

The production of high purity hexagonal MoO₃ through the acid washing of as-prepared solids

ABSTRACT

Highly pure and crystalline h-MoO₃ nanocrystals in the form of well-faceted straight hexagonal rods were successfully synthesised from an acid-base titration method. The formation of metastable h-MoO₃ was due to the addition of a high H⁺ concentration to a basic molybdenum solution. Precipitates were formed at a pH range of 1.95-2.10. X-ray diffraction (XRD) analysis confirmed that the obtained solids were hexagonal MoO₃, while their morphology was observed using scanning electron microscopy (SEM). The fabricated rods have a BET total surface area of ~3m²g⁻¹, with crystallite sizes ranging from 33 to 46 nm.

Keyword: hexagonal MoO₃; acid-base titration; precipitation