

# Analysis of coal energy storage ratio index

What is the energy criterion for coal burst proneness?

To evaluate the coal burst proneness more precisely, a new energy criterion namely the residual elastic energy index was proposed. This study begins by performing the single-cyclic loading-unloading uniaxial compression tests with five pre-peak unloading stress levels to explore the energy storage characteristics of coal.

Does residual elastic energy index affect coal burst proneness?

An evident correlation between the residual elastic energy index (CEF) and the actual coal burst proneness was found. On this basis, CEF was introduced to evaluate the coal burst proneness, and a relevant grading standard was determined.

What is a peak-strength strain energy storage index?

Gong et al. proposed a peak-strength strain energy storage index  $W_{ETP}$  based on the linear energy storage law (i.e. in the rock uniaxial compression test, the elastic strain energy of rock specimen increases linearly with the input energy), which was modified from WET.

How to predict coal burst risk in a coal mine?

The burst proneness of coal is an intrinsic factor in the occurrence of coal burst. Thus, there is a fundamental need to evaluate the burst proneness of coal to predict the coal burst risk in a coal mine. Various criteria have been proposed for evaluating the coal burst proneness using energy, strength, failure time, and elastic modulus.

How is coal burst proneness calculated?

In addition, the peak EED used to determine CEF can be precisely calculated based on the linear energy storage law, which will help improve the accuracy of estimating coal burst proneness. More importantly, CEF is defined as the difference between the peak EED and the FED.

Is coal burst related to failure energy?

Tan and Jiang et al. believed that coal burst was related to the failure energy, and recommended using the bursting energy index (KE, the proportion of the pre-peak total input energy to the post-peak failure energy) to evaluate coal burst proneness.

The strain energy storage index  $W_{ET}$  was widely used to evaluate coal burst liability, but the scientific evidence for selecting the unloading stress level interval (around 80% ...

To evaluate the coal burst proneness more precisely, a new energy criterion namely the residual elastic energy index was proposed. This study begins by performing the ...

# Analysis of coal energy storage ratio index

In this study, a modified bursting energy index, which is defined as the ratio of elastic strain energy at the peak strength to the released strain energy  $d$ . at the post-peak stage, was proposed to evaluate the coal burst ...

Semantic Scholar extracted view of "Peak-strength strain energy storage index for evaluating coal burst liability based on the linear energy storage law" by F. Gong et al.

the three-point loading technique to study the energy storage and dissipation characteristics during rock bending fracture. Szecowka et al.<sup>19</sup> proposed the strain energy ...

Coal analysis techniques are specific analytical methods designed ... Aside from physical or chemical analyses to determine the handling and pollutant profile of a coal, the energy output ...

Coalbed methane (CBM) is often stored in coal rocks in an adsorbed state, and because of its extremely high calorific value and the fact that it produces almost no exhaust ...

Xu et al. defined the ratio of the LERR to the limit energy storage rate (LESR) as the coal burst energy release rate based on energy evolution during coal failure. This was ...

South Africa (SA), one of the world's leading coal producers, is largely reliant on coal to supply its energy needs 1. According to the Department of Energy's 2001 National ...

where  $l_g$  is the energy quality coefficient of gas.  $T_{b u r n g a s}$  is the theoretical combustion temperature of the gas. The theoretical combustion temperature of the gas in the gas equipment is generally  $1,300 \pm 176; C$  ( $1,573.15 K$ ), so the ...

The specific calculation formula is: (31)  $RTE = W_{dischar} W_{char} + D Q_{CFPP}$  (32)  $D Q_{CFPP} = t_{char} D q_{char} + t_{dischar} D q_{dischar} N 3600$  where  $W_{char}$  and  $DQ_{CFPP}$  ...

The bursting liability of coal, referring to the characteristic of coal to accumulate strain energy and produce impact damage, is an important factor influencing the occurrence ...

The ratio of energy storage capacity over total demanded ... Accounting for inflation to 2007 using the producer price index ... Y. et al. EROI analysis for direct coal ...

A comprehensive analysis of a thermal energy storage concept based on low-rank coal pre-drying for reducing the minimum load of coal-fired power plants

Studying the evolution of characteristics associated with the energy of gas-bearing coal is essential for exploring the mechanism of coal and gas outbursts and disaster ...

# Analysis of coal energy storage ratio index

In this study, a modified bursting energy index, which is defined as the ratio of elastic strain energy at the peak strength to the released strain energy d. at the post-peak ...

Bursting liability index of coal based on nonlinear storage and release characteristics of elastic energy: LU Zhiguo<sup>1,2,3</sup>, JU Wenjun<sup>1,2,3</sup>, GAO Fuqiang<sup>1,2,3</sup>, YI ...

In this paper, an index called the effective elastic strain energy release rate (EESERR) index is proposed and used to evaluate the coal's bursting liability.

Xu et al. defined the ratio of the LERR to the limit energy storage rate (LESR) as the coal burst energy release rate based on energy evolution during coal failure. This was used as an index to evaluate bursting ...

In this study, a modified bursting energy index, which is defined as the ratio of elastic strain energy at the peak strength to the released strain energy density at the post-peak ...

Web: <https://centrifugalslurrypump.es>