

Hydrometallurgical Treatment of Abu Ghalaga Ilmenite Ore

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Abstract : The present work aims to study the leaching of Abu Ghalaga ilmenite ore by hydrochloric acid and simultaneous reduction by iron powder method to dissolve its titanium and iron contents. Iron content in the produced liquor is separated by solvent extraction using TBP as a solvent. All parameters affecting the efficiency of the dissolution process were separately studied including the acid concentration, solid/liquid ratio which controls the ilmenite/acid molar ratio, temperature, time and grain size. The optimum conditions at which maximum leaching occur are 30% HCl acid with a solid/liquid ratio of 1/30 at 80 °C for 4 h using ore ground to -350 mesh size. At the same time, all parameters affecting on solvent extraction and stripping of iron content from the produced liquor were studied. Results show that the best extraction is at solvent/solution 1/1 by shaking at 240 RPM for 45 minutes at 30 °C whereas best stripping of iron at H₂O/solvent 2/1.

Keywords : ilmenite ore, leaching, titanium solvent extraction, Abu Ghalaga ilmenite ore

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