

Working Party 22 “Corrosion Control in Aerospace “

EFC Working Party 20: Corrosion Control in Aerospace

Mission

Corrosion protection effectiveness and corrosion management of aerospace structures and systems have been continuously improving over the last decades. Nevertheless there are still a lot of obvious new challenges to confront concerning corrosion prediction, prevention and control in the aerospace industry. Aerospace vehicle manufactures, operators and maintainers have continued to search for ways to reduce maintenance costs and hours and to increase aircraft availability and longevity and to provide aerospace systems reliability.

The main drivers for further efforts in corrosion research and implementation of corrosion prevention measures are currently the introduction of new materials and manufacturing processes, meeting the demands of environmental regulations and commercial needs to decrease manufacturing, operating, and recycling costs of aerospace components. The time to market for new corrosion control solutions and new materials is also often limited by long validation and certification procedures. This time can be shortened if new accelerated corrosion test methods which can adequately represent the combination of relevant environmental factors will be developed.

New developments have been made in the composition and tempers of more corrosion resistant aluminium alloys offering the potential to increase resistance to intergranular corrosion, exfoliation corrosion and stress corrosion cracking. Nevertheless there is still a lack of knowledge of corrosion behaviour under varying environmental conditions and understanding their long term behaviour including situations of hybrid structures. Another challenge is the introduction and recent increase of carbon fibre reinforced polymers (CFRP) into the design of commercial aircrafts. While fibre reinforced polymer materials are corrosion resistant, reinforced carbon fibre materials can induce galvanic corrosion in joint aluminium structure.

Objective

The major objective of the Working Party is to gather international corrosion experts from academia and industry and their cumulative multidisciplinary expertise in order to discuss the complexities of corrosion in the aerospace sector and initiate further cooperation with the aerospace industry at fundamental and engineering level. It should provide a forum to exchange new ideas, to share achieved progress in aerospace corrosion research and development and to highlight the new challenges that lie ahead as dictated by industry's needs. Key players from different aerospace industry sectors (manufacturers, materials and process suppliers, airliners, maintainers) and academia with aerospace materials focus are addressed and invited to participate in the working party network.

The main specific objectives of the working party are:

- To support and contribute to the definition of research work programmes with respect to industrial and scientific needs
- To initiate projects in the field of aerospace corrosion research & development on transnational, international and the European level.
- To collaborate on the exchange and production of scientific & technical publications in aerospace corrosion topics and to promote standardisation activities
- To utilise synergies in corrosion science and engineering with other transport industries (e.g. automotive) or related applications (e.g. offshore wind energy, marine corrosion)

- To organise common workshops with other WPs on certain hot topics (WP17 Automotive Corrosion, WP14 Coatings, WP6 Corrosions mechanism, ...)
- To enhance representation and contribution from the industrial sector for EUROCORR events

The Working Party is currently focussing on atmospheric corrosion in aeronautics and is covering the following topics:

- Solutions for environmentally benign corrosion protection systems and perspectives for next generation of protection systems
- Understanding of corrosion behaviour, corrosion testing and tools for long term prediction of newly developed corrosion prevention methods
- Corrosion behaviour of hybrid materials and structures
- Corrosion resistance of new aluminium alloys for aerospace structures.
- Corrosion protection of Mg-Alloys for aerospace application
- Modelling of corrosion processes of aircraft relevant materials and structures

We are looking forward to your contribution and participation in European Corrosion Congress - EUROCORR 2014.

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