

# Advanced Materials CerMet Powder (TiC-SiC)

## Introduction

MBN will design and scale-up a High Energy Ball Milling (HEBM) process to enable the production of advanced materials with fine and homogeneous chemical distribution of elements and an “ultrafine” crystalline structure down to the nanometre scale.

PilotManu will develop new lightweight CerMet powders consisting of Titanium Carbide in Silicon Carbide matrix, designed for wear resistant applications. This powder is highly formable and suitable for different processing techniques (CGS, SPS etc). With an additional heat treatment step, the material acquires outstanding tribological properties.

Suitable forming and deposition technologies:

- Sintering: Standard and advanced techniques
- Coatings: CGS and HVOF



Cold gas spraying (CGS)

## Specification

Nominal composition	Unit	Value
Titanium	wt%	58.0
Carbon	wt%	13.0
Silicon	wt%	29.0
<b>Powder density</b>		
Skeletal - ASTM B923	g/cm <sup>3</sup>	3.9
Bulk - ASTM D7481-09	g/cm <sup>3</sup>	1.3
TAP - ASTM B527	g/cm <sup>3</sup>	1.7

## Coating Physical Characteristics

Powder size	Unit	Value
Hardness HVOF	HV	1160
Hardness CGS	HV	850

Coatings advantages

- High deposition efficiency
- Coating thickness up to 2 m

## Physical Characteristics

Powder size	Unit	Value
Hardness SPS	HV	1400

Advantages

- Lightweight material
- High hardness
- Low sintering temperature

## Contact

If you are interested in evaluating the new advanced powders developed by PilotManu, please contact: [info@pilotmanu.eu](mailto:info@pilotmanu.eu)



PILOTMANU

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Partner

MBN nanomaterialia®



PilotManu is funded by the EU FP7 programme and the consortium partners. Project full title: Pilot manufacturing line for production of highly innovative materials