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PROPERTIES AND APPLICATION OF DOLOMITE BINDER

Abstract. The article describes the area of building materials, namely, the preparation of a dolomite binder, dolomitized magnesite which can be used in the manufacture of heavy concrete, wall, heat-insulating, finishing products, cellular concrete, xylolite and other materials for civil and industrial construction. The result of the study showed an increase in the strength and uniformity of the change in the material volume, while reducing the firing temperature and, correspondingly, the energy consumption for obtaining the binder. The possibility of obtaining a qualitative high-strength binder from various dolomite rocks was also considered. The processes occurring in the dolomite during firing were investigated. The effectiveness of using firing intensifiers in the production of dolomitic binder was established.

Key words: dolomite, binders, building materials, concrete, cement, calcium, magnesium.

Introduction. Dolomite is a unique mineral. Even those stones that were mined in one deposit can be completely different in color. A wide range of colors, together with excellent technical parameters, allow the use of dolomite in various areas. Dolomite is a magnesium and calcium carbonate. Its formula is $CaCO_3 \cdot MgCO_3$. The actual composition almost completely corresponds to the theoretical one. It has about 45% of carbon dioxide, 30% of calcium oxide and 20% of magnesium oxide. It can also contain iron impurities, potassium and other metals. It received its name according to D. Dolomie, the surname of the discoverer Frenchman.

There are several types of dolomite, the differences between which are due to their different nature. Minerals can be saddle, large, accreted, transparent, marble, etc. They can have a gray, white or pale yellow color; stones of black color are less common. There is a matte, pearlescent or glass shine on the faces. A feature of dolomite is the existence of colored spots on its surface. They can flow from one tone to another or be separated from each other.

Dolomite is often found in hydrothermal deposits. It can also be formed by replacing calcite under the influence of sea or groundwater.Since dolomite is a sedimentary rock, its strength is determined by the depth of occurrence. The deeper is the mineral layer, the stronger it is. Deposits of dolomite are in Switzerland, Spain, on the North American continent. The largest of them are in Mexico and Lake Ontario. It is also found in the Caucasus, in the Moscow Region, in the Ural Mountains, in Central Asia. In quarries, the dolomite extraction is carried out by drilling and explosion methods or with the use of charges for wells. Its processing includes crushing, firing and, in some cases, grinding. The material is crushed into pieces using hammers or jaw crushers. The dolomite is usually fired in furnaces of a mine type with outboard furnaces. Ball or other mills are usually used for grinding.

When firing at different temperatures, different materials are obtained. Firing of caustic dolomite is performed at a temperature of up to 750 degrees. Dolomite cement is formed at a higher temperature (up to 850 degrees). Dolomitic lime, which is capable of quenching, is produced at a temperature of the order of 950 degrees [1-3]. The purpose of this work is to study the possibility of obtaining a qualitative high-