

Project name: Environmentally Compliant Coatings In Aeronautic (ECOCOAT)

End date: 2013

Participating countries: France, Finland, Germany, and Italy

Who was there: The ECOCOAT project was carried out by a consortium of leading European industrial partners from Eurocopter, Safran, Dassault Aviation, MBDA, DGA AS (France), CSM (Italy), VTT (Finland), EADS, Cassidian, Wiweb (Germany).

Summary

The ECOCOAT project aimed at developing alternatives for priority hazardous substances to be banished in surface treatments.

Nowadays, most of corrosion protections for metallic parts are based on chromium and cadmium substances.

The main objective of the project was the research & development of alternatives to the following protections: (i) cadmium plating and its chromic passivation for protection of steels for mechanical parts and fasteners, (ii) chromate chemical conversion coating for protection of aluminium parts, (iii) Chromate chemical conversion coating for protection of magnesium parts, (iiii) chromate sealing for corrosion protection reinforcement of aluminium anodizing protection, (iiiii), chromium VI painting primer for protection of aluminium parts.

After the analysis of tests on samples and demonstrators, some promising solutions were identified.



Example of landing gear pieces in 300M steel and A357 aluminum air intake developed in the ECOCOAT project.

In detail

PROJECT RESULTS

Concerning the replacement of cadmium, electro-deposited Zinc-Nickel, sol-gels and aluminium-deposited PVD (Physical Vapour Deposition) for mechanical parts are to be considered.

For the replacement of hexavalent chromium, trivalent chromium-based products, as Surtec 650 or Alodine 1132, magnesium rich primers for aluminium, Magpass and Tagnite process for magnesium and sol-gels should be considered.

Nevertheless, the Technological Readiness Level (TRL) of these solutions should be upgraded to become industrial alternatives to the chromium or cadmium in all configurations and all environments.