Short Communication

Investigation of M_2HPO_4 ($M=K^+, Na^+$) as Electrolyte for Alkaline Fuel Cell Working with Oxygen Containing Carbon Dioxide

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Basic salt of hydrogen phosphate (M_2HPO_4) was investigated as electrolyte for alkaline fuel cell (AFC). A maximum power density (MPD) of 60 mW cm^{-2} was obtained with K_2HPO_4 saturated solvent at room temperature, and a MPD of 30 mW cm^{-2} was observed with Na_2HPO_4 . The fuel cell with K_2HPO_4 can work at least 3600s without significant performance decrease. More interestingly, the electrolyte shows considerable CO_2 tolerance since no obvious performance drop was observed when CO_2 of purity of 99% was introduced into the oxygen stream. The results may provide an alternative way to develop electrolyte for AFC that is tolerant to CO_2 .

Keywords: alkaline, electrolyte, fuel cell, hydrogen phosphate

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