



TECHNICAL DATA SHEET

FLEX HARD

1. DESCRIPTION

TPU FLEX Hard has been specially developed for the FDM/FFF process. With an extensibility of up to 480%, high material quality, high chemical resistance and a heat distortion resistance of up to 140°C, the material is 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*	Open Space	yes
Melting temperature	ISO 3146-C	°C	190-210	Hardened Nozzle	no
Density	ISO 2781	g/cm ³	1.2		
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		

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

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.

5. CERTIFICATIONS & ADDITIONAL INFORMATION



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

6. 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.

NEED HELP?

If you have any question about the product and/or you are experiencing an issue, please contact us via:

+43 660 8810 615 (Mo-Fr | 8 am - 14 pm)

support@extruder.com | www.extruder.com