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FEATURES OF RUBBER-TECHNICAL MATERIALS IN ROAD CONSTRUCTION.

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Abstract: High molecular weight polymers like rubber can be produced naturally or artificially. These materials' physical, chemical, and manufacturing characteristics vary. The substance known as natural rubber is produced from the latex of tropical trees. Damage causes it to leak out of the cortex. Styrene, neoprene, butadiene, isobutylene, chloroprene, and nitriles can be polymerized to create synthetic rubber. Rubber is created by the vulcanization of synthetic rubber. For some types of synthetic materials, organic substances are used, which makes it possible to obtain a material similar to natural rubber.

Keywords: rubber, technical, road construction, Human, organic matter, asphalt, concrete, substance, roads, process, highways.

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A well-known substance used in practically every aspect of daily life is rubber. Without this polymer, agriculture, industry, and medicine cannot function. Rubber is also employed in numerous manufacturing operations. Highway construction is a complex process that entails preparatory work as well as major labor. Clearing plants, stones, bumps, and other obstructions from the construction site, building temporary housing for the workers, and other tasks are all part of the preparation work for building roads. It has been completed. The main road construction work is divided into preparatory work, which prepares the materials that will be needed for road construction, and the work on the implementation of construction and installation work in them.

Work on the preparation of materials for the construction of roads includes employment on the extraction and processing of stone or other materials from quarries as well as work at specialized businesses that manufacture concrete mixtures, road plates, pipelines, bridge structures, and concrete. The following tasks are performed directly on the road: preparing the roadbed, building artificial structures (tunnels, overpasses, bridges), paving the road, leveling the road edge, bolstering slopes and grooves, installing road signs, installing barriers, etc. Road construction work is carried out by evenly distributing the volume of work on the roadway and carrying out large-scale work on a small road plot. Depending on the type of road covering, the technology of road construction work will be round. Mas, when laying asphalt concrete, sand is sprinkled on the bottom layer of the

base, gravel with cement is laid on the top pencil, two layers of bitumen mineral and asphalt concrete mixture are laid. Road construction work is carried out by potok method using road machines.

A polymer with high elasticity is rubber. Its structure is made up of sulfur atoms and carbon chains organized haphazardly. Carbon chains appear twisted in their natural condition. The carbon chains break when rubber is stretched. Rubber is a material that has become indispensable because of its versatility and ability to stretch while quickly returning to its original shape. Rubber is typically created by combining rubber and a vulcanizing agent. The mixture thickens after being heated to the necessary temperature.

In the mid-1960s, rubber asphalt was first used, mixing crushed rubber from used tires with asphalt. Although potentially usable for tires that otherwise fill waste and cause fire hazards, rubber asphalt showed more wear conditions during periods of freezing and thawing in temperate zones due to non-uniform expansion and contraction with non-rubber components. The application of rubber asphalt is more temperature sensitive and can only be applied at certain times of the year in many places.

A concrete mix consisting of Portland cement, coarse aggregate, sand, and water is used to build concrete surfaces, notably Portland cement concrete. Almost all modern combinations have different mixtures added to them for a variety of practical reasons, including to boost productivity, decrease water usage, temper dangerous chemical reactions, and more. Most often, Portland cement replacements like fly ash are also included. Concrete's price can be lowered while its physical characteristics are enhanced. In order to create a flatter, denser surface without a honey slit to compact the interior and push some of the freshly mixed cement slurry onto the surface, the material is put to the slurry and mechanically processed. Water allows the mixture to combine in a chemical reaction with the molecular compound hydration.

Rubber is a versatile substance with the following characteristics: High elasticity is the capacity to undergo significant reverse deformations over a broad temperature range. elastic properties and form stability during slight deformations. Light pressure can easily deform amorphous materials. a degree of softness. Doesn't effectively absorb water. Strength and resistance to wear. The resistance to heat, water, oil, gasoline, and impacts varies depending on the type of rubber. radiation from the sun, ionizers, and chemicals. Over time, rubber loses its shape and characteristics, which is demonstrated by deterioration and a drop in strength. The service life of rubber products depends on the conditions of Use and can range from several days to several years. Even with long-term storage, the rubber wears out and becomes unusable

Rubber is made by vulcanizing rubber with the addition of impurities. Usually, 20-60% of the processed mass is rubber. Other components of the rubber compound are fillers, vulcanizing agents, accelerators, plasticizers, antioxidants. Dyes, fragrances, modifiers, fire extinguishers and other components can also be added to the composition of the mass. The set of components is determined by the required characteristics, operating conditions, technology of using the finished rubber product and economic calculations. This is how high-quality rubber is formed.

For this purpose, in production, the technology of mixing rubber with other components in special mixers or rolls intended for the production of semi-finished products is used, followed by cutting and cutting. In the production cycle, presses, autoclaves, drum and tunnel vulcanizers are used. The rubber compound is given high plasticity, thanks to which the future product acquires the desired shape. The basis of any rubber is natural rubber or synthetic rubber, which determines the basic properties of the rubber material.To improve the physical and mechanical properties of rubbers, various additives (ingredients) are introduced. So, the rubber consists of rubber and the ingredients that will be discussed below.

Tires for automobiles are mostly made of rubber. The creation of a rubber compound using natural and synthetic rubber is the first step in this procedure. The rubber mass is then mixed with silica, soot, etc. chemical elements The mixture is transported to the oven after being thoroughly mixed. Rubber bands of a specific length are the result. The rubberization of the rope takes place in the following stage. A hot rubber mass is placed into the metal and textile cord. The inner, textile, and belt layers of the tire are constructed in this manner. Different formulas and rubber manufacturing techniques are employed by every tire manufacturer.

Rubber is a versatile material that has the following properties: high elasticity - the ability of large reverse deformations in a wide temperature range. Elasticity and stability of forms in small deformations. Amorphous-easily deformed by light pressure. relative softness. Does not absorb water well. Strength and wear resistance. Depending on the type of rubber, rubber is distinguished by water, oil, gasoline, heat resistance and impact resistance. chemicals, ionizers and light radiation. Rubber eventually loses its properties and loses its shape, which is manifested by destruction and a decrease in strength. The service life of rubber products depends on the conditions of Use and can range from several days to several years. Even with long-term storage, the rubber wears out and becomes unusable.

Rubber is the main material in the production of car tires. This process begins with the preparation of a rubber compound from natural and synthetic rubber. Then silica, soot, etc.are added to the rubber mass. chemical components. After

mixing well, the mixture is sent to the oven. The output is rubber bands of a certain length. On the next step occurs the rubberization of the cord. The textile and metal cord is filled with a hot rubber mass. In this way, the inner, textile and belt layer of the tire is made. All tire manufacturers use different formulas and rubber manufacturing technologies.

Since it is inconvenient to use such binders, special substances are added to it that weaken its thickening, for example, construction plaster; - normal thickening – the period of onset of thickening lasts after 30 minutes, and the end-up to 12 hours. Such fasteners include all Cement, which is often used in the preparation of concrete and mixtures. Slow thickening-binding agents, the thickening of which begins after 12 hours. In the preparation of a Normal mixture, water is actually taken more than the amount spent on the chemical combination of the binder. Therefore, even after the mixture has set, there will be a lot of free water in it, which does not accumulate in small tubes and pores. Free waters evaporate slowly, increasing the porosity of cement. As a result, its consistency decreases. All binders release heat from themselves in the process of thickening and hardening. When the thickening period and process of binders is fast, its heat release also increases.

In conclusion, The study's findings regarding the rubber asphalt's long-term acoustic benefits remain unclear. Rubber asphalt can initially reduce noise emissions from tire coating sources by 3-5 decibels, however this translates to a reduction in traffic noise of just 1-3 dB overall (due to other components of traffic noise). Rubber asphalt typically provides short-term and minimal acoustic benefits at significantly greater prices when compared to traditional passive attenuating solutions (such as noise barriers and soil berths).

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