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"Gheorghe Asachi" Technical University of Iasi, Romania

COMPARATIVE ANALYSIS OF COAL BENEFICIATION PERFORMANCE IN GAS-SOLID FLUIDIZED SEPARATION BEDS WITH DIFFERENT BED STRUCTURES

Shulei Song*, Guilin Zhang, Zhenfu Luo, Bo Lv, Xiaoqiang Cao

Key Laboratory of Coal Processing and Efficient Utilization, Ministry of Education,
China University of Mining and Technology, Xuzhou 221116, China

Abstract

Fluidization characteristics and separation properties of fluidized beds with different bed structures were studied. The stability of fluidized beds with different structures decreases with the increase of bed height. The uniformity and stability of density of rectangular fluidized bed is better than that of square and circular fluidized bed at the same bed height. The influence of fine coal content on the density distribution of fluidized bed has little relation with the bed structure. Separation results showed that ash segregation degrees of the three fluidized beds were generally high and the separation effects were good when the static bed height was 130mm, the fluidization number was 1.5, and the fine coal content was 10%. The rectangular gas-solid fluidized bed has the best separation effect: the lowest ash content of cleaned coal is 20.11% and the probable error E_p is 0.11g/cm^3. Its E_p value is significantly better than that of square fluidized bed (E_p=0.155 g/cm^3) or circular fluidized bed (E_p=0.16 g/cm^3).

Key words: bed structure, density separation, fluidization characteristic, gas-solid fluidized separation bed, separation experiment

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*Author to whom all correspondence should be addressed: e-mail: slsong@cumt.edu.cn; Phone: 86-13775978810