Datasheet SBS Feedstock Pellets
Ti6Al4V PEL4-01A

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Product: Ti6Al4V PEL4-01A

Fused Pellet Fabrication (FPF) of Titanium using screw or piston-based extrusion printers offers the possibility to produce complex shaped parts net shape or near net shape quality at low investment costs.
Element22 has over 15 years of experience in MIM of Titanium and is offering its proprietary feedstock including the patented sintering process for commercial use.
The Element22 feedstock system offers the basis for the production of Titanium parts with outstanding material properties. To achieve the best material properties, the correct processing equipment and parameters need to be maintained. Element22 recommends processing equipment for debinding and sintering from TiGEN GmbH, Germany (www.tigen.de).
Element22 is offering a debind and sinter service to process your parts printed with the Element22 pellets.

Scale Factor

Typical value: 115.8%
Range: 115%-116.5% depending on printing parameters; build direction and part dimensions.

Shelf Life

12 Months if properly stored. Protect from moisture.
Store in a dry and dark place at room temperature.

Typical printing parameters

Nozzle Temperature: 120-160°C
Print bed temperature: 20-60°C

Debind and Sinter (D&S)

with Element22s D&S service
(www.element22.de/services/debind-and-sinter-ds-service)
or with appropriate Debind & Sinter Equipment
(www.tigen.de)

Typical Properties

-as printed and sintered

Mechanical Properties are dependent on interstitial elements and residual porosity.

	Typical Value
Tensile Strength Rm / MPa	1005
Yield Strength $Rp_{0,2}$ / MPa	920
Elongation A / %	17%

Typical Chemical Composition

-as sintered

Content of interstitial elements is highly dependent on thermal debinding and sintering equipment and process parameters.

Element	Value [wt.%]
Nitrogen	≤ 0.035
Carbon	≤ 0.045
Hydrogen	≤ 0.015
Iron	≤ 0.30
Oxygen	≤ 0.3
Aluminum	5.5 - 6.75
Vanadium	3.5 - 4.5
Yttrium	≤ 0.005
Titanium	balance

Density

-as printed and sintered

Typical value: 98% of theoretical density
Range: 95-100% of theoretical density
Theoretical Density: 4.43 g/ccm

Disclaimer:
The values may vary according to the processing; the mentioned values are for guidance only and without guarantee.