

论文

煤与瓦斯突出地质控制机理探讨

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摘要:

在综合考察国内外煤与瓦斯突出研究基础上, 从瓦斯地质角度深入分析构造煤体、高压瓦斯和构造作用等影响突出发生的关键因素, 初步提出以瓦斯突出煤体为核心的煤与瓦斯突出地质控制机理。认为地质构造控制着煤层瓦斯的赋存和构造煤分层破坏程度以及厚度分布, 控制着煤与瓦斯突出; 煤与瓦斯突出动力现象是一定规模的瓦斯突出煤体在临近采掘工作面煤壁时, 卸载引起煤体拉张向深部扩展破坏, 煤层透气性高倍增加, 同时煤体内大量瓦斯因降压而快速解吸, 靠近煤壁的煤体内瞬间形成高动能的气、煤颗粒混合物, 类似点爆炸药包, 造成煤层严重崩塌破坏, 发生煤与瓦斯突出。以郑煤集团大平煤矿“10·20”特大型煤与瓦斯突出为基础, 进行地质控制煤与瓦斯突出实例分析, 结合新疆自治区煤矿瓦斯地质特征揭示了瓦斯突出煤体发育和分布规律。

关键词: 瓦斯地质; 煤与瓦斯突出; 地质控制; 瓦斯突出煤体

Research on geological control mechanism of coal-gas outburst

Abstract:

Overall investigating into the current coal gas outburst mechanisms at home and abroad, we analyzed the key factors influencing coal gas outburst from the perspective of gas geology, such as deformed coal, gas and tectonism. Based on those results, the geological control mechanism of coal gas outburst centering on gas outburst coal is tentatively proposed. It is pointed out the coal gas outburst being as follows: in the face of coal wall, gas outburst coal with a certain thickness is extended to expansion and failure due to unloading mining, and permeability of coal seam increases; because of abundant coal bed methane (CBM) desorbing fast, a mixture of CBM and coal particles with higher kinetic energy has been formed instantly in front of the coal wall, like an explosives, and it results in avalanche damage of coal body. Taken the “10·20” mining calamity for example, the geological control case for coal gas outburst had been analyzed, and revealed the distribution of gas outburst coal based on gas geological characteristics of coal mines in China’s Xinjiang Uighur Autonomous Region.

Keywords: gas-geology; coal gas outburst; geological control; gas outburst coal

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