



## EFFICIENT INDICATORS OF USING COMPRESSED AND LIQUID GAS FUELS IN VEHICLES

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### KEYWORDS

transport,  
automobile,  
liquefied and compressed gas,  
gas cylinder,  
operational,  
natural gas,  
gasoline,  
diesel,  
engine

### ABSTRACT

This article lists the most basic indicators of the efficiency of the use of compressed and liquefied gas in cars. The use of gas fuel in reducing the negative impact of cars on the environment will not only improve environmental performance, but also extend the performance and service life of the engine, maintain the condition of parts for a long time and achieve a number of other positive indicators.

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DOI: 10.5281/zenodo.6507700

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**INTRODUCTION.**

Uzbekistan is considered as one of few car-producing countries. Today, reliable, convenient, safe vehicles for light and passenger transport, which fill the streets of our country, make the population closer and easier. Consistent application of modern technologies in the industry, the acceleration of modernization work allows to produce vehicles that meet world standards.

Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated February 10, 2007 "On measures for the development of compressor stations and gas filling stations for cars and the gradual transition of vehicles to liquefied and compressed gas" The work carried out on the basis of In this regard, the measures taken by the Ecological Movement of Uzbekistan, the Chamber of Commerce and Industry of Uzbekistan and the limited liability company "Gazomir - PRO" in Tashkent on the conversion of vehicles to environmentally friendly alternative fuels. teeth are permissible.

Today, nearly a billion cars on Earth emit 300 million tons of carbon dioxide a year. tons of various toxic gases, dust, dry matter and other solid particles. In addition, the heavy weight of the car also leads to an increase in fuel consumption, which in turn leads to an increase in the amount of toxic gases and noise (engine noise) released into the environment, which is the most pressing environmental problem today.

**METHODOLOGY AND ANALYZING OF REFERENCES.**

A gas cylinder vehicle is a vehicle that runs on compressed or liquefied combustible gases, and the gas cylinders are mounted on the car's chassis, sometimes on top. Natural gases, gases from oil refining and extraction, and coke ovens from coal are compressed. The compressed gas is pumped into the cylinder with a pressure of up to 20 MPa. Liquefied gases: propane-butane and propylene-butylene are liquefied at normal temperatures and pumped into cylinders at a pressure of 1.6 MPa; The liquefied methane gas is liquefied at atmospheric pressure and at a temperature of  $-161.3^{\circ}$  and pumped to isothermal cylinders at a pressure of 1 MPa. The advantage of a car with a gas cylinder over a car running on liquid fuel is that it consumes less engine parts, increases engine power by increasing the degree of tension, saves fuel, and reduces the toxicity of exhaust gases.

Today, exhaust fumes from vehicles are a major source of air pollution. Vehicles should be inspected quarterly to reduce greenhouse gas emissions. During the ecological inspection, the amount of exhaust gases from vehicles is checked and diagnosed using gas-smoke meters. Our department has a diagnostic point equipped with the necessary gas and smoke meters. In cases where the amount of smoke and gas exceeds the established standards, the use of vehicles is allowed only after their diagnosis and repair.

**RESULTS.**

The car fleet of the Republic of Uzbekistan is constantly replenished with new models of buses, trucks and cars produced in the country and abroad. In order to increase the competitiveness of cars produced in the automotive industry of the country, it is necessary to improve the design and performance of cars, improve their performance in alternative

energy sources. In addition, the conversion of cars to compressed and liquefied gas, the use of polymers and composite materials, fully complies with fuel economy standards. The use of polymer and composite materials in the construction of domestic cars (mainly in the body and cabin), most importantly, the conversion to compressed and liquefied gas, has a positive impact on a number of environmental indicators.

This is achieved for the following reasons:

1. Improvement of combustible mixture composition and combustion processes;
2. Improvement of fuel transmission and ignition systems;
3. The use of an electronic system that controls the operation of the engine, a system that neutralizes exhaust gases, traps gasoline vapors. The most effective ways to improve the design of gasoline cars are:
  - recirculation of exhaust gases (reduced NO<sub>x</sub> by 40-60%) and the use of a two-component catalytic neutralizer (reduced CO and C<sub>x</sub>H<sub>y</sub> by 75-90%);
  - control of fuel injection into the inlet manifold (exhaust gas toxicity is reduced by 25-30%);
  - application of a computer system for control of work processes and exhaust gases, including dose spraying, electronic control system and three-component neutralizer;
  - control of dosing spraying on multi-valve engine cylinders (charge moves slowly and exhaust gas toxicity meets EURO-3 standards - CO up to 2.3 g / km C<sub>x</sub>H<sub>y</sub> up to 0.2... 0.3 g / km); 76
  - Management of standard parameters of gasoline due to the use of carbon-almond sorbents (evaporation of light hydrocarbons from gasoline is reduced by 85-95%). In diesel cars;
  - Intermediate cooling of turbochargers and air (NO<sub>x</sub> and solid particles are reduced by up to 30%);
  - Use of catalytic oxidizing neutralizer with exhaust start neutralizer (CO -85-95, C<sub>x</sub>H<sub>y</sub> -75 -80, NO<sub>x</sub> is reduced by 20%);
  - increase the injection pressure to 18... 20 MPA and its electronic control (fuel turns into very fine particles, burns quickly and completely, solid particles are reduced by 40-60%). Equipping ordinary mass-produced cars with devices that reduce emissions;
  - Application of contactless ignition system (engine power increases by 3-5%, fuel is reduced by 7%, harmful emissions are reduced by 15-20%);
  - use of a contactless ignition system in conjunction with a forced economizer (a 30% reduction in harmful emissions);
  - two-component catalytic neutralizer (replaced every 160,000 km);
  - The catalyst, which is installed inside the neutralizer, is contaminated with liquid and solid components of the exhaust gases during operation, covered with sulfate. Therefore, after every 20... 25,000 km, it should be sprayed with compressed air, rinsed in hot water for 3.4 hours, and then dried. After such regeneration 3 times the catalyst is replaced:
  - use of compressed natural gas or liquefied gas (propane) as fuel;

- use of asbestos and lead-free coatings on brake pads and coupling discs (30% asbestos and 5% do not spread to dust);

- In order to reduce fuel consumption and environmental pollution, the design of nuclear vehicles produced in the automotive industry of the country is constantly being improved.

### **DISCUSSION.**

Protection of the environment from the harmful effects of road transport is carried out mainly in 2 directions:

- 1- Improving the design of cars and their engines;
- 2- Combating harmful performance of cars in operation.

New models and modifications of cars are more complex than existing cars, and modern tools and devices are emerging in their structure. However, the effective use of cars depends not only on the improvement of structures, but also in many cases determines the quality of maintenance during operation.

Improving the design of cars and their engines, improving engine operation, the use of various ancillary equipment and high quality fuel, timely and quality maintenance and repair work and low-harmful, gas turbine, internal combustion engine, electric cars, with the production of injector engines.

### **CONCLUSION.**

In short, the use of gasoline and diesel fuel in automobile engines is a great harm to the environment and people, emits toxic gases, and overheats the engine, causing major operational and environmental problems that are compressed as alternative energy sources for cars. and the use of liquefied gas fuels provides many effective results. The use of gaseous fuel in automobiles is used as an environmentally friendly fuel for the environment, ensuring the proper and long-term performance of parts in engine operation.

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