

# Technical Data Sheet

# Ultrafuse TPC 45D

Date / Revised: 14.11.2019

Version No.: 2.2

## General information

### Components

Thermoplastic Copolyester Elastomer based filament for Fused Filament Fabrication.

### Product Description

TPC 45D is a flexible, shore 45D, rubber-like Thermoplastic Copolyester Elastomer (TPE-C), which is derived from rapeseed oil and combines the best properties of elastomers (rubbers) and polyesters. The material delivers excellent adhesion in the Z-direction, meaning that the printed layers don't detach - even with extreme deformation. Based on extensive, ISO-certified lifecycle assessments, this material is proven to have a carbon footprint up to 50% lower than comparable co-polyesters - cradle-to-gate.

### Delivery form and warehousing

Ultrafuse TPC 45D 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

Recommended: Process materials in a well ventilated room, or use professional extraction systems. For further and more detailed 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.

### Recommended 3D-Print processing parameters

|                           |                             |
|---------------------------|-----------------------------|
| Nozzle Temperature        | 220 – 240 °C / 428 – 464 °F |
| Build Chamber Temperature | -                           |
| Bed Temperature           | 20 – 60 °C / 68 – 140 °F    |
| Bed Material              | PP adhesive                 |
| Nozzle Diameter           | ≥ 0.4 mm                    |
| Print Speed               | 20 – 50 mm/s                |

### Drying Recommendations

|   |   |
|---|---|
| Drying recommendations to ensure printability | 60 °C in a hot air dryer or vacuum oven for 4 to 16 hours |
|---|---|

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

### General Properties Standard

|         |  |            |
|---------|--|------------|
| Density | 1150 kg/m <sup>3</sup> / 71.8 lb/ft <sup>3</sup> | ISO 1183-1 |
|---------|--|------------|

### Thermal Properties Standard

|                              |                 |             |
|------------------------------|-----------------|-------------|
| Glass Transition Temperature | -35 °C / -31 °F | ISO 11357-2 |
| Melting Temperature          | 180 °C / 356 °F | ISO 11357-3 |