

9th International Workshop on Electrodeposited Nanostructures

THE EUROPEAN “NANOCOAT” PROGRAMME ON ALUMINA NANOSTRUCTURATION.

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In the course of the 7th Framework Programme, the Research Executive Agency (REA) of the European Community (EC) finances “Research for the benefits of Specific groups”.

In this structure, the programme NANOCOAT on “Nanostructured Aluminium Oxide Coatings” devoted to the development of industrial applications of these nanomaterials has been elected for a two years grant. The financial contribution of the Union to the programme shall be 1.15 Million Euros.

This programme involves besides the Coordinator Company IPM²(FR), four Industrial Partners (Protection des Metaux FR, Falex BE, Ashton&Moore UK, EnvAqua UK) and three Research Centers (C-Tech UK, KU Leuven BE, Ecole des Mines St Etienne FR).

Starting from a known but very little applied technology in the industry, the objective of the programme is to develop improved functionality and new industrial coating applications for aluminium nanostructured surfaces obtained by anodisation in surface engineering. It is expected that on controlling the formation of the anodized nano-size cell structures on aluminium, it will be possible to achieve novel performance in terms of decoration, wettability, corrosion and wear (friction) properties.

During the presentation of the first year results, the influence of the electrolyte composition, temperature, electric parameters, and nature of the substrate (pure aluminium and alloys, geometry) on the nanostructure will be discussed.

Decoration (coloration), wear resistance performance of the Alumina layers will be described and discussion about the improvement of these characteristics will be done following characterization by different methods: SEM and AFM examination of the surface and cross-section, nanoindentation and micro-scratch tests.

The future of the industrial development of this technology will be also presented as a conclusion.