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ANALYSIS OF THE FACTORS THAT INFLUENCE THE OUTCOME OF CRUSHED STONE PRODUCTS

The topicality of the research. Nowadays, the technological parameters of mining operations do not meet the modern requirements imposed by the modern economic market. For example, the design of drilling works is carried out in accordance with the provisions that were developed in the early 1950, based on the mode of fixed percentage content of the original "oversized" in the aggregate pieces of exploded rock.

The cost of crushed stone goods manufacturing consists of the costs of blasting, excavation, transportation and crushing at a crushing and sorting plant. All the mentioned above depends, to some extent, on rock mass cultivating.

Analysis of the study

The nature of the crushing of rocks by the explosion is determined by the general effect of many natural and technological factors that can be divided into two main groups: the first one relates to the physical and mechanical properties and characteristics of the undrawn rock mass, to the other - the magnitude, duration and sequence of stress caused by the explosion. This group of factors also includes the main technological parameters. The change of these parameters can be controlled by the destruction of the rock massif.

The waves of stress occurring in the medium when initiating the charge of explosion are characterized by the following basic parameters: the magnitude of the maximum voltage, the time of increase of the maximum voltage, the duration of the positive voltage phase, the magnitude of the operating voltage, the steep edge, is the magnitude of the relations of the values of the maximum voltage to the time of increase.

Theoretically, the influence of each of the parameters of a stress wave on the level of crushing is determined in different ways in the process of rock destruction by an explosion. The number of fragmented pieces in each part of an array is directly proportional to the strength of a rock on the stretch according to Khanukayev's research.

The analysis of dependencies shows that the medium voltage short pulses of considerable amplitude leads to redistribution of the rock in the zone of adjacent charge, while reducing the maximum stress and increasing the duration of the pulse increases the uniformity of crushing rock massif. Thus, the regulation of the granulometric composition of the exploded rock can be made by changing the magnitude of the maximum stresses and the duration of the existence of a stressed state of the array at a given point. The most effective regulating factors that change the magnitude of the maximum amplitudes of stress waves and the time of their action in an array of rocks are the charge diameter and the type of explosive.

The impact of these factors within a wave model of the explosion in an environment could be easily taken into account in ideal conditions only. The problem of the charge diameter effect and the explosion type is becoming considerably complicated even in case of elastic-plastic model of the medium. But, nevertheless, it can be reduced

to the ratio which subordinates the geometric and energy form. It is practically impossible to calculate the determination of impulse parameters in fissile rocks. Therefore, the nature of the influence of a charge diameter and an explosion type on the result of array grinding is usually evaluated qualitatively.

In the works of Boreksov and Sukhanov, the theory of the effect of an explosion in rocks is developed and based on the consideration of various types of resistance to the medium of the explosion. The piston action of detonation products was taken as the main destructive factor. The main experimental material confirming this point of view is represented by the volumes of the destroyed material, the nature of the crushing of which was taken into account by an empirical relation. The influence of the diameter of the charge and the type of explosion in this model was also determined on the basis of the principles of geometric and energy similarity.

Therefore, the laws that are subjected to the principles of geometric and energy similarity determine the influence of a charge diameter and concentration bulk of explosion and it corresponds to the hydrodynamic and quasistatic models.

These principles are used for the cases of explosions different diameter cylindrical charges. These charges determine the dependence of an explosion on significantly different values of the least resistant reduced line. Correspondingly, it determines the task of studying the effect of different geometrical characteristics of these charges on the efficiency of explosive crushing. The existing quantitative evaluation of the explosive energy fraction used for milling gives fairly approximate and different efficiency values of the explosive crushing ranging from 0.5 to 15%.