

Datasheet SBS Feedstock Pellets

Ti6Al4V PEL4-01A

E L E M E N T

Product: Ti6Al4V PEL4-01A

Fused Filament Fabrication (FFF) 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 now 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.

Element22 is offering a debind and sinter service to process your parts printed with the Element22 pellets.

Scale Factor

Typical value: 1.158

Range: 1.150-1.165 depending on printing parameters and build direction

Shelf Life

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

Printing Process

Typical printing parameters:

Nozzle Temperature: 120-160°C

Print bed temperature: 20-60°C

Typical Properties (as printed and sintered)

Mechanical Properties are dependent on interstitial elements and residual porosity.

	Typical Value
Tensile Strength Rm [N/mm ²]/MPa	1005
Yield Strength Rp _{0,2} [N/mm 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 parameters.

Element	Value [wt.%]
Nitrogen	≤ 0.035
Carbon	≤ 0.045
Hydrogen	≤ 0.015
Iron	≤ 0.30
Oxygen	≤ 0.3
Aluminium	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.