



Zoz  
Group



# PM2019 – Titanium C/ODS

synthesize Ti-SiC powder<sup>1</sup> - HIP<sup>2</sup> - EIGA<sup>3</sup> - ALM<sup>4</sup>

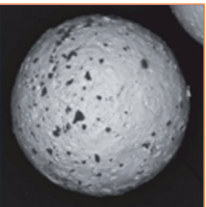
tensile strength +30%, elongation +25%



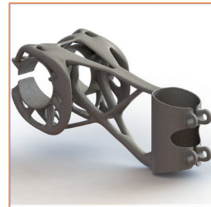
HIP-cans making & decapsulation



HIP-cans loading  
HIP-cans closing



Zoz-HIP Service  
all inert/vacuum



Simoloyer® CM100-s2,  
processing inert/vacuum;  
decorated MPP-NP



Zoz-MPI EIGA  
ZAT 100 [1999]

Additive Manufacturing  
PM2019 test bodies  
AM complex structure

## Ti-6Al-4V-SiC<sup>1-4</sup>

### Strength & Elongation Increase

in respect to ASTM F2924 (%), Building Direction (BD)

BD	yield	tensile	elongation
XY	+ 31 %	+ 28 %	+ 16 %
Z	+ 32 %	+ 30 %	+ 36 %
ASTM reference Ti6Al4V			
-	825 MPa	895 MPa	10 %

Since several years, Zoz in R&D is focusing on advanced (powder) materials that additionally to their properties allow consolidation by additive manufacturing. Particularly for high-strength materials, HKP (by Simoloyer®) does most frequently not provide the required morphology.

Developing processing routes from HKP / mechanical alloying e. g. through HIP-electrode manufacturing for EIGA, all under completely controlled condition, to result in utmost spherical particles at proper PSD, thus describes a challenge at high potential in ultra-materials sector.

[www.zoz.de](http://www.zoz.de)

<sup>1</sup>SPP - Simoloyer® powder processing

<sup>2</sup>HIP - Hot Isostatic Pressing

<sup>3</sup>EIGA - Electrode Induction Melting Inert Gas Atomization

<sup>4</sup>ALM - Additive Layer Manufacturing

Simoloyer® is a registered trademark of Zoz Group



2015-2019

[www.nanotun3d.eu](http://www.nanotun3d.eu)