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# ECOPROT

## ECO-FRIENDLY CORROSION PROTECTING COATING OF ALUMINIUM AND MAGNESIUM ALLOYS

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### Dissemination report

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## 1 EXECUTIVE SUMMARY

### 1.1 Description of the deliverable content and purpose

This deliverable report details of the dissemination actions undertaken to date and outlines the future plans for the promotion of the ECOPROT project outcomes and concepts towards the potential end users within the surface finishing industries and their associated supply chains. This report focuses mainly on dissemination activities but they need to be considered within the broader context of any potential future business opportunities and results exploitation. These complementary exploitation activities are considered in more detail in the ECOPROT Business and Exploitation plan deliverable. This report has been elaborated from the contributions of the partners of the ECOPROT project, as well as from information gathered by the industry trade associations and from information gathered via extensive dialogue with key personnel from the relevant sectors.

The ECOPROT project has undertaken to industrialise a procedure for producing glass-like, environmentally-friendly cerium-based coatings for corrosion protection of aluminium and magnesium alloys. The coatings were developed in the FP6 Integrated Project, MULTIPROTECT, and the procedure was granted a patent.

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 provided optimum corrosion protection, but with a major drawback represented by their toxicity. The major output of the project will be the **market penetration** of a sol-gel coating as an **environmentally friendly** substitution of the chromate processes, which provide an efficient corrosion protection for metal alloys but are characterized by health and environmental toxicity.

The project has sought to realise these outputs by the implementation of sol-gel technology for industrial application.

This project has successfully generated considerable new knowledge in all of the key areas related to the enhancement of this process used by the metal finishing industry. The aim of this report is to detail activities that were undertaken during the project and that will take place following the completion of the project to ensure that the information and outputs generated by the implementation of ECOPROT are available for the benefit of the relevant European manufacturing industry sectors.

### 1.2 Deviation from objectives

N/A.



## 2 INTRODUCTION

The ECOPROT project has validated the technology through pilot plant design and optimisation for deployment in end-use applications within the surface finishing industrial sectors.

Due to the diversity of the end-use applications, it is considered that the Dissemination Actions require the involvement of the following potential users and beneficiaries:

- All partners within the ECOPROT consortium;
- End-users both from within the ECOPROT consortium and external to the consortium but within the European Union who are participating in related European initiatives and to whom the outputs of ECOPROT would be of use;
- Other European academic and industrial organisations to whom the ECOPROT outputs would be of interest and potential benefit;
- Other non-European potential end-users including academic and industrial organisations to whom the ECOPROT outputs would be of interest and potential benefit.
- Supply chain individuals and organisations, which have the potential to further exploit the technology via licensing in both European and non-European domains.

Hence, the objectives of the dissemination actions can be summarized as being along the key main routes outlined below. Ongoing promotion of the results by the ECOPROT partners to the main European supply chain and industrial end-user organisations undertaking work in metal finishing sectors, will carry on. This activity has been and will continue to be undertaken using established successful approaches and ones that have already used extensively by the partners throughout the course of the project to date. This approach has been based on the use of conventional dissemination routes and tools including such as publication of articles and papers, presentations at workshops, seminars, conferences and other dedicated specific events.

During the course of the project dissemination activities were undertaken within the framework of WP 6. According to the description of work the principal activities during the project were as follows;



- Build and implement a project web-site;
- Elaborate and implement the dissemination plan agreed by all members of the consortium;
- Present results in the field of application of the project at an international level by attendance at events such as workshops, conferences and exhibitions and through the ECOPROT project website;
- Attract the interest of the public, investors, research sector, SMEs and associations of SMEs through B to B events;
- Organization and participation in conferences, workshops and exhibitions with a focus on advances and more sustainable approaches in surface finishing;
- Organise a European Workshop during a dedicated event attracting the relevant stakeholders, to bring together professionals and industry specialists representing the end-user and supply chains for the addressed sector to enable a better understanding of where the technology will be perceived to be implemented;
- Elaboration of an exploitation plan agreed by all members of the consortium.




### 3 DISSEMINATION ACTIONS

In direct line with the Dissemination Plan listing all actions to be undertaken to promote and disseminate the project outline for the relevant audience and the targeted stakeholders, the partners of ECOPROT have used all available means to achieve this goal.

The “Dissemination Log” below reviews all these actions, events etc... together with dates, partner organiser, audience, name of event.

Activity (Publication, Presentation, flyers...)	Partner	Date	Dissemination route	Target Audience
Presentation (quick introduction of the project)	iPM2	19 NOVEMBER 2013	MIDEST 2013, Villepinte, Paris	General 25000
Press article	IPM2	DECEMBER 2013	Galvano Organo, December 2013 	Surface Finishing
Presentation of Eco Innovation initiative with ECOPROT as exemple; Flyers	iPM2	16 JANUARY 2014	UITS Technical Day, Lyon, France	Surface Finishing 80
Social Network dissemination; Flyers distribution	iPM2	10-11 MARCH 2014	Innovation Convention 2014: International Convention on innovation-friendly environment – Brussels, Belgium 	General 300
Social Network dissemination; Flyers	iPM2	24 MARCH 2014	Factory of the Future – Brussels, Belgium	General 40
Flash conference; B to B attendance; Flyers distribution	iPM2	11-12 JUNE 2014	European Congress on Eco Technologies for the Future, Environord European Congress on Eco-technologies, workshop on sustainable development; Lille	General 300
Flyers	PROMET	23-26 SEPTEMBER 2014	Micronora - International Microtechnology Trade Fair - Besançon, France	General 2000



Activity (Publication, Presentation, flyers...)	Partner	Date	Dissemination route	Target Audience
Flyers and Poster Session	IPM2	29 SEPTEMBER 2014 – 02 OCTOBER 2014	10 <sup>th</sup> European Symposium on Electrochemical Engineering , Sardinia, Ital	
Paper	IPM2	OCTOBER 2014	<p>10<sup>th</sup> European Symposium on Electrochemical Engineering , Sardinia, Italy</p>  <p><b>Ecoprot, Eco-friendly Corrosion Protecting Coating of Aluminium and Magnesium Alloys, an ECO Innovation Project</b></p> <p>Pascal Nègre<sup>1*</sup>, Fabiola Brusciotti<sup>2</sup>, Marta Brizuela Parra<sup>3</sup>, Alicia Durán<sup>4</sup>, Yolanda Castro Martín<sup>5</sup>, Laurence Hamon<sup>6</sup>, Jacques Halut<sup>7</sup>,</p> <p><sup>1</sup> PUP, 17 rue Ampère - 75017 Paris - France  <sup>2</sup> Tecnalia, Parc Technologique de San Sebastián - Miraflores Pineda, 2 - E-20020 Donostia-San Sebastián - Guipúzcoa - Spain  <sup>3</sup> Instituto de Ciencia e Ingeniería (CSIC), Ikerlan 3, Carretera de Cantabria, 20084 Leioa - Spain  <sup>4</sup> QUANTIS, 43 boulevard Sebastien, 75003 Paris - France  <sup>5</sup> Protection Des Matériaux, 4 Rue Guesclin Basilef, 63120 Noye-s-Orde - France  <sup>6</sup> pascal@nigre.fr</p> <p>The aim of this project is to industrialise a procedure for producing gas-like, environmentally-friendly and self-healing organ-based coatings for corrosion protection of aluminium and magnesium alloys. The coatings were developed in a previous integrated Project, MULTIPROTECT, and the procedure was granted a patent.</p> <p>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 provides optimum corrosion protection, but with a major drawback represented by their toxicity. The market will first focus on the French aeronautic sector and will be further extended to address a wider geographical area. The specific objectives to achieve this target are the following:</p> <ul style="list-style-type: none"> <li>• Optimization of the coating process for industrial applications (process scale-up)</li> <li>• Validation of the coated products according to the high standards of the aeronautic industry, in order to ensure replication of the process</li> <li>• Life Cycle Assessment of the entire process and the final product, taking into account all production stages, from raw materials to energy and water consumption, end-of-life, etc.</li> <li>• Business plan to ensure penetration of the final product into the French aeronautic market as a first step and then extend it to other geographical areas.</li> </ul> <p><b>Description of the proposed solution and summary of the work programme</b></p> <p>This project will fill in the gap between the R&amp;D activities that were carried out to develop the coating (MULTIPROTECT) and the commercialization of the final product. The coating systems will be set up to accomplish the specific need of the participating SME (PROMET) by optimizing compositions and synthesis conditions for each substrate and adapting to different primers and finishes, taking into account the current state of the art for each application.</p> <p>The main idea is the production of the coated systems at PROMET with the collaboration of TECNALIA (the project coordinator) and CSIC (who owns the patent for the coating), then implementing the process for the achievement of the final product for the market. In parallel to this, Quantis will be involved in a Life Cycle Assessment (LCA) of the entire production line, taking into account all phases and integrated</p> <p><small>Please cite this article as: Nègre P., Brusciotti F., Brizuela Parra M., Durán A., Castro Martín Y., Hamon L., Halut J., 2014, "Eco-friendly corrosion protecting coating of aluminium and magnesium alloys, an eco innovation project", Chemical Engineering Transactions, ...</small></p>	General on coating 300
Flash Conference, Poster and flyers	PROMET IPM2	4-7 NOVEMBER 2014	Midest 2014, Exhibition of industrial subcontracting; Villepinte, France	General 30000
Conference and Flyers	IPM2	15 JANUARY 2015	UITS Technical Day, Lyon, France	General surface treatment 75
Poster, Flyers and Aeronautic B2B interviews	IPM2	12 FEBRUARY 2015	Tech'innov - B2B Meeting dedicated to innovation, Paris - Orly, France	Aeronautic
Flyers	PROMET	6-7 May 2015	Finishair, Besançon, France	Aeronautic 100
Conference	CSIC	17-21 May 2015	Glass & Optical Materials Division and Deutsche Glastechnische Gesellschaft (Miami, USA)	General
Flyers and B2B interview	IPM2	10 JUNE 2015	Environord 2015 European Congress on Eco-technologies, workshop on sustainable development; Lille	General 400



Activity (Publication, Presentation, flyers...)	Partner	Date	Dissemination route	Target Audience
Flyers and conference	IPM2	11 JUNE 2015	Eurofinish 2015, Leuven, Belgium	Surface engineering 250
Flyers and Poster	PROMET IPM2	15 – 21 JUNE 2015	Le Bourget – Air Show June 15 to 21st, 2015, Le Bourget, France	Aeronautic 10000
Poster session and Flyers	CSIC TECNALIA	6-11 SEPTEMBER 2015	SOL GEL Congress XVIII International Sol Gel Conference – Kyoto, Japan	
Poster session and Flyers	CSIC	20-23 SEPTEMBER 2015	Annual ICG Meeting International Commission of Glass – Bangkok, Thailand	
Flash conference on site, Flyers, Video Clip	PROMET IPM2	17-20 NOVEMBER 2015	MIDEST 2015 Exhibition of industrial subcontracting – Paris - Villepinte, France	General 34000
Flyers	IPM2	5 FEBRUARY 2016	UITS Technical Day - Lyon, France	Surface Finishing 80
Presentation, flyers on UITS stand	TECNALIA IPM2	24-26 MAY 2016	SURFAIR Congress 2016 – Biarritz, France	Aeronautic
Networking	IPM2	14 JUNE 2016	Environord 2016 – Lille, France	General
Presentation	CSIC	JUNE 27 - JULY 1 2016	COSI 2016 - Noordwick, Netherland	

#### 4 DISSEMINATION STATUS OVERVIEW

From the outset of the project, proactive dissemination of the project aims, objectives and results (where there were no IPR issues) has been undertaken by many of the project partners. The aim was to give the project a high profile within the Surface Finishing and Aeronautic industries and to bring it to the attention of as many interested parties as possible. This strategy has utilised presentations at both scientific and technical conferences, posters at trade shows and a variety of other means including a dedicated website.

#### 5 ENGAGEMENT OF USERS AND STAKEHOLDERS

Ultimately, the engagement between ECOPROT stakeholders and potential end users will be key to ensuring that the project outputs have the most impact, and such an approach has been seen as a core part of the overall project's exploitation and dissemination strategy. In summary, each of the project partners has their own unique networks across the sector supply chain and they have each agreed to use these as additional multiplier channels to raise the visibility of the ECOPROT project to a focussed and targeted audience of potential end-users and adopters. The project partners initially set ambitious



coverage and outreach objectives as part of the project, and aimed not only to target the European markets but also to involve a diverse audience with a broad geographical coverage. This was made possible via the global publicity links of some of the ECOPROT partners.

All of the dissemination material produced to date has used English; however translations into the languages of other countries with strong surface finishing industries may be considered in the future, especially whereby this material could help to reinforce the penetration of the core information to a wider group of potential end users.

## **6 FUTURE DISSEMINATION STRATEGIES**

### **6.1 Outline Approach**

All partners are committed to continuing active dissemination of the ECOPROT technology not merely as an essential element of an exploitation strategy but as a means of maintaining integrity of their individual and collective knowledge bases. The website will be maintained for a minimum period of 2 years after the cessation of the project and in all likelihood for a much longer period. It will be updated and cross-linkage will be afforded to and from individual partner websites.