

Accepted Manuscript

Title: Local heat flux profiles and interfacial thermal resistance in steel continuous casting

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PII: S0924-0136(18)30012-8

DOI: <https://doi.org/10.1016/j.jmatprotec.2018.01.011>

Reference: PROTEC 15594

To appear in: *Journal of Materials Processing Technology*

Received date: 5-11-2017

Revised date: 14-1-2018

Accepted date: 14-1-2018

Please cite this article as: Ray K, Basak I, Local heat flux profiles and interfacial thermal resistance in steel continuous casting, *Journal of Materials Processing Technology* (2018), <https://doi.org/10.1016/j.jmatprotec.2018.01.011>

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Local heat flux profiles and interfacial thermal resistance in steel continuous casting

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Abstract

The interfacial thermal resistances at the mold and steel interface have been predicted from the average heat fluxes, calculated from cooling water flow rate and temperature rise. The obtained interfacial resistances have been used in a finite element model developed in ANSYSTM to get the temperature profiles, local heat flux densities and solidified shell thickness of the cast product. The model has been validated using the measured thickness of solidified breakout shell and some literatures.

Keywords Continuous casting, casting mold, average heat flux, FE Modelling.

1. Introduction

In continuous casting practice of steel, various problems such as breakouts of molten steel below the mold, shape defects, etc., occur which are found to be directly related to the heat transfer

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