Studi pengaruh pemanggangan pada 700 oc dan variasi konsentrasi larutan naoh dan hcl pada proses pelindian terhadap peningkatan kadar tantalum dan niobium oksida dalam terak timah = The study of effect 700 oc roasting and leaching process with concentration variable of naoh and hcl solutions for increasing tantalum and niobium oxide s grade in tin slag

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Abstrak

[ABSTRAK
Logam tantalum dan niobium merupakan logam yang sumbernya termasuk ke dalam kategori critical in mid term. Terak timah merupakan limbah yang dapat dijadikan sebagai sumber cadangan kedua. Dalam penelitian ini akan dilihat pengaruh pemanggangan pada 700 oC serta pengaruh variasi konsentrasi larutan NaOH dan HCl sebagai larutan lindi, sampel terak timah yang digunakan berasal dari Indonesia dengan kadar 0,33% Ta2O5 dan 0,64% Nb2O5. Pengujian XRF digunakan untuk melihat perubahan kadar Ta2O5 dan Nb2O5 setelah proses pemanggangan dan pelindian. Hasil pemanggangan didapatkan distribusi massa terbanyak pada ukuran mesh +100 dan terjadi peningkatan kadar Ta2O5 dan Nb2O5 berturut-turut meningkat sebanyak 21,1% dan 37,5%. Kadar yang dihasilkan dari pelindian dengan 4 M NaOH meningkat sebanyak 3,48 dan 1,75 kali lipat dari Ta2O5 dan Nb2O5 awal. Secara keseluruhan rangkaian penelitian khususnya setelah pelindian HCl memperoleh peningkatan kadar mencapai 1,51% Ta2O5 pada 1 M HCl dan 1,41% Nb2O5 pada 4 M HCl.
ABSTRACT
The source of tantalum and niobium were known include as critical in mid term. The tin slag is a waste which could be a secondary resource. This research to found the effect of 700 oC roasting and concentration variable of NaOH and HCl solution as leaching reagent, the sample used Indonesian tin slag which have initial grade 0.33% Ta2O5 dan 0.64% Nb2O5.The change of Ta2O5 and Nb2O5 grades were determined by XRF test after roasting and leaching. The highest mass distribution on +100 mesh as the roasting result and the grades were increased 21.1% and 37.5% for Ta2O5 and Nb2O5. The results of leaching 4 M NaOH were increased of about 3.48 and 1.75 times from initial grade. From the whole of results, especially after HCl leaching were increased to 1.51% Ta2O5 on 1 M HCl and 1.41% Nb2O5 on 4 M HCl.
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