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Heat Treatment of Metallic Materials in Modern Industry

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Message from the Guest Editors

Metals are the most widely used materials in various branches of the modern industry. For proper functionality of components made of metallic materials, the components must be subjected to different heat, thermochemical or surface treatments. For these purposes, a variety of equipment, such as industrial furnaces, laser generators, electron beam, physical vapor deposition devices, 3D printers, and others, are used. Thermal or thermochemical treatments evoke changes in bulk or superficial microstructures of metals and thereby modify their properties. Changes in both the microstructures and properties of metallic materials should be carefully controlled. Different techniques and devices such as light, electron, or confocal microscopes, hardness testers, and machines for wear and mechanical properties testing are utilized in order to evaluate these alterations.





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