

TPU HARDNESS+

TECHNICAL DATA SHEET VERSION 1.0



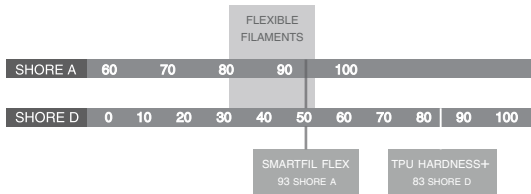
INNOVATEFIL® TPU HARDNESS+

INNOVATEFIL® TPU HARDNESS+, is a thermoplastic polyurethane that combines hardness, elasticity and mechanical strength, so it maintains all the advantages of this elastomer, in order that we can make completely rigid parts. Its main features are:

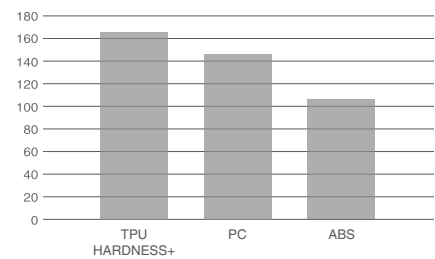
- High resistance to wear and abrasion.
- Decreases impact and vibrations.
- High resistance against fats, oils, oxygen and ozone.
- Great resistance against hydrolysis and stabilized in UV light.
- High resistance against microorganisms.



SHORE SCALE



THERMAL RESISTANCE
VICAT SOFTENING POINT
(A/10N) ISO 306



PHYSICAL PROPERTIES	TYPICAL VALUE	UNITS	TEST METHOD
Chemical Name	Polyurethane thermoplastic		
Material Density	1.22	g/cm ³	ISO 1183-1-A
Hardness	83	Shore D	ISO 7619-1
Tensile Strength	67	MPa	DIN 53504-S2
Elongation at break	170	%	DIN 53504-S2
Tear Strength	310	N/mm	ISO 527
Modulus of elasticity - Tensile test	2000	MPa	ISO 527
Vicat Softening Point (A/10N)	164	°C	ISO 306

PRINTING PROPERTIES	TYPICAL VALUE	UNITS
Print Temperature	210-230	°C
Bed Temperature	80-100	°C
Fan Layer	ON (20-100)	%
Print Speed	40-60	mm/s

SIZE	NET W.	GROSS W.	DIAMETERS	COLOR	PACKAGING
M	750 g	785 g	1'75 mm/2'85 mm	Natural	Box, Multilayer vacuum bag

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USE RECOMENDATIONS

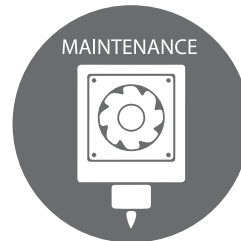
PROTECT FROM MOISTURE

Innovatefil® TPU HARDNESS+ is delivered in a vacuum bag with a great barrier against moisture so that the filament cannot absorb humidity. Before bagging, the filament follows the strictest quality controls by dehumidifying the raw material until the moisture content is lower than 0.02%.

Once the product is unpacked we recommend to keep it in a dry and dark environment. If not maintained in a suitable environment the material can absorb up to 0.5% atmospheric moisture, this can create water vapour in the extrusion that can end up in a bad surface finish.

KEEP THE EXTRUDER IN GOOD CONDITION

Once printing is finished it is recommendable to clean the nozzle eliminating the excess of material to avoid seals and defects unwanted, if several materials are used it is advisable to have a nozzle for each material to avoid being mixed.



DISCLAIMER: The information provided in the data sheets is intended to be just a reference. It should not be used as design or quality control values. Actual values may differ significantly depending on the printing conditions. The final performance of the printed components does not only depend on the materials, also the design and printing conditions are important.
Smart Materials assumes no responsibility for any damage, injury or loss produced by the use of its filaments in any particular application.