Ultrafuse

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Preliminary
Technical
Data Sheet

# Ultrafuse Z PCTG

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## 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.

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| Recommended 3D-Print processing parameters | |
|---|---|
| Nozzle Temperature | 250 – 270 °C / 482 – 518 °F |
| Build Chamber Temperature | - |
| Bed Temperature | 70 – 80 °C / 158 – 176 °F |
| Bed material | Glass + PVA / Spray |
| Nozzle Diameter | ≥ 0.4 mm |
| Print Speed | 40 – 80 mm/s |

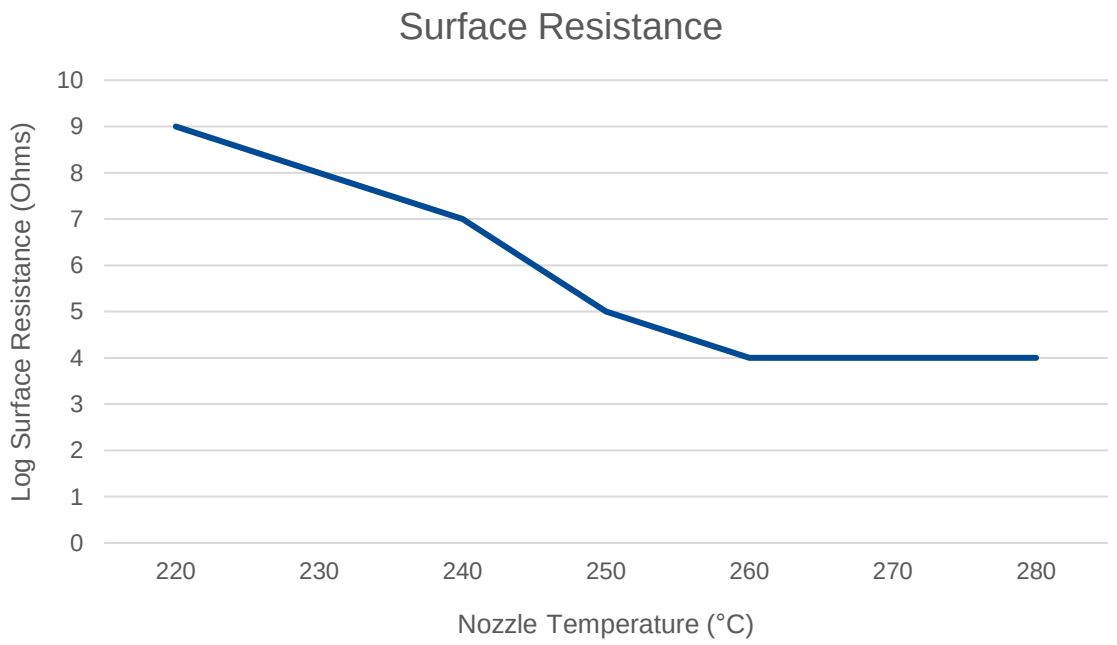
| Drying Recommendations | |
|---|---|
| Drying recommendations to ensure printability | 70 °C in a vacuum oven for at least 12 hours. |

Please note: To ensure constant material properties the material should always be kept dry.

| General Properties | | Standard |
|---|---|---|
| Specific Gravity | 1.23 | ASTM D792 |

| 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)



## Mechanical Properties

| Print direction | Standard | XY[1] | 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 |

[1] Specimen are printed with infill lines parallel to testing direction.