HYDRO CHEMICAL MODELING OF SECONDARY DIOXIN POLUTION

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Introduction

In modern condition a risk of secondary dioxin pollution is very high. So, the is a problem of investigation of accumulation dioxin in nature water systems and water reservoirs. We will take into account the possibilities of dioxin's decomposition in secondary sources under natural influence.

Materials and Methods

The experiments have been executed with aid of following substance simulators: hydrogen peroxide and eosin and erythrosin. A new method of hydro chemical model of dioxin's decomposition has been used. Researchers have at the disposal as standard so and special equipment that is included installation on the base an potentiostats PI-50-1, P-5848, special electrochemical cells, spectrophotometer Specord UV Vis, necessary computer equipment for processing tinning data, and the other.

Results and Discussion

The first micro kinetic hydro chemical model of dioxin's decomposition has been created by authors. With the aid of substance simulators we have been using this model for investigation of influence of daily and seasonal warm-up fluctuations at dioxin's decomposition in real natural conditions. The differential equation has been written for description of process in micro kinetic hydro chemical model. An analytical decision has been found by authors. Laboratory data received are confirmation the created micro kinetic hydro chemical model. The electrocatalytical dioxin decomposition is studied with the aid of substance simulators by the complex of modern physicochemical methods. We have found that the degree conversion of dioxin's simulations is not dependence from variant of variation of temperature. This degree conversion is determined by type of temperature distribution and its parameters.
The experimental data are placed in tables and figures. A dependence between the concentration of substance dioxin's simulator and time of degradation is shown on fig. The degrees of conversion of material-simulator of dioxin under different sequences of warm-up stages (with different time steps) are seen in tables 1 and 2.

The experimental data are full corresponded the theoretical solutions of differential equation of dioxin degradation in nature real water object under random variation of temperature.

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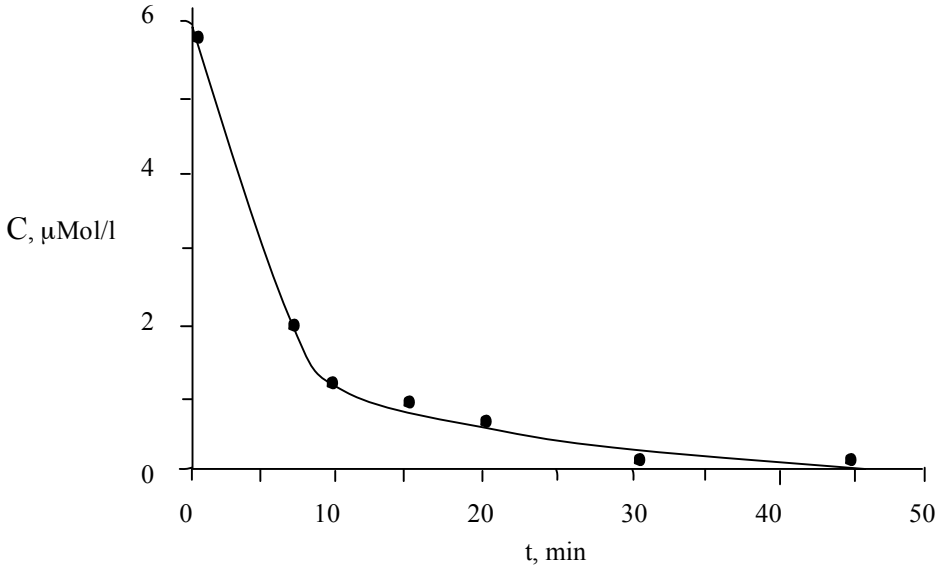

Fig. A dependence between the concentration of substance dioxin's simulator (C, μMol/l) and time of degradation (t, min).

Table 1
Degree of conversion of material-simulator under different sequences of warm-up stages (time step 1 mines.)

Series of experiments	A mode of changing a temperature, C^0				Degree of conversion, %
1	25	30	35	40	42 ± 4
2	40	35	30	25	42 ± 2
3	35	40	30	25	39 ± 2
4	30	35	25	40	39 ± 2

Table 2
Degree of conversion of material-simulator under different sequences of warm-up stages (time step 2 mines.)

Series of experiments	A mode of changing a temperature, C^0				Degree of conversion, %
5	25	30	35	40	64± 1
6	40	35	30	25	65± 1
7	35	40	30	25	63± 1
8	30	35	25	40	63± 1

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