Workshop: *Atmospheric Environmentally Assisted Cracking in automotive and aerospace industries*

The aim of this workshop is to bring together academics and industrials concerned with **environmentally assisted cracking** (EAC) **phenomena under atmospheric corrosion conditions**. Although basic mechanisms of material degradation induced by atmospheric EAC (AEAC) and EAC in bulk aqueous media are identical, atmospheric corrosion processes are specific and often more complex.

The workshop intends to focus mainly on two families of AEAC: Hydrogen embrittlement (HE) of high strength alloys and atmospheric chloride-induced stress corrosion cracking (AISCC) of stainless steel.

Numerous ferrous and non-ferrous high strength materials have been developed. They provide a clear advantage to end-users in view of improved strength-to-weight ratio. This is particularly attractive for transport applications, where weight reduction leads not only to initial material savings but also to a lower fuel consumption during the life cycle. Replacement of steel by high strength steel or application of advanced aluminium alloys thus creates significant cumulative economic and environmental effects.

The acceptance of the new high strength materials in automotive and aerospace industries is slowed down due to their potential susceptibility to HE. Atomic hydrogen can enter into the materials during production or in service. The former source of hydrogen can be controlled and excluded but hydrogen entry under atmospheric corrosion conditions cannot be fully avoided. Although no major problems have been reported in this respect, good understanding into the mechanism of hydrogen entry, transport, material interaction and release needs to be obtained in order to guarantee safe operation of products made of high strength materials.

Another intensively studied case of AEAC is AISCC of stainless steel in presence of chloride deposits. It was documented even at room temperature, potentially impairing application of common stainless steel grades for medium- and long-term storage of nuclear waste and elsewhere.

The workshop will provide a platform for exchange of knowledge and ideas between academia, material producers and end users on the following topics:

- Mechanism of hydrogen entry to high strength materials in atmospheric corrosion conditions.
- Sensitivity of high strength materials to low levels of hydrogen induced by atmospheric corrosion.
- Techniques for in-situ measurement of hydrogen formation, entry and mechanical effects.
- Mechanism of AISCC and experimental techniques to study it.
- Field measurements and experience.
- Industry needs in view of understanding and further test development.

Please submit your abstract online via www.eurocorr.org before January 16, 2019.

We are looking forward to your contribution and participation in EUROCORR 2019 “New times, new materials, new corrosion challenges” on September 9–13, 2019, in Seville, Spain.

Krzysztof Wolski, Chair WP 5 Environment Sensitive Fracture
Elizabeth Szala, Chair WP 17 Corrosion in Automotive
Theo Hack, Chair WP 22 Corrosion Control in Aerospace
Tomáš Prošek, Chair TF Atmospheric Corrosion

Expected duration: ½ to 1 day

Expected audience: 50 attendees