

INTERNAL MEMO

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c.c.

SOLUBLE ARSENIC IN GY RESIDUE

A simple lime treatment of the sludge from ammonia dissolving GY trioxide reduced the soluble As level from 8.05% to 0.015%. Treatment of another aliquot with ferric chloride followed by lime gave a residue with 0.165% soluble As. Samples of sludge treated in both ways have been sent to Yellowknife.

Lime Treatment

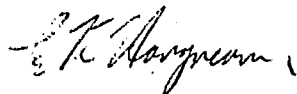
A slurry of 200g dried sludge ex GP plant (8.05% soluble As in 200 ml water) was stirred briefly with 36g hydrated lime in 100 ml water. The lime addition was 50% in excess of that required to form  $\text{Ca}_3(\text{AsO}_3)_2$  with the soluble arsenic. The mixture (pH 12+) was dried at 110 °C. The treated sludge contained 0.015% soluble As.

Ferric + Lime Treatment

200g of dried sludge was stirred with 70g  $\text{FeCl}_3$  in 200 ml water ( $2\text{Fe}^{+3}$  to oxidise each  $\text{As}^{+3}$ ) followed by 72g lime in 200ml water (to precipitate both the arsenic and the iron). The mixture (pH about 10) after drying at 110 °C contained 0.165% soluble As. Compared with the lime treatment, this is surprisingly high, maybe a pH effect. Whatever the reason, it hardly seems worth pushing ferric treatment any further.

Plant Procedure

Add an appropriate amount of lime to the wet sludge just before drying.



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