Additive manufacturing: characterising materials

Metallic 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.

CONTACT

Question and Answer Service

Phone : +33 970 821 680

sqr@cetim.fr

www.cetim.fr