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Reoxidation Behaviour of Ultra -low Carbon Steel in the Process of Refining and Casting

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the most deterior ative effect on the cleanliness of steel among several reoxidation sources. The change of oxygen content was expressed quantitatively by a couple of reoxidation and deoxidation phenomena. Oxygen content at tundish was decreased from 54ppm to 20ppm by the a pplication of improved methods for prevention of steel reoxidation.

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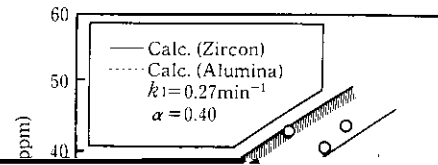
要旨

極低炭素鋼の清浄度に及ぼす溶鋼再酸化要因の影響を定量的に調査した。溶鋼再酸化防止には、取鍋およびタンディッシュ (TD) ス



Table 1 Comparison of experimental and conventional conditions for suppressing steel reoxidation in ladle and tundish

| Factor | Conventional | Experimental |
|--------|--------------|--------------|
| | | |



3.3 TDでの再酸化挙動

TDでの溶鋼再酸化防止策として、TDスラグの高塩基度化、密閉型TDおよびSiO₂を含有しない取鍋詰砂の効果をおのおの独立に実験した。

[O]_{TD}に及ぼすTDスラグ組成の影響をFig. 4に示す²⁾。高塩基

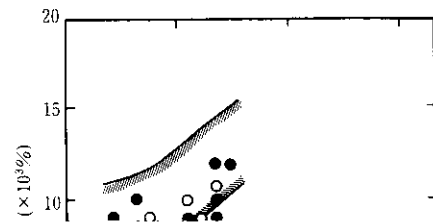


Table 4 Influence of steel reoxidation factors on [Al] oxidation rate (ppm/min)

| In RH treatment | From RH end to TD | | Circulation rate + x Q=40t/min o ● Q=70t/min |
|-----------------|-------------------|--|--|
|-----------------|-------------------|--|--|

Table 5 Influence of circulation gas rate on circulation rate, $d[Al]/dt$, $[O]_{RHE}$, k_t , and α in RH treatment

| | Flow rate of circulation gas (l-norm./min) | |
|--|--|-------|
| | 1 700 | 3 400 |
| Circulation rate of molton steel (t/min) | 126 | 158 |

5 結 言

ラグ中の低級酸化物量の影響が大きい。

(a) DR 終了後の TD までの間では、脱酸速度と再酸化速度の比

極低炭素鋼溶製時の再酸化挙動に及ぼす要因として、取鍋スラ

小で全酸素濃度 $[O]_0$ の変動が決まり、 $[O]_0$ が増加する場合と