

Creation of Iron Storage Ore From Tebinbulok Open Mine on the Basis of Effective Technology

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Annotation: The article discusses the development of an environmentally efficient technology for the processing of iron ores - these are minerals found in the ground, which have been proven to contain enough iron for their extraction and industrial development.

Keywords: development, containing iron ores, Tebinbulok deposits, processing, environmentally friendly technology.

Development of an environmentally efficient technology for processing iron ores contained in the Tebinbulok mine and classification of processing technology Iron ores are classified according to a number of criteria.

The profitability of the development of each specific area is explained by a number of conditions:

- Quantitative and qualitative composition of the main mineral, that is, the concentration of iron in the ore. This factor has a decisive influence on the productivity of the final product and the melting process itself. It increases the productivity of the equipment and does not require additional costs for enrichment.
- Regarding reserves of the Tebinbulok mine, the minimum amount needed to return investments, according to economists, is a million tons. Smaller sizes do not cover the costs of creating the necessary infrastructure: production facilities, engineering networks, roads, housing, and public facilities.
- Also, the remaining content of iron ores is of great importance - i.e. waste rock, which, depending on its quality, can increase or decrease the slag yield.
- The presence of compounds plays a very important role. If the beneficial ones improve the quality of the molten metal, the harmful components must be destroyed by complex technological methods or neutralize their negative effects.
- The physical and metallurgical properties of the ore should also be taken into account. Enrichment, strength, softening, particle size, and moisture content of the potential value of iron ore deposits.
- In addition, the recovery ability of the starting material is also important - the release of oxygen, which significantly accelerates the melting process.
- One of the conditions determining the economic suitability of the operation is the location of the ore body depending on its depth and distance from developed economic regions. Eliminating these problems requires laying roads, and providing the field with human and energy resources.

The mining method is determined depending on the individual nature of the ore business. Depth is definitely the deciding factor.

As a rule, if minerals are located not far from the surface of the earth and there are opportunities to perform large-scale work on opening and moving the soil, they resort to creating a quarry. Power excavators move the rock to the dumps, and once they reach the lower layers of the deposits, they conduct a final analysis of the deposit for the percentage of iron content.

The final decision is made by the expert commission. If the result is positive, the extracted rock masses are sent to metallurgical enterprises for further processing.

The first stage of beneficiation of iron ore is crushing and crushing. The purpose of these operations is to obtain a mass of fragments and particles of the required size, as well as to separate the waste rock. For this, sorting (sieving) and classification (separation of particles according to size by water flow) of the source material is usually used.

The basic process of direct enrichment may include any of the following methods:

- ✓ Dry, wet or combined magnetic separation. The process is based on the different magnetic conductivities of chemicals. In the case of wet separation, special electromagnetic drums remove ferromagnetically saturated minerals from the slurry. The dry method consists in removing the magnetic fraction from the mixture provided by a rotating belt.
- ✓ The use of medium density slurries between iron and waste rock allows gravity separation to be applied.

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- ✓ The flotation method is based on the use of a special reagent that ensures the formation of air-liquid metal foam, which is then removed and sent for further processing.
- ✓ Washing is the simplest enrichment method. By itself, it is ineffective, so it is used in combination with other methods. But if the original stone is contaminated with mud or sand, it cannot be abandoned.

After the enrichment process, the concentrate is subjected to agglomeration and sent to a blast furnace, and then to an oxygen-converter melt if necessary. Production waste can be used to obtain rare or non-ferrous metals, sometimes they are used in the production of sand and gravel.

In the process of enrichment technology, it is often necessary to resort to auxiliary processes that ensure the removal of unnecessary fractions: dust, mud, and moisture. Thickening, sintering, filtering, and drying allow obtaining the ready-made concentrate necessary for further use.

Depending on the carbon content and alloying additions, steels are divided into:

- for low, medium and high carbon;
- For low, medium and high alloys.

First of all, cast iron is melted from agglomerate in blast furnaces under the influence of air (this will be discussed in the next part of the article).

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