Special Issue

High-Temperature Corrosion and Oxidation of Metals

Message from the Guest Editors

Corrosion prevention is a multi-billion dollar industry. Among various corrosion types, the mitigation of corrosion at high temperatures contributes considerable maintenance expenditures in various industries, such as the high-temperature processing industries, new renewable energy technologies, and other critical high-temperature components. The literature on high temperature gaseous corrosion essentially spans a wide range of ferrous and non-ferrous metals/alloys. Its critical relevance has witnessed a renewed focus on the mechanistic understanding of high-temperature oxidation, hot corrosion in the presence of sulphur- and chloride-containing contaminants, corrosion in supercritical water/CO2 systems, as well as on corrosion mitigation strategies including microstructural modification, alloying, coatings, and cathodic protection. This Special Issue welcomes critical reviews and original research articles on mechanisms, mitigation, and monitoring of the high-temperature corrosion and oxidation of metals under diverse conditions, including but not limited to those described above.

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Deadline for manuscript submissions

closed (28 February 2019)

Metals

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.3

mdpi.com/si/11898

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Message from the Editorial Board

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.

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