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INFLUENCE OF SOME PARAMETERS ON NITRATE REMOVAL FROM WATER BY PUROLITE A-520E RESIN

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Abstract

In this study, removal of nitrate from aqueous solutions was investigated using an anion exchange resin, Purolite A-520E. The influence of several experimental parameters, such as initial solution pH, resin dosage, phase contact time, initial concentration of nitrate ions from aqueous solution, and temperature, has been examined in batch experiments. The results of this investigation reveal that the ion exchange process is favored at the initial solution pH (around) 6.8. The resin studied can be used at ambient temperature, use of high temperature not being economically profitable. The experimental results showed that, for relatively low concentrations of nitrate (50 mg/L), and a dose of resin of 6 g resin/L, a retention in nitrate content of about 83 % is achieved in 180 min. FTIR spectra for anionic exchange resins samples before and after removal of nitrates ions were use to show conclusive evidence for ion exchange process. Purolite A-520E resin can be used for waters with both low and high concentrations of nitrates and can be applied more widely and economically for nitrate removal in small-scale water suppliers.

Key words: ion exchange, nitrates, Purolite A-520E, water treatment

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