

Production of Nickel and Cobalt from Secondary Sources - the Indian Experience

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Abstract

Currently, India requires about 30,000 tpa nickel and 500 tpa cobalt. Its only source of these two metals - in Sukinda, Orissa - is too low a grade for exploitation by any available technology. While a major programme examines the possibility of extracting nickel and cobalt from the overburden of chromite mines, several small industries have been established to treat other secondary materials for producing nickel and cobalt. Some of the raw materials being treated are precipitated sulphides, waste catalysts, industrial sludge, and oxidic ores. The plants are designed to accept a host of different raw materials, and have the capability to produce a variety of salts as well as metals. Such plants require relatively low capital investment, and would aim at more than 20% return on investment. Normally these plants are small – with a capacity as low as 80 Kg/d cobalt. Based on hydrometallurgical techniques, currently these plants produce about 500 tpa cobalt, and approximately 1000 tpa nickel. The paper considers options available under Indian conditions, for the raw material, as well as for the process