

MECHANICALLY TREATED VERMICULITE PARTICLES FOR THE USED IN THE CHEMICAL INDUSTRY

ČECH BARABASZOVÁ Karla, SIMHA MARTYNKOVÁ Gražyna

VSB - Technical University of Ostrava, Nanotechnology Centre, Ostrava, Czech Republic, EU

VSB - Technical University of Ostrava, IT4 Innovations Centre of Excellence, Ostrava, Czech Republic, EU

Abstract

For many of applications is very important the input processing of vermiculite particles. The vermiculite particles are normally carried out in energy intensive grinding mills such as planetary mill, oscillating mill and jet mill. Short-time grinding of vermiculite particles requires to the particle size reduction. But extended grinding lead to an intense structural degradation of the lamellar shape, lateral size and particle thickness reduction and progressive amorphization accompanied with formation of hard agglomerates. The changes of the structure and vermiculite particle size has an influence on the properties of new nanocomposite materials used in the chemical industry.

The natural vermiculite particles from Brazil were grinding in jet and ball mills. The shape of vermiculite particles has been studied using scanning electron microscopy (SEM) and atomic force microscopy (AFM). The particles size (PS) changes were characterized by the median particle size, volume-weighted mean diameter, mode diameter and span value.

Keywords: Vermiculite particles, mechanically treated, particles size and morphology

ACKNOWLEDGEMENTS:

This work was supported by the project No. SP2015/18 - Functional gradient nanostructured materials and CZ.1.05/1.1.00/02.0070 - IT for Innovations Centre of Excellence project.

Author did not supply full text of the paper.