

Special Issue

Hot Oxidation and Corrosion of High Performance Metallic Alloys

Message from the Guest Editors

Almost all metals and metallic alloys are constantly threatened by dry or wet corrosion. At temperatures of 400 °C and higher, failures of metallic components may be due to, or accelerated by, chemical reactions with the work environment or the worked material. High-temperature oxidation, metal dusting, and other degradations may be induced by the exposure to air or complex gaseous mixtures involving various species (combustion gases, carbon and sulfur oxides, chlorine and hydrogen chlorides, water vapor, etc.). Hot corrosion may result from the contact with various liquids (molten salts, CMAS, glasses, and even metals). Slag and scoria may be also responsible for the degradation of alloys in high-temperature conditions. Combined or not with mechanical stresses, hot oxidation and corrosion affecting steels, superalloys, and refractory alloys play an important role in the sustainability of components made of these alloys and used in the hottest parts of aeronautical and power generation turbines, solid oxide fuel cells, or in the processes exploited in the petroleum, glass-forming, and waste treatment industries, for example.

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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.

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