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ASSESSMENT OF THE MOBILITY OF SELECTED ELEMENTS IN BIOLEACHED MINING WASTE FROM ZLOTY STOK (POLAND)

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Abstract

Different bioleaching processes were applied to mining wastes deposited in the highly polluted post-industrial region - Lower Silesia in Poland. The chemical characterization of the wastes before and after bioleaching processes was performed. The characterisation was based on the distribution of selected elements (Fe, Mn, As, Co, Cr, Cu and Ni) between operationally-defined phases. The phases were defined using a six-step extraction procedure optimised according to the properties of the studied mining wastes. The fractionation and total content of elements in wastes before and after various bioleaching treatments were studied using ICP MS (Inductively Coupled Plasma Mass Spectrometry) and FAAS (Flame Atomic Absorption Spectrometry). All bioleaching processes reduced the total content of some elements in the wastes and changed their distribution between the phases, depending on the applied bioleaching process.

Key words: arsenic, bioleaching processes, mining wastes, sequential extraction

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