

Effect of Al polycation and DCCA on pore structure and morphology of alumina particles prepared by an aerosol process

김주현, 장혜란, 정경열*, 박균영, 조성백¹
공주대학교; ¹한국지질자원연구원
(kyjung@kongju.ac.kr*)

Mesoporous alumina (MA) has been used as catalyst, catalyst support, ion exchanger, and adsorbent because of its chemical and thermal stability. Conventionally, mesoporous materials have been prepared by liquid-phase reaction route such as sol-gel, precipitation, and hydrothermal methods. In this work, MA particles were prepared by spray pyrolysis of Al (NO₃)₂•9H₂O precursor using cetyltrimethylammonium bromide as a templating agent. In order to control the morphology and pore characteristics of MA particles, the Al polycation was formed by controlling the pH of spray solution. Also, the effect of drying control chemical agent (DCCA) on the morphology, surface area, pore size and distribution of MA particles was investigated. On the basis of SEM results, using the aluminum polycation made it possible to improve the morphology of MA particles compared with the nitrate solution. Also, the use of DCCA was useful to enhance the particle shape. More details about the pore structure were presented.