Formation of Iron Phosphides by Salt-assisted Spray Pyrolysis

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Transition metal phosphdies are of interest, because optoelectronic and magnetic properties of these materials are remarkably different as various stoichiometries, size and structure. Especially, iron phosphides are applied for magnetic semiconductor devices and electronic components due to their low band gap and magnetic properties. In this report, iron phosphides were prepared by salt-assisted spray pyrolysis(SASP). Salts prevent particles from agglomeration and reduce particle size. The influence of various operating conditions such as temperature and salt composition was investigated. The composition, morphology and size of particles were characterized by XRD and SEM, respectively.