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TECHNOLOGY OF MARBLE PRODUCTION WITH POLYESTER-REINFORCED IN TURKMENISTAN

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Artificial marble is also known as cultured, composite, synthetic, or engineered marble. Cultured or synthetic marble is a cheaper alternative for real marble. It is composite of resins like polyester and synthetic fillers or mineral mixture. Quartz, limestone, dolomite, silica, granite in the form of gravel or sand are used as fillers. Artificial marble is mainly used as tiles, interior construction and small scale architecture and design products. The desirable properties in an artificial marble are high mechanical strength, excellent weather resistance, flexural strength, improved surface hardness, heat resistance, stain resistance and an excellent processability.

As we know, our capital Ashgabat was entered into the Guinness Book of World Records on May 25, 2013 as the city with the largest concentration of white marble buildings. Today, natural marble stones are widely used in construction in our country. Marble stones, which have decorative features, are always considered a valuable material in construction. The value of the material and the limited resources of natural marble make it one of the most important problems to develop an economically viable method of using it for interior and exterior decoration. The main goal of the scientific work is to establish the production of artificial marble that can replace imported products using local raw materials. Artificial marble is a material similar to natural marble obtained by mixing cement, plaster, or resin-based polymer materials with fillers (marble, calcite, gravel, travertine, quartz, etc.). A lot of scientific work on the production of artificial marble is currently being conducted in Turkmenistan. In the preparation of artificial marble, two components binders and fillers are used. Seven samples of artificial marbles with different fillers were prepared in the scientific research work. Prepared samples are divided into TDS-9479-2011 “Rock blocks for the manufacture of roofing, architectural construction, monuments and other products. Technical specifications", TDS-9480-2012 "Coating tiles from natural stones. Physical and mechanical tests were carried out in accordance with the requirements of "Technical conditions". Currently, this scientific work is being patented and a literature review is being conducted on other types of artificial marble.

A number of scientific works are studied at the "Green Chemistry" scientific production center operating within the framework of the Oguz Han University of Engineering and Technology of Turkmenistan and aims to implement the learned scientific works. A clear example of this is the technology of obtaining polyester-reinforced artificial marble in Turkmenistan, which is one of the scientific activities carried out in the scientific production center . The main goal of this scientific work is to establish artificial marble production that can replace imported products using local raw materials.

Scientific work is carried out within the framework of the Sustainable Development Goals Industrialization, Innovation and Infrastructure (Goal 9) and Sustainable Cities and Settlements (Goal 11). The National Program of Social and Economic Development of Turkmenistan until 2030 and the National Program of Social and Economic Development of the President of

Turkmenistan in 2019-2025 are aimed at achieving sustainable development and set the consistent implementation of Sustainable Development Goals as the main priority.

Based on the experiments, samples were prepared and tests were carried out to determine their physical and mechanical properties. The mechanical and physical properties of artificial marble depend on the resin and filler content.

Establishing artificial marble production using local raw materials and replacing imported products will be of great importance in the sustainable economic development of the country.

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