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(54) Title: PROCESS FOR THE RECOVERY OF METALS FROM COBALT-BEARING MATERIALS

(57) Abstract: A process is divulged for the recovery of metals from a metal-bearing material containing, in oxidized form, more than 1% of Co, a total of Co and Ni of more than 15%, and more than 1% Mg, comprising the step of: - smelting said metal-bearing material in a bath furnace together with slag formers, thereby producing an alloy phase with more than 80%, preferably more than 90% of the Co, and less than 1% of the Mg, and a slag phase, by applying reducing smelting conditions, and by selecting CaO, SiO_2, and Al_2O_3 as slag formers, in amounts so as to obtain a final slag composition according to the ratio's $0.25 < SiO_2/AI2O_3 < 2.5$, $0.5 < SiO_2/CaO < 2.5$, and to $MgO > 10\%$; and, - separating the alloy phase from the slag phase. This process ensures the quantitative recovery of Co in an alloy phase along with other metals such as Ni, while collecting Mg into a slag. Being free of Mg, the obtained alloy can be economically refined by using hydrometallurgical techniques, in particular for the preparation of precursors for use as cathode material in Li-ion batteries.