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Modeling of precipitate oxide and sulfide inclusions formation in liquid steel

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Słowa kluczowe: Yttrium; Non-metallic inclusions; Oxides; Sulfides; FactSage.

Streszczenie:

The behaviour of non-metallic inclusions MnO, MnS, FeS, Al₂O₃, SiO₂, Y₂O₃, Y₂S₃ in liquid steel were modelled in commercial software FACTSAGE. It allowed for calculating and designing diagrams of dependence of inclusions formation from the concentration of yttrium in determined limits of aluminium and oxygen. As a result, the influence of the increasing yttrium concentration on the precipitations of oxide and sulfide inclusions is observed. The behavior of precipitation the another analyzed oxides and sulfides is also observed in liquid steel, giving a full composition in non-metallic inclusions, formatted in specified conditions. The amounts of mass fractions of Y₂O₃ and Y₂S₃ are increasing at the growing Y in liquid steel, which shows the active formation of these inclusions.

Tytuł w języku angielskim: Modeling of precipitate oxide and sulfide inclusions formation in liquid steel