

RECOVERY OF CERTAIN NON-FERROUS
METALS FROM INDUSTRIAL BYPRODUCTS(*)

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The primary resources of certain non-ferrous metals that are of great industrial value, such as copper, zinc and lead are lean in our country and the entire demand for the same cannot be met fully but for the import. Quite a good percentage of the total consumption is available as byproduct oxides and hydroxides. Any attempt to recover the metals from such byproducts will be of great value especially with respect to saving foreign exchange. In this communication, the methods for the recovery of copper, zinc and lead from byproducts are reviewed. Well known thermal and electrolytic processes are briefly discussed and two processes that have been developed for the recovery, by the authors are discussed in detail. The first method involves direct electrolytic reduction of the byproduct oxide or hydroxide to the respective metal powder when the same is kept as a sediment on a metal cathode immersed in an alkaline medium. The characteristics of the metal powder obtained depends on those of the starting material. In the other method, known as suspension electrolysis, the finely powdered byproduct is suspended in a suitable medium and the suspension is then electrolysed. The metal can be recovered either in the form of powder or sheet by varying the conditions of electrolysis. The above mentioned methods as applied to the recovery of copper, zinc, lead and silver are discussed.

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