化工学报 2010 61 (1): 55-59 ISSN: 0438-1157 CN: 11-1946/TQ

流体力学与传递现象

分流型芯管对导叶式旋风管内颗粒逃逸的控制

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收稿日期 2009-8-3 修回日期 2009-10-11 网络版发布日期 2010-1-20 接受日期

摘要

关键词

芯管 逃逸颗粒 短路流 旋风管

分类号

Control of escaped particles by slotted vortex finder in PSC type cyclone tube

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Abstract

Experimental and computational fluid dynamics was used in this study to predict the escape particles and evaluate the performance of PSC type cyclone tube with slotted vortex finder.The simulation results showed that the PSC type cyclone tube could remove the particles with a diameter greater than 5 μm.The PSC type cyclone tube increased the grade efficiency of particles with a diameter greater than 2 μm as compared with the Shell type cyclone tube.Short circuit flow occurred around the vortex finder slots and there was almost no short circuit flow under the vortex finder inlet.Most small particles escaped from vortex finder slots of the PSC type cyclone tube.The slotted vortex finder could develop “upwards flow” near the vortex finder inlet outside wall and control the escape particles under the vortex finder inlet.The force analysis of particles near the slotted vortex finder slots showed that gas flow carried the particles with a diameter smaller than 3 μm out the separator.

Key words

slotted vortex finder escaped particles short circuit flow cyclone tube

DOI:

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