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## **CLASSIFICATION OF ROCKS IN A MASSIF ACCORDING TO FISSURING COEFFICIENT OF THE STRUCTURAL WEAKENING**

Fissuring of rocks interests a mining engineer from the point of view of its role as a weakening factor. This factor is the subject to the account at the solving of the tasks of firmness of mining objects in choosing the optimal facilities of destruction of rocks in a massif and in estimation of their physical properties. The knowledge of regularities of fissuring development on the whole, systematization and analysis of the data on fissuring will allow to forecast more reliably the mining conditions of deposits, will render an invaluable help to the designers and operatives at the solving a number of problems. In particular, it will allow to detect and take into account the zones of weakening, to choose the places of the mother entries, to calculate the parameters of the management of the rocks massif state.

Fissure is the break of the wholeness of the environment, the size of which exceeds by far and more the interatomic distances in crystalline grates (i.e. more than  $10^{-10}\text{M}$ ).

By the origin the fissuring of rocks is divided into untectonic, tectonic and planetary. Untectonic fissuring of rocks is the consequence of rock shattering in the process of cooling (for igneous rocks), of compression, and of dehydration (for sedimentary rocks).

Technological fissuring caused by the mining operations and rock fissuring in the zone affected by mining, caused by mountain pressure etc. also belong to untectonic fissuring.

Tectonic fissuring develops in rocks due to tectonic processes, it is caused by mountain formations and by deep movements of platforms.

Planetary fissuring is connected with tensions caused by the change of frequency of rotation of the Earth and its forms.

There are a lot of classifications of fissuring of rocks. So, N.M. Proskuriakov distinguishes natural fissuring, i.e. cracks that arose in rocks without the influence of mining works, and technological or operating cracks, i.e. cracks that appeared in rocks under the influence of cleansing excavation. Thus, natural fissuring includes the cracks of cleavage and tectonic fissuring. Taking into account the orientation of cracks in relation to stratification, the line of cleansing coalface and mutual location of the systems of cracks, N.M. Proskuriakov distinguishes eleven groups of cracks. He suggests to estimate the firmness of a seam roof in lava quantitatively by the coefficients of dump formation, bench formation and by the coefficients of fissuring of the roof that is calculated according to the formula (1.1).

$$K_T = \sum l_T / S_0, \quad (1.1)$$

where  $\sum l_T$  is the total length of visible cracks on the sector of working-face of the space, overcome by cracks, m;

$S_0$  is an area of this sector, m<sup>2</sup>.

But N.M. Proskuriakov does not give the classification of rocks of the roof in lava taking into account  $K_T$ .

V.V. Rzhovsky and G.Ya. Novik classify cracks according to next five signs: the opening degree, size, form, geometrical interrelation of cracks with cleavage and the angle of slope to the horizontal line.

In the Directions of Research Institute of Mining Geomechanics and Mine Surveying (RIMGMS) the classification of rocks is given depending on the intensity of fissuring, i.e. on the sizes of pieces into which the core is divided or on the distance between the cracks. The more intensive the fissuring is, the less the value of the coefficient of the structural weakening of massif  $K_c$  is (table 1).

Table 1

#### Classification of rocks in a massif according to fissuring

Category of rocks on fissuring	Distance between the surfaces of weakening $l$ , m	Coefficient of the structural weakening, $K_c$
Practically monolithic	>1,0	0,9
Little fissured	0,5 - 1,0	0,8
Medium fissured	0,3 - 0,5	0,6
Fissured	0,1 - 0,3	0,4
Very fissured	<0,1	0,2

All above mentioned show that presently there is not the unique classification of rocks in a massif according to fissuring. The analysis of the existing classifications allows accepting for practical aims the classification of rocks in the massif according to fissuring offered by RIMGMS and complemented by the names of the rock categories.