PROJECT

AlForAMA

Innovative Al alloy For aircraft structural parts using Additive MAnufacturing technology

Funding: European (Horizon 2020)

Duration: Jul 2017 - Mar 2021

Status: Complete

Total project cost: €598,448

EU contribution: €598,448

Call for proposal: H2020-CS2-CFP04-2016-02

CORDIS RCN : 211048

Objectives:

The main goal of AlForAMA project is to develop an innovative High Strength Al alloy, feasible by powder metallurgy and suitable for Selective Laser Melting (SLM), with improved weldability and increased mechanical and corrosion resistance in comparison to cast grades Al alloys currently employed in Additive Manufacturing (AM).

AlForAMA project is focused on powder-bed based additive manufacturing (AM) of the innovative Al alloy. Selective Laser Melting (SLM), that utilizes a laser as a thermal energy source to melt the powder, has been chosen as the preferred AM technology.

Development of the innovative aluminium alloy specifically designed for SLM will be mainly focused on two different aspects:

1. on tailoring the chemical composition to improve processability and/or mechanical response of well-established commercial aluminium alloys
2. on defining the specific P/M processing of the raw powder material

Raw materials for SLM, produced in a powder form, will be obtained by the atomization process or, alternatively, by a mixing procedure of different starting powders.

A suitable heat treatment will be defined for the developed innovative Al alloy after its SLM processing. To optimize thermal treatments, AlForAMA project will consider the specific microstructural characteristics that SLM generates.

SLM process development will be performed to ensure a defect free material manufacturing. A deep characterization of the new material will be carried out including mechanical, chemical and corrosion aspects. Afterwards the manufacturing process will be validated at component level.

The AlForAMA project will be developed by a well-balanced consortium that brings together 3 partners: the technical institutes LORTEK and IMDEA (Spain) and the university KU LEUVEN (Belgium).

Parent Programmes:

H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Lead Organisation:

Lortek S Coop

Address:

Arranomendia Kalea 4 A
20240 Ordizia
Spain

EU Contribution: €239,253

Partner Organisations:

Fundacion Imdea Materiales

Address:
Calle Eric Kandel 2 Parque Cientifico Y Tecnologico Tecnogetafe
28906 Getafe
Spain

EU Contribution: €159,475

Katholieke Universiteit Leuven

Address:
Oude Markt
3000 Leuven
Belgium

Organisation Website:
http://www.kuleuven.be

EU Contribution: €199,720

Technologies:

Additive manufacturing
Selective Laser Melting
(SLM)

Development phase: Research/Invention

STRIA Roadmaps: Vehicle design and manufacturing

Transport mode: Air transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Other specified

Geo-spatial type: Other