Mesoporous Iron Oxides with Magnetic Property Using Mesoporous Silica Template

손정국, 소병국, 김지만*
성균관대학교 화학과
(jimankim@skku.edu*)

Mesoporous materials, obtained by the favorable self-assembly between organic templates and inorganic precursors, have opened many new possibilities for applications due to their large, controllable pore sizes, high surface areas and easy functionalization. The synthesis of mesoporous metal oxides has been less successful and most research in this field have been focused on the silica as a framework constituent, even though mesoporous materials derived from transition metal oxides are expected to be quite useful for lots of applications. One difficulty lies in a facile crystallization of most metal oxides, accompanied by structural collapse, during the mesostructure formations and the removal of organic templates.

Here, we synthesized mesoporous iron oxide using mesoporous silica as a template. Crystalline mesoporous iron oxide could be obtained by impregnation of iron oxide precursor and high temperature annealing. In addition, mesoporous iron oxide with magnetic property could be obtained after reduction process. Magnetic mesoporous iron oxide is expected to be used in various application field such as DDS (Drug delivery system), catalyst and so on.