



metals



Special Issue Reprint

Inclusion Metallurgy

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Non-metallic inclusions have a great influence on the cleanliness and mechanical properties of steel. Controlling the size and composition of inclusions contributes to the excellent properties of “clean steel”. At the same time, in terms of our understanding of inclusions’ behavior using thermodynamics principles, the design and control of the composition, shape, size, and distribution of non-metallic inclusions in different steels can significantly enhance steel properties.

This reprint introduces the latest developments in inclusion engineering, aiming to control the cleanliness and microstructure of steel through thermodynamic calculations and experimental work. Special attention is paid to the formation mechanism and evolution of inclusions during refining and solidification in real steel plants, the aggregation and floating of inclusions, and the kinetics of inclusion adsorption by refining slag.



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