

Meningkatkan Grade atau Memproses Kembali Residu Limbah Bauksit = Upgrading or Processing Bauxite Waste Residue

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Abstrak

Mineral oksida besi merupakan salah satu komponen utama impurities pada bauksit dan limbah bauksit. Menghilangkan kandungan besi oksida dari bauksit dan limbah bauksit dapat menghasilkan produk yang bisa diproses kembali dengan Proses Bayer. Dilakukan pengujian beberapa parameter leaching, antara lain pH awal larutan asam, temperatur leaching, konsentrasi asam oksalat, serta penggunaan ion fero (Fe^{2+}) sebagai katalis. Hasil penelitian menunjukkan bahwa hematit dapat dilarutkan dari residu limbah bauksit dengan efektif, namun selektivitas terhadap pelarutan aluminium masih rendah. Kandungan besi yang terdapat di dalam larutan asam dapat kembali diambil dengan menggunakan metode presipitasi goetit yang menunjukkan hasil recovery tinggi.

.....Iron oxides, namely hematite, is one of the main impurities in both low grade bauxite ores and red mud. Studies found that hematite can be leached effectively using oxalic acid and the removal of iron oxides from low grade bauxite or red mud will increase the feasibility of processing by means of Bayer Process. Several leaching parameters were tested, namely initial solution pH, leaching temperature, oxalate concentration, all with the use of catalyst. The tests concluded that hematite can be leached effectively from bauxite waste residue by using oxalic acid, however selectivity is still an issue as the amount aluminium leached is still high. The leached iron could then be recovered as goethite through the goethite precipitation method that yielded high recovery value.