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Abstract

Modern wastewater treatment plants are currently struggling with the problem of processing and ecological management of sewage sludge. Thermal utilization is a frequently used practice of excess sludge utilization especially in large wastewater treatment plants, which seems to be a quite promising concept. However, during thermal treatment, fractions of ashes and dusts are generated. Such wastes, especially the dust fraction, can be potentially harmful to the environment. Therefore, the mentioned wastes should be stabilized. In this paper, a comprehensive method of stabilization is presented. Ash fraction, produced during sewage sludge thermal treatment, is used for dust fraction stabilization, hence no other solid medias, except cheap, commercially available cement, have to be used for stabilization. Laboratory and industrial scale trials were performed. Based on the results of the conducted research it can be stated that dust and ash fractions obtained from one facility can be stabilized together and the final product is safe for the environment since no potentially toxic elements are leached from the materials. There is a potential for improving the proposed method of stabilization to create fully environmentally safe construction materials.

Key words: sewage sludge ash, sewage sludge dust, stabilization, sewage sludge management, heavy metals

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