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Effect of high FeOx containing material dissolution in HIsarna slag

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ABSTRACT:
The HIsarna technology is a low carbon and high energy efficient alternative ironmaking process. The HIsarna off-gas contains CO2 in high concentrations, making it CCS/CCU ready. It will emit limited amount of dust; the hot metal contains low phosphorous, and this onestep approach significantly reduces capex and opex. The HIsarna pilot plant experienced sudden and uncontrolled slag foaming. Slag foaming incidents are unwanted and may disrupt the production. One theory of these foaming incidents is due to accretions containing FeOx falling in the liquid bath. High temperature laboratory experiments were done and analysed using various techniques like SEM, XRF and XRD. Slow dissolution of solid FeOx in a non-foaming HIsarna slag was observed, which is in contradiction to the sudden slag foaming. Accretion falling in the liquid bath seems not to be the main cause of slag foaming.