



## Project Information Sheet

### Eco-friendly corrosion protecting coating of aluminium and magnesium alloys (ECOPROT)

<b>Programme area:</b>	Greening business: Substitution of materials by innovative ones that reduce environmental impact
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<b>Website:</b>	<a href="http://ecoprot.eu/">http://ecoprot.eu/</a>
<b>Benefits:</b>	Self-healing, environmentally-friendly cerium-based coatings for corrosion protection of aluminium and magnesium alloys for aeronautic application.
<b>Keywords:</b>	Sol-gel coatings; Cr-free; corrosion protection
<b>Sector:</b>	Aeronautics
<b>Type of solution</b>	Coating process
<b>Duration:</b>	01/11/2013 – 30/04/2016
<b>Budget:</b>	1,337,602 € (EU contribution: 49.98%)
<b>Contract number:</b>	ECO/12/333104

#### Summary

The aim of ECOPROT is to industrialise a procedure for glass-like, environmentally-friendly and self-healing cerium-based coatings for corrosion protection of aluminium and magnesium alloys. The new product is intended for the aeronautic market, where it will be introduced as an environmentally friendly alternative to conventional Cr-based coatings, which provide optimum corrosion protection, but are highly toxic.

The product will be introduced into the French aeronautic sector and will be further extended to address a wider geographical area and possibly other industrial sectors.

The specific tasks to achieve this target are the following:

- Optimization of the entire coating process for industrial applications (process scale-up)
- Validation of the coated products according to the standards of the aeronautic industry (for replication)
- Life cycle assessment of the entire process and final product
- Business plan

The coating systems are being set up to accomplish the specific need of the participating SME (PROMET) by optimizing the process conditions for each substrate and adapting to different primers and finishes, taking into account the current state of the art for each application. Two different coating solutions have been developed for Mg and Al substrates respectively.

#### Expected and/or achieved results

- Cr-free, environmentally friendly and self-healing cerium-based coatings for corrosion protection of Mg and Al alloys, for aeronautics application
- Introduction of the product into the French aeronautic market
- Extension to a wider geographical area and possible penetration of other industrial sectors (e.g. aerospace, automobile, building, etc.)
- Improved possibilities of material recycling and easier treatment of the coated product at end-of-life
- Overall reduction of environmental impact in terms of human health and ecosystem quality, mainly due to the elimination of chromium as an input material

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