

MOBILITY OF POTENTIALLY TOXIC ELEMENTS IN SEDIMENTS OF THE TAILINGS IMPOUNDMENT SLOVINKY AND THEIR TRANSPORT INTO THE SURROUNDING ENVIRONMENT

MOBILITA POTENCIÁLNE TOXICKÝCH PRVKOV V SEDIMENTOCH ODKALISKA SLOVINKY A ICH TRANSPORT DO OKOLITÉHO ŽIVOTNÉHO PROSTREDIA

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Abstract:

The tailings impoundment Slovinky situated in the north-eastern part of Slovak republic was used for the deposition of flotation sludge from processing of siderite-sulphidic ores and later for the deposition of slag material from the metallurgical plant Krompachy. In order to evaluate the mobility of monitored potentially toxic elements (As, Sb, Cu, Zn, Pb), which occur at elevated concentrations in the studied sediments, several extraction experiments were used, basic physicochemical properties were measured and the waters flowing into the impoundment, drainage waters, and surrounding surface waters were analyzed.

The studied elements are relatively strongly bound in the the tailings impoundment sediments and are characterized by low mobility, because of the neutral to slightly-alkaline character of the sediments, low solubilities of element-bearing sulphides and low proportion of these elements in easily mobilizable fraction.

Key words:

Tailings impoundment Slovinky, As, Sb, Cu, Pb, Zn mobility, extraction experiments, drainage waters, hydrogeochemical modeling