PCTG

# Technical specification
## Everfil™ PCTG.S31

### DESCRIPTION

**Everfil PCTG.S31.** PCTG fmaterial belongs to the same family of polyesters as the popular PETG. it is characterized by significantly increased resistance to mechanical damage than PETG. Depending on the quality of the product, PCTG filament can be up to 20 times more resistant to falls or sudden impacts. PCTG filament is often used for the production of components that are particularly exposed to direct contact with various chemicals. PCTG filaments after printing retain high optical transparency. The material is also suitable for contact with food, because PCTG filaments do not contain harmful BPA. PCTG printouts are characterized by high dimensional stability, maintaining the required strength and can be subjected to sterilization processes

**Application:**

- Technical elements
- PCTG filaments are also suitable for low-volume production of tools, spare parts
- Drone components
- Laboratory aids such as: test tube racks, flasks, funnels and other devices
- Production of various types of housings.
- Printing various kinds of food forms

### TYPICAL PROPERTY VALUES

| Filament | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Filament diameter | 1,75 , 2,85 | mm | - |
| Diameter tolerance | +/- 0,02 | mm | - |
| Spool weight | 1,0 , 2,3 , 5,0 | kg netto | - |

| Physical | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Density / Specific Gravity | 1,26 | g/cm2 | ASTM D792 |
| Molding Shrinkage - Flow | 0.20 to 0.50 | % | ASTM D955 |
| Water Absorption (Equilibrium) | < 0.13 | % | ASTM D570 |
| Clarity | transparent | | |

| Mechanical | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Tensile Stress (Yield) | 44.9 | MPa | ISO 527-2 |
| Tensile Strain (Yield) | 4,5 | % | ISO527-2 |
| Nominal Tensile Strain at Break | 320 | % | ISO527-2 |
| Tensile Modulus | 1930 | MPa | ISO 527-1 |
| Flexural Modulus | 1780 | MPa | ISO 178 |
| Flexural Stress | 36,4 | MPa | ISO 178 |

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| | | | |
|---|---|---|---|
| Charpy Notched Impact Strength<br>-30°C<br>0 °C<br>23°C | | <br>No Break<br>No Break<br>No Break | ISO 179/1eU |
| Notched Izod Impact Strength<br>-30°C<br>0 °C<br>23°C | <br>5,7<br>6,5<br>7,5 | <br>kJ/m²<br>kJ/m²<br>kJ/m² | ISO 180/A |
| Rockwell Hardness (R-Scale) | 111 | | ASTM D785 |
| Glass Transition Temperature | 85.0 to 88.0 | °C | ASTM D3418 |
| Melting Temperature, 10°C/min | 180 – 250 | °C | |

## PRINT CONDITIONS

## Everfil™ PCTG.S31

(may be different for different printers)

| 3D Printers | Typical Value | Unit |
|---|---|---|
| Extruder temperature | 240-265 | °C |
| Bed temperature (if needed) | 90-110 | °C |
| Printing speed | < 100 | mm/s |
| Airflow | 25-50 | % |
| Closed chamber | Not required | |
| Substrate | Glass, PVA, glue | |

## STORAGE

Filament can't handle moisture very well and that is why we recommend storing your filament in a cool, dry environment, ideally in a package vacuum sealed with silicate.

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