

论文

不同预处理方式和模拟产气实验对煤结构的影响

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摘要:

采用傅里叶红外 (FTIR) 及X-射线衍射 (XRD) 对反应前后煤体的结构进行检测, 结果表明: 原煤样经酸氧化、白腐真菌降解以及随后的模拟产气实验后, 芳香环逐步被打开, 芳香层片间距增大, 芳香层数减少, 碳碳键断裂处引入了羟基等官能团; 煤样的大分子结构被降解, 芳香结合程度降低。这表明所选取菌群可以有效降解低变质程度煤。

关键词: 煤结构; 红外光谱; XRD; 低阶煤; 生物甲烷

Effect of experiment of different pretreatment methods and simulating biogenic methane production on coal structure

Abstract:

Coal structure of pre and post reaction was detected by FTIR and XRD.Experiment results show that its aromatic ring is gradually opened, distance between aromatic plane largen, the number of aromatic plane decreases through acid oxidation, white rot fungus degradation and the subsequent biogenic methane production simulation, carbon- carbon bond has been broken and functional groups is added into the structure such as hydroxy etc.Macromolecular structure of the coal sample is degradated and the aromatic combination is reduced.All these show the selected bacterium can degrade low-rank coal effectively.

Keywords: coal structure; infrared spectroscopy; X-ray diffraction; low-rank coal; biogenic methane

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