Dephosphorization of Western Algerian Oolitic iron ore

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Abstract : A Combination of roasting and acid leaching processes was tested for the dephosphorisation of Gara Djebilet oolitic iron ore (Algerian Western Sahara) that contains a high phosphorus content of 0.91% which exceed-acceptable limits. A laboratory scale, this process involving a chemical attack after roasting of the raw sample of iron ore that mixed with alkaline additives (CaCl 2 or NaCl) followed by an acid leaching using nitric acid, perchloric acid, hydrochloric acid and sulfuric acid. 89% of phosphorus is removed by the addition of the salt (NaCl) then attacked by nitric acid. The laboratory tests carried out for a dephosphorisation show that the combination of roasting with alkaline additives, followed by an acid leaching makes it possible to obtain high quality iron concentrate. Despite the phosphorus content decreases from 0.91 to 0.1%.

Keywords : Oolitic iron ore, acid leaching, dephosphorisation, alkaline additive.