

Pore Structure and Fractal Characteristics of the Mesoporous  
Carbons Synthesised by Silica Imprinting Method  
실리카 임프린팅법에 의해 제조된 메조다공성 탄소의  
기공구조 및 프랙탈 특성

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Pore structure and fractal characteristics of the mesoporous carbon specimens were investigated using nitrogen gas adsorption method and high resolution transmission electron microscopy (HRTEM). For this purpose, the carbon specimens with various pore structures and fractal dimensions were prepared by silica imprinting method. The pore size distribution and the pore shape of the carbon specimens were determined with help of nitrogen gas adsorption at 77 K and HRTEM at 298 K, respectively. The fractal dimensions of the carbon specimens were evaluated by both nitrogen gas adsorption based upon a Frenkel-Halsey-Hill model and image analysis of HRTEM images using perimeter-area method. In order to determine the fractal dimension with different pore size scales, the inverse fast Fourier transform analysis of power spectra with ring-shaped mask pattern was performed. From the experimental results, it is concluded that the fractal dimensions of the carbon specimens are closely related to their pore structures, that is, the carbon specimens with uniform pore structures with respect to the pore size scale have single fractal dimension, but those with nonuniform pore structures with respect to the pore size scale have multifractal dimension.

**References**

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