Abridged version

KAWASAKI STEEL TECHNICAL REPORT
No.41 ( October 1999 )
*Advances in Iron and Steel Technologies,*
*Commemorating the 30th Anniversary of*
*Technical Research Laboratories*

# Recent Activities of Ironmaking Laboratory

Hiroshi Itaya

Synopsis :
R&D activities of ironmaking laboratory in these past ten years are described. In the area of cokemaking, the contributions to usage of large amount of low cost semi-soft coal and the decrease in the trouble of hard push were brought about through the coal blending technologies. In the field of sintering fundamental studies on the sinter reaction based on new experimental methods such as x-ray CT and also a newly developed charging apparatus of raw material contribute the cost reduction. On the other hand, in the blast furnace technologies a new charging system of the furnace top, burden distribution control technology, computer simulation system of blast furnace operation are developed. These developments have realized a stable operation and also the large amount use of low cost burden and fuel. In the area of smelting reduction, a commercial plant of STAR process for stainless steel dust recycling has started its operation and the application of this process to electric arc furnace dust recycling is under development.

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The body can be viewed from the next page.

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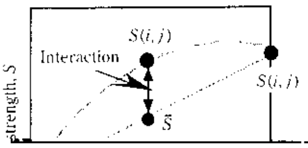
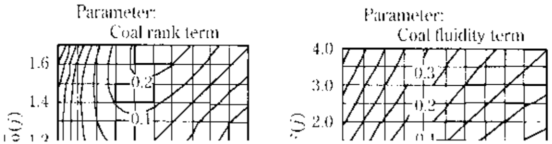
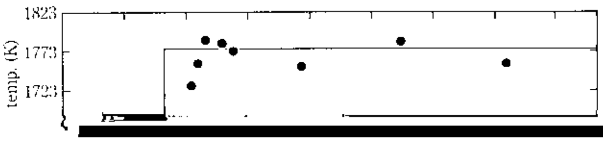
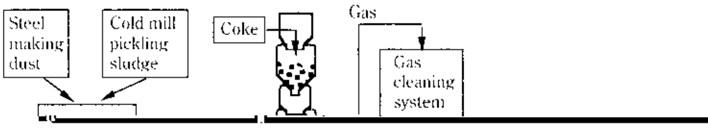

S(i, j)
Interaction
trength, S
S(i, j)
S̄


Parameter:
Coal rank term
1.6
1.4
0.2
0.1
Parameter:
Coal fluidity term
4.0
3.0
2.0
0.3
0.2


● Without magnetic field
○ With magnetic field
500
Top bunker
· 3 parallel bunker
· Off-center type


1823
1773
1723
temp. (K)


Steel making dust
Cold mill pickling sludge
Coke
Gas
Gas cleaning system

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[illegible] K. Inoue, and S. Sakamoto: "Mathematical Estima-

23) T. Nouchi, K. Takeda, and H. Itaya: *CAMP-ISIJ*, **8**(1995), 1066

**11**(1998), 895

25) T. Sato, T. Nouchi, and K. Takeda: *CAMP-ISIJ*, **11**(1998), 907