Synthesis and Characterization of Manganese Oxide in Supercritical Hydrothermal Method

Agung Nugroho, 최혜민, 밤방, 김재훈*, 김재덕
한국과학기술연구원
(jaehoonkim@kist.re.kr*)

We demonstrate an approach to synthesize manganese oxide particle by simple continuous supercritical hydrothermal synthesis method that could be applied for mass production. The supercritical hydrothermal environment in 300 °C and 300 bar can convert manganese nitrate precursor to MnO_2 as confirm by XRD pattern. Surprisingly, by adding KOH on the system, we can convert manganese nitrate precursor to Mn_3O_4. From these result we conclude that KOH can become reducing agent in the supercritical water environment. The morphological change also was observed by addition of KOH as confirm by SEM and BET.