

4th International Conference and Expo on

Ceramics and Composite Materials

May 14-15, 2018 | Rome, Italy

Use of halide solution to improve the RDI and RI of sinter : An experience at JSPL

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The reduction-degradation index (RDI) of sinter is an important parameter to estimate the quality of sinter in low temperature zone (450-550°C) of blast furnace. Hence, it is of great importance to reduce the RDI of sinter which improve the permeability of blast furnace burden column for a stable and smooth performance resulting high yield and low consumption. In the last few years, many researchers have studied and reported the method for improving sinter quality by adding halide solution on to surface of the manufactured sintered ore. Some sinter producers also established from practices that spraying CaCl_2 solution on to the sinter surface will reduce the RDI (reduction-Degradation Index) of sinter. A study on the RDI and RI (reducibility index) of sinter, which was sprinkled with different concentrations of CaCl_2 solution was carried out at Jindal Steel & Power Ltd., Raigarh. The laboratory results showed that up to a certain percentage the RDI and RI of sinter decrease with the increase of Cl- concentration. With comprehensive consideration of the RDI and RI of sinter, when the concentration of Cl- reaches an optimum level (say X%), the RDI of sinter will be significantly reduced and at the same time RI will not be affected. On the basis of the laboratory results, the same has been implemented successfully for the existing sinter plant. The experience thus gained has been explained in this paper.

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