

TREATMENT OF WASTEWATER FROM THE FOUNDRY INDUSTRY USING FENTON PROCESS

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Received: 13.01.2020; Revised: 2.02.2020; Accepted: 2.02.2020

Abstract

The aim of the study was to evaluate the effectiveness of the Fenton process in the treatment of selected wastewater from the foundry industry, which was initially coagulated. In the coagulation process, contaminants found in the suspended and colloidal phase were separated from the wastewater. The selection of the favorable course of the Fenton process was carried out with the following parameters in mind: wastewater pH, hydrogen peroxide dose, $\text{Fe}^{2+}/\text{H}_2\text{O}_2$ mass ratio and process time. The selected parameters of the Fenton process were: wastewater pH 2.5, hydrogen peroxide dose 5.00 g/L, $\text{Fe}^{2+}/\text{H}_2\text{O}_2$ mass ratio 0.3 and process time 120 min. For the given parameters, high efficiency of the Fenton process in lowering the chemical oxygen demand (COD) of the treated wastewater from the foundry industry was demonstrated. In wastewater, the concentration of non-ionic surfactants (NS) also decreased.

Keywords: Foundry industry; Wastewater treatment; Fenton process.