

Synthesis of Dual Porous Ordered Mesoporous Carbon using Dual Silica Templates

이형익¹, 김진희¹, 김순근², 오영록², 최원재², 김지만^{3,4,*}
¹성균관대학교; ²경기과학고등학교; ³성균관대학교 화학과;
⁴성균관대학교 SAINT
(jimankim@skku.edu*)

Mesoporous materials, obtained by the favorable self-assembly between organic templates and inorganic precursors, have opened many new possibilities for applications in catalysis, separation, and nano-science due to their large, controllable pore sizes, high surface areas and easy functionalization. Recently, preparation of a new series of ordered mesoporous carbon materials has been reported via nanocasting technique using mesoporous silica as the templates. Compared with the typical porous carbon materials such as activated carbon, this new type of carbons promises to be suitable as adsorbents, catalyst supports, and materials for advanced electronics applications due to high surface area and uniform mesopores. However, the pore size control is yet of limited success in the synthesis of mesoporous carbon materials, compared with tunable pore sizes in the case of the inorganic materials.

Here, we present the pore size control of the mesoporous carbon materials by combining nano-imprinting and nano-casting techniques will be discussed. This approach for the synthesis of mesoporous carbon materials involves the creation of not only periodic mesopores but also of tunable pore system within the carbon frameworks.