

물 전기분해에 의한 수소제조

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Hydrogen Generation from Polymer Electrolyte Membrane(PEM) Electrolyzer

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Abstract : Hydrogen has been considered as promising future energy carriers to replace current fossil fuels. In producing hydrogen in conjunction with renewable energy source, water electrolysis has taken great interest as a most rosy technology. Among three types of alkaline, polymer electrolyte membrane (PEM), and high temperature electrolysis technologies, PEM electrolysis has demonstrated it advantageous over the other electrolysis systems from a view point of efficiency, safety, reliability, compactness. In this regard, much attention has been paid into the development of PEM electrolysis systems. The constituents of PEM electrolysis systems are categorized as electrodes, polymer electrolyte membrane, and current collectors. And it is well known that the performance of the PEM electrolyzer can be improved by developing these constituents. In the present study, we fabricated the electrodes by controlling their composition and then investigated the effect of the electrocatalysts. Moreover, the effects of the cell temperature and the types of the current collectors were examined.

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