

工业气化装置原料煤及残余物气化反应特性研究

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Gasification reactivity of feed coal and residue from an industrial gasification plant

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摘要 考察了某工业气化装置中的原煤、滤饼及除沫器灰渣在不同温度下与水蒸气和CO₂的气化反应特性,采用扫描电子显微镜和吸附仪测试了样品的初始结构及表面特性。研究表明,采用相同气化剂进行气化反应时,原煤的气化活性要高于除沫器灰渣,而除沫器灰渣的气化活性则与滤饼相近,但略好于滤饼。这主要是由于三种样品的表面和内部结构存在很大的差异。由于水蒸气和CO₂与样品的反应机理存在差异,使得样品的水蒸气气化活性比CO₂气化活性高三倍左右。

关键词: 气化反应性 工业气化装置 水蒸气气化 二氧化碳气化

Abstract: The gasification reactivity of raw coal, filter cake and the slag in demister from an industrial gasification plant was investigated with steam and carbon dioxide as the gasification agent. The initial structure and surface characteristic of the samples were analyzed by scanning electron microscope and adsorption apparatus. The results show that the gasification reactivity of the raw coal is better than that of the slag in demister, while the gasification reactivity of the slag is similar to or a bit better than that of filter cake, which is mainly attributed to the extraordinary difference of surface and internal structure of these three samples. As a result of different reaction mechanism with steam and CO₂, the gasification reactivity of the samples with steam is about 3 times higher than that with CO₂.

Key words: gasification reactivity industrial gasification plant steam gasification carbon dioxide gasification

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