^{o}С протягом 20…30 хв. до повного гідролізу полісахариду інуліну дозволяє підвищити ступінь зброджування пива до 90 %. Отримане низькокалорійне дієтичне пиво за фізико-хімічними та органолептичними показниками відповідає вимогам ДСТУ 3888:2015 «Пиво. Загальні технічні умови».

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ANALYSIS OF INFLUENCE FACTORS ON EFFICIENCY OF DEVELOPMENT OF THE ROCKS SURFACE MINERS

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The mining industry of Ukraine needs to be developed through the use of modern mining equipment and the latest technologies, because it plays an important role in improving the country's economy.

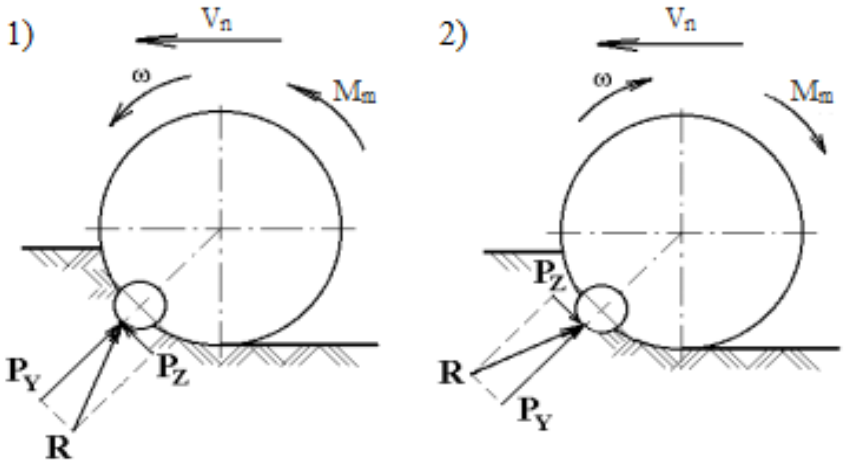
Important areas for improving the efficiency of open mining is the development of new technologies and modern high-performance excavation and loading equipment, providing modernization and high organizational and technical level of production of mining enterprises. Important areas for improving the efficiency of open mining is the development of new technologies and modern high-performance excavation and loading equipment, providing modernization and high organizational and technical level of production of mining enterprises.

Mountain combines of milling type are intended for layer-by-layer working off of the rock massif. Therefore for working off of rocks by mountain combines, it is necessary to improve technology of layer milling in the conditions of open development of iron ore deposits.

A significant number of scientific works performed in the direction of the study of the mechanism of softening of rocks, which indicate that a significant impact of the system of cracks in the rock mass has a process and the results of

layer-by-layer milling of rocks by surface miners. The process of development of rock mass combine method is determined by the influence of physical and mechanical properties and structure of the developed rocks on the working body of the combine.

In work [1] is the study of the nature of softening of the rocks of the mountain combines. Counter milling (1) and passing milling (2) of rock mass (**fig. 1**). Counter milling of rock massif occurs with breaking of large rock pieces in the direction of working off the rock layer, which is solved by improving the process of rock development.



1 – counter milling rocks; 2 – climb milling rocks

Figure 1 – The schemes of weakening of rocks massif

The development of half-rocky rocks and rocky rocks by milling combines depends on the distance between the cracks in the ledge massif and the percentage of the aggregate of naturally distributed pieces in the massif, taking into account their tensile strength for uniaxial compression.

Important properties of rocks for the study of the mechanism of their destruction are:

volumetric weight, which is a unit volume of rock with present natural structure and humidity;

fracture, which is a system of cracks of different sizes and nature;

resistance of rock to any kind of destruction, which is estimated by the value of the strength factor *f* on the scale of M.M. Protodyakonov, is determined by the formula

$$f = 0.1 \cdot \sigma_c, \qquad (1)$$

where σ_c – the tensile strength of rocks under uniaxial compression, MPa.

On the other hand, the energy intensity of rock softening during their layer-by-layer milling by mining combines mainly depends on the shape and number of reinforced cutters of considerable stability on the working body, their speed and rotation duration.

In work [2] on the basis of the analysis of loadings at cutting emerges that in an energy spectrum there are signs inherent in kinematic work of working body taking into account its technological and constructive opportunities and actually kinematics of the process of chipping of the massif of rocks.

Conclusions: So, the analysis of scientific works in the direction of development of rocks by combine method shows that the effectiveness of softening of rocks by milling combines depends on the strength and structural characteristics, taking into account the physical and mechanical properties of rocks, as well as the features of the interaction and formation of relationships between the rock and the working body of the combine layer milling.

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STUDY OF THE DEVELOPMENT OF ROCKS BY SURFACE MINERS IN CONDITIONS OF MINING STEEPLY DIPPING IRON ORE DEPOSITS

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Market conditions for the growth and functioning of the mining industry now require serious rethinking in the direction of rational use of all resources of mining enterprises for the purpose of integrated development of iron ore deposits. Also quite important for the development of capital-intensive mining industry is the introduction of large-scale investment programs aimed at obtaining technological and technical re-equipment of iron ore enterprises, as well as the rational choice and use of modern mining equipment.

The existing domestic iron ore quarries are characterized by parks of basic technological equipment that require updating, as they are outdated and have significant wear.

Based on perennial experience of mining and the results of scientific research, you can now maintain non-blasting the development of half-rocky rocks and rocky rocks surface miners.

In the vast majority of the development of half-rocky rocks and rocky rocks in the development of steep iron ore deposits occurs with the implementation of a complex of drilling and blasting operations.

At present, preference is given to the non-blasting method of preparation of the rock massif for excavation, which has significant advantages over the preparation of rocks for excavation by blasting.