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The removal of chromium (III) from aqueous solution by ion exchange on Amberlite 200 resin: batch and continuous ion exchange modelling

Francisco Jose Alguacil*, Irene Garcia-Diaz, Felix Lopez

Centro Nacional de Investigaciones Metalúrgicas (CSIC), Avda. Gregorio del Amo 8, Ciudad Universitaria, 28040 Madrid, Spain
Tel. +34 915538900; Fax: +34 915347425; email: fjalgua@cenim.csic.es

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ABSTRACT

The use of ion exchange technology is studied for the removal of chromium (III) from acidic waste solution by Amberlite 200 resin. Batch and column experimental tests were conducted to provide data for theoretical models and verify the system performance of the removal process. Results of batch equilibrium tests indicated that Langmuir isotherm describes well the adsorption process, whereas experimental data also provide evidence that, under the present experimental conditions, the rate law which controlled chromium (III) adsorption by Amberlite 200 resin depends of the resin particle size; on the other hand, the theoretical model used in the present investigation was found to predict reasonably well the ion exchange breakthrough performance.

Keywords: Chromium (III); Amberlite 200; Ion exchange; Modelling; Wastewaters; Batch and continuous operations

*Corresponding author.