

### ESSENTIUM TPU 80A LF

Essentium's TPU 80A Low Friction is the lowest durometer filament in our broad flexible portfolio. Currently, it is the softest 3D printing material that can be printed on any open-source printer. It has excellent elongation at break and impact strength. This filament has a low friction surface that allows for easier feeding while printing.

#### RECOMMENDED PRINT SETTINGS

Nozzle Temperature, °C	230 – 250	Ex. Multiplier (Flow)	1.03
Bed Temperature, °C	50 – 80	Fan Speed, %	0 – 20
Print Speed, mm/s	20 – 40	Retraction Speed, mm/s	Standard
First Layer Speed, mm/s	15 – 20	Retraction Distance, mm	Standard

#### MATERIAL PROPERTIES\*

Property	Test Method	Value
Shore Hardness	ISO 868	80A
Specific Gravity	ISO 1183	1.11
Tear Strength, kN/m	ISO 34-1	55
Abrasion Loss, mm <sup>3</sup>	ISO 4649	30
Compression Set at RT	ISO 815	25
Compression Set at 70°C	ISO 815	45

\*Based on injection molded properties

#### PRINT PARAMETERS\*

Nozzle Temperature, °C	240
Bed Temperature, °C	80
Print Speed, mm/s	25
Layer Height, mm	0.2
Ex. Multiplier (Flow)	1.05
Fan Speed, %	0
Machine	Ultimaker 3
Nozzle Size, mm	0.8

\*Print parameters in reference to mechanical properties

#### MECHANICAL PROPERTIES

Property	Test Method	Print Orientation		
		XY	YX	ZX
Tensile Strength, MPa	ASTM D638	22	18	17
Elongation at Break, %	ASTM D638	640	517	471