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## USING NON-BLASTING TECHNOLOGIES FOR DESTRUCTION OF HARD ROCK IN SURFACE MINING

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**Purpose.** Determination the effective application field of non-blasting technology and technologies for the hard rock preparation for excavation during surface mining.

**Methodology.** The carry out researches are based on the study of the physical and mechanical rocks properties influence on the mining equipment productivity at the non-blasting preparation of hard rocks and the excavation technology on the operating expenditure of the mining enterprise.

**Findings.** Current technological solutions in the field of non-blasting destruction of hard rock at the surface mining in practice allow increasing the economic efficiency of the mining enterprise and reducing the negative influence on the environment. The feasibility of using non-blasting technologies is confirmed in practice at the development hard rock with uniaxial compression strength of 20 – 90 MPa. The productivity of equipment at the non-blasting destruction of hard rocks in quarries depends on the physical and mechanical properties of rocks. The main factors that influence on the process of non-blasting destruction of hard rock by mining machines are strength, fracturing and abrasiveness of rocks.

The main difficulty in choosing effective technique and technology for the non-blasting preparation of rocks for excavation is the justification of the mining machine type in accordance with the given quarry productivity and grain size of the products. The results of the carry out researches show that continuous mining machines have high productivity in the non-blasting destruction hard rocks. At the same time, the capital and operating expenditure of the enterprise in this situation are much higher than using machines of cyclic action. A significant disadvantage of continuous machines in the non-blasting destruction of the hard rock is the regrinding of the mineral, which leads to an increase of its losses due to a decrease of the commodity fraction. Justification of the transition expediency from drilling and blasting to the non-blasting preparation of hard rock to the excavation should note specific conditions of mineral deposit and carried out individually, taking into account the reduction of expenditure for drilling and blasting, loading, crushing process.

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**Key words:** non-blasting technologies, mining equipment, hard rocks

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## LEACHING OF URANIUM DEPOSITS IN MONGOLIA

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The paper outlines the results of field, laboratory, and theoretical studies on geotechnical parameters of uranium in-situ leaching (ISL) for hydrogenous deposits located in eastern Mongolia. The field and laboratory studies included drilling, geophysical surveying, testing and evaluation of mechanical and flow properties of uranium-bearing rocks, and evaluation of chemical compositions of