



Joint session *Hydrogen embrittlement in atmospheric exposure conditions*

The aim of this joint session is to bring together academics and industrials concerned with the risk of **hydrogen embrittlement (HE) of high strength alloys under exposure in atmosphere**.

Ferrous and non-ferrous high strength materials 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 practice, good understanding into the mechanism of hydrogen entry, transport, material interaction and release needs to be obtained in order to guarantee safe operation of high strength products.

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.
- Field measurements and experience.
- Industry needs in view of understanding and further test development.

Papers related to HE of high strength steels are invited to be submitted into a Special Issue of Metals which is open since now till the end of November 2022. All articles published in Metals are published in full open access. A 20% discount from article processing charge will be provided to all EUROCORR papers.

Please submit your abstract online via www.eurocorr.org before January 14, 2022.

The image shows the cover of the journal Metals, an Open Access Journal by MDPI. The title of the Special Issue is "Risk of Hydrogen Embrittlement of High Strength Steel in Atmospheric Exposure Conditions". The Guest Editor is Dr. Tomas Prosek. The deadline is 30 November 2022. The journal has an Impact Factor of 2.351 and a CiteScore of 3.4. The URL is mdpi.com/si/91600. The text "Special Issue" is prominently displayed in a large, bold font, with "Invitation to submit" written below it.

metals
an Open Access Journal by MDPI

IMPACT FACTOR 2.351
CITESCORE 3.4 SCOPUS

Risk of Hydrogen Embrittlement of High Strength Steel in Atmospheric Exposure Conditions

Guest Editor
Dr. Tomas Prosek

Deadline
30 November 2022

mdpi.com/si/91600

Special Issue
Invitation to submit

We are looking forward to your contribution and participation in EUROCORR 2022 “Corrosion in a Changing World – Energy, Mobility, Digitalization” on August 28–September 1, 2022, in Berlin, Germany.

Christine Blanc, 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 WP 25 Atmospheric Corrosion
Michael Rohwerder, MPIE

Expected duration: ½ to 1 day

Expected audience: 50 attendees