



# TECHNICAL DATA SHEET

## TPU Flex Hard

### DESCRIPTION

TPU FLEX is a durable elastomere based on Polycaprolacton-Polyester. It was specially developed for industrial applications and is ideally suited for the production of elastic and damping components. The material is optimized for the FFF/FDM process in regards to thermal stability and better flow properties. The raw material is compliant according to the REACH- and RoHS-Standards.

### FEATURES

- Extreme layer bonding
- Excellent chemical resistance
- Free of silicone, softeners and oil
- Free of halogen
- UV-Resistant

### PROPERTIES <sup>1</sup>

TEST	METHOD	UNIT	VALUE
Tensile modulus (E-Modulus)	ISO 527-2/5A/500	MPa	40
Ultimate elongation	ISO 527-2/5A/500	%	490
Stress at break	ISO 527-2/5A/500	MPa	16 (50%)
	ISO 527-2/5A/500	MPa	16 (100%)
	ISO 527-2/5A/500	MPa	29 (300%)
VICAT A (VST)	ISO 306	°C	140*
Melting temperature	ISO 3146-C	°C	190-210
Density	ISO 2781	g/cm <sup>3</sup>	1.2
Abrasion resistance	ISO 4649-A	mm <sup>3</sup>	26
Shore hardness	ISO 868	Shore	58D
Tear strength	ISO 34-1B	kN/m	175
Glass transition temperature		°C	-24
Compressive strength	DIN 53452	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.

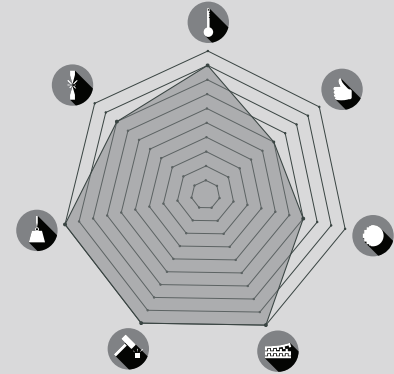
### CERTIFICATIONS & ADDITIONAL INFORMATION <sup>2</sup>



### 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.

1. Additional info in our regulatory, additional information and chemical resistance data sheets.  
2. Certifications depend on colors in final product. More info in the additional information sheet.



TEMPERATURE RESISTANCE 9

EASE OF PRINTING 6

VISUAL QUALITY 7

LAYER ADHESION 10

IMPACT RESISTANCE 10

MAXIMUM STRESS 10

ELONGATION AT BREAK 8

### PRINT SETTINGS

Nozzle	230-260°C
Heatbed	50-60°C
Adhesive	not required
Speed	20-40mm/s
Cooling	0-30%

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.

### NEED HELP?

If you have any question about the product and/or you are experiencing an issue, please contact us via [support@extruder.com](mailto:support@extruder.com)

