metals

an Open Access Journal by MDPI

IMPACT FACTOR 2.5

CITESCORE 5.3

Hydrogen-Induced Cracking in Pipeline Steels

Guest Editors:

Prof. Dr. M. A. Mohtadi Bonab
Department of Mechanical Engineering, University of Bonab, Bonab, Iran

Prof. Dr. Mohammad Masoumi
Center of Engineering, Modelling and Applied Social Sciences, Federal University of ABC, Santo André 09210-580, Brazil

Deadline for manuscript submissions:
closed (31 May 2022)

Message from the Guest Editors

Pipeline steels have become the main network of oil and gas transmission over the last several decades. Pipeline steels are exposed to two different failure modes, hydrogen induced cracking (HIC) and stress corrosion cracking (SCC). Hydrogen sulfide (H_2S) may react with the metal matrix and produce hydrogen ions (H^+). Such ions can easily diffuse through the microstructure of steel and accumulate in different microstructural defects such as grain boundaries, the space between inclusions and precipitates and the metal matrix. The combination of hydrogen ions creates hydrogen molecules or gas providing pressure high enough to initiate crack. This type of cracks is called hydrogen-induced cracking. Such cracks propagate though easy paths such as hard phases and grain boundaries. HIC cracks may not only cause a large amount of economical loss annually, but they may also pollute the agricultural farms and places where they are located.

The aim of this Special Issue is to collect manuscripts, including research articles, reviews, communications and concept papers, pertaining to a topic relevant to HIC in pipeline steels.

metals

IMPACT FACTOR 2.5

CITESCORE 5.3

an Open Access Journal by MDPI

Editor-in-Chief

Prof. Dr. Yong Zhang
Beijing Advanced Innovation Center of Materials Genome Engineering, State Key Laboratory for Advanced Metals and Materials, University of Science and Technology Beijing, 30 Xueyuan Road, Beijing 100083, China

Message from the Editor-in-Chief

Metallic materials play a vital role in the economic life of modern societies; contributions are sought on fresh developments that enhance our understanding of the fundamental aspects related to the relationships between processing, properties and microstructure – disciplines in the metallurgical field ranging from processing, mechanical behavior, phase transitions and microstructural evolution, nanostructures, as well as unique metallic properties – inspire general and scholarly interest among the scientific community.

Author Benefits

Open Access: free for readers, with article processing charges (APC) paid by authors or their institutions.
High Visibility: indexed within Scopus, SCIE (Web of Science), Inspec, Ei Compendex, CAPlus / SciFinder, and other databases.
Journal Rank: JCR - Q2 (Metallurgy and Metallurgical Engineering) / CiteScore - Q1 (Metals and Alloys)

Contact Us

Metals Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
www.mdpi.com

mdpi.com/journal/metals
metals@mdpi.com
𝕏@Metals_MDPI