

论文

薄基岩采动裂缝水砂流运移过程的模拟试验

杨伟峰, 隋旺华, 吉育兵, 赵国荣

中国矿业大学 资源与地球科学学院, 江苏 徐州 221116

摘要:

在分析厚松散层薄基岩下开采水砂突涌工程地质模式的基础上, 设计自制了水砂混合流运移及突涌模型。试验以0.05 MPa和0.10 MPa水压力条件下的不同水砂混合物成分、不同通道裂缝宽度为例, 揭示了孔隙水压力在裂缝通道中不同位置的变化特征。通过设置的模型试验, 量化地研究水砂混合物运移及涌出的多种地质信息, 获得不同模型试验水砂混合流运移通道中不同位置监测的水压力变化曲线, 同时分析裂缝通道水砂流速度与通道宽度的关系, 观测水砂流通道溢出口出砂量与时间的变化关系。

关键词: 薄基岩 裂缝通道 水砂流 模型试验

Experimental research on the movement process of mixed water and sand flow across overburden fissures in thin bedrock induced by mining

Abstract:

Based on the engineering geological modes of quicksand inrush induced by coal mining under the thin bedrock and thick unconsolidated formations,a test model of the mixed water and sand flow transfer and inrush was designed.The variation characteristics of water pressure in different position of the fissure channel were revealed by considering the various compositions of the flow and variations of the width of the fractured channel under the water pressure of 0.05 MPa and 0.10 MPa.Geological information of the mixed water and sand flow transfer for the various compositions of the flow,water pressure and the channel feature was quantitatively studied.The water pressure variation curves in the different positions were gained from different model tests.The relations between the channel width and the velocity of the mixed water and sand flow in the fractured channel were analyzed.The relationship between time and sand production volume of the mixed water and sand flow channel overflows was obtained from observational results.

Keywords: thin bedrock;fissure channel;mixed water and sand flow;model test

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通讯作者: 杨伟峰

作者简介: 杨伟峰(1974—), 男, 内蒙古赤峰人, 副教授, 博士

作者Email: yangwf888@163.com

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