

Technical Data Sheet

Ultrafuse 17-4 PH

General information

Components

Polymer and 17-4 PH stainless steel composite filament

Product Description

Ultrafuse® 17-4 PH is a filament for the production of metal components in 17-4 stainless steel on standard Fused Filament Fabrication (FFF) printers. This stainless steel can be fully heat treated to high levels of strength and hardness. It is therefore ideal for Petrochemistry, Aerospace, the Automotive and the Medical Industry. Parts printed with our metal-polymer composite filament Ultrafuse® 17-4 PH obtain their final properties through a catalytic debinding and sintering process known from traditional Metal Injection Molding.

Typical applications are:

- Tooling
- Jigs and fixtures
- Series production
- Functional parts and prototypes

Delivery form

Ultrafuse 17-4 PH is delivered on 3KG spools. The two products have 1.75 mm and 2.85 mm diameters. The filament is available in both diameters.

Product safety

Recommended industrial hygiene procedures and the relevant industrial safety precautions for the handling of polymers must be followed whenever these products are being handled and processed. For additional information please consult the corresponding material safety data sheets.

For your information

Standards: DIN 1.4542, X 5 CrNiCuNb 17 4, AISI/UNS S17400 ; SAE J 467 (17-4PH)

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 BASF 3D Printing Solutions GmbH directly at sales@basf-3dps.com.

Recommended 3D-Print processing parameters

Nozzle Temperature	230 – 250 °C
Build Chamber Temperature	-
Bed Temperature	90 – 120 °C
Bed material	Glass + approved glues* / polyimide tape (*Magigoo® or Dimafix® suggested)
Nozzle Diameter	≥ 0.4 mm
Print Speed	15 – 50 mm/s

Filament Properties

Filament Diameter	1.75 mm	2.85 mm
Tolerance	±0.050 mm	±0.075 mm
Roundness	±0.050 mm	±0.075 mm
Bending Radius	5 ± 1 mm	10 ± 3 mm
Length per Spool	250 m	95 m
Weight per Spool	3 kg	3 kg



Drying Recommendations

Under normal conditions no drying is required.

General Properties

Sintered Part Density	≥ 7.6 g/cm ³	Standard
Density values obtained from tensile and fracture samples.		ISO 1183-1

Table listed below shows values
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	¹ Specimen shape Form E2x6x20 according to DIN 50125 ² Undersized impact test specimen according to DIN EN ISO 148-1		
Print direction	Standard	XY	ZX
Orientation		Flat	Upright
Tensile strength	DIN EN ISO 6892-1 ¹	760 MPa	730 MPa
Yield Strength, R _{p0.2}	DIN EN ISO 6892-1 ¹	680 MPa	700 MPa
Elongation at Break	DIN EN ISO 6892-1 ¹	4 %	3 %
Impact Strength Charpy (notched)	DIN EN ISO 148:2017-05 ² (2mm V-notch)	TBA	TBA
Vickers Hardness	DIN EN ISO 6507-1	257 HV 10	-