

## Dissolution Leaching Kinetics of Ulexite in Sodium Dihydrogen Phosphate Solutions

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**Abstract :** The aim of the present study was to investigate the dissolution kinetics of ulexite in sodium dihydrogen phosphate in a mechanical agitation system and also to declare an alternative reactant to produce the boric acid. Reaction temperature, concentration of sodium dihydrogen phosphate, stirring speed, solid-liquid ratio, and ulexite particle size were selected as parameters. The experimental results were successfully correlated by using linear regression and a statistical program. Dissolution curves were evaluated in order to test the shrinking core models for solid-fluid systems. It was observed that increase in the reaction temperature and decrease in the solid/liquid ratio causes an increase in the dissolution rate of ulexite. The activation energy was found to be 36.4 kJ/mol. The leaching of ulexite was controlled by diffusion through the ash (or product) layer.

**Keywords :** ulexite, sodium dihydrogen phosphate, leaching kinetics, boron

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