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多相流

竖直上升管中密相气力输送压降特性

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摘要 研究了内径20 mm的竖直上升不锈钢管道中粉煤密相气力输送单位管长压降随输送参数的变化规律，并得到了Zenz相图。结果表明，在实验操作范围内管道压降主要由固相自身静压降和固相摩擦压降组成，气相产生的压降不超过总压降的1%；固相体积分数是影响压降变化的主要因素，并讨论了粉煤流速以及固相体积分数对固相静压降和摩擦压降的影响规律；考察了粉煤流速和固相体积分数对固相摩擦系数的影响，对实验数据拟合得到了固相摩擦系数的关系式，计算结果与实验值吻合较好。

关键词 密相气力输送；压降；粉煤

分类号

Pressure drop characteristics of pneumatic dense phase transport in riser

Abstract

The pressure drop per unit length of pneumatic dense phase transport for pulverized coal with a riser of 20 mm bore stainless steel tube was investigated, and its Zenz-type diagram was obtained.The results revealed that the total pressure drop was mostly attributed to the solids static head and solids friction contribution, and the pressure drop due to gas less than 1% of the total pressure drop might be neglected in this study. Comparing with solids velocity, the solids volume fraction played a leading role for the total pressure gradient.Additionally,the solids friction factor was also investigated, and a correlation was recommended for predicting the solids friction factor, which was consistent with experimental data.

Key words pneumatic dense phase transport；pressure drop；pulverized coal

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