

## Crossover of Formic Acid through Nafion Membranes

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Formic acid has been proposed as a possible fuel for miniature fuel cells, because formic acid is expected to show low crossover and easy water management. In this paper, the permeation of formic acid through Nafion1 membranes is investigated at room temperature. It is found that the permeation of formic acid through Nafion1112 and 117 is much lower than that of methanol. These results show that the permeation of formic acid through Nafion1 is much slower than the permeation of methanol through the same membrane. Consequently, formic acid is an attractive alternative fuel for small polymer electrolyte membrane (PEM) fuel cells.