

论文

煤低压吸附瓦斯变形试验

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摘要:

在瓦斯抽采和煤炭开采过程中, 始终伴随着煤对瓦斯的吸附和解吸, 煤吸附瓦斯发生膨胀变形, 解吸瓦斯发生收缩变形。利用自制的吸附解吸试验装置, 测试了煤在低压吸附瓦斯过程中煤体变形规律。试验结果表明: 煤样在同一瓦斯压力下的吸附变形分为快速增长、缓慢增长、平衡3个阶段; 煤体吸附瓦斯膨胀变形呈各向异性, 垂直层理方向和平行层理方向的变形整体变化趋势呈现一致性; 在等梯度加压吸附过程中, 随着吸附瓦斯压力的不断增大, 煤样吸附膨胀变形梯度值逐渐呈增大趋势; 一次加压吸附煤膨胀变形量小于等梯度加压吸附至相同吸附压力值时的累积变形量。

关键词: 低压吸附; 煤和瓦斯; 变形; 等梯度加压吸附

An experimental on deformation of coal adsorption of low pressure gas

Abstract:

Along with adsorption and desorption of coal and gas, coal produce inflation deformation after adsorption and produce contraction deformation after desorption in the process of gas extraction and coal mining, in order to further study coal deformation in low pressure after adsorption and desorption, using self made instrument of adsorption and desorption were tested. The results show that : deformation of coal samples in the same gas pressure is divided into rapid growth stage, slow growth stage, balance stage, adsorption inflation deformation of coal appears as anisotropy, strain of vertical and parallel direction of bedding overall trend present consistency, along with the gas pressure increasing, maximum deformation of coal appear trend of increase in the test of increasing pressure adsorption, deformation of the a pressure adsorption is less than the successive pressure in the same pressure.

Keywords: adsorption of low pressure; coal and gas; deformation; increasing pressure adsorption

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