



Preparation of size-controlled tungsten oxide nanoparticles and evaluation of their adsorption performance

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Abstract

The present study investigated the effects of particle size on the adsorption performance of tungsten oxide nanoparticles. Nanoparticles 18–73 nm in diameter were prepared by evaporation of bulk tungsten oxide particles using a flame spray process. Annealing plasma-made tungsten oxide nanoparticles produced particles with diameters of 7–19 nm. The mechanism of nanoparticle formation for each synthetic route was examined. The low-cost, solid-fed flame process readily produced highly crystalline tungsten oxide nanoparticles with controllable size and a remarkably high adsorption capability. These nanoparticles are comparable to those prepared using the more expensive plasma process.

Keywords

A. Oxide; A. Semiconductors; C. Electron microscopy; D. Surface properties

Figures and tables from this article:

