Environment and water

Box-Behnken Design for optimization of Fenton-type reaction for water treatment using heterogeneous catalysts

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Response Surface Methodology (RSM) was widely used in numerous research works for the optimization of different processes for liquid effluents treatment, since water pollution is one of the most serious environmental problem concerning human health and sustainability.[1,2] RSM is a statistical technique applied to reduce the number of experiments, optimize and analyze the experimental independent parameters, that affect a process efficiency, and to generate a mathematical model which describes the process behavior.[1,3] In this work, Box-Behnken design (BBD) was used for optimize the Fenton-type reaction using different bimetallic catalysts based in Rare Earth Elements with iron ion exchanged in zeolite (NaY) or a natural clay from Morocco. The effect of different experimental parameters such as, temperature, concentration of H_2O_2 and the heterogeneous catalysis used, was studied and optimized.

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