

Secondary Lead Production (Hydrometallurgical Treatment) **CX-EW[®] Process and CX-EWS[®] Process**

Title: Electrowinning of Lead Battery Paste with Production of Lead and Elemental Sulphur Using Bioprocess Technologies

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Abstract: The key point of the CX-EWS Process is the conversion of lead compounds, contained in the active mass of the spent batteries, in lead sulphide. The obtained lead sulphide is leached with ferric fluoborate electrolyte dissolving lead and oxidising the sulphur from sulphide to elemental form. The lead rich solution is fed into a diaphragm electrolytic cell depositing the lead and regenerating ferric fluoborate. The introduction of the sulphate reducing bacteria technology in the sulphidization step of the battery paste improves dramatically the economics of the CX-EWS Process, reducing the cost of chemicals, avoiding the gypsum disposal and minimising the unit operation of the process. The paper describes in details this technology change with reference to the economics of the process.