ABSTRACT

Master dissertation with a total volume of 125 pages, contains 60 illustrations, 17 tables, 4 appendices and 25 sources under the list of references.

Actuality of theme. The urgency of work is related to the need to find alternative methods of disinfection of water pools, which will be satisfied by the level of quality of treated water and will meet the current environmental requirements and sanitary norms of drinking water 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 pool 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 electric discharge water purification from the main pollutants; to perform analysis and processing of the results of experimental experiments, using Mathcad, Origin Pro and others packages; to determine parameters of the system of regulation of the contour of stabilization of the temperature of the purified water that returns to the pool; in the Trace Mode 6 environment, implement a system for controlling the electrical discharge installation; develop a startup project.

The object of research is a computer-integrated system of electric discharge cleaning of pool water.

The subject of research - a system for controlling the process of electric discharge cleaning of pool water.

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

Scientific novelty of the results. The stages of algorithm digitization of oscillograms using the source Pro environment are determined. The scheme of control and regulation of the main parameters of the electric discharge unit is designed, which provides for the operator to intervene to change the settings.

The practical value of the results. The parameters of the PID regulator are determined in the most important contour of stabilization of the water temperature for returning to the pool. The parameters of the work of the electrodischarge module for minimization of energy consumption for the process of water purification from a specific substance are determined.

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 Modeling in Chemistry and Technologies and Systems of Sustainable Development - KMHT-2018".

Publications. According to the materials of the master's dissertation, one article and one thesis of reports at international conferences were published.

MANAGEMENT, ELECTRICITY TECHNOLOGY, CLEANING, BASES, PLASMOCHYMIC REACTOR, ARRIVAL DISCHARGE, WATER DISCHARGE, TECHNOLOGICAL OBJECT OF MANAGEMEN