Journal of Advanced Research in Dynamical and Control Systems, 2018, vol.10, N13 Special Issue, pages 581-586

Emission of anions and cations from Galvanic sludge

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Abstract

© 2019, Institute of Advanced Scientific Research, Inc.. All rights reserved. -Galvanic sludge contains the ingredients that can contaminate water bodies and soil by the dissolution of the appropriate compounds in the aqueous phase. At that, the content of ions in the water extract reflects the degree of element mobility in adjacent environments that can have a negative impact on environmental objects. The content of macro-ions in the aqueous extract of the galvanic sludge was determined by ion chromatography. By mass concentration the macro-ions are located in the following series in order to decrease its value: Na+, PO43-, Cl-, Ca2+, NH4+, K+, NO3-, NO2-, Mg2+, SO42-. A number of priority in order of numerical value decrease of the coefficient Ksoil is similar in sequence to that for water bodies: PO43-, NH4+, Cl-, NO3-, K+, SO42-. They studied the toxicity of the biotesting by mortality of Daphnia magna Straus test object. According to the criteria of hazardous waste belonging to a hazard class for the environment, the galvanic sludge under study belongs to the second class of hazard. Due to a high solubility of most of the galvanic sludge, the polluting ingredients are washed out into the aqueous phase and contaminate water bodies and the environment relatively easy. The obtained results exclude the possibility of storage or any placement of galvanic sludge and makes its neutralization and processing necessary.

Keywords

Galvanic slime, Macro-ions, Phosphate coating, Waste, Waste water

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