

Peningkatan kadar logam tanah jarang pada residu bauksit dengan metode mekanokimia dan pemanggangan = Upgrading of rare earth element on bauxite residue with mechanochemical and roasting treatments

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Abstrak

Tailing (residu) bauksit hasil pencucian pada pengolahan bijih bauksit telah menumpuk sebanyak 3 ton di Indonesia salah satunya di Daerah Wacopek, Pulau Bintan, Provinsi Kepulauan Riau. Penimbunan residu tersebut menyebabkan pencemaran lingkungan sehingga perlu pemanfaatan dari residu tersebut yaitu dengan ekstraksi logam tanah jarang (LTJ). Peningkatan logam tanah jarang ini dengan proses mekanokimia dengan penambahan NaOH sebanyak 0%, 33.33%, dan 50%. Kemudian diberi proses pemanggangan pada temperatur 400 $^{\circ}$ C, 500 $^{\circ}$ C, 1000 $^{\circ}$ C dan 1100 $^{\circ}$ C. Diperoleh hasil nilai recovery yang variatif terhadap yttrium, cerium, neodymium, lanthanum dan samarium. Morfologi dari residu bauksit sebelum dan setelah proses mekanokimia juga diamati pada studi ini.

<hr>Bauxite residue as the result of ore dressing of bauxite mining has stickpiled as much as three tons in Indonesia one of them in the Wacopek, Bintan Island, Riau Province. The residue causes environmental pollution that needs to utilization of the residue. One of them is the extraction of rare earth metals (REEs). Rare earth metal was increased with mechanochemical process with the addition of NaOH as much as 0%, 33.33% and 50%. Then given a roasting process at a temperature of 400 $^{\circ}$ C, 500 $^{\circ}$ C, 1000 $^{\circ}$ C and 1100 $^{\circ}$ C. The results varied recovery value of the yttrium, cerium, neodymium, lanthanum and samarium. Morphology of the bauxite residue before and after mechanochemical process was also observed in this study.