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The effect of hot heel condition on EAF operations with HBI bucket charging

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In these day, Carbon Neutrality is important issue in the world. And iron&steelmaking industry is also undergoing process change to achieve carbon neutrality. The biggest change is process transitions from BF-BOF to DRI-EAF. In case of BF-BOF process, They can produce from normal grade of steel to AHSS grade steel. But this process need to generate so many CO2 emission, 1.85tCO2/steel ton. On the other hands, DRI-EAF process is also possible to produce from normal to AHSS, But this process CO2 emission is just half of BF-BOF, 0.97tCO2/steel ton. In other words, producing steel using an EAF is more effective in terms of CO2 emission compared to BF-BOF process. And by using DRI in EAF, They are able to produce high grade steel. We have 10EA EAFs for structural and special steel production. furthermore, we are planning to establish a new EAF for producing advanced high strength sheet using a significant amount of HBI. So we have recently conducted trials of melting HBI up to 30% using buckets with changing hot heel condition in EAF. Hot heel conditions (temperature, amount) lead to different outcomes when adding up to 30% HBI in bucket to the EAF. Additionally, comparing all scrap operation in EAF, Nitrogen percent in molten metal is also different in two case. We will share this operation results and also share our future plans.

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