

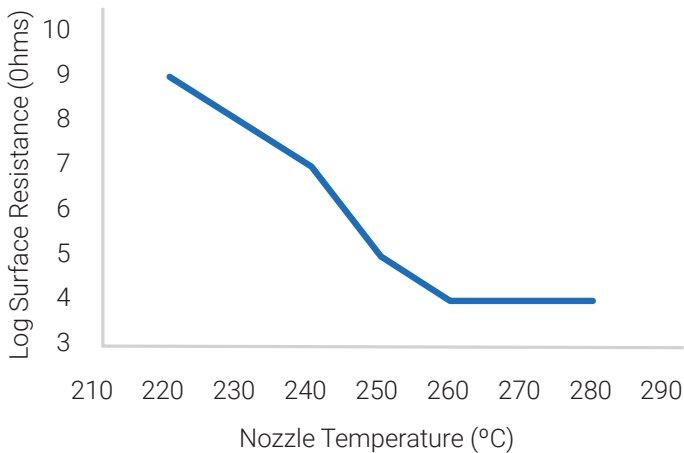
### ESSENTIUM Z PCTG

Introducing Essentium's new line of industrial grade filaments that are ESD safe. Essentium's ESD materials are proven to succeed in an industrial setting. 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 where you need a material that you must trust. PCTG is an easy to print material with significantly increased impact strength when compared to PETG.

#### RECOMMENDED PRINT SETTINGS

Nozzle Temperature, °C	250 – 270	Ex. Multiplier (Flow)	1
Bed Temperature, °C	70 – 80	Fan Speed, %	25 – 50
Print Speed, mm/s	40 – 80	Retraction Speed, mm/s	Standard
First Layer Speed, mm/s	20 – 40	Retraction Distance, mm	Standard

#### SURFACE RESISTANCE



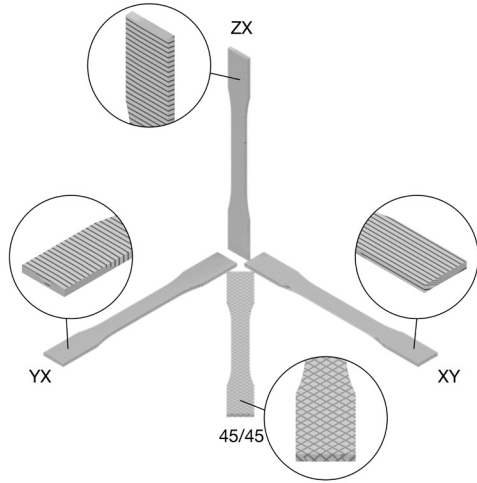
#### PRINT PARAMETERS\*

Nozzle Temperature, °C	220 – 280
Bed Temperature, °C	80
Print Speed, mm/s	50
Layer Height, mm	0.2
Ex. Multiplier (Flow)	1
Fan Speed, %	50
Machine	Ultimaker 3
Nozzle Size, mm	0.4

\*Print parameters in reference to surface resistance

#### MATERIAL PROPERTIES

Specific Gravity	1.23	HDT 0.45 MPa, °C	70
Melting Point, °C	202	HDT 1.8 MPa, °C	62
Glass Transition Temperature, °C	76		



### 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

### MECHANICAL PROPERTIES

Property	Test Method	Print Orientation		
		XY	YX	ZX
Tensile Strength, MPa	ASTM D638	46	40	24
Tensile Modulus, MPa	ASTM D638	1320	1270	1240
Elongation at Break, %	ASTM D638	35	5	2
Notched Izod Impact, J/m	ASTM D256	74	19	22
Flexural Strength, MPa	ASTM D790	70	47	30
Flexural Modulus, MPa	ASTM D790	1740	1140	1670

### PRINT PARAMETERS\*

Nozzle Temperature, °C	260
Bed Temperature, °C	80
Print Speed, mm/s	40
Layer Height, mm	0.2
Ex. Multiplier (Flow)	1
Fan Speed, %	0
Machine	Lulzbot Taz 6
Nozzle Size, mm	0.5

\*Print parameters in reference to mechanical properties

### KEY FEATURES:

- All-purpose material for ESD safe electronic jigs and fixtures
- Non-marring
- Low cost
- Easy to print, machine, and finish
- Excellent surface finish
- Prints in open air
- Low moisture uptake
- Strong enough for lightly loaded fixtures

### APPLICATIONS INCLUDE:

- Handheld tools
- General assembly fixtures for electronics
- Robotics and automation components
- Parts for explosion proof environments