EXPLOITATION OF SECONDARY RAW MATERIALS: APPLICATION OF INNOVATIVE PROCESSES FOR VALORIZATION OF MINING WASTES

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Abstract. The availability of raw materials (RMs) from marginal resources as industrial wastes is fundamental for the European and non-European countries for economic and environmental reasons, and of strategic importance for industrial production, due to their high concentration on valuable metals. It is therefore important the development of innovative environmentally friendly processes, to achieve RMs and critical raw materials (CRMs) of economic interest, by exploitation of the secondary RMs. Hydrometallurgical gold extraction by thiosulphate leaching represents an example of the application of these new processes: Au extraction of 85% was experimentally obtained after leaching; moreover, the overall process achieved about 80% Au recovery, this being in line with the conventional cyanidation process. These results are very encouraging, considering that this is a commercially innovative process. The optimization of process parameters and operating conditions should permit the best results in terms of process yields to be achieved.

Keywords: secondary raw materials, mining waste, thiosulphate leaching, electrowinning, gold