

“Tetsu-to-Hagané”

Vol. 63 No. 13, November, 1977

“Special Issue on Secondary Steelmaking”

Contents

Technical Reviews

On the Recent Progress of the RH- and DH- Vacuum Degassing Process
of Molten Steel

- H. MATSUNAGA, T. TOMINAGA, M. OHJI, and F. TANAKA...1945
Recent Progress of AOD Process Y. SAWAMURA...1953
Advanced Techniques of Alloying Elements into Molten Steel in the
Ladle T. KAWAWA and R. IMAI...1965
Vacuum Melting —Development, Kinetics and Operation— S. KAWAI...1975
Progress in Electroslag Remelting Process K. NARITA...1996
Several Melting and Refining Processes with the Special Heat Source
such as Electron-beam, Plasma-arc etc. T. SUGIYAMA and K. ONO...2010

Technical Report

Some Applications of Tap Degassing Process

- M. OKAMURA, H. NAGATA, M. MIURA, T. NIIMI, and A. SUZUKI...2028

Technical Papers

- On Several Slag-Metal Reactions and Refining Abilities of the Ladle
Furnace K. UMEZAWA and H. KAJIOKA...2034
Production of High Grade Steel by Ladle Refining Furnace
..... K. EMOTO, T. YAMAMOTO, Y. IIDA, H. OHI, and T. NISHIOKA...2043
Treatment of Liquid Steel in the Ladle (Ladle Technology)
..... Y. UMEDA, K. MARUKAWA, and Y. SHIROTA...2054

Technical Reports

- Development of a New Stainless Steel Melting and Refining Process
(LD-RH Oxygen Blowing Process) N. KAMII, S. ŌKUBO, and B. ETŌ...2064
On the Operations of LD-VAD Process and Product Qualities
..... T. MORIYA and M. TAWARA...2070

Technical Paper

- On the Refining Condition of Extremely Low Carbon and Nitrogen
Stainless Steel in VOD Process H. KATAYAMA, E. KAJIOKA, M. INATOMI, F. TANAKA, and
..... H. HOSODA...2077

Technical Report

- Synthetic Slag Refining of 18Cr Steel in VOD
..... M. HASEGAWA and S. MARUHASHI...2087

Technical Papers

- Reaction Model for the AOD Process T. OHNO and T. NISHIDA...2094
The Decarburization Mechanism for Stainless Steel Melt by Ar-O₂
Ascending Gas Bubble Y. KOBAYASHI and S. MARUHASHI...2100
Development of Alloy Bullets Shooting Method into Molten Steel
in Ladle S. TAMAMOTO, K. SASAKI, H. NASHIWA, H. SUGITA, and A. MORI...2110

Technical Reports

- Outline of 25t Vacuum Refining Furnace
..... T. SUZUMOTO, T. TAKAHASHI, K. KARASHIMA, and S. KAWAI...2126
A Study of Melting Process for 20% Mo-Ni Alloy in Vacuum
Induction Frunace H. YAMANISHI and E. ISHIKAWA...2134

Technical Papers

- Density, Surface Tension and Electrical Conductivity of Calcium Fluoride Based Fluxes for Electroslag Remelting *K. OGINO and S. HARA*...2141
Temperature Distribution in the Slag and Metal Pools in a Laboratory-scale ESR Furnace..... *Y. OGUTI, Y. TANBE, S. MIYAMA, and A. EJIMA*...2152
Profiles of Temperature, Voltage and Local Heat Generation in Slag Phase and Metal Pool of ESR Unit under Operation
..... *M. KAWAKAMI, K. NAGATA, M. YAMAMURA, N. SAKATA, Y. MIYASHITA, and K. GOTO*...2162
Removal of Phosphorus from Liquid Iron-Alloys with Ca-CaF₂ Melt
..... *N. TOKUMITSU, K. HARASHIMA, and Y. NAKAMURA*...2172
Some Important Factors Affecting Hydrogen Pick-up and Oxidation during ESR Treatment *A. MASUI, Y. SASAJIMA, N. SAKATA, and M. YAMAMURA*...2181
On the Oxygen Transfer during Direct Current Electroslag Remelting of Carbon Steel *Y. KOJIMA, M. KATO, S. NOMURA, and M. INOUYE*...2191
On the Behavior of Active Elements during Electroslag Remelting Process of Ni-base Alloy *S. SAWA, S. SHIBUYA, and S. KINBRA*...2198
Refining and Quality of Slabs and Heavy Plates Produced by 40t Electro-Slag-Remelting Process
..... *Y. HIROSE, K. OKOHIRA, T. SHIMIZU, N. SATO, M. HIRAI, and M. NISHIWAKI*...2208
Plasma-Arc Remelting of Steels and Superalloys
..... *T. FUJIWARA, K. KATO, K. ONO, and H. YAMADA*...2224

Technical Report

- Plasma Induction Melting of High Nickel Alloys
..... *T. FUJIWARA and S. SUGIURA*...2236
Behaviours of Impurities in SUS 304 and NCF-1 Alloys during Continuous Electron-Beam Melting ... *Y. NAKAMURA, T. MUKAI, M. KUWABARA, and K. ARIHARA*...2246

Report of the Joint Society on Iron and Steel Basic Research

- An Intermediate Reports on Activities of Committee on Special Refining Techniques of Steels of the Joint Society on Iron and Steel Basic Research
..... *K. GOTO*...2254

-
- Library News.....2265, Notice to MembersN227
Proceedings of the Institute N237

Overseas membership: Annual charge: ¥6000 (incl. postage), Initiation fee; ¥ 600

© The Iron and Steel Institute of Japan, 1977