Special Issue

Friction and Corrosion Behaviors of Stainless Steels

Message from the Guest Editors

Stainless steel is widely used in various engineering applications due to its excellent mechanical properties and corrosion resistance. Indeed, mechanical components often undergo a combination of mechanical wear and corrosion simultaneously. So many attempts are being made to further increase their tribological and corrosion resistance properties. In order to develop stainless steels with a better wear resistance, it is important to know the influence factors of wear rate and wear mechanisms. The excellent corrosion resistance of stainless steels results from the presence of a thin oxide film on their surface. Alloy composition, surface quality, environment, and the conditions of alloy growth are some of the influence factors. The aim of the Special Issue is to present the latest research on the mechanisms and consequences of the simultaneous action of friction and corrosion of stainless steels. A better understanding of these phenomena will allow the development of new compositions and surface treatments for stainless steels. Research reports related to tribocorrosion resistance and additively manufacturing of stainless steels are also welcome.

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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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