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Elaboration Technology of Grinding of Mosaic Floor Coverings Industrial and Civilian Buildings

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ABSTRACT:The article describes the tasks of developing and improving the technology of grinding mosaic floor coverings with the use of surface-active substances.One of the major works carried out in the construction of industrial and civilian buildings is to build poles. The reason for this is that most of the floor coatings are made of fine grain, and their layering requires high labor costs and difficult to mechanize.

KEY WORDS: Mosaic floor, Grinding, Technology, Buildings.

I.INTRODUCTION

The processes related to finishing of buildings and structures are of great importance in construction and assembly works. The total volume of works should be up to 30%, including 10-15% of them.

Most of the industrial and civilian floor coverings and landscaping areas are used in "Terratso" concrete finishes. The area of objects required for such mosaic buildings is hundreds of thousands of square meters per year.

Construction of mosaic tile floors requires substantial labor costs. Particularly, the process of squeezing the surface of the surface is valued. About 40% of all labor costs required for the construction of the mosaic floor goes to grinding.

An analysis of the current grinding technology and the mechanization tools applied to the mosaic coating has shown that over the past decade the grinding technology has not changed. Reduction of labor costs has been achieved by improving the grinding machine construction. The process of grinding the surface of the mosaic coating has not been practically studied.

Some scientists, including I.V.Grebenchikov, N.Kachalov, V. Kashcheev, I.V.Kragelskiy, E.N.Maslov, M.Tenenbaum, E.G.Shmavanyan.

As a result of research by M. Khrushchov and others, the theory of grinding of dyes (metal, glass, marble and others) was well developed. In addition, A.I.Denisov, A.D.Domokeev, O.M.Ivanov, V.Mulkova and others have also studied the state of destruction of concrete paving. However, it differs greatly from the grinding process, because the erosion of the concrete exposed under the influence of abrasive effect is within the complex. These impacts include shock, severe bodily injuries, sneezing, and so on. The mosaic coating has conglomerate structure and consists of various materials, ie marble filler and cement stone.

II.RELATED WORK

Studying the grinding process of this two-component system is of great scientific and practical interest.

P.A.Rebinder, L.A.Shneyner et al., Have shown that surface-active ingredients that can be added to the water used as wet fluid to accelerate mechanical damage to rocks can be successfully used.

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However, the efficiency of the two-component system has not been studied sufficiently. The lack of such information is gradually halting the development of the technology of grinding mosaic floor covering, which is primarily linked to increasing labor productivity.

This research is devoted to the problem of labor productivity in grinding of the floor of the floor with mosaic cover, which is one of the most fertile and widespread types of industrial and civil construction.

The purpose of the research project is to investigate the process of grinding of mosaic floor coatings and to develop effective grinding technology.

In order to solve this problem, it is necessary to solve the following issues:

- studying properties and intensity of grinding process, depending on physical and mechanical characteristics of cement and marble separately and with mosaic cover;
- study of the effect of the active substances on the intensity of the process of grinding of the mosaic coating and the development of technology for increasing the process efficiency.

The analysis of technical literature and special experimental researches in this field allowed to obtain preliminary evidence necessary for the assessment of the degree of grinding of abrasive marble.

The scientific novelty of the research is as follows:

- The process of grinding of mosaic floor coating on the basis of experimental works has revealed the distinction between grinding of dyes. This gave the mosaic cover to the theory of grinding a new two-component system with a conglomerate device. At the same time, the grinding wheels of mosaic-grinding machines were in contact with direct fillers and showed that their surfaces were 30 to 40 microns out of cement boards. Therefore, the filler is made of grinding bonded abrasives, and the cement stone is a polishing product of marble and cement.
- Based on the detectable properties of the process of grinding of mosaic coatings, a new connection has been obtained that allows evaluating the intensity of the grinding process associated with microcrackment on the basis of the current theory of abrasive vibration. This bond has also been determined by the characteristics of the grinding profile load-velocity parameters (relative pressure and grinding speed) and the characteristics of the polishing elements. The relationship analysis revealed that the intensity of the grinding process increases dramatically by reducing the microbial microfactivity by 10-30% at the processing site.
- Surface-active substance (PAS) was used to lower the microstructure of the marble filler and to improve labor productivity while grinding the mosaic coating. At the same time, the highest efficacy of CRM, the rationality of water in the water and the degree of impact of the mosaic coating on the aggravation process.

The scientific project will protect:

- technology of grinding of mosaic coating with use of a water-soluble solution of sodium carbonate, which allows increasing the productivity of the active substance, including the labor productivity.
- New theoretical rules on the properties of the process of grinding the mosaic coating and the margins grinding process intensity, their dependence on the microcriticality of the grinding profile load-rate parameters and the description of the polishing elements.
- The results of investigating the physical-mechanical characteristics of the substrate, the type and thickness of the active substance, the dependence of the grinding profile on the loading-frequency parameters of the mosaic coating, cement stones and marble grinding process.
- feasibility study of advanced technology.

The object of the research is a set of organizational and technological events in the construction, ensuring high level of execution of all technological processes in construction of mosaic of industrial and civil buildings.

The subject of the research is to improve the technology of applying moisture-saturation with active ingredients for grinding of mosaic floor coatings according to the established working principle.

During the work of the research project, Russia and other foreign scientists used their research and Internet data in the field of construction technology. The practical significance of the research project is that the theoretical guidelines and methodological guidelines are aimed at solving practical problems of mosaic construction technology. Using a surface-active substance (CLP), the technology of grinding mosaic coatings increases labor productivity by 38-43%, reduces labor costs by 190 hrs and saves up to 6680 sums per 1,000 m² coverage.

Grinding of the floor of the floor of the floor is very common with the rubbing process of the article, but the following properties of grinding differ:

- ✓ The working surface of the grinding machine's abrasive is much sharper than the surface of the article;
- ✓ Sturdy grains have high rigidity and toughness resistance, which can withstand heavy loads during the grinding process;

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- ✓ When grinding it is ensured a high intensity of the product in the course of time, at the same time, the product of the grinding product produced by grinding has a greater degree of friction than the friction;
- ✓ The waste (sludge) obtained during the grinding process plays an active role.

It can be seen as a process of grinding, that is, a quick mixing process, because the blade combines with a very low layer of toothpick, which is sprinkled by some grains of grinding polishing.

Crumbling of marble and cement, made of elastic-briquettes, occurs mainly during breaking. As a result of the pressure of the aggressive stone and stone rotation, the tail of the abrasive grains penetrates the mosaic coating, leaving a large number of scratches on the surface of the coating, with the help of standing and large tangential stress. As a result of this, because of the high degree of abrasive and marble cement, the abrasive grains influence the degradation of the capillary grains of the tangled material and the release of bonding, resulting in the destruction of separate crystals. Most of these scratches and cracked areas form a similar surface of scratch-covered mosaic coatings.

Their physical and mechanical properties must be within the following boundaries to ensure the proper use of mosaic tile floors: the peak coefficient of grass - 2-3 kPa; in the slope - 0.2-0.25 kPa; not less than 5.9 kDj / m2; not more than 3,5 g / cm 2; water absorption - not more than 6%; frost tolerance - 30-50 cycles (cycle).

In contrast to reinforced concrete structures, mosaic floor coatings should be decorative, which, in addition to high physical and mechanical characteristics, provides a beautiful appearance for the coating. This is achieved by adding the stone blocks into stone blending. The hardness of the slopes should be at least 6 kPa. For this purpose, often used marble crushed algae. The Marmara Plateau is well-polished with respect to dolomite, granite, beshtaungit or other rocks.

Terratso (Marble Split) depends on the correct selection of the granulometric composition of the complement to the mixture, the intensity of the compound, the cement consumption, the dimensions of the opening, the likelihood of cracks, and ultimately the quality of the mosaic coating. For example, due to the lack of small grain size, the cement consumption increases in the preparation of the mixture.

Large-scale plastering after painting looks sophisticated and beautiful.

Therefore, a mixture of terratso (mosaic) should be prepared in such a way that 70-75% of the surface should be filler (marble quarry) and the rest of the cement layer after the mosaic layer is split. Large (fractions) of each marble layer consisting of each mass fraction of a 400-point portland cement having a mass fraction to form such a ratio between the marble quarry and cement content in the mosaic mixture should be between 2.5-5, 5-10 and 10-15 mm. The surface of this cement mortar is minimal and the coating is resistant to heat and a beautiful marble quartile forming surface.

For cementing the mosaic coating, the cement layer with a mixture of terratso should be so durable that the marble quill should not be migrated or crushed from the mechanical impact of the grinding machines.

Research has shown that the crushed hardness and rigidity of the cement stones, in order to avoid filling the surface of the filler, corresponds to 1.3 kPa and 7.3 kPa respectively (Table 1).

The time it takes mosaic coating	Strength of cement fracture, $Н/см^2$	Hardness of cement rock, $Н/мм^2$	Filling condition on the mosaic coating during grinding
1	37,5	1,3	Molted
2	73,2	4,2	Molted
3	104,6	5,1	Molted
4	130,9	7,3	No molted
5	160,5	8,1	No molted
7	187,4	10,6	No molted
14	269,0	13,3	No molted

In the conditions of normal hardening, the strength and hardness of the cation stone crushed stone coating has been achieved on the fourth day. Increasing the hardening time to the coating, the durability of the cement coating will continue to increase.

III. RESULTS

During grinding and grinding of the mosaic coating, the surface of the cement is reduced and the marble hull increases, and as shown above, constitutes 70-75% of the total coating coverage. It is practically impossible to measure the maximum opening value of the marble filler under construction conditions. To achieve this, the maximum thickness of

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the marble is measured and the thickness of the resulting film is measured. The following experiments were conducted to determine this value.

There are five examples of 400x400x40 mm inlay mosaic made of Terratso (mosaic) mixture. It contains a 400-portland portland cement in one mass and one mass fraction of marble grade 2.5-5; 5-10 and 10-15 mm in diameter and 10 mm thick layer was obtained by grinding. After each millimeter thickness, surface photography was taken on a plot of 15x20 cm. The surface of the samples was made by quenching for the entire depth of grinding (fixation).

The level of saturation with the fillers was determined by photos. The photo was taken using a FB-2 photomontage and ruler-based device. To get more accurate information, a photo of each layer of mosaic coating has been transferred to transparent paper, with a percentage ratio of cement boards and filling surfaces.

The resulting graphs show that the saturation level of the surface of the filling tangerine has risen sharply and reached 55-75% when the layer of the tile has been heated to a thickness of 6 mm. When the thickness of the removable layer varies from 6 to 8 mm, the surface of the filler has increased insignificantly. When the thickness reaches 9 mm, the saturation level varies unchanged and varies from 60 to 80% for the tested specimen. Therefore, it is possible to conclude that the reasonable thickness of the layer of floor covering is 6-7 mm.

The glue of the mosaic coating depends on the ability of its components to succeed in mechanical processing, i.e., heating.

Studying specimens of 400x400x40 mm with the help of experimental stand was studied on the coating of the cement and marble separately and together with the smoothness of the grinding.

IV. CONCLUSION AND FUTURE WORK

The results of the investigation of the intensity of the grinding process have shown that there is a distinctive difference in the grinding process of the homogeneous materials from the grinding process, and the new hypothesis is introduced into the theory of grinding of the two components as a system. The analysis of the relationship between grinding of one-layered (marble) and double-glazed mosaic (marble and cementstone) materials. Cement is milled with the crushed material of marble and cement, which plays the role of free polishing.

Based on the basic principles of the theory of abrasive evolution, it was based on the expediency of using surface-active substances to increase the effectiveness of the grinding process.

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