



“Gheorghe Asachi” Technical University of Iasi, Romania



METHODS TO REDUCE ENVIRONMENTAL IMPACT OF MUNICIPAL WASTE WATER SEWAGE SLUDGE

**Catalina Iticescu¹, Lucian P. Georgescu^{1*}, Gheorghe Gurau², Monica Murarescu¹,
Dumitru Dima¹, Gabriel Murariu¹, Constantin Gheorghies¹**

¹*Department of Chemistry, Physics and Environment, European Centre of Excellence for the Environment,
111 Domneasca Street, 800201 Galati, Romania*

²*Department of Science and Materials Engineering, CNMF, “Dunarea de Jos” University of Galati,
111 Domneasca Street, 800201 Galati, Romania*

Abstract

Municipal (urban) wastewater treatment creates environmental problems, especially in urban areas where urban waste water and industrial waste water have a common treatment system. The present paper aims at describing a method which facilitates the mixing of resulting sludge with metallurgical coke in the process of iron agglomeration due to the heat input brought about by the combustibles in their composition. This method may be applied to reduce the huge quantities of sewage sludge which results from urban wastewater treatment. Since our work is focused only on sewage sludge use, the first stage of our research included a series of tests which were made on sewage sludge collected from the wastewater treatment plant (WWTP) of Galati to determine their elemental composition in relation to calorific values. As regards the second stage, a series of measurements were made to determine the calorific values of sewage sludge and mixtures of sewage sludge with coke in order to find the optimal proportion to be used in the metallurgical process. On the basis of the results obtained, we suggested two possible situations in which sewage sludge and coke mixtures could be used in the metallurgical process: 1) using sewage sludge in the process of cast iron extraction in the blast furnace and 2) using sewage sludge as raw matter in the process of cast iron production in the blast furnace. The purpose of this study is twofold: 1) to find an alternative for using the sludge resulting from the process of urban wastewater treatment and 2) to reduce the consumption of coking coal in metallurgical processes.

Key words: agglomeration process, calorific power, coke, sewage sludge

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* Author to whom all correspondence should be addressed: e-mail: lucian.georgescu@ugal.ro; Phone: +40721100503; Fax: +40236319329