



Special Issue Reprint

Corrosion and Protection of Metals

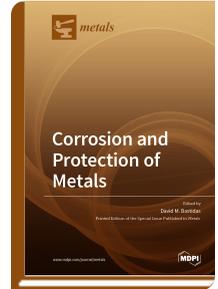
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Introduction and Scope—During the last few decades, an enormous effort has been made to understand corrosion phenomena and their mechanisms, and to elucidate the causes that dramatically influence the service lifetime of metal materials. The performance of metal materials in aggressive environments is critical for a sustainable society. The failure of the material in service impacts the economy, the environment, health, and society. In this regard, corrosion-based economic losses due to maintenance, repair, and the replacement of existing structures and infrastructure account for up to 4% of gross domestic product (GDP) in well developed countries. One of the biggest issues in corrosion engineering is estimating service lifetime. Corrosion prediction has become very difficult, as there is no direct correlation with service lifetime and experimental lab results, usually as a result of discrepancies between accelerated testing and real corrosion processes. It is of major interest to forecast the impact of corrosion-based losses on society and the global economy, since existing structures and infrastructure are becoming old, and crucial decisions now need to be made to replace them. On the other hand, environmental protocols seek to reduce greenhouse effects. Therefore, low emission policies, in force, establish regulations for the next generation of materials and technologies. Advanced technologies and emergent materials will enable us to get through the next century. Great advances are currently in progress for the development of corrosion-resistant metal materials for different sectors, such as energy, transport, construction, and health. This Special Issue on the corrosion and protection of metals is focused on current trends in corrosion science, engineering, and technology, ranging from fundamental to applied research, thus covering subjects related to corrosion and modelling, protection and inhibition processes, and mitigation



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