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A Trial of Using Solvent Extraction for Phosphorus Recovery

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Author(s)

Onesmus N. Mwabonje, Jia-Qian Jiang

ABSTRACT

The purpose of this paper is to explore the use of solvent extraction for the removal and recovering phosphate from wastewater and water sources. The results revealed that to achieve the maximum phosphate removal, the best extractant was a mixture of kerosene and benzyldimethylamine at a volume ratio of 2:1. A phosphate extraction efficiency of greater than 80% was achieved on the wastewater samples tested; a model solution and real sewage. A high stripping efficiency of greater than 90% was achieved from stripping, using 6M sulphuric acid. By mixing the recycled to fresh extractants at volume ratios of 2:1, it was possible to re-use the resulting extractant from the stripping process nine times, while maintaining the overall phosphate recovery efficiency. This research revealed that solvent extraction is feasible in the respect of phosphate removal and recovery and has potential for use as an alternative method for industrial applications.

KEYWORDS

Extractant, Phosphorus Removal, Solvent Extraction (SE)

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