

THE ROLE OF MOTOR VEHICLES IN A DECREASE IN THE AMOUNT OF OXYGEN IN URBAN AIR AND ITS NEGATIVE IMPACT ON HUMANS

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Abstract

this article provides important information that a significant decrease in the percentage of O₂ in the atmosphere of large cities, where traffic flows are characterized by greater intensity, can negatively affect the health of people.

Keywords: city, atmosphere, oxygen ,air, vehicle, military influence, man, problem.

We know that oxygen is the second most abundant gas present in the atmosphere, and it plays an important role in many processes in the biosphere, and the main thing is that the breathing process on earth, that is, it is very necessary for life.

However, the composition of the Earth's atmosphere is almost 21% oxygen. But this figure was not always the case. Modern research suggests that the oxygen content in the air reached 26% 150 years ago, and in prehistoric times dinosaurs breathed air that contained more than a third of oxygen.

But in recent times, man has increasingly begun to influence the evolution of the atmosphere. This has resulted in a number of negative environmental treatments.

In particular, the increased intensity of motor vehicles ' movement, especially in urban areas, is due to the influence of harmful emissions on the state of the atmosphere not only directly polluting the air, but also oxygen consumption in the atmospheric air. During the operation of the internal combustion engine, a constant flow of oxygen appears from the air, which leads to poor oxygen. This phenomenon can be considered negative emission. A significant decrease in O₂ percent in the atmosphere of large cities, where traffic flows are characterized by large intensity, can negatively affect the health of people. In this regard, methods for assessing the damage caused to the environment by vehicles should be supplemented with an analysis of the decrease in the percentage of O₂. Therefore, we propose to include "weakened air" in the waste list.

Air is needed to activate fuel, and the amount of air consumed by the car depends on the type of fuel. This is shown in the table below (table 1).

Oxygen consumption when fuel is burned

Type of fuel	Air consumption, kg / kg
Petrol	14,9
Diesel	14,3

Rapeseed oil	12,5
Rapeseed oil 90% and ethanol 10%	11,8
Rapeseed oil 70% and ethanol 30%	11,3
Metan(CH ₄)	17,24
Propan(C ₃ H ₈)	15,672
Butan(C ₄ H ₁₀)	15,457

Excess oxygen, which does not enter the combustion reaction, comes out along with exhaust gases, but its content in these gases is very low: 0.3-8% in the exhaust of gasoline engines, in diesel engines - 2-18%. Thus, with heavy transport, the amount of oxygen in the air is clearly reduced.

Let's consider the impact of reducing the concentration of O₂ on human health.

In medicine, a classification of weather types has been developed on the impact on human well-being, among the criteria of which oxygen concentration is used. In this, three main types of weather are distinguished (Table 2).

Classification of weather types by the influence of the amount of O₂ in the atmosphere on human well-being

Weather type	Amount of O ₂ , %	Welfare of people
Convenient	20,94...20,8	Good
Moderately uncomfortable	20,79...19,5	Drowsiness, fatigue
Uncomfortable	19,49...18	Headache, loss of consciousness

When the amount of O₂ in the air is 20.94%, a person feels normal, but when the amount of O₂ is 19.5%, signs of oxygen starvation (hypoxia) appear. Hypoxia in the early stages is characterized by the following features:

- Fast breathing and heart rate
- Decreased blood pressure
- Pale skin
- Dizziness
- Apathy, weakness and drowsiness

All these symptoms indicate that the body is trying to compensate for the lack of O₂, which makes a person less active. If measures are not taken to eliminate oxygen deficiency, hypoxia develops. In old age, even a small degree of hypoxia leads to the introduction of compensatory mechanisms, but they are not effective enough to provide oxygen. According to the data presented in the literature, a decrease in the amount of O₂ in the air by 1% leads to a decrease in working capacity by 30%.

Apparently, this phenomenon can be explained by an increase in the concentration of CO₂ in the air. However, it is impossible to confuse these 2 factors of influence on the human body. Excitation of inspiratory neurons of the respiratory center occurs not only with an increase in CO₂ voltage in the blood, but also with a decrease in oxygen voltage. With a lack of excess CO₂ and O₂ in the blood, the nature of respiratory changes is different. With a slight decrease in the oxygen voltage in the blood, an increase in the respiratory rhythm is observed, and with a slight increase in the carbon dioxide voltage in the blood, a reflex deepening of the respiratory movements occurs.

Despite the obvious danger associated with the consumption of oxygen, an important natural resource of vehicles, this issue is not even discussed and is not taken into account in the existing

techniques for assessing the damage caused by vehicles to the environment.

Conclusion. As can be seen from the above data, it is a pity that in the urban area today motor vehicles have increased in traffic, which, in addition to harmful effects on the environment of that area, also leads to a decrease in the amount of oxygen, is certainly and a problem. Because if a person lives for about a month without food, a few days without water, then without air he cannot live longer than 4-5 minutes. Therefore, in order to solve the above problem, we need to understand the essence of the effect and develop measures aimed at eliminating negative consequences.

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