

고분자전해질형 연료전지 가스확산층의 내구 성능 저하에 관한 실험적 분석

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Experimental Analysis of GDL Degradation in PEM Fuel Cell

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Abstract : To achieve the commercialization of PEM fuel cell, the durability problem must be solved. Recently, many researchers have focused on this durability problem and degradation studies about membrane and electrode have been reported. But durability characteristics of gas diffusion layer is not much reported yet. Durability of GDL is very important to maintain the performance of PEM fuel cell because the main function of GDL is a path of fuel and water and the GDL degradation causes the loss of the GDL function. In this study, the degradation of GDL, especially, the mechanical degradation process was investigated with the leaching test. The effect of water dissolution was observed through the test and the amount of GDL degradation was measured with various measurement methods such as weight measurement, static contact angle measurement, scanning electron microscope. After 2,000 hours test, the GDL showed structural damage and loss of hydrophobicity.

Key words : PEM fuel cell(고분자전해질 연료전지), Gas diffusion layer(가스확산층), Durability(내구성), Degradation(성능감소)

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