

**THE IMPORTANCE OF MODERN COMPOSITE MATERIALS IN THE
DEVELOPMENT OF THE AUTOMOTIVE INDUSTRY**

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Abstract. It is difficult to imagine the constructions of modern vehicles without polymer materials. The use of these materials not only compacts the structures of technical means, reduces their mass, increases performance reliability, but also provides a great way of reducing the cost of production and labor costs. The wide application of polymer materials is caused by the fact that they can directly replace valuable metal and wood materials, in most cases they are superior to them.

Keywords. polymer materials, construction materials, automotive industry, plastic, composite-based details, raw materials, polyamide.

Introduction

If we say that our country is growing economic stability year after year, we will not be mistaken. At the same time, we can be proud of the achievements made in all industrial, production, service enterprises in our country.

Today, in a situation where the problems associated with the increase in public debt in many countries of the world are preserved, as a result of the careful policy of our country on foreign borrowing, our state has managed to keep its share of the debt volume relatively low and maintain its stable reputation as a country that fully meets its obligations. At the same time, new jobs are being created by introducing new investments.

Main part

Of course, the increase in the volume of automobile production also affects the increase in the number of automobile components. Especially now, in order to reduce the mass of modern cars, some of their details are made of plastics, composite materials. These details are checked on the basis of different standards of durability, resistance to ingestion and quality, and full series development is carried out. The production of plastic, composite-based details has developed dramatically in the short term. The history of these materials is also interesting for a while.

It is difficult to imagine a single construction of a tractor and a car without polymer material. They provide its reliable performance, along with the relief of the mass, reducing the cost of construction tannery and cocktails.

It imposes a number of goals and objectives in the preparation of vehicle details from composite materials. The fact that plastics replace many expensive and rare materials and wood, and sometimes even surpass them, caused them to be widely used. Their use is also beneficial from economic gist, because the cost of making materials, the cocktail cost of preparing the details is reduced, the details are much lighter, the capital expenditure and operational costs (lubrication, repair) are reduced, and khokazo. If the details are made of metal by injection, thermal and mechanical processing, then only one of the plastic is obtained by Operation, injection or compression under pressure. The waste of material in the preparation of articles from plastics does not exceed 5-10%, while in the preparation of metals the waste is much more (60-70%).

The development of automotive industry brings out the exteriors of new, self-sufficient, BICR construction materials. The creation of new composite materials has made the aircraft a groundbreaking leap in quality. High-quality composites were used to create cars. The use of such materials in the automotive industry has made it possible to reduce its side costs in the case of reducing the mass of the vehicle.

The need for new materials is growing rapidly to the point that the need to create a new material and study its properties necessary to meet this need cannot be met. Therefore, at a time when developing in the field of plastic production, it is necessary to pay attention to the quality of their products, their resistance to eating, their resistance to temperature, especially when young students need to consolidate their knowledge in this field.

As a subject of the discipline, students are invited to study the composition, production, manufacturing technology of parts from them and their applications, plastic masses (polymers) of rubber materials, paint and varnish materials, car interior coating materials and other types of chemical materials used in all parts of cars. In this science, the main attention will be paid to the problems of creating new types of plastic masses, rubber and paint materials used in domestic cars (Zhiguli, Moskvich, UAZ) and imported cars, as well as in cars "Nexia", "Damas", "Matiz", "Lasetti", "Cobalt", "Spark", produced by joint ventures "GM-Uzbekistan", as well as the creation of new types of plastic parts based on domestic raw materials.

The parts used in cars are made of various types of plastic. For example, Fiat (Italy) - car brand 125

Polyvinyl Chloride-PVC-19.5 kg

Polyurethane 6,0 kg

ABS plastic 6-8 kg

Polyethylene-Pe-4-5 kg

2-3 kg of phenoplast

Polypropylene - PP 1-2 kg

Polyamide 0-1 kg

We can see the details of the car made of different composite materials.



Figure 1. Auto parts made of composite materials
a-gas cylinder; b-spring; c - automobile cylinder.

The use of plastic in car parts has the following advantages:

- improves the appearance of the skin;
- as a result, the weight of the car decreases;
- reduce noise while driving;
- the shapes of these parts are improved and their service life is increased;

- reduced fuel consumption;
- the cost of their preparation is reduced.

We will look at the types of plastics that are mainly used in the automotive industry, and the scope of their application.

Polyvinyl chloride (PVC) - it is mainly used to make car hoses, electrical insulation, all kinds of handles and buttons.

Penopoliuretan (PPU)-car seat, PR sh shit, interior door panels, Tas roller straps, sliding bearings of the steering wheel are prepared.

ABS plastic-is made mainly of ventilation resins of the cooling unit, wheel covers, seat covers.

Polypropylene (PP) - is prepared from cooling pipes, details of the interior panels of doors, car bumpers.

Polymethylmethacrylate-details of lighting devices, chemical caps of lighting devices are prepared.

Polyamide-har is made of different types of bearings, details of door locks.

Electric insulation of the phenoplast - burning system is prepared.

Polyethylene-collar bags, jipers, knapsacks and backpacks of different types are prepared.

Conclusion

According to scientists, one kg of plasticine reduces the mass of the car to 1,2 kg, a decrease in the mass by 10% will help to economy the fuel at the right time by 20%.

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