



AM 4 AM

Advanced Materials  
for  
Additive Manufacturing

**We create  
materials that  
shape the future**



# Company Teaser

October 2022



AM 4 AM

Advanced Materials  
for  
Additive Manufacturing



We create materials that shape the future

# AM 4 AM

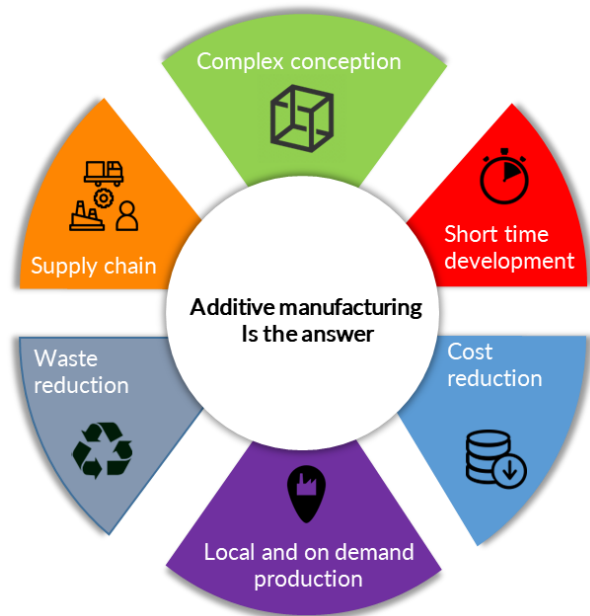
Is a metal powders provider designed specifically for additive manufacturing (3D printing)

- Best-in-class performance materials
- Reliable supply chain and industrial scale production
- Carbon neutral production

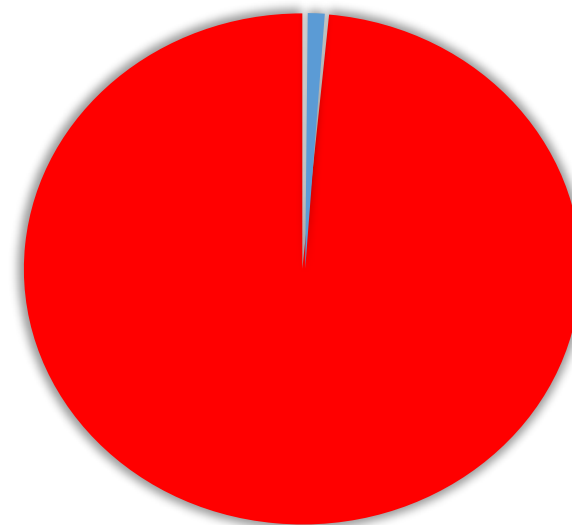
# What's the problem we are solving?

Additive manufacturing is a fastly growing technology and is answering the demand of the industry of new manufacturing process. However, one of the major brake to the expansion of this innovation is the amount of materials available

Need of new manufacturing processes

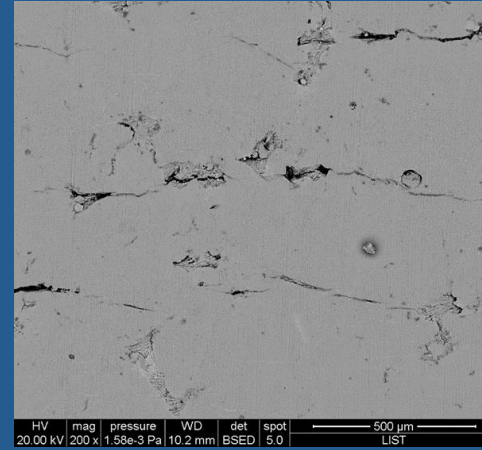


Less than 2 % of the metal could be used



- Metal available for AM
- Metal not processable by AM

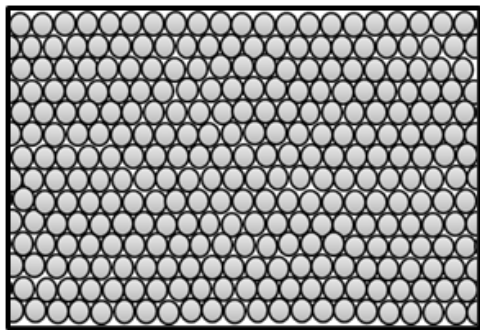
# Aluminium in AM



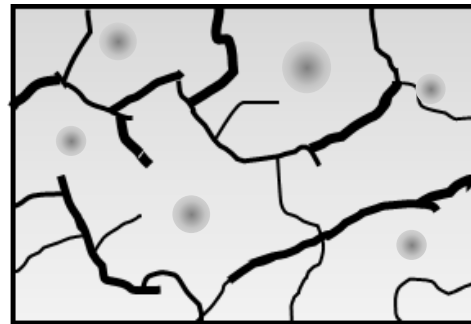
Scanning Electron Microscopy of a 7000 series aluminum processed by Additive Manufacturing.

The microstructure is full of cracks and pores. These defects are bringing down the mechanical properties of printed parts

The major problem with aluminum is the cracks/porosity formation that leads to **brittle** parts and **inappropriate mechanical properties**



Conventional aluminum powder

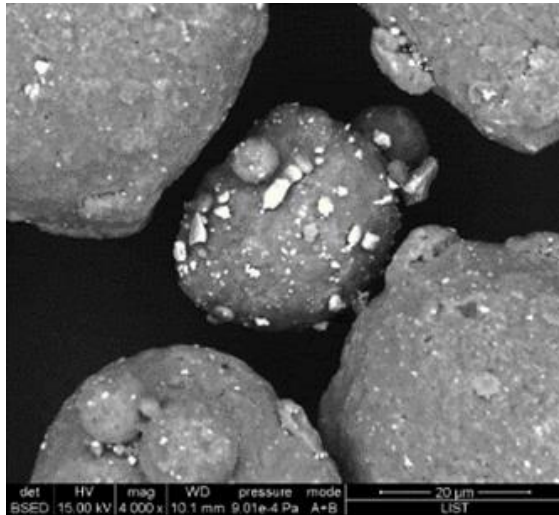
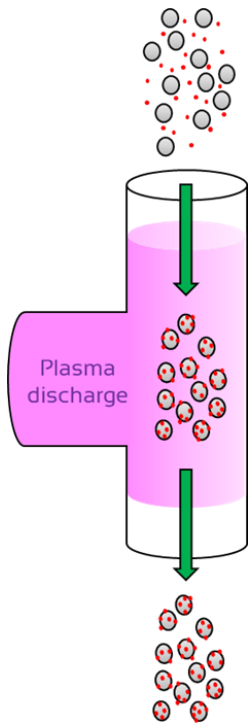


Cracks/porosity due to the process constraints

Need of **new materials** designed specifically for additive manufacturing process

# Our Innovative Technology

Our atmospheric cold plasma treatment (LU101177) allows the dispersion of ceramic particles on the surface of metallic powders to enhance the properties and processability of conventional alloys

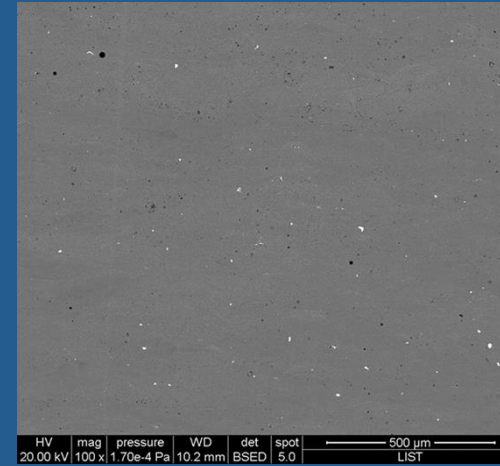


Plasma treated powder. White particles are ceramics dispersed on the surface of aluminum particles

## Our technology is...

- Making available **hundreds of conventional alloys**
- Creating **new alloys** designed for AM process
- Reliable in term of **supply chain**
- Allowing **short time** alloy development
- **CO2 neutral**

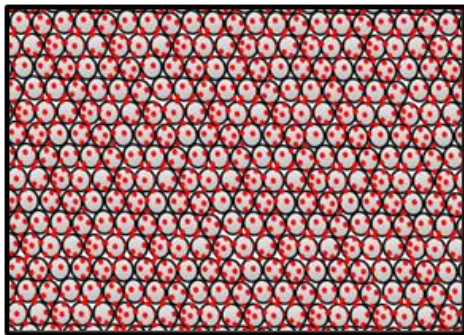
# HiPerAl



Scanning Electron Microscopy of a HiPerAl aluminum processed by Additive Manufacturing.

The microstructure is dense with no cracks. The mechanical properties of printed parts are maximized.

Our technology has been applied to aluminum alloy leading to our first product : **HiPerAl**



HiPerAl



Crack-free - Strong parts

- Exceptional mechanical properties
- Corrosion resistant
- Compatible with the majority of AM equipment

# HiPerAl properties

- Particles size distribution between 20-63  $\mu\text{m}$
- Printed density: 2.85  $\text{g}/\text{cm}^3$
- Relative density: > 99 %
- Porosity: 0,1-0,2 %
- Young modulus: 68 GPa

## Yield Strength

AlSi10Mg – 230 MPa

HiPerAl – 425 MPa

## Ultimate Tensile Strength

AlSi10Mg – 350 MPa

HiPerAl – 465 MPa

## Elongation at break

AlSi10Mg – 11%

HiPerAl – 4%

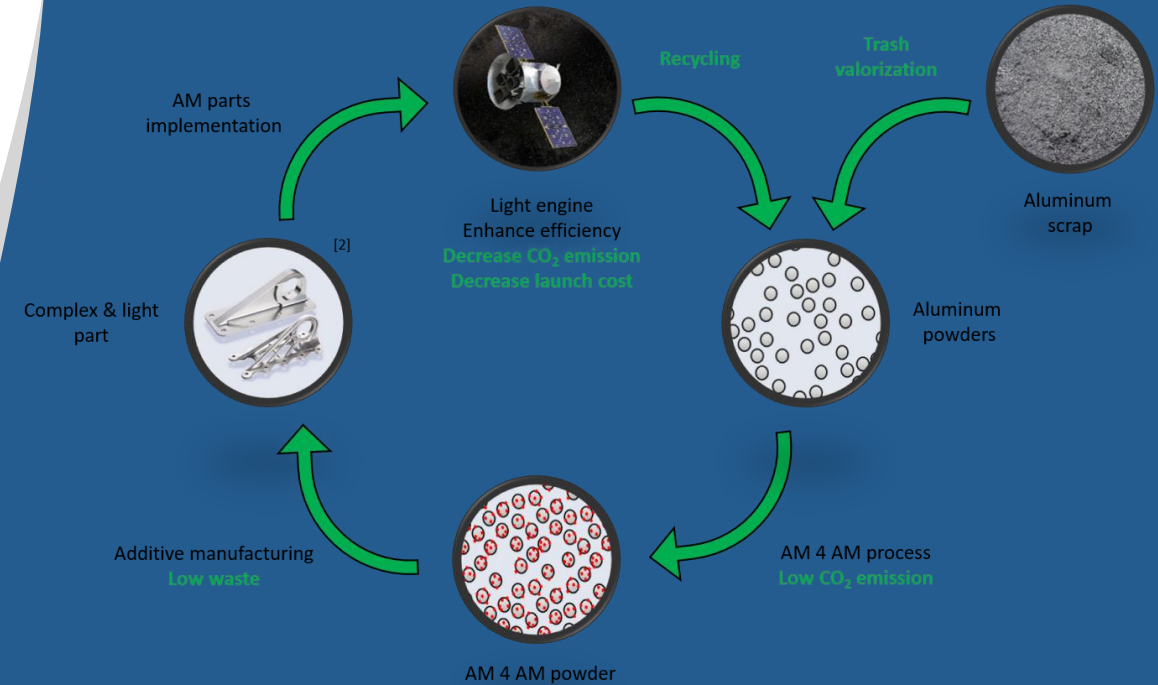


# AM 4 AM's products added-value

- Best in class and tailor-made alloys with unprecedented properties to unlock new applications of additive manufacturing
- Reinforce the robustness of the supply chain with a company based in Europe
- Increase reliability of delivery with a company using non critical and European resources
- Eco-friendly and industrial scale production

# Our ambition

- to develop best-in-class metal powder for additive manufacturing allowing to produce parts with unprecedented properties valued in our target industries.
- to draw the path toward the industry of tomorrow with both ecological and sustainable vision.



[2] Parts for Airbus, 3D printed by GE  
<https://www.3dnatives.com/en/additive-manufacturing-aerospace-growing-061220184/>



AM 4 AM

Advanced Materials  
for  
Additive Manufacturing

## CONTACT US!

### Location

Technoport Hall 3B  
20 rue du commerce  
3895 Foetz - Luxembourg

### Phone number

+352661390872

### Web

[www.am-4-am.com](http://www.am-4-am.com)  
[info@am-4-am.com](mailto:info@am-4-am.com)

### Social media

