In moss-grown pine forest (dry growth conditions), by the end of the vegetation period, tendencies toward increasing in elements concentration in the wood for most elements are characterized.

The reliability of differences in the chemistry of pine wood was determined by means of variance analysis for the probability of seasonal amount of 0.95 and the fulfillment of the condition F act.> F tab.

Significant differences of B, Cr and Ni were obtained on TSP№1; Cr and Mo - on TSP№2; Fe, Pb, Cr, Ni and Ti - on TSP№3. It should be emphasized that the largest number of elements, the concentration of which in the pine wood varies depending on the season, is recorded in the marshy area.

Under study, the reliability of seasonal changes of chromium and iron elements is confirmed in all areas. Consequently, they can be defining elements in pine wood that, under studying in practice, give an indication of the seasonal differences in the wood samples for all forest areas with growing conditions close to the studied forest types.

As additional elements, according to which the seasonal variability is exceeded over the individual variability only by the coefficient of variation, for each of the trial plots under study are: TSP№1 – Pb, Mo, Ti; TSP №1 – Ti; TSP №3 – Ag, Zn.

In general, the obtained data on the characteristics of the pine wood microelement composition, depending on seasonal variability, can be used as reference or indicative information in studies aimed at solving problems to explore opportunities for narrowing the group affiliation while clarifying the temporal parameters of the objects and their attitude to a particular area.

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MONITORING OF THE VEHICLE POLLUTION IN THE CLIMATE CHANGES CONTEXT

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The danger of the unbalanced fossil fuel consumption and the necessity of the reduction of greenhouse gases emissions have been discussed in the climate changes context. It was proposed to use the method of the physical and chemical modification of the fuel characteristics to solve environmental issues in the motor transport complex. The unique additive of complex action to diesel fuel was developed. It was determined that such fossil fuel modification makes it possible to reduce the emissions of diesel vehicles and also to reduce the fuel consumption. The method of the forecasting of pollution of roadside urban territories was improved and can be used for the monitoring purposes.

Keywords: road transport, vehicle, harmful substances, air pollution, monitoring, pollutants, climate change, fossil fuel, greenhouse gases.

In the modern world, potential environmental threats to humanity, as well as the risk of the global climate change on the planet, are increasing due to the growing greenhouse gas emissions (GHG). This causes the urgent need to transfer fuel & energy and motor transport complexes around the world to alternative energy sources, as well as to create conditions for reducing harmful substances emissions with vehicle exhaust gases. Environmental problems of the urban ecosystems associated with the development and functioning of the motor transport complex were investigated by many scientists, in particular, S. V. Boychenko, Yu. F. Gutarevich, V. M. Isaenko, O. I. Zaporozhets, P. M. Kanilo, V. V. Trofimovich, G. M. Franchuk and others.

Currently, Ukrainian transport complex consumes too much fossil fuel which leads to the significant emissions of GHGs. According to the State Statistics Service of Ukraine, only in 2015 CO_2 emissions into the atmosphere from the mobile sources reached almost 23140 thous. t, while emissions of all other pollutants and GHGs from the mobile sources reached almost 1664 thous. t. Moreover, CO_2 emissions to the atmosphere from the stationary pollution sources were also significant – in 2016 its value was nearly 150581 thous. t. So, urbanization and transport complex development cause considerable pressure on the anthropogenic and natural ecosystems. Vehicles amplify air pollution, as well as water and soil degradation caused by emissions of GHGs and other harmful substances.

So, the solutions to the environmental problems associated with the fossil fuels usage can be provided by the replacement of current technologies with the eco-friendly alternative ones, in particular by fuel modification with additives of different nature, including bio-additives. Many technological solutions in this scientific sphere have been developed on the basis of the Design Engineering Bureau "Shtorm" of the Igor Sikorsky Kyiv Polytechnic Institute. In particular, we have proposed to use the method of the physical and chemical modification of the fuel characteristics and, on the basis of the studied regularities and features of the radical-chain processes of the fuel oxidation, we have developed the unique additive of complex action to diesel fuel. This additive contains synthesized antioxidant complex, a friction modifier, complex of surfactants and a solvent.

It has been experimentally determined that such fossil fuel modification makes it possible to reduce the emissions of smoke, CO_2, CO, NO_x, C_xH_y etc. of diesel vehicles and also to reduce the fuel consumption. The positive environmental effect from the modification of the diesel fuel by the developed additive was also proved by the calculation of the values of the integral index of atmospheric pollution "IZA_5". During the investigation, the spatial mathematical models based on the solution of the turbulent diffusion equation [1, 2] were created on the bases of the study of road conditions of transport corridors in Kyiv. Taking the modeling results into account, the method of forecasting of pollution of roadside urban territories was improved by implementation of the discrete-interpolation approach which allows, in particular, to take into account the geometrical features of roads [3]. This method can be used for the monitoring purposes.

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MODERNIZATION OF GAS CLEANING SYSTEMS OF JSC "GOMEL PLANT OF CASTING AND NORMALS" FOUNDRY

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The paper analyses the project design of modernization of the foundry gas cleaning systems of JSC "Gomel plant of casting and normals".

Keywords: pollutant emission, modernization, gas cleaning equipment.

JSC “Gomel plant of casting and normals" (hereinafter referred to as "GZLiN") functions as an independent plant within Production Association "Gomselmash". The industrial site of JSC "GZLiN" is located in the north-western part of the city of Gomel.

The company undertakes the following principal activities: the production of agricultural machinery and its spare parts; engineering fasteners; foundry, non-standard and stamping equipment; cold heading tools, punches; as well as consumer goods. The foundry produces cast iron, steel and non-ferrous alloys castings for the needs of the plant and third-party customers.

The modernization of the foundry gas cleaning systems includes the replacement of worked out equipment with more efficient one by installing aspiration systems with filter ventilation units (hereinafter referred to as "FVU") such as Herding DELTA FLEX (analogue) instead of existing wet dust collectors, and replacing existing air ducts.