

流化床等离子体加热稳定性试验 Experiment on the Stability of Plasma Heating Fluidized Bed

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摘要: 采用电能和氩气等离子体两种加热方式, 考察流化床反应器内不同位置温度的变化。在电加热速率不变的条件下, 测定玉米秸秆样品在热裂解试验的3个阶段的(预热、反应和反应结束)温度, 通过对不同阶段温度随时间变化分析得出采用电预热反应器, 预热时间长, 流化床床层温差较大, 约为200℃; 电预热后再通入氩气等离子体加热反应器, 预热时间短, 反应器预热到设定温度的时间一般为1 h, 且床层温差小(50℃左右); 反应过程中温度稳定, 有利于影响因素和产物特性分析。 In the experiment, a fluidized bed was heated using Ar plasma and electricity. The temperature was tested at different levels of the reactor in the preheating, reacting period and finishing reacting with the content electricity heating rate. The results showed that the duration of time required to preheat the reactor to the experimental temperature by using electricity was longer than that required by using Ar plasma, which was usually 60 min. When electricity was used, the peak difference in temperature between the beds was measured at about 200℃, while the difference attributed to Ar plasma heating was about 50℃. Further, Ar plasma heating resulted in even distribution of heat and steady operation of the fluidized bed.

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