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Version No.: 1.0

### General information

#### Components

PCTG (amorphous copolyester) based ESD safe filament for Fused Filament Fabrication.

#### Product Description

Ultrafuse PCTG Z is an ESD Safe filament and developed for specifically for printing of handheld tools, general assembly fixtures for electronics, robotics and automation components, parts for explosion proof environments. It performs very smooth surface properties which helps to prevent from latent failures in electronics. PCTG is an easy to print material with significantly increased impact strength when compared to PETG

#### Delivery form and warehousing

Ultrafuse Z PCTG filament should be stored at 15 - 25°C in its originally sealed package in a clean and dry environment. If the recommended storage conditions are observed the products will have a minimum shelf life of 12 months.

#### Product safety

Mandatory, recommended industrial hygiene procedures and the relevant industrial safety precautions must be followed whenever this product is being handled and processed. Product is sensitive to humid environment conditions. For additional information please consult the corresponding material safety data sheets.

#### Notice

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.

The safety data given in this publication is for information purposes only and does not constitute a legally binding Material Safety Data Sheet (MSDS). The relevant MSDS can be obtained upon request from your supplier or you may contact Innofil3D directly at [info@innofil3d.com](mailto:info@innofil3d.com).

**Recommended 3D-Print processing parameters**

Nozzle Temperature	250 – 270 °C / 482 – 500 °F
Build Chamber Temperature	-
Bed Temperature	70 – 80 °C / 158 – 176 °F
Bed material	Glass + PVA
Nozzle Diameter	≥ 0.4 mm
Print Speed	40 – 80 mm/s

**Drying Recommendations**

Drying recommendations to ensure printability	70 °C in a vacuum oven for at least 12 hours.
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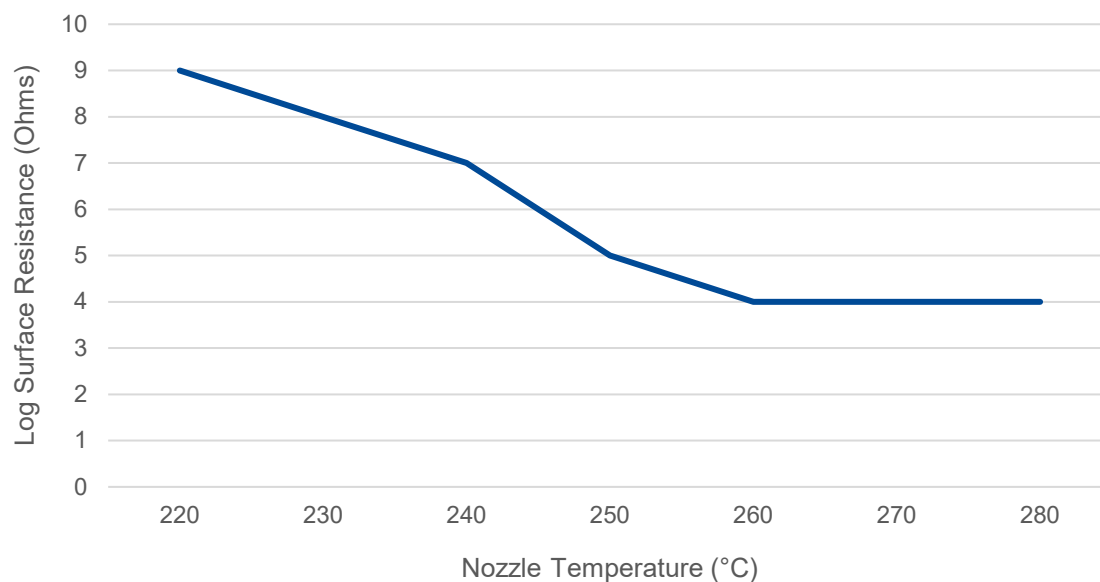
Please note: To ensure constant material properties the material should always be kept dry.

**General Properties****Standard**

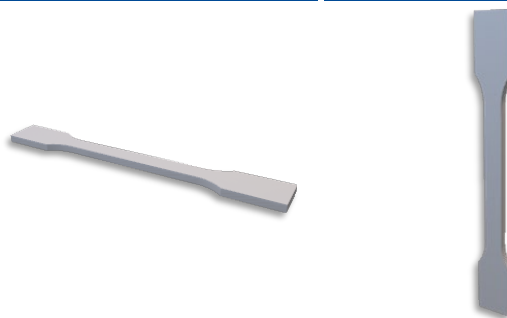
Specific Gravity	1.23	ASTM D792
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**Thermal Properties****Standard**

HDT at 1.8 MPa	62 °C / 144 °F	ASTM D648
HDT at 0.45 MPa	70 °C / 158 °F	ASTM D648
Meting point	202 °C / 396 °F	ASTM D3418
Glass Transition Temperature	76 °C / 169 °F	ASTM E1356

**ElectroStatic Discharge Properties (ESD)****Surface Resistance**

## Mechanical Properties



Print direction	Standard	XY <sup>1</sup>	ZX
		Flat	Upright
Tensile strength	ASTM D638	46 MPa	24 MPa
Elongation at Break	ASTM D638	35%	2%
Young's Modulus	ASTM D638	1320 MPa	1240 MPa
Flexural Strength	ASTM D790	70 MPa	30 MPa
Flexural Modulus	ASTM D790	1740 MPa	1670 MPa
Impact Strength Izod (notched)	ASTM D256	74 J/m	22 J/m

<sup>1</sup> Specimen are printed with infill lines parallel to testing direction.

