

Iljinsky P.E., Kineva T.A.

AUTOMATED GAS POLLUTION ASSESSMENT SYSTEMS AT CHEMICAL PLANTS

*Seversk Technological Institute of NRNU MEPhI,
65, Kommunisticheskiy Prospekt, Seversk, Tomsk Region, 636036
e-mail: Lanser200.iljinsky@yandex.ru*

Gas pollution is a change in the composition of the air towards a noticeable increase in the percentage of any of the gases in it (including those normally present in the atmosphere) against the usual norm established according to hygienic regulations. Hygienic regulations also prescribe sanitary and hygienic standards for the content of harmful substances in water, soil, plants, food, materials and their maximum permissible concentration (MPC).

MPC is a concentration that cannot cause diseases or deviations in health indicators during daily work (except weekends) for 8 hours or other duration and during the entire period of work. Besides, there is a maximum one-time limit permissible concentration for polluted air.

The intention to avoid diseases creates the necessity to control gas pollution. For this purpose, the method of sampling in the respiratory zone is often used to perform analysis using chromatographs or gas analyzers. The received actual values of harmful substances are compared with the MPC.

The main sources of gas pollution in Seversk and the Tomsk region are the facilities of the stock company “Siberian Group of Chemical Enterprises”. Fluoride compounds, ammonia and nitric acid are the main pollutants released into the atmosphere by the facilities of the company [1].

Gas analyzers that are suitable for gas pollution control in the region have an important drawback – personal attention and maintenance at each measurement are required that put health and lives of the employees in potential danger. Therefore, it is necessary to develop a system for automated gas measurement and cataloging the data received.

REFERENCES

1. Ecological safety report SC «SGChE» 2019. URL: <https://www.rosatom.ru/upload/iblock/f50/f503b920992ee93f8318c8916351c41d.pdf> (date of access 02.04.2024)