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## NITRATE REMOVAL FROM AQUEOUS SOLUTION USING $MgCl_2$ IMPREGNATED ACTIVATED CARBON

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### Abstract

The aim of this study was to assess nitrate removal using impregnated activated carbon (AC) with  $MgCl_2$ . After impregnating of AC using heat treatment, the  $MgCl_2$  is converted to efficient  $MgO$ . The denitrification was conducted at pH 6.2, 25 °C, and initial concentrations of 20 mg/L nitrate-N. The effects of the operating parameters including AC dosage, pH, and contact time have been investigated. Experimental data show that AC modified by  $MgCl_2$  was more effective than virgin AC for nitrate removal. The maximum nitrate removal rate was 74% for impregnated AC, while it was only 8.8% for virgin AC. The results show that an increase in AC dosage increased the removal of nitrate. The equilibrium time was found to be 40 min for the impregnated AC. These results suggest that the  $MgCl_2$  impregnated AC can be proposed as a composite for the denitrification.

*Key words:* activated carbon, denitrification, impregnation,  $MgCl_2$ , nitrate

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