

Application of Extenics Classification to Coal Mine Floor Water Inrush Risk Evaluation

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Abstract Some factors, such as fault density, fault water transmitting ability, fracture development degree, confined water pressure, aquifer water yield property, karst development degree, strong water source recharge, aquifuge thickness, aquifuge strength, aquifuge integrity, mining thickness mining depth and inclined length of the mining face in total 13 indicators, were chosen as the evaluation key factors. Proposed a matter element model for coal mine floor water inrush risk evaluation on the basis of the calculation of dependent function, matter-element theory and extenics set theory. At the same time, the extenics classification method was used to evaluate inrush risk of Panel 3612 in an underground coal mine of Huaibei area. Then selected typical cases of coal mine floor water to analyze and the evaluation results is consistent with the actual results. The mining practice verified the reliability of the classification. So the classification method to coal mine floor water inrush risk evaluation based on extenics have good practicality and effectiveness. The conclusion provides a new thought and method for coal mine floor water inrush risk evaluation.

Keywords extenics, matter-element model, floor water inrush, risk evaluation