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Application and Removal Process of Geogrid on Highways

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Abstract: *This article covers issues such as the use of geogrids to improve the strength of highways, information about geogrids, the use and research of geogrids in construction works.*

Keywords: *basalt fiber geogrid, use of basalt, polythene with geoceramics, basalt, the main function of the material.*

INTRODUCTION

Currently, the number of highways in our republic is more than 209,000 kilometers. Based on an integrated approach to the design, construction and use of highways and artificial structures, the formation of an effective system of road management, improvement of their financing system, and innovative methods that allow to increase the quality of design and road construction works in this regard. Laying of coatings using technologies is one of the urgent problems. Therefore, the current researches show that in solving the problems encountered on our roads, attention is paid to the use of geogrid materials as one of the geosynthetic materials. The effective use of basalt fibers as a local raw material, which is common in our country, and the use of basalt geogrid in it is very effective. will give.

Main Part: Basalt (lat. basaltes, Greek. basanos - test stone) is an igneous rock. The color is gray and black. The composition consists mainly of plagioclase (Labrador); as well as pyroxenes, olivine and magnetite, titanite, apatite, etc. will also be. Its chemical composition is close to its deep counterpart, gabbro. Volcanic glass fills the interstices of granular crystals. Basalt occupies a very large area on the ocean floor and on land. Basalt lava flows from current volcanoes. Analytical basalt, leucite basalt, nepheline basalt, magnetite basalt, gayuine basalt, apatite basalt, etc., depending on the mineral composition. is called Basalt is used in the manufacture of acid-resistant chemical tools, pipes, electrical insulators, in the production of cast stone products, and as a decorative covering material in construction[1].

They can also be porvinitic, containing phenocrysts of olivine, augite, or plagioclase. The pores left by the gas bubbles can give Basalt its porous properties[2].

Color - dark gray to black.

Tissues are aphanitic (can be porphyritic).

Mineral composition - usually a groundmass of pyroxene (augite), plagioclase and olivine, possibly with fines; if it is porphyritic, the phenocrystites consist of olivine, pyroxene or plagioclase.

Using basalt

Basalt forms large parts of the ocean floor. It can form volcanic islands when volcanoes erupt in ocean basins. Basalt is used in construction (e.g. as building blocks or in foundations), paving stones (from Columnar Basalt), and sculpting. Basalt types: tholeiites and others are alkaline basalts

Basalt is the most common basic extrusive rock, containing 45% to 52% SiO2 and consisting mainly of basal plagioclase and monoclase pyroxene, followed by orthopyroxene, peridot and amphibole. Pyroxene in basalt often has a fully crystalline, short columnar structure. The texture is usually fine-grained to cryptocrystalline or vitreous, and sometimes medium-grained [3]. In general, basalts have a porphyritic structure, vesicular or amygdaloid structure. Basalt is usually black or brown-black in color; the damaged surface looks red-brown. Basalts usually have holocrystalline-semicrystalline cryptocrystalline fine-grained textures with dense massive, stomatal and almond-shaped structures[4].

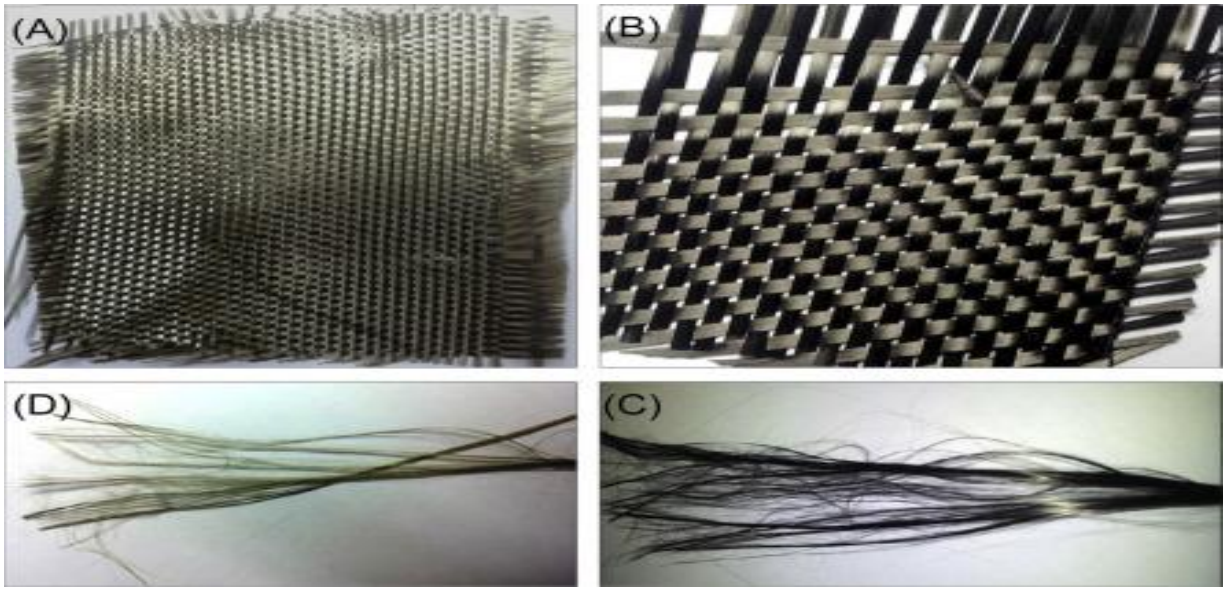

Figure 1. Basalt fibers

The main task of the material is to evenly distribute the external load along the road to the entire surface, to alleviate the internal stress of the asphalt concrete coating and to increase the traction force of the finished asphalt layer[5].

- Exceeding the upper limit of the working temperature of 150 degrees,
- Exceeding 5 times chemical resistance to aggressive humidity and salt reagents
- Increase of elasticity strength and modulus;
- Resistance to various mechanical (shocks, shocks) and chemical effects compared to the use of E-glass in works;
- With active use, it is resistant to lower temperatures than synthetic fibers. This element belongs to northern and cold regions;
- High elongation coefficient of Basalt fibers compared to synthetic materials;
- Easy and simple processing using standard equipment;

Basalt geogrid is a unique material that is successfully used in road construction, road construction, reconstruction and repair[10]. It meets all modern quality requirements, is acceptable in terms of price and useful in all respects. An average basalt geogrid can increase the service life of the road several times. Such indicators can be achieved due to the unique properties of the material, its structure, physical and chemical properties. As a result, the road does not crack or collapse due to extreme temperatures, erosion and weather[6]. Therefore, Basalt geogrid is successfully used not only in the construction of traditional roads, but also in the construction of bridges, corridors, airfields, etc.

Basalt geogrid is specially designed to strengthen highways, normal roads and airfield pavements. In addition, the grids reduce the thickness of the asphalt road, thereby reducing the costs of building new roads and repairing old ones[7].

Basalt rocks are not malleable or elastic in their original form. At room temperature, basalt rock breaks before it acquires plastic properties. Basalt fibers have some flexible properties. This flexibility is due to the small diameter of the fiber, the presence of amorphous areas and the use of a measuring tool, which acts as a polymer matrix that binds single basalt filaments [8].

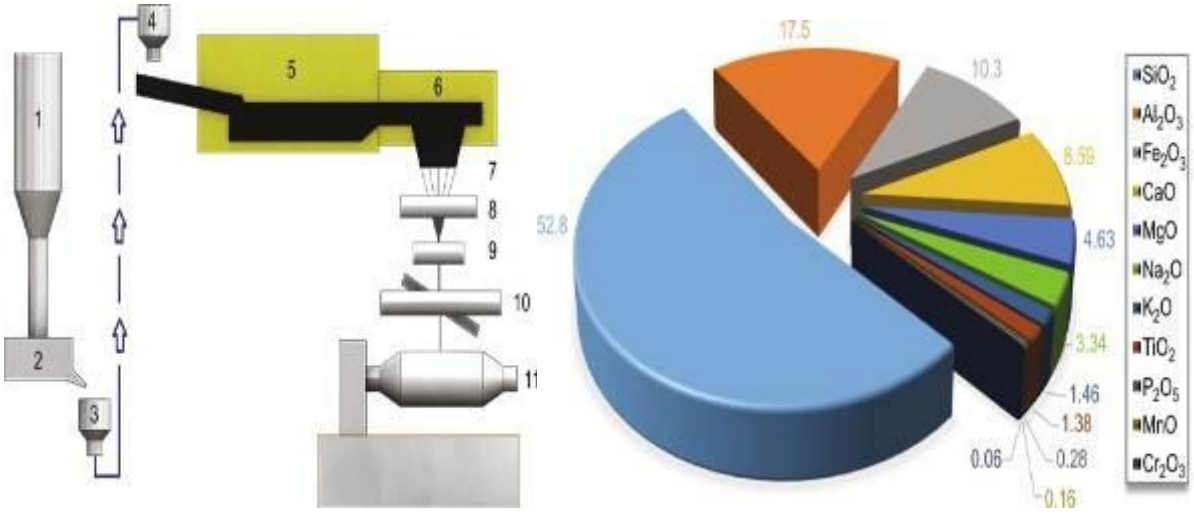

Figure 3.2. Schemes of development of basalt geogrid products

Table 2 basalt geogrid composition and properties

aluminum	1,4 times
steel	3,9 times
thermal conductivity is	40 times lower
thermal conductivity is 40 times lower	thermal conductivity is 40 times lower

Conclusion: When building roads to be comfortable and reliable, we should be in step with the times and follow the example of road engineers of developed countries. Because they are earning reputation not for big salaries, but for the development and development of their country. If we, the road workers, conscientiously consider the destiny of the country and carry out the road design, construction and operation works, our roads will be smooth and durable. In this case, if we use foreign experiences, if we apply them to the design, construction and operation of highways, we will be among the developed countries, not the developing countries. For this, we need to work tirelessly to make our roads durable and suitable for the long term, and use innovative ideas such as geogrids. Because roads are the lifeblood of this country. In order for the state to flourish, roads must flourish.

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