

A preliminary study on the potential of the LARCO laterite ore tailings as secondary source of cobalt**E. Tzamos¹, G. Grieco², P. Marescotti³, K. Simeonidis¹, A. Zouboulis⁴, A. Xenidis⁵**¹Ecoresources PC, Greece²University of Milan, Italy³University of Genoa – DISTAV, Italy⁴Aristotle University of Thessaloniki, Greece⁵National Technical University of Athens, Greece

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Low-emission mobility is an essential component of the broader shift to the low-carbon, circular economy needed for Europe to stay competitive and be able to cater to the mobility needs of people and goods. On this frame, a very important component (and the most expensive one) of all kinds of electric vehicles are their batteries; it is projected that until 2025, the EU-based electric cars battery manufacturers will supply ~6,000,000 batteries for electric cars. The uprising demand for these batteries, subsequently rises the demand for specific metals which are used for their manufacturing, namely Ni, Co and Li. Nickel is used as hydroxide or intermetallic compounds in NMC, NCA batteries, lithium as lithium-cobalt oxide (cathode) and as salt (electrolyte) in Li-ion battery and cobalt is used in cathode materials in LCO, NCA and NMC batteries. Li and Co are also included in the 2020 Critical Raw Materials list of EU, meaning that there is a great risk for their supply. EU should speed up the efforts for discovering new sustainable sources for these metals, both primary and secondary. On this study, the mining tailings of the LARCO laterite ores from Evia were investigated as potential -secondary- sources of cobalt. A total of 10 tailing samples were analyzed for their chemical composition. The results show that cobalt has an average concentration of 614.70 ppm (median value 644 ppm), with values ranging from 377 to 815 ppm, thus making these tailings as a possible source for this metal. Samples are also particularly rich in Ni (average Ni concentration 9,440 ppm), with the small grain size of the tailings being a negative factor for their use as feed in ferronickel metallurgy at the Larymna plant.