

# **The determination of optimum granulation moisture of iron oxide ores using their moisture saturation capacities**

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## **ABSTRACT**

The most common agglomeration technique in iron and steelmaking is sintering, which requires the use of iron oxide ores/concentrate mixtures, limestone and dolomite as fluxes and coke as fuel in order to produce the required melt at high temperature to cause permanent bonding of particles. Prior to sintering, granulation is required to effectively cause temporal bonding of fines into granules of high strength, size uniformity, bed porosity and permeability for efficient sintering operation. However, since the granulation of iron oxide ores as a sinter feed requires no use of binders, the added moisture is crucial in bonding the adhering fines to the nuclei particles and thus the laborious efforts of conducting several granulation experiments at varied moisture contents to establish the optimum granulation moisture. Hence this study was conducted to compare the granulation performance of using the moisture saturation capacities of the studied ores and the normal laborious granulation methods. The influence of moisture and moisture saturation capacity on the granulation of different types of iron oxide ores were reviewed, along with granule property limitations. The experimental results on granulation of iron oxide ores as a precursor to sintering is reported.