

ADVANTAGES OF THE WIDE USE OF GEOTEXTILE MATERIALS IN THE CONSTRUCTION OF ROAD SURFACES.

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***Abstract:** in recent years, many road construction organizations, in addition to taking measures to increase the quality and strength of the road, are looking for the most effective ways to reduce costs. Together with the improvement of innovative techniques and technologies, it is becoming necessary to develop measures for the perfect use of the potential of road construction materials. In this case, the use of geotextile materials, one of the innovative products obtained by chemical means, can be more effective. The advantage of these materials, combined with a significant extension of the service life of the road surface, significantly reduces road maintenance costs.*

***Key words:** highway, construction materials, geotextile materials, granules, geosetk.*

Construction of highways in the world community has been accelerating in recent years. At the same time, the issues of building roads mainly from local raw materials are still relevant, and attention is being paid to the preparation of the part of the road, from the base to the surface, from the deformation-resistant hybrid products produced in our chemical industry. The use of geotextile materials is very effective in the construction of aircraft runways, highways and railways. As drains and filters, it is recommended to use needle-shaped geotextiles in addition to or instead of traditional granular materials [1].

Geotextile is a material used in almost all road construction in Europe and is also widely used in many other industries. It is a universal material that can be used in landscape design, construction, light industry, various earth and underground engineering structures.

According to the production technology, two main types of geotextiles are distinguished: woven and cast. Needle-punched bulk geotextiles are the most

common. There are other types of geotextiles produced by thermal and adhesive methods [2].

The main part. Geotextile is a whole class of rolled materials for separating filling layers (soil, gravel, sand) in the construction of roads, sports fields, as well as in the reinforcement of slopes and banks in landscape design. The common feature of all types of geotextiles is as follows:

- water permeability, (due to open fiber structure);
- mechanical strength - the material is based on strong and elastic fibers made of polypropylene or polyester;
- durability - 20 years and more



Figure 1. Water permeability of geotextile

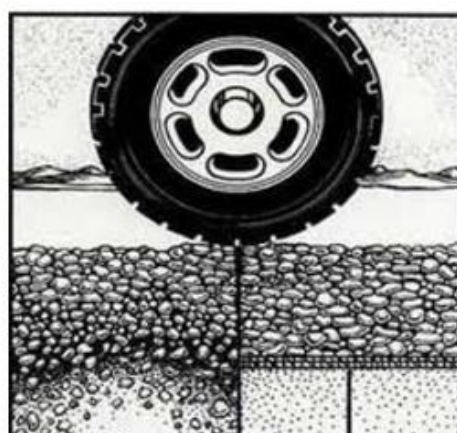


Figure 2. Location of geotextile on the floor

Taking into account that the construction and repair of highways requires special attention, geotextile is laid immediately after the primer when laying the floor in the construction works. Then it will be possible to lay the remaining layers. Geotextile materials can be used several times on the bed, which increases the life of the bed and ensures uniform distribution of deformation in the cover [4]. There are different types of materials for road construction, we will consider two of them.

1. Mineral and organic compounds. Mineral (inorganic) binders are fine, crushed substances that form plastic when mixed with water, which then hardens and binds together. These can include gypsum portland cement, quartz, etc. They are a viscous or liquid material that moves to the workplace due to temperature changes or contact with organic liquids.

2. Geosynthetic materials are a type of polymer construction materials, which contain adhesive chemicals and perform the functions of strengthening road construction materials and gypsum binding.

The use and development of modern geotextile materials allows progressive technical solutions based on them to significantly increase the quality of road construction and the strength of road structures, reducing their material consumption, labor and energy resource costs. Currently, the road is asphalt- the quality of concrete often happens when the pavement does not meet the specified requirements, but the flatness indicators and adhesion coefficient. The use of geosynthetics in road construction helps to solve these problems and improve the quality of roads.

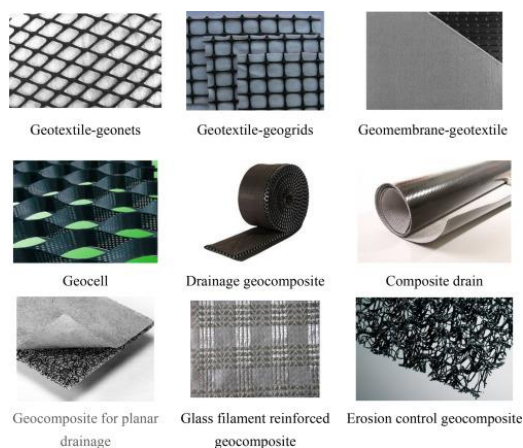
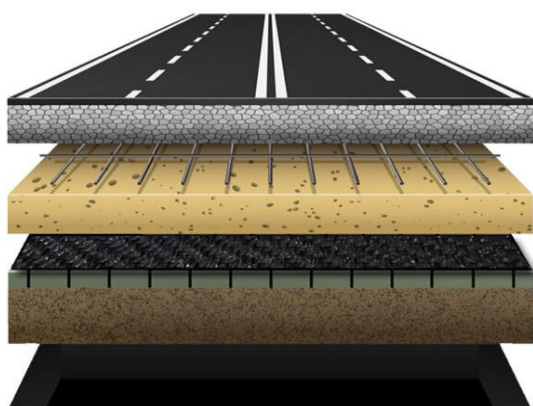


Figure 3. Placement of geotextile on the bed
geotextile

Figure 4. Types of

Geotextile materials can work more effectively if they are used together with various types of industrial waste in the bed. For example, at enterprises producing lime, cement, and molded bricks, waste products that differ from their original state are released. Since the composition of this waste is close to geotextile materials in most cases, if it is applied to the road surface in a ratio of 2:1, it can become a single material due to compaction over time without affecting the quality of the surface [3] . When using geotextile materials in the presence of technology, it is necessary to strictly comply with the requirements of the technical conditions of raw materials.

Geosynthetic materials used in the construction and repair of roads must meet the requirements for the following physical and mechanical properties: surface density; thickness; tensile strength; tendency to deformation; sameness; resistance to local damage; permeability (except for geogrids); filtering capacity (except geogrids, geomembranes); resistance to aggressive influences[6].

Geotextiles have a high filtration capacity, as a result of which it is possible to create flexible, but at the same time very reliable filter layers that can be used in road construction [5]. Geotextile is indispensable for the organization of a high-quality drainage system, and it is also the most widely used geosynthetic material for reliable strengthening of soils.

Geospan TN is a durable multifunctional woven geotextile (geotextile). Polypropylene threads. This material is intended for soil reinforcement and structural elements of road constructions. The main functions of weaving geotextile Geospan TN: strengthening and separating layers of materials in contact; reducing static and dynamic tension forces in layers pavement and subgrade soil; local prevention damage [4].

Summary. In conclusion, it can be said that the use of geotextile materials gives additional strength to the road structure, increases the resistance of the coating to any negative impact. Eco-friendly, cost-effective and positive geotextile materials can be prepared in the most basic local conditions and allow to create durable road pavements at low cost. It will also be possible to use the entire road constructions for drainage. it allows to draw conclusions about the prospects of practical application experience. Use of geotextile materials in road construction.

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