MINERALOGY AND GEOCHEMISTRY OF SUB - GRADE IRON ORE SAMPLE FROM DEPOSIT NO. 5 OF BACHELI COMPLEX, BAILADILA, CHHATTISGARH, INDIA, AND THEIR IMPLICATIONS ON BENEFICIATION

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Abstract

Sub - Grade Iron Ore (SGIO) sample collected from Deposit 5, Bachel Complex, Bailadila, was subjected for characterisation studies. As part of characterisation studies geochemistry of the sample, powder X-Ray diffraction studies, mineralogical studies, mineral liberation studies, photomicrography under reflected and transmitted light were carried out. Mineralogical studies have indicated that the main ore mineral is Hematite and that the lone gangue mineral is Quartz. Some quantities of Limonite, Goethite, Jasper and Martite were also found. Mineral liberation studies suggest that the liberation of ore and gangue minerals started from 220 microns. The iron content in the ‘SGIO’ sample is 40.80% and SiO₂ content is 40.90%, while the remaining constituents were less than 0.24%.

Keywords: Mineralogy, Geochemistry, Liberation studies, Sub - Grade Iron Ore, Bachel, Bailadila.