



TECHNICAL DATA SHEET

FLEX HARD

1. DESCRIPTION

TPU FLEX Hard has been specially developed for the FDM/FFF process. Based on Polycaprolactone-Polyester, it offers an extensibility of up to 480%, high material quality, high chemical resistance, and a heat distortion resistance of up to 140°C, making the material suitable for numerous industrial applications. The raw material is compliant with REACH and RoHS standards.

2. FEATURES

- Very impact and breakage resistant
- Halogen-free
- Free of silicone, plasticisers and oils
- Shore hardness D58
- UV-resistant
- Extreme layer adhesion

3. PROPERTIES

TEST	METHOD	UNIT	VALUE	PRINT SETTINGS
Tensile modulus (E-Modulus)	ISO 527-2/5A/500	MPa	40	Nozzle 230-260°C
Ultimate elongation	ISO 527-2/5A/500	%	490	Heatbed 50-90°C
Stress at break	ISO 527-2/5A/500	MPa	16 (50%)	Adhesive not required
	ISO 527-2/5A/500	MPa	16 (100%)	Speed 20-100mm/s
	ISO 527-2/5A/500	MPa	29 (300%)	Cooling 0-30%
VICAT A (VST)	ISO 306	°C	140*	Enclosed Space no
Melting temperature	ISO 3146-C	°C	190-210	Hardened Nozzle no
Density	ISO 2781	g/cm ³	1.2	Max. Volumetric Speed 4,6 mm ³ /s
Abrasion resistance	ISO 4649-A	mm ³	26	
Shore hardness	ISO 868	Shore	58D	
Tear strength	ISO 34-1B	kN/m	175	
Glass transition temperature		°C	-24	
Compressive strength	DIN 53453	MPa	40	
Permeability AIR	DIN 53380	25°/60°C	420/-	
Permeability N2	DIN 53380	25°/60°C	300/1600	
Permeability O2	DIN 53380	25°/60°C	790/3900	
Permeability CO2	DIN 53380	25°/60°C	5800/1700	
Permeability N2O	DIN 53380	25°/60°C	11600/-	
Poisson-ratio	acc. to Hencky		0.45	

Recommended settings for printers with a 0.4mm Nozzle.
Max. 50% layerheight. Optimal print settings may vary between different printers and also depend on environmental factors.

*Temperature resistance tested at a minimum wall thickness of 4 mm.

4. CERTIFICATIONS & ADDITIONAL INFORMATION



Certifications depend on colors in final product. More info in the additional information sheet.

5. STORAGE AND SHELF LIFE

Store in a dry room at room temperature (18-27°C / 65-80°F). Keep out of direct heat and sunlight.

When stored correctly, this material has a shelf life of 2 years.

Additional info in our regulatory, additional information and chemical resistance data sheets.