Water Treatment Intensification by Combination of Electrochemical and Photochemical Methods

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Wastewater contamination is usually represented by combination of various organic and inorganic compounds. Such combination of contamination can't be treated by a single method so the treatment process has to be enhanced. This work represents a combination of methods for removal of organic and inorganic pollutants from water. Photochemical method based on hydroxyl radical formation from UV decomposition of hydrogen peroxide was carried out to remove inorganic compounds. This method is very effective and it is able to remove all organic compounds from water depending mainly at reaction time and hydrogen peroxide dosage. Electrocoagulation is applied to remove inorganic contaminants because they are resistant to photochemical treatment. It is based on electrochemical dissolution of "sacrificial" electrode and formation of solid porous particles that absorb dissolved inorganic pollutant. Conjunction of these two methods provides a very effective tool for complex treatment of wastewaters with combined contamination. However, electrochemical treatment also partially removes organic compounds so it intensifies the organic compounds removal.

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