

导向管喷动床中煤和稻秸粒混料的流动特性试验 Flow Characteristics of Straw with Coal in Draft Tube Spouted Bed

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摘要: 将导向管喷动床改进为煤粒和稻秸粒混料气化设备, 通过导向管喷动床内进行的稻秸粒与煤粒混合物料冷态流动特性试验, 给出喷动的流体力学条件。研究了床层压降随表观风速的变化规律, 稻秸粒和煤粒混合比例、喷口直径和导向管喷口间距3因素对床层压降与表观风速关系曲线的影响以及对物料循环速率与风量关系曲线的影响。进行了3因素12拟水平的均匀设计试验, 采用SPSS软件进行回归分析, 分别得到了物料循环速率、单位床高压降及单位有效功率的物料循环速率3个因变量各自与稻秸粒和煤粒混合比例、导向管喷口间距及喷口直径3个自变量之间关系的多元回归方程, 用于预测稻秸煤粒混料在导向管喷动床中喷动时的流体力学参数。 To develop a draft tube spouted bed (DTSB) for gasification of straw with coal, flow characteristics of the mixture in DTSB before co-gasificating should be studied to get the spouting conditions. The relationship of pressure drop of the bed with superficial air velocity was analyzed, as well as the effects of various parameters such as proportion of mixture, jet diameter and draft tube jet distance (DTJD) on it and the relationship of the circulating rate of the mixture with superficial air velocity. Three regression equations were got by U12(123) uniform design experiments and multiple variable linear regression using SPSS. The dependent in these equations' s was circulating rate of the mixture, pressure drop of unit material height, circulating rate of the mixture of per effective power respectively and the independents were all of proportion of mixture, spout diameter and DTJD. Three equations can be used to forecast hydrodynamic parameters of the mixture in the DTSB.

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