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## REMOVAL OF LEAD IONS FROM INDUSTRIAL WASTEWATER USING PRECIPITATION PROCESS

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### Abstract

Chemical precipitation is an effective and relatively low cost method for removal of heavy metals. The removal of lead ions from wastewater by a precipitation process was investigated using sodium sulfide and sodium carbonate. Precipitation experiments were performed using storage battery wastewater with lead concentration of 8.8 mg/L and synthetic wastewater with different lead concentration ranging from 5 to 600 mg/L. A series of experiments (each concentration) were carried out under different pH (ranging from 3 to 11) to evaluate the effect of pH on the removal efficiency. The results showed that the removal efficiency of Pb (II) using both chemical reagents (sodium sulfide and sodium carbonate) was increased by increasing pH and initial concentration of lead. Sodium sulfide and sodium carbonate are good precipitating agents for lead removal in the pH ranges of 9-11. Sodium sulfide is found to be effective than sodium carbonate in removing the lead ions from wastewater. The highest lead removal efficiencies for actual and synthetic wastewater using sodium carbonate were 96.8 and 95.7% at pH 11, respectively. The maximum lead removal efficiencies for actual and synthetic wastewater using sodium sulfide were 98.9 and 99.3% at pH 11, respectively.

*Key words:* industrial wastewater, lead, precipitation

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