ESSENTIUM

ADDITIVE X

Essentium TPU 80A-Z
TECHNICAL DATA SHEET

ESSENTIUM TPU 80A-Z

Essentium TPU 80A-Z is the lowest durometer filament in Essentium's electrostatically dissipative (ESD) portfolio. With non-marring surface properties, you don't have to worry about latent failures in electronics. These materials are the only industrially proven, safe material for ESD sensitive applications. Currently, Essentium TPU 80A-Z is the softest 3D printing material that can be printed on any open-source printer. It has excellent elongation at break and impact strength and has a low friction surface that allows for easier feeding while printing.

RECOMMENDED PRINT SETTINGS

Nozzle Temperature, °C	230 – 250	Ex. Multiplier (Flow)	1.05
Bed Temperature, °C	50 – 80	Fan Speed, %	0 – 20
Print Speed, mm/s	20 – 40	Bed Material	Glass
First Layer Speed, mm/s	15 – 20	Bed Adhesion Method	Dimafix®

MATERIAL PROPERTIES[1]

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^3	ISO 4649	30
Compression Set at RT	ISO 815	25
Compression Set at 70°C	ISO 815	45
Surface Resistance[2], Ohms	ANSI/ESD STM11.11	10^6 – 10^8

1 Values based on manufacturer's TDS
2 Values based on recommended print settings

MECHANICAL PROPERTIES

Property	Test Method	Print Orientation		
		XY	YX	ZX
Tensile Strength, MPa	ASTM D638	22	8	6
Elongation at Break, %	ASTM D638	729	234	109

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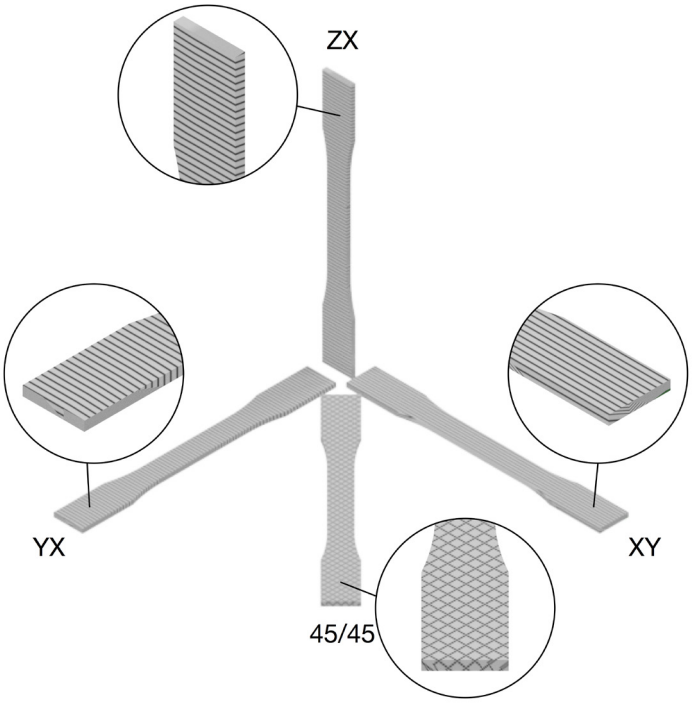

PARTS PRINTED IN THREE MAJOR AXES AND COMMON INFILL PATTERNS

YX: Traces aligned perpendicular to major length

ZX: Traces aligned orthogonal to major length

XY: Traces aligned parallel to major length

45/45: Common Infill: +-45, 2 outlines

PRINT PARAMETERS[3]	
Nozzle Temperature, °C	240
Bed Temperature, °C	80
Print Speed, mm/s	40
Layer Height, mm	0.35
Ex. Multiplier (Flow)	1.05
Fan Speed, %	0
Machine	Ultimaker 3
Nozzle Size, mm	0.8

3 Print parameters in reference to mechanical properties

KEY FEATURES:

- ESD safe
- Soft-touch
- Ultra-flexible
- Best-in-class elongation at break
- Excellent abrasion and wear resistance
- Excellent vibration damping
- Low temperature flexibility
- Excellent chemical, solvent, oil and ozone resistance

APPLICATIONS INCLUDE:

- Electronics manufacturing ESD safe jigs and fixtures
- Non-marring grippers
- Print-in-place soft springs
- Bumpers, vibration absorbers, isolation mounts
- Seals, gaskets, suction cups, boots, plugs
- Parts catchers, shoe straps

19025 N. Heatherwilde Blvd, Suite 100, Pflugerville, TX 78660
Email: Sales@Essentium.com