

Deep purification of low concentration fine particles by high gravity wet process intensification

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Abstract

Fine particles cause great harm to the environment and human body. High gravity wet dust removal is a new type of high-efficiency dust removal technology with the advantages of high dust removal efficiency, low economic cost, convenient operation and maintenance. In this paper, a pilot-scale experimental system was set up to explore the purification capacity of high gravity wet dust removal technology for low concentration fine particles. The obtained results suggested that under the operating conditions of inlet dust concentration of 50 mg/m³, high gravity factor of 138.36, gas velocity of 1.71 m/s and liquid spray density of 4.8 m³/(m²·h), the dust removal efficiency was as high as 99.46%. The cut-off particle size of high gravity cross-flow rotating packed bed was 0.09 μm, and the removal efficiency of fine particles with particle size above 0.2 μm was more than 95%.

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