

# Experimental Modeling and Evacuation of Cr(VI) from Wastewater by Using Nanostructured Ceria

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## Abstract

Ceria nanoparticle synthesizes by nanotechnology by using cerium chloride and sulfuric acid by the precipitations method which is evaluated as an adsorbent for the evacuation of Cr(VI) detachment from wastewater. Experimentation was done using the simple batch process where all the experiments were conducted to verify the efficiency of the nanoparticle for the removal of Cr(VI). Adsorption achieved balance inside at some point and was autonomous of starting chromium (VI) focus. The hybrid material was found to have maximum efficiency for the removal of hexavalent chromium with 94–95.6%, pH at 7, adsorbent dose of 0.1 mg and temperature of  $28 \pm 2$  °C and initial concentration of 50 ppm. The mathematical modeling has done for the experimental data. The experimental data clearly fitted the Langmuir isotherm and Freundlich adsorption isotherm; the adsorption information was examined; and the adsorption instrument was explored utilizing X-beam diffraction by SEM.

## Keywords

Modeling Evacuation Ceria Cr(VI) Adsorption isotherm

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