

Synthesis and Characterization of Spray Dried Fe<sub>3</sub>O<sub>4</sub>/Carbon composite from the Templating of Microalgae

박진석, 이규복<sup>1</sup>, 오유관<sup>2</sup>, 박승빈<sup>†</sup>

KAIST; <sup>1</sup>충남대학교; <sup>2</sup>한국에너지기술연구원

(sbpark7@kaist.ac.kr<sup>†</sup>)

Recent attention on renewable and sustainable energy has driven the development of rechargeable lithium ion batteries (LIBs). In particular, the anode material based research has been investigated on the active metals (e.g., Sn, Si, Mg) and the transition metal oxides (MO<sub>x</sub>; M=Fe, Co, Mn, Ni) because of their higher capacity than the conventional anode material, graphite. However, due to the problem of their unstable structure deformation caused by high volume expansion during the conversion reaction, it has been reported that showing stabilized performance in the high capacity material which is composited with carbon. Among the carbon source, bio-templating of microalgae has shown its possibility for the lithium ion battery application. We suggest utilization of microalgae for carbon source via spray drying, so the synthetic process and the characterization of Fe<sub>3</sub>O<sub>4</sub>/Carbon composite will be identified.