

目次

兖州煤田主采煤层顶板稳定性特征分析

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摘要 对兖州煤田主采煤层顶板稳定性特征进行分析, 把影响煤层顶板稳定性的因素归纳为岩石的沉积学特征、构造特征、力学性质等几个方面。从沉积学特征分析, 把煤层顶板分为下软上硬型、下硬上软型及复合型; 从构造特征分析, 煤层顶板分成构造特别发育型、发育型、中等发育型和不发育型; 从岩石强度方面把煤层顶板分成强度特高型、强度高型、强度中等和强度低型。综合考虑各因素, 利用层次分析法原理和模糊综合评判理论对煤层顶板稳定性进行评价。把兖州煤田主采煤层顶板稳定性特征划分为非常稳定型、稳定型、中等稳定型和不稳定型4级。非常稳定区主要是沉积厚层中粗砂岩, 构造极少发育, 岩石力学强度高; 稳定区主要是沉积中厚层细粉砂岩, 构造少量发育, 断续展布, 岩石力学强度较高; 中等稳定区主要是沉积粉砂及泥岩, 构造大量发育且部分贯通, 岩石力学强度中等; 不稳定区主要是沉积泥岩及煤线, 构造相当发育, 大都相互贯通, 裂隙较多, 岩石力学强度低。

关键词 [采矿工程](#) [层次分析法](#) [顶板稳定性](#) [模糊数学](#) [权重](#)

分类号

STUDY ON STABILITY CHARACTERISTICS OF MAIN SEAM ROOF IN YANZHOU COALFIELD

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Abstract

The stability characteristics of main seam roof in Yanzhou coalfield are analyzed. And the different influencing factors are generalized as the sedimentary characteristics, tectonic characteristics, mechanical property and some others. From sediment analysis, the main seam roof is divided into hardness-upward, softness-upward or their compound. From tectonic characteristics, the main seam roof is divided into super structure-development, structure-development, middle structure-development, and nondevelopment. From rock strength, the main seam roof is divided into extra-high intensity, high intensity, middle intensity, and low intensity. All factors are comprehensively analyzed, and based on analytical hierarchy process(AHP) and fuzzy mathematics method, the stability characteristics of main seam roof are evaluated in Yanzhou coalfield. The stability roof are divided into four grades: super stability, stability, middle stability and instability. The zone of super stability is thick coarse sandstones, with few structures and extreme high strength. The zone of stability is medium-bedded fine sand and silt with a few structures and intermittent, and high strength. The zone of middle stability are silt and mudstone with many structures of partly cutting through and medium strength. The zone of instability are mudstone and seam with large quantity and continuous structures and low strength.

Key words [mining engineering](#) [analytical hierarchy process\(AHP\)](#) [stability of seam roof](#) [fuzzing mathematics](#) [weight](#)

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