Special Issue

Advances in Electron Beam Melting and Refining Technology

Message from the Guest Editors

Dear colleagues, The purity of materials has a crucial impact on their performance, including physical and mechanical properties, which is closely related to metallurgical processes. Compared with other metallurgical technologies, electron beam melting has the characteristics of high vacuum, high temperature and good controllability, and it is not limited by the shape of the raw material. Therefore, this technology makes it possible to solve the problems occurring during the preparation of high-purity materials. However, electron beam melting still faces challenges. For example, it is a complex multi-field coupling process; hence, the temperature distribution, melt flow and migration behavior of inclusions are not yet fully understood. Going forward, research on metallurgical physical and chemical processes of electron beam melting should be intensified in order to improve materials' purity and performance.

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Deadline for manuscript submissions

closed (20 April 2025)

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/196592

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