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EFFECT OF AIR POLLUTION FROM VEHICLES

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Vehicle pollution can be defined as the introduction of harmful materials into the environment by motor vehicles. These materials are known as pollutants, and they have several adverse effects on the ecosystem and human health. Transportation is a primary source of air pollution in several countries worldwide because of the high number of vehicles available on the roads nowadays. The air pollution due to vehicles in urban areas, especially in big cities, has become a severe problem.

In today's world life without vehicles is unimaginable, and even though vehicle pollution cannot be eliminated, it is extremely important to understand why it is worth reducing them to an acceptable level. Global warming is considered the leading effect of automobile pollution. Pollutants emitted by vehicles lead to the release of greenhouse gases into the atmosphere, which leads to the depletion of the ozone layer [1].

The destruction of the ozone layer leads to an increase in the temperature of the atmosphere, which in turn causes global warming. Other effects of road pollution include the formation of smog and acid rain, and reduced air quality. Also, automobile emissions have a harmful effect on humans. Exhaust gases contain about 200 chemical compounds. Among them are substances that are harmless to the human body (nitrogen N_2, oxygen O_2, water vapor H_2O, carbon dioxide CO_2) and very toxic compounds, including carcinogens. Carbon monoxide (CO) is a product of the incomplete combustion of automotive fuels. Carbon monoxide is considered an "inhaled poison" capable of creating an

oxygen deficiency in the tissues of the body, which can cause headache, dizziness, nausea, unconsciousness and even death. Nitrogen dioxide (NO_2) is a yellowish-brown gas that greatly impairs visibility, is highly toxic.

Research shows that exposure to nitrogen dioxide can lead to both acute and chronic health effects in humans. Hydrocarbons (CH) in the presence of nitrogen dioxide under the influence of sunlight are oxidized and form toxic oxygen-containing compounds with a sharp unpleasant odor – photochemical smog. Polycyclic aromatic hydrocarbons contained in soot and resins are strong carcinogens. Certain classes of hydrocarbons are capable of causing mutations. Formaldehyde is a colorless gas with a pungent odor in high concentrations, irritates the eyes and respiratory tract, has a general toxic effect, causes damage to the central nervous system, and has an irritant, allergenic, mutagenic, and carcinogenic effect. Dust (suspended particles, less than 10 microns in size) can cause diseases of the mucous membranes and respiratory organs, as well as conjunctivitis and dermatitis.

What can help reduce these effects? Carpooling, use of bicycles, electric public transport (metro, urban railways, buses) improvement of road infrastructure, its improvement, installation of engines running on compressed natural gas, improvement of maintenance, repair and organization of control over the technical condition of vehicles - these are the priority ways protection from the negative aspects of motor transport.

References

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