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Characterization and Performance Analysis of SiC Matrix Layer in PAFC Prepared by Ball Milling Procedure
볼밀링법에 의해 제조된 인산형 연료전지용 SiC 메트릭스층의 성능 특성 연구

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One of the most important components of the phosphoric acid fuel cell (PAFC) for improving the cell characteristics and better life is electrolyte retaining matrix layer. The morphology of the matrix layer is known to depend on the preparation method for the same composition of the constituent materials used for the preparation. To get the desired product reproducibility, the physical characterization on the entire surface of the components, drawn as a sample from every batch of the produced products has to be carried out as a quality measure.

In this present work the Image-Pro, Plus is used as a tool to physically characterize the micrographs of silicon carbide (SiC) matrix layer prepared by ball milling procedure. The discussion focuses on the effect of ball milling on the morphology and distribution of particles in the matrix layer. Finally, to demonstrate the effect of ball milling on the cell performance, the performance characteristics of the single cell with matrix prepared by ball milling procedure were examined and the experimental results were compared with the cell having matrix layer prepared by conventional method. The single cell with SiC matrix layer prepared by ball milling procedure exhibited better performance.