Abstract

Master dissertation with the total volume of 122 pages, contains 66 illustrations, 19 tables, 5 applications and 48 sources under the list of references.

Actuality of theme. The urgency of work is connected with the need to find alternative methods of water purification from persistent organic pollutants, which will satisfy the level of quality of treated water and will meet modern environmental requirements and sanitary norms of sewage quality.

Relationship of work with scientific programs, plans, themes. The work was carried out within the framework of agreements: between the Institute of Gas of the National Academy of Sciences of Ukraine and NTUU "KPI them. I. Sikorsky "№1 / 5-08 / 1414 from" 01 "May 2008 - "Computer-integrated technical complex for the elimination of harmful organic wastes"; between the Institute of Geochemistry of the National Academy of Sciences of Ukraine and NTUU "KPI them. I. Sikorsky "№1400 / 02 from" 11 "December 2017 -" Computer-integrated system of monitoring and prediction of water quality ".

The purpose and tasks of the study. The purpose of this work is to develop a system for regulating the process of electric discharge cleaning of contaminated water. To do this, the following tasks must be solved: to perform an analysis of the circuit diagram of the electrodischarge water treatment as an object of automation; to conduct an experimental research on the use of electrodischarge water purification from organic pollutants; to perform analysis and processing of the results of experimental experiments, using Mathcad, Origin Pro and others packages; in the Trace Mode 6 environment, implement a system for controlling the electrical discharge installation; develop a startup project.

The object of the study is an electric discharge system for purification of contaminated water.

Subject of research - process control in the electrodischarge module.

Research methods. Methods of mathematical modeling, computational and natural experiments.

Scientific novelty of the results. The technology of electric discharge cleaning of water from persistent organic pollutants is offered. The efficiency of the method of electrodischarge water purification from persistent organic pollutants has been experimentally determined. The SCADA-system, which provides data processing and management of water treatment processes from persistent organic pollutants, is developed.

The practical value of the results. Digitizing oscillograms using the Origin Pro environment. The values of power, energy consumption for water purification from phenol are determined. Determine the efficiency of the plant to clean water from persistent organic pollutants.

Approval of the results of work. The main provisions of the master's thesis were highlighted at the 6th International Scientific and Practical Conference «Computer Simulation in Chemistry and Technologies and Systems of Sustainable Development - KMHT-2018» and the First All-Ukrainian Scientific and Practical Internet Conference of Students, Postgraduates and Young Scientists «MODERN INFORMATION SYSTEMS AND TECHNOLOGIES »2018.

Publications. According to the materials of the master's dissertation two scientific articles are published in collections of international conferences.

MANAGEMENT, ELECTRICALLY TECHNOLOGY, CLEANING, ORGANIC POLYMERS, PLASMOCHYMIC REACTOR, ARCHITECTURE, WATER TREATMENT, TECHNOLOGICAL OBJECT OF MANAGEMENT, OXIDATION.