

# Final Report

**Project acronym: *CORR-PROOF***

**Project number: 9190013**

**M-ERA.NET Call 2018**

**Period covered: 01/07/2019 to 31/08/2022**

## **Publishable project summary**

European companies are about to abandon widely used corrosion protective treatments that contain hazardous substances such as Cr6+, according to the EU's REACH regulations. The aim of the CORR-PROOF Project was to develop a new concept that includes anti-corrosion coating formulations with low environmental impact for the European industry, starting with the aerospace industry. The focus of the project was to develop corrosion resistant coatings for aluminum aircraft components by combining (i) graphene derivatives with high barrier properties (namely Graphene Oxide and Reduced Graphene Oxide), (ii) POSS derivatives for adhesion and self-healing, (iii) environmentally low impact materials and solvents, and (iv) aluminum aircraft components. A transnational consortium, which includes a nanotechnology-based SME, two well-known research institutes and a leading aerospace company, has come together to achieve the goals and move closer to commercializing the technology. As a result of the project, high-scale production of Graphene Oxide and Reduced Graphene Oxide was achieved and a patent on the subject was published. These graphene-based materials were combined with environmentally low-impact solvents to obtain a corrosion-resistant coating. Environmental and human health effects of the resulting coatings were investigated by conducting HSE impact assessments with a 'safe by design' approach and applying responsible research and innovation (RRI).