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Highly Efficiency and Long Life Steelmaking Technology

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Through summarizing and analysis of problems and contradiction in the steelmaking process, reasonable highly efficiency and long life combined blowing mechanism and choice was proposed. Laboratory experiments and research of slagging and element oxidation mechanism were carried out with the aim of adapting the highly efficiency refining control technique, in which the slagging characteristics and elements selective oxidation during blowing was estimated. The result showed that when oxygen blowing intensity increased to 3.5~3.72Nm³/(t.min), the refining dynamics demand of different period can be satisfied eventually. When bottom blowing intensity increased to 0.2 Nm³/(t.min), the dead zone will be reduced 57.30%. To reasonable combined blowing metallurgical results, the bottom blowing intensity and the flow pattern were vital, in which bottom blowing intensity, bottom tuyere type, bottom tuyere number, bottom blowing pattern and maintenance technique were the key influencing factors. Finally, a highly efficiency and long life combined blowing technology was constructed by combining the refining mechanism, dynamics requirement and oxidizability control. After 10 years practice, the effect was confirmed with commercial 300 ton converter. The reasonable results showed that the final w [C]·w [O] product reduced to 0.0013, average slag T.Fe content decreased to 15%, the campaign with good result increased to 7450, and the efficiency has been increased obviously.

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