

论文

泥质岩膨胀势判断及其破坏机理分析

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摘要:

应用曲永新提出的"不规则岩块干燥饱和和吸水率判别法"和成岩胶结系数指标法,对山西某一煤矿巷道中泥质岩的膨胀性进行综合判定,其属于非膨胀性泥质岩。并对巷道中岩样的矿物组成成分进行分析,岩石中石英和铁矿的含量较多,且分布极不均匀,所含粘土矿物主要为高岭石。最后,从岩石的矿物组成、结构构造、节理面及微节理面的特征以及岩石在受压力时裂隙的扩张情况等角度,综合分析得出泥质岩以脆性破坏为主。

关键词: 泥质岩 胶结系数 膨胀性 脆性破坏 节理面

CRITERIA OF SWELLING POTENTIAL AND ANALYSIS ON FAILURE MECHANISM FOR MUD ROCK

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Abstract:

This paper adopts the two methods: water absorption of irregular rock in both dry and saturated conditions and cemented coefficient of rock, proposed by Qu Yongxin, to study the swelling potential of mud rock. The mud rock is in some tunnel coal mine in Shanxi. The results show that the mud rock does not swell. On the other hand, the paper examines the mineral composition of the mud rock. It is found that the mud rock has much, non-uniform distributed quartz and iron, as well as kaolinite. The kaolinite is the main clay mineral. The mud rock shows brittle failure when it is compressed under uniaxial and triaxial tests with low confining pressure. Finally, the paper introduces several factors influencing the failure of rock. The factors include mineral composition, configuration and conformation, characteristic of joint or tiny joint surface and extension cranny in rock.

Keywords: Mud rock Cemented coefficient Swelling Brittle failure Joint surface, Tunneling

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