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**Removal of acetic acid from simulated hemicellulosic hydrolysates by emulsion
liquid membrane with organophosphorus extractants**

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Abstract

Selective removal of acetic acid from simulated hemicellulosic hydrolysates containing xylose and sulfuric acid was attempted in a batch emulsion liquid membrane (ELM) system with organophosphorus extractants. Various experimental variables were used to develop a more energy-efficient ELM process. Total operation time of an ELM run with a very small quantity of trioctylphosphine oxide as the extractant was reduced to about a third of those required to attain almost the same extraction efficiency as obtained in previous ELM works without any extractant. Under specific conditions, acetic acid was selectively separated with a high degree of extraction and insignificant loss of xylose, and its purity and enrichment ratio in the stripping phase were higher than 92% and 6, respectively. Also, reused organic membrane solutions exhibited the extraction efficiency as high as fresh organic solutions did. These results showed that the current ELM process would be quite practical.

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