

The effect of precursor salts on the Morphology of Metal oxide in spray pyrolysis

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The morphology of metal oxide particle by spray pyrolysis depends on the precursor types. Although same final product is prepared, the morphology is effected by the properties of precursor salts including different solubility, melting point, and decomposition rate of precursor salt. For example, ZnO prepared from zinc acetate is nanometer-sized particle by the disintegration of primary particle. However, ZnO prepared from zinc nitrate is spherical and hollow particle with a rough surface in the range of micron or submicron size. In this work, metal oxide particles including ZnO, NiO, and MgO were prepared from two salts of different melting temperatures and solubilities. Different morphologies were obtained by changing the mixing ratio. Among them, ZnO prepared from zinc acetate and nitrate has special morphology due to the phase separation of the mixed salts. The morphologies of the metal oxide was observed by SEM and TEM.