Special Issue

High Temperature Oxidation of Ti-Alloys

Message from the Guest Editor

Titanium alloys are widely used as structural material in fields such as the aero-space industry. They are light-weight materials and, in contrast to other light-weight materials such as aluminum or magnesium, possess a rather high melting point. This high melting point could be the basis for the use of Ti alloys in several high-temperature applications, but the use of Ti alloys is limited to about 500 °C due to their low oxidation resistance. Titanium alloys form a TiO2 layer in oxidizing environments which can protect the component at ambient temperatures (i.e., passivation layer). The TiO2 scale becomes deteriorated at high temperatures, leading to accelerated oxygen diffusion and hence high oxidation kinetics. High material loss rates due to this attack can cause the premature failure of Ti components. In this Special Issue, all aspects of the high-temperature behavior of Ti alloys will be addressed; potential topics include but are not limited to alloy development, oxidation, corrosion, coatings, modelling, and the effects of atmosphere or environment (humidity, deposits, etc.).

Guest Editor

Dr. Alexander Donchev
DECHEMA Research Institute, 60486 Frankfurt am Main, Germany

Deadline for manuscript submissions

closed (31 May 2020)

Metals

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.3

mdpi.com/si/33630

Metals
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
metals@mdpi.com

mdpi.com/journal/metals

Metals

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.3

mdpi.com/journal/metals

About the Journal

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.

Editors-in-Chief

Prof. Dr. Hugo F. Lopez
Department of Materials Science and Engineering, College of Engineering & Applied Science, University of Wisconsin-Milwaukee, 3200 N. Cramer Street, Milwaukee, WI 53211, USA

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

Author Benefits

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)

Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 18 days after submission; acceptance to publication is undertaken in 2.6 days (median values for papers published in this journal in the first half of 2025).

MDPI