

## Leaching kinetics of lead from galena with acidified hydrogen peroxide and sodium chloride solution

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### Abstract

The leaching of lead from galena in acidic hydrogen peroxide in presence of sodium chloride solution has been investigated with respect to the effects of hydrochloric acid and hydrogen peroxide concentrations, by changing the stirring speed, leaching temperature and the particle size. It was observed that leaching rate increases with increasing hydrochloric acid concentration, hydrogen peroxide concentration and the temperature. However, it decreases with increase in the particle size. The kinetic study showed that the leaching process is represented by shrinking core model with mixed kinetic. The activation energy ( $E_a$ ) for the leaching reaction was calculated as  $14.60 \text{ kJ mol}^{-1}$ , which is suggestive of the mixed controlled kinetics for the leaching reaction.

**Keywords:** Leaching, Galena,  $\text{H}_2\text{O}_2$ , NaCl, Kinetics

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