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METHOD OF FILLING THE EXCAVATED SPACE WITH FILLING MATERIAL.

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Key words: ore, loose rock, sand, gravel, technical water, pump, pipes, filling materials, mixer, cement, well, horizon.

Annotation: the article talks about filling the space created by filling the excavated cavity with backfill material, delivering the backfill material from the point of preparation to the horizons through wells, the amount of sand, gravel, and water in the backfill material.

The essence of mining systems of this class is that with the development of mining operations in the ore massif, the mining space is gradually filled with filling material. The fill massif is the main tool for maintaining the surrounding rocks. In some cases, reinforcements are used as an auxiliary means to maintain the front cavity of the cavity. The main feature of backfill mining systems is that the space inherent in mining is filled with backfill material as the mining site moves. The backfill material holds the rocks on the side of the pit and serves as the base of the pit for the workers. And the pillar, or reinforcing frame, is used as an auxiliary or temporary tool to hold the ore and surrounding rock at the mining site. The mining period of the block consists of the processes of filling, separation of ore from the massif, and removal of the separated ore from the chamber, which are constantly alternating. in this respect, backfill mining systems differ from open pit mining systems. In addition, sand, waste from enrichment factories, slag from boiler houses and metallurgical plants are used as filling materials for sorting ores, opening quarries, and digging underground mines.

The main characteristic of the reliability of the filled massif is the density and subsidence of the massif, which depend on the granulometric composition of the filling material, its hardness, the shape and strength of the material pieces, as well as the space created as a result of mining operations. depends on the method of placing the material. factors such as the presence of particles of different sizes in the backfill material, the appearance of dynamic shocks under t

he influence of the flow of fast-moving material serve to increase the density of the backfill array. in addition, it is important to have the necessary amount of binder in the filling material. unloading of filling materials into the mine.

when delivering the filling material to the space where it will be placed, re-loading from one means of transport to another should be carried out as little as possible. usually, a special dumper

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reinforced with monolithic concrete is built to dump dry fill material into underground laches (it is an ore dumper, only fill material is dropped into it). Reloading facilities are installed in the 150-200 m long conveyors. in rare cases, the filling materials are unloaded through the mine shaft in wagons. the filling materials are transported along horizontal seams in wagons and conveyors or in hydraulic and pneumatic pipes.

• Mixing equipment is placed on the surface and underground. from this equipment, the mixture of sand and water is sent through pipes to the cavity, which is filled with filling material.

• Special equipment is used to transport the filling material through the pipes with the help of compressed air. the filling material moves under the pressure of compressed air in the pipes of special equipment.

Advantages of hydrofilling:

1) high density of the filling mass and no subsidence of the mass;

2) the continuity and speed of the filling process and the possibility of delivering the filling material by hydraulic transport from the surface of the earth to the place of extraction where the filling will be placed;

3) simplicity of equipment and reliability of operation.

Disadvantages of hydraulic filling:

1) relatively high initial costs for equipment;

2) contamination and waterlogging of underground reservoirs;

3) the need to return a large volume of water to the surface of the earth.

The construction of the backfill massif with pneumatic transport includes the preparation for filling the excavated space, the installation of barriers to keep the backfill material at the boundary of the section to be filled, and the separation of the backfill material. will consist of placing it in the space. The technology of building a backfill massif is widely used in ore deposits, filling the backfill materials with hydraulic transport, and mining with horizontal layers.

The preparation works for filling the space created as a result of the mining of the block consist of the construction of barriers to hold the backfill massif, and the digging of ditches for the flow of water and thin clay layer. a cover is placed under the first layer to be filled to prevent the filling materials (usually small particles and cement mixture) from coming out. The cracks in the outer wall of the raising laxim and the ore lower are closed. pipes supplying the filling material are installed along the entire length of the block. later, it will be shortened during the construction of the embankment massif.

After the mining site is prepared, the process of accepting the backfill material for the construction of the backfill massif begins. Before starting the filling work, the working pipe is

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washed with water for 3–4 minutes. After that, filling material and water are sent to the mixing equipment. The resulting hydro-mixture is removed through the gate and sieve to the sieve of the mixer funnel. During the extraction, the operator adjusts the density of the hydrogen mixture and brings it to the desired level. In the mining space, an ore dumper is built according to the height of the backfill layer. The ore dumper is covered with boards inside and out. After that, a bed is removed from the surface of the backfill massif, pouring pipes are laid, and through the pouring pipes, the filling hydromix is placed in the mining cavity. As the layer is filled with the filling material, the pipes are shortened. The biggest problem with hydrofills is to separate the water by sifting the small particles of rock that seeped out of the water. In this case, the size of the water purifier should be sufficient to filter the leaked water.

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