Utilization coefficient of rock drill

Sec-ondly, the proposed workflow will utilize predictive machine learning algorithms like XGboost and random forest to estimate geophysical logs indicating rock type ...

In this study, a field-drilling test is performed using a rotary non-percussive drilling machine equipped with a new drilling-monitoring system to investigate the effects of drilling ...

An equation to predict UCS from sonic velocity data is suggested based on several data sets reported in the literature. Use of the specific energy equation with UCS or sonic data and ...

Real-time optimization of drilling parameters based on mechanical specific energy for rotating drilling with positive displacement motor in the hard formation

Abstract Mechanical Specific Energy (MSE) is now a well-known concept to quantify the cutting efficiency of the rock. Thanks to its simplicity, its utilization has significantly increased over the ...

Fundamental rock-drilling studies are aimed at optimizing the drilling efficiency by identifying the optimal drilling conditions and rock drillability. In this study, a field-drilling test is ...

The penetration coefficient can represent the relationship between force and depth in the rock drilling process, but its understanding is limited. Therefore, based on the rock ...

A total of fifteen surface drill rigs, all of which are of the same brand and model, Tamrock Pantera 1100, have been studied. Each rig is equipped ...

In this study, an attempt is made to collect rock properties, drilling machine specifications, and the DR data from numerous drilling case studies to develop new equations ...

In low-quality rock, the penetration rate can be potentially very high but the support needs, rock jams and gripper bearing failure result in slow advance rate, with utilization ...

The efficiency of rock drilling tools is determined by a complex interplay of factors, including the shape of the drill head, rock hardness, compressed air pressure, powder discharge methods, ...

Abstract: The drilling strength parameters of formation rocks are important reference basis for drilling engineering design, bit selection, and drilling parameter optimization. Establishing a ...

Rock drillability evaluation is a basic task for oil, gas, and geothermal drilling engineering design that includes

bit design, bit selection, ...

To optimize and improve the impact performance of a hydraulic rock drill, it is helpful to test the stress waves of the drill and analyze the ...

He concluded that each method of measuring brittleness has its usage in rock drilling, depending on practical utility, i.e. one method of measuring brittleness shows good correlation with the ...

The product of availability, utilization and quality rates in the drilling process calculates ODE. Quality is defined by the quotient between recovered ...

When operating eficiently, rock strength and bit aggressive-ness efect the drill rate, but large changes in drill rate are usually due to ineficiency or dysfunction in the rock cutting process. If ...

- coefficient of single row drilling work, in common situation, F =0.3~0.6; - drivage sectional area,m2; - utilization rate of borehole; - the hulking coefficient of the rock, in common situation, ...

In a hard-rock mine, blasting is an important rock-breakage process that impacts energy consumption both in downstream comminution processes and mine productivity. ...

This is due to the increase in working time utilization coefficient and the reduction in the number of drilling equipment and post-blasting filling ...

Rock-breaking specific energy model of bit is the key foundation of evaluation and optimization of downhole drilling condition, while some necessary parameters for the existing ...

The authors in [15] correlated drilling variables and blast performance to the data analysis of different drilling parameters such as ...

In rotary percussion drilling, in contrast to rotary drilling, with an increase in the feed force to 1200-1500 kg, the drilling speed in medium-hard rocks increases by 4.5-5.0 times, and in strong ...

Assessment of drillability of rocks is vital in the selection, operation, and performance evaluation of cutting tools used in various excavation machinery deployed in mining and ...

However, a relatively higher determination coefficient for a particular set of data e.g. data collected from the same rock type (basalt, metabasalt, dacite, ...

This research further aims to explore ways to improve the utilization of drilling parameters. The first application works to identify clusters giving the best drilling performance ...

Utilization coefficient of rock drill

A high-performance water-based drilling fluid for the Shuijingtuo shale (the SWDF drilling fluid) was proposed based on physical plugging by nanoparticles, electrical property ...

Drill and blast mining is a common method used to break up "beds" of rock, to send small pieces of stone containing ore to the processing plant, where the val-uable ore is then separated from ...

Use of the specific energy equation with UCS or sonic data and utilization of drilling data allows an estimation of the efficiency of energy transfer from the ...

Intelligent research on rock drilling is mainly reflected in the intellectual perception of rock drilling sections and surrounding environments, dynamic monitoring of the position and ...

An equation to predict UCS from sonic velocity data is suggested based on several data sets reported in the literature. Use of the specific energy equation ...

The article considers geometric parameters of roc cutters, peculiarities of drilling modes, affecting energy intensity and drilling ...

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