Studi Pemulihan Lead Fly Ash Hasil Peleburan Accu Battery = Study of Fly Ash's Lead Recovery From Smelting Batteries

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Abstrak

Peningkatan jumlah pemakaian kendaran bermotor menyebabkan peningkatan jumlah accu bekas. Peningkatan jumlah ini akan meningkatkan jumlah limbah dalam pengolahan accu bekas, salah satunya adalah fly ash. Dalam upaya mengurangi limbah beracun yang dibuang ke lingkungan dan menyebabkan kerusakan bagi manusia, maka fly ash akan di proses untuk dijadikan lead bullion. Pengolahan fly ash meliputi granulasi, pengeringan dan peleburan dengan penambahan bahan aditif Fe, Cokes, CaCO3 dan Na-2CO3. Proses penerapan peleburan menggunakan rotary furnace bersuhu tinggi (960°C - 1121°C). Berdasarkan uji AAS untuk hasil peleburan fly ash diperoleh hasil bahwa komposisi kimia lead bullion yang dihasilkan pada proses peleburan ini terdapat perbedaan dengan lead bullion hasil peleburan paste. Perbedaan yang signifikan terdapat pada unsur Cu, As, Sn dan Sb. Keempat unsur tersebut akan diturunkan dengan treatment removing Cu, softening process dan proses harris untuk mencapai standart yang sudah ditetapkan. Pada perhitungan percent recovery proses fly ash mengalami penurunan dibandingkan dengan proses paste. Rata- rata percent recovery pada proses fly ash adalah 54% dan rata- rata percent recovery pada proses paste adalah 66%. Penurunan nilai percent recovery berdampak pada meningkatnya cost production di proses rotary furnace sebanyak 36.42% tetapi menurunkan harga pokok produksi sebanyak 86.63%. Dalam proses recovery timbal/ timah hitam dengan bahan baku fly ash dapat diaplikasikan untuk menghasilkan lead bullion yang berdampak baik dalam pengolahan limbah beracun.

.....The increasing number of vehicle maintenance the increasing number of used accu. The increasing used accu is directly proportional to the increasing number will increase the amount of waste in the processing of used accu, one of which is fly ash. In the management of waste that is disposed of into the environment and it causes damage to humans. Fly ash processing includes granulation, drying and smelting with the addition of additives Fe, cokes, CaCO3 and Na2CO3. The process of applies high- temperature rotary furnace (960°C - 1121°C). Based on the AAS test, the result shows that the chemical compositon of lead produced in the smelting process meets the difference from paste produced. There are significant differences in the elements Cu, As, Sn and Sb. The four elements will be procees by removing Cu, softening process and harris process to achieve the standart. The average percent recovery of lead produced from the fly ash smelting process is 54% lower than the average percent recovery of lead produced from pure paste smelting is 66%. The decrease of percent recovery is directly proportional to the increasing production cost in the rotary furnace by 36.42%, although the cost of lead/ kilogram is reducing by 86.63%. In the process of recovering meets the lead by putting fly ash as raw material can be applied in order to produce lead bullion which has a good impact in treating toxic waste.