical Datasheet

Date of issue : 11/03/2021
Version 2.0

eFil TPU 90A

eFil TPU 90A belongs to the eFil family of flexible filaments based on TPU plastic. Its hardness is Shore 90A, which combines a high degree of flexibility while maintaining ease of printing. In addition, we can obtain different degrees of hardness by varying the percentage of filling during 3D printing. The 90A hardness can reach 470% elongation and is what we can find, for example, in the rubber sole of a work boot. Its tensile strength reaches 35 MPa and its tear strength is 126 N / mm.

EFil TPU 90A has excellent chemical resistance properties to both acids and bases, as well as a wide variety of solvents. It also has extreme resistance to abrasion, impacts and perforations and can withstand temperatures up to 100ºC. On the other hand, it has a great adhesion, so its printing does not present warping problems, even without using a heated bed or other fixing methods. This great adhesion provides a perfect union between layers, which creates pieces much more resistant to tearing.

The recommended extruders for this filament are those in which the degree of traction on the filament can be regulated. The ideal traction point is where the extruder makes a strong traction on the filament without strangling it. If your printer does not have an extruder prepared for flexible filament, you may have to improve it to be able to work with eFil TPU 90A. The simplest improvement is to print a wedge-shaped piece that guides the filament into the barrel. Check previously the models compatible with your printer. It is advisable not to use Bowden extruders. It is always advisable to slow down the printing speed until you have mastered the appropriate parameters for each printer. You can improve its performance with a previous drying of 30 to 60 minutes at 90ºC.

Physical properties	**Conditions**	**Test Method**	**Typical Values**
Density		ASM D792	1,19 g/cc
Thermal properties	**Conditions**	**Test Method**	**Typical Values**
Tg		ASM D3417	-32 ºC
Mechanical properties	**Conditions**	**Test Method**	**Typical Values**
100% modulus		D412	10,24 MPa
300% modulus		D412	19 MPa
Tensile strength		D412	35 MPa
Elongation at break		D412	470 %
Tear resistance		D624	126 N/mm
Parámetros de impresión			**Typical Values**
Printing Temperature			220- 230 ºC
Heated Bed temperature			Not necessary
Printing speed			20-40 mm/s
Retraction			4 mm
Adhesion			Spray
Parámetros de calidad			**Typical Values**
Tolerance	max		0,05 mm
Tolerance	media		+/- 0,05 mm
Standard deviation	max		0,02 mm
Ovality	max		2 %

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