

PROJECT

ALMAGIC

Aluminium and Magnesium Alloys Green Innovative Coatings

Funding: European (Horizon 2020)

Duration: Jun 2017 - May 2019

Status: Complete

Total project cost: €999,526

EU contribution: €999,526



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

[CORDIS RCN : 210100](#)

Objectives:

The aeronautic industry is constantly striving to reduce the aircraft operating costs, increase their payload and reduce the environmental impact during the whole life of the product. Metallurgy has played a key role in the development of aviation. With the use of light alloys, such as aluminium and magnesium, new applications have been found to apply these to vastly improve existing designs.

The disadvantage of using these materials is that they are particularly susceptible to corrosion. Environmental degradation is a limiting factor for magnesium–aluminium (Mg–Al) alloys in outdoor applications. An effective way to protect alloys from fast degradation or reduce to the degradation rate is surface treatment.

Hexavalent chromium has served as the primary means of corrosion protection in the aircraft industry since 1936 and allowed for the distinctive bare-metal finishes of the World War II era. Hexavalent chromium is a known carcinogen, with the major route of exposure through inhalation of vapours or dust. The chromates are among the current chemicals for which industrial users must find substitutes, or request authorisation from EU regulators to continue their use. In the case of chromium trioxide and the acids, the application deadline is March 2016 and the “sunset” date for the substances is September 2017.

Therefore, there is an urgent need facing the aerospace industry to replace the conventional corrosion inhibitor, hexavalent chromium. Regulatory and market drivers are motivating a global effort in the aerospace industry to replace hexavalent chromium-containing materials with hexavalent chromium-free alternatives for various applications.

ALMAGIC project is focused on solving the aforementioned problematic by validating the developed innovative alternatives to chromium(VI) coatings for aluminium and magnesium alloys. ALMAGIC will ensure the developed solutions comply with the REACH regulations, while all quality standards are met.

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:

Fundacion Cidaut

Address:

PLAZA VICENTE ALEIXANDRE CAMPOS 2 PQ TECNOLOGICO DE BOECILLO 209
47151 VALLADOLID
Spain

Organisation Website:

<http://www.cidaut.es>

EU Contribution: €168,281

Partner Organisations:**Henkel Kga****Address:**

HENKELSTRASSE 67
40191 DUSSELDORF
Germany

Organisation Website:

<http://www.henkel.com>

EU Contribution: €99,375

Helmholtz-Zentrum Geesthacht Zentrum Fur Material- Und Kustenforschung Gmbh**Address:**

MAX PLANCK STRASSE 1
21502 GEESTHACHT
Germany

Organisation Website:

<http://www.gkss.de>

EU Contribution: €279,628

Universidad Complutense De Madrid**Address:**

AVDA DE SENECA, 2
28040 MADRID
Spain

Organisation Website:

<http://www.ucm.es>

EU Contribution: €154,063

Akzo Nobel Car Refinishes BV**Address:**

RIJKSSTRAATWEG 31
2171AJ SASSENHEIM
Netherlands

EU Contribution: €75,188

Technische Universiteit Delft**Address:**

2600 GA Delft
Netherlands

EU Contribution: €222,993

Technologies:

Aircraft design and manufacturing
Alternatives to chromium coatings for corrosion protection for Magnesium-Aluminium alloys

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