Primary Lead Production

FLUBOR® Process and LEADBOR® Process

Title: The Production of Electrolytic Lead and Elementary Sulphur from Lead Sulphide Concentrates

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Abstract: The research laboratory of B.U.S. Engitec has identified and patented e new process for electrolytic production of lead from lead sulphide concentrates with simultaneous production of elementary sulphur. The process occurs in an aqueous solution, at atmospheric pressure, utilizing a solution of ferric floborate in fluoboric acid as the oxidizing and solubilizing medium for lead sulphate.

After the filtration of a residue composed of elementary sulphur and the gangue which accompanied the concentrate, the solution containing lead as fluoborate and iron reduced to a ferrous state is sent to a diaphragm electrolytic cell where in the cathode compartment the lead is deposited in a compact form on the stainless steel permanent blank. The exhaust solution stripped of lead is sent to the anode compartment where the oxidation of ferrous fluoborate into ferric fluoborate takes place, reproducing the oxidising solution for a new leaching. Depending on operating conditions, it is possible to selectively solubilize the lead from the other metals' values present in the concentrate.

The sulphur produced from the reaction may be separated from the gangue by extraction with solvent or by flotation.