

Accepted Manuscript

Title: Effect of surface roughness of chill wheel on ribbon formation in the planar flow casting process

Author: Yu-Guang Su Falin Chen Chung-Yung Wu
Min-Hsing Chang



PII: S0924-0136(15)30166-7
DOI: <http://dx.doi.org/doi:10.1016/j.jmatprotec.2015.10.014>
Reference: PROTEC 14597

To appear in: *Journal of Materials Processing Technology*

Received date: 26-7-2015
Revised date: 9-10-2015
Accepted date: 10-10-2015

Please cite this article as: Su, Yu-Guang, Chen, Falin, Wu, Chung-Yung, Chang, Min-Hsing, Effect of surface roughness of chill wheel on ribbon formation in the planar flow casting process. *Journal of Materials Processing Technology* <http://dx.doi.org/10.1016/j.jmatprotec.2015.10.014>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Effect of surface roughness of chill wheel on ribbon formation in the planar flow casting process

Yu-Guang Su^a, Falin Chen^a, Chung-Yung Wu^b, Min-Hsing Chang^{c,*}

^a *Institute of Applied Mechanics, National Taiwan University, Taipei, 106, Taiwan*

^b *Automation and Instrumentation System Development Section, Iron and Steel Research Department, China Steel Corporation, Kaohsiung 812, Taiwan*

^c *Department of Mechanical Engineering, Tatung University, Taipei, 104, Taiwan*

* Corresponding author. fax: +886-2-25997142.

E-mail address: mhchang@ttu.edu.tw (M. H. Chang), mhchang@so-net.net.tw

ABSTRACT

The variations of ribbon topography and surface quality with the surface roughness of chill wheel were examined systematically and the average cooling rate during the planar flow casting process was evaluated. The result revealed that an increase in the roughness lengthens the melt puddle and increases the ribbon thickness. A lower roughness was found to induce the appearance of herringbone pattern on the wheel-side ribbon surface and capture more air at the wheel-melt interface to form larger elongated air pockets on the ribbon surface. On the contrary, less air was trapped at a higher roughness and the distribution of air pockets on the ribbon surface was mainly corresponding to the concave spots on the wheel surface. The roughness on the wheel-side ribbon surface increased monotonically with the wheel roughness,

Download English Version:

<https://daneshyari.com/en/article/7176870>

Download Persian Version:

<https://daneshyari.com/article/7176870>

[Daneshyari.com](https://daneshyari.com)