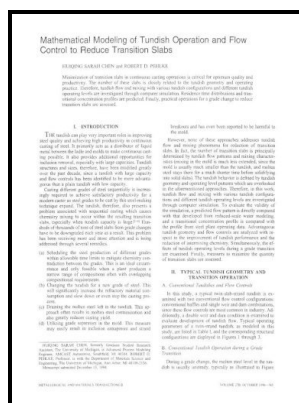


# Physical and mathematical modeling of Tundish operations

Springer-Verlag - The Physical and Mathematical Modeling of Tundish Operations



Description: -

-  
Plastics.  
Bakelite.  
Lithuania -- Economic conditions  
Engineering models.  
Steel founding -- Mathematical models, physical and mathematical modeling of Tundish operations

-  
Materials research and engineering (Unnumbered)  
Materials research and engineering physical and mathematical modeling of Tundish operations  
Notes: Includes bibliographical references.  
This edition was published in 1989



Filesize: 4.14 MB

Tags: #Physical #and #Mathematical #Modelling #of #Steelmaking #Tundish #Operations: #A #Review #of #the #Last #Decade #(1999

[PDF] Numerical and physical modelling of tundish slag entrainment in the steelmaking process

Flow patterns shown in Figure 18 are counterclock-wise because the incoming steel melt is cooler than the steel melt in the tundish after 47 minutes of casting. Two to three decades of the last century have seen major advances in tundish technology for clean steel production.

## Tundish Technology for Casting Clean Steel: A Review

More accurate boundary conditions are, however, needed for particle absorption by the slag or on the tundish wall.

## Tundish Technology for Casting Clean Steel: A Review

Calcium also improves other mechanical properties of steel. The droplets solidify into powder particles.

## Physical and mathematical models of steel flow and heat transfer in a tundish heated by plasma, Metallurgical and Materials Transactions B

The viscosity of the tundish flux is also important for the production of clean steel. This has proved to be a very successful way to proceed, using the much more convenient low-temperature models, to devise better ways, or new processes. Thus, the productivity and quality both were improved by increasing the depth of the tundish.

## Tundish Technology for Casting Clean Steel: A Review

METALLURGICAL AND MATERIALS TRANSACTIONS B microstructure for improving steel properties.

## Tundish

It is employed to draw the liquid metal into the melt nozzle from the crucible in up-draught operation, as mentioned above. They therefore spread out within the tundish with the liquid Figure 4.

### **Physical and Mathematical Modelling of Steelmaking Tundish Operations: A Review of the Last Decade (1999)**

Slag detection devices can be used at the ladle-to-tundish outlet that can detect the onset of slag transfer from the ladle to the tundish. Further analysis of the data in Figure 11 was carried out to show the statistical bounds of the residence time data, which is shown in Figure 12.

### **The Physical and Mathematical Modeling of Tundish Operations**

From residence time distribution diagrams pertaining to the actual steel casting tundish, it was concluded that the steel flow following a ladle change is radically different from that under almost isothermal, steady-state conditions during the latter half of a ladle pour. Microinclusions are typically deoxidation products. The knowledge of thermodynamics of reactions, phases and solutions, slag structure, physical properties like viscosity and surface tension, as well as mathematical description and modeling of different phenomena have strongly grown.

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