

Development of Ingot Casting Technology for ESR Electrode Casting

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Material and Metallurgical Research, Ltd is equipped by new commercial simulation software intended for a 3D simulation of liquid metals flow during filling and the subsequent steel solidification with prediction of soundness, nyiama criterion, microporosity, hot spots, segregation, etc. Correct parameter settings of simulation (material properties, heat transfer coefficients, pouring rates, initial temperatures) are necessary for obtaining relevant results from numerical simulation.

This work is focused on improvement of the special ingot casting (electrode for electro-slag remelting) in Magma software. Study is focused on influences of casting speed and on the inner integrity of the ingot – shrinkage size, porosity and segregation. The electrode is special ingot with high h/d ratio ($h/d= 9.8$).

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