

STABILIZATION OF HIGH MERCURY CONTAMINATED BRINE PURIFICATION SLUDGE

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ABSTRACT

The highly leachable mercury contaminants of brine purification sludge (BPS) generated from the Hg-cell electrolysis process in chlorine production can be stabilized in the treatment procedure employing ferric-lignin derivatives (FLD) (Ligmet™ binder) and Portland cement (PC). The stabilization effectiveness has been examined by time-based multiple toxicity characteristic leaching procedure (TCLP) test and sequential TCLP tests. In a period of 50 days, the multiple TCLP tests showed a variation of less than $90 \mu\text{g l}^{-1}$ for the leachable mercury level, and the sequential TCLP tests for the same sample displayed a declining TCLP mercury level. Based on this study, the stabilization of approximately 2000 t of brine purification sludge has been successfully processed with the ferric-lignin derivatives treatment.

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Key words: Brine purification sludge; Leachable mercury; Lignin derivatives; TCLP; Stabilization and solidification

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