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热能工程

胜利褐煤的加压热解特性分析

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摘要：

采用高温加压热重分析仪进行胜利褐煤的加压热解实验，并通过便携红外气体分析仪在线检测气体产物的释放，考察压力对煤热解过程的影响并进行动力学参数的计算。研究表明：不同压力下煤的热解都可以分为3个阶段，随着热解压力的升高，低温段的热解失重峰向更高温度偏移，而中温段的热解失重峰则向较低的温度偏移，煤焦的产量逐渐增大，CO释放量逐渐增多，而CH4释放量并无明显的规律；不同压力下的热解反应活化能差异不大，并同指前因子之间有良好的动力学补偿效应，相关系数达到0.982。

关键词： 加压热解 气体产物 动力学参数 失重峰 补偿效应

Analysis on the Behavior of Pressurized Pyrolysis of Shengli Lignite

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Abstract:

In order to investigate the influence of pressure on the behavior of coal pyrolysis, the pressurized pyrolysis of Shengli lignite was carried out under high temperature pressurized thermogravimetric analyzer (PTGA) and the gas product released from the PTGA was detected online by the portable infrared gas analyzer, then the kinetic parameters were also calculated. Results show that coal pyrolysis under different pressure can be divided into three phases, with the increase of pyrolysis pressure, weight loss peak at the low-temperature phase shifts to higher temperature while that of the mid-temperature phase shifts to lower temperature, and the coal char yield is enhanced gradually, what's more, the yield of CO is improved and there is no obvious rule in CH4 release; the pyrolysis activation energy under different pressure is almost the same and has good kinetic compensation effect with the pre-exponential factor, the correlation coefficient is 0.982.

Keywords: pressurized pyrolysis gas product kinetic parameter weight loss peak compensation effect

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