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能源和环境工程

操作参数对陶瓷过滤管脉冲反吹清灰过程的影响

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摘要 在由单根陶瓷过滤管组成的实验装置上，利用U形管压差计及压阻式压力传感器分别测定了过滤含粉煤灰气体时滤管内外压差和脉冲反吹时滤管内的瞬态压力. 结果表明，在进入连续稳定循环过程后，单根滤管在各个循环的清灰效率仍存在较大的波动. 在过滤参数不变而仅改变反吹参数的情况下，可依据反吹压力波形正压峰值来判断清灰效率的优劣. 同时分析了重要操作参数对反吹压力波形及清灰效率的影响. 指出脉冲宽度对清灰效率几乎没有影响；在满足清灰要求的前提下，再提高反吹压力对清灰并没有明显的改善效果；而过高的过滤速度对清灰效率极为不利，会导致过滤循环操作无法正常进行.

关键词 陶瓷过滤器 脉冲反吹 瞬变压力 清灰效率

分类号

INFLUENCE OF OPERATING PARAMETERS ON PULSE CLEANING PROCESS OF CERAMIC FILTER

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Abstract

A cold-model filter experimental set-up, with a single ceramic candle filter element, was built to gain more insight into the surface regeneration process.A U-tube manometer was used to obtain pressure drop traces across the filter and a resistance-type pressure transducer was used to measure the internal transient pressures within the candle during pulse-jet cleaning.There exist definite fluctuations in cleaning efficiency even for continuously stable cycle of ceramic filter.When the filtration parameters were changed and the pulse jet parameters are held constant, the cleaning effectiveness could be inferred by the pressure inside the filter element.The influence of operating parameters on cleaning efficiency was also analyzed.The valve opening time almost showed no effect on [JP2]cleaning efficiency.On the basis of meeting the cleaning requirements, excessive reservoir pressure showed little influence on cleaning efficiency. Excessive filtration velocity is disadvantageous, which could lead to the failure of stable operation of the filter unit.[

Key words ceramic filter pulse-jet cleaning transient pressure cleaning efficiency

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