

ADDITIVE MANUFACTURING: CHARACTERISING MATERIALS



To properly control the additive manufacturing process, a mechanical, physical and chemical characterisation of the metallic materials obtained is required.

Your expectations

For metallic products obtained after additive manufacturing, you want to:

- Identify reliable analysis and characterisation methods,
- Analyse the structure and microstructure of your metallic materials and perform a characterisation in terms of grain size, inclusion cleanliness, presence of phases, porosity, etc,
- Assess the mechanical behaviour of your products,
- Understand the degradation or aging phenomena,
- Implement the appropriate heat treatment or the optimum surface treatment,

Our solutions

A team of specialists with specific resources to characterise metallic materials produced by additive manufacturing

Characterisation of powders (grain size, rheology, etc.)

Macroscopic, microscopic and fractographic examinations using instruments such as binocular magnifiers, optical microscopes (1,000 X magnification), SEMs (Scanning Electron Microscopes) equipped with microanalysis probes

Determination of density

Microhardness measurements, hardness profiles (Vickers, Brinell, etc.), determination of the depth decarburisation

Standard chemical analyses and specific methods

Laboratory simulation: accelerated aging (corrosion, wear / friction, fatigue, creep)

A laboratory and experts dedicated to surface treatments.

A team of specialists and specific resources to study the mechanical behaviour of materials produced by additive manufacturing :

Tensile testing at room and high temperatures

High cycle fatigue testing at room and high temperatures

Low cycle fatigue testing at room and high temperatures

Cracking testing at room and high temperatures

Creep elongation and creep failure testing

Your benefits

Recognised expertise in material characterisation and metal additive manufacturing

Access to the best technologies, skills and resources available

Accredited tests (see details on our page [Cofrac Essai](#))

A responsive and highly competitive service tailored to your needs with specialised laboratories at your disposal

Access to the wide range of skills of Cetim's teams

Expertise in all transformation processes applicable to light alloys and hard metals (machining and bar turning, metal additive manufacturing, welding, rolling, casting, forging, etc.)

An independent laboratory deeply involved in various industrial sectors such as aerospace, automotive, energy, medical equipments and devices, etc.



Question and Answer Service

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