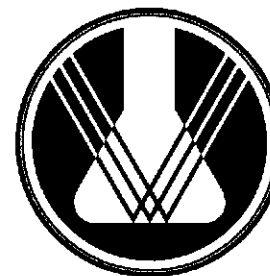


***5th International Conference
on Chemistry and Chemical Education***

Sviridov Readings 2010



Belarusian State University
Minsk, Belarus
6 - 9 April 2010



I S T C
M H T U

BELARUSIAN STATE UNIVERSITY
RESEARCH INSTITUTE FOR PHYSICAL CHEMICAL PROBLEMS
CHEMICAL FACULTY
INORGANIC CHEMISTRY CHAIR

***5th International Conference on
Chemistry and Chemical Education***

Sviridov Readings 2010

Minsk, 6–9 April, 2010

Book of Abstracts

Minsk 2010

detailed and optimized. In the present investigation kinetics of palladium oxide dissolution under different conditions (concentration of HCl solution, temperature, concentration of EDTA) were studied. Experimental data indicate the inhibition of the dissolution process by addition of EDTA to the reactionary solution. Based on this, the model of inhibition of PdO dissolution is proposed. Specific rate of PdO dissolution is described by following equation:

$$W = W_0 \frac{c_{HCl} \times c_{HCl}^2}{a \cdot c_{H_4C_2O_4} + b \cdot c_{H_4C_2O_4} + c}$$

Chemical transformations of crystallohydrates under microwave irradiation

O. Nikitina, Y. Akayeu

M. Tank Belarusian State Pedagogical University, Minsk, Belarus, e-mail: propaga@mail.ru

Decomposition of crystallohydrates under microwave irradiation has been studied. Unlike conventional heating, dehydration degree under microwave irradiation is governed mainly by structural, not purely thermodynamic factors. Thus, metal-coordinated water is easier to eliminate than water having hydrogen bonds with anions or other water molecules. The possible reason is additional rotational degree of freedom for coordinated water leading to greater microwave absorbance and more efficient heating. The results obtained have lead to a conclusion that the usage of microwave irradiation as a dehydration method can reduce significantly the needed time and energy, but it is applicable only for certain kind of compounds.

Thermodynamics of phase transitions during the formation of thiourea and sulphide complexes of lead(II) on a surface of a porous glass

Yu. Polikarpova, N. Bokov^a, V. Markov^b, L. Maskaeva^b

^a Nizhny-Tagil State Social-Pedagogical Academy, Nizhny Tagil, Russia, ^b Ural State Technical University UPI, Ekaterinburg, Russia, e-mail: boldyrevayula@rambler.ru

The complex compounds formed on ion-exchange carriers, have a major practical significance for the study of the heterogeneous processes accompanying the ion exchange, catalysis and thin-film synthesis. However the information about quantitative characteristics of the processes of complex formation on a surface of a solid phase is rarely considered in the literature. Thermodynamics of phase transitions during the formation of thiourea and sulphide complexes of lead(II) on a surface of a porous glass has been investigated. The computed values of K_n and ΔH_n using the Yatsimirsky-Budarin method were used for the computation of ΔS_{298}^n and ΔG_{298}^n . In the studied range of concentrations of thiourea solutions the forming lead complexes have the composition $[PbI_n]^{2-n}$, where $n = 1, 2$. The process of PbS formation is characterized by a decrease in the energy of the system.

Comparative study of catalytic activity of Zn^{2+} , Co^{2+} and Cu^{2+} deposited onto ZrO_2 and NASICON-type phosphate in butanol conversion

A. I. Pylinina, E. I. Povarova, I. I. Mikhaleenko

Russian University of Peoples' Friendship, Moscow, Russia, e-mail: pylinina@list.ru

The catalytic activity of copper, zinc and cobalt deposited onto a NASICON of composition $NaZr_2(PO_4)_3$ (NZP) and ZrO_2 in the dehydration and dehydrogenation of butanol and the acidity of the $Me/NaZr_2(PO_4)_3$ and Me/ZrO_2 surface were determined spectrokinetically by pyridine absorption. Several types of ion-containing acidic sites were identified. It was demonstrated that the deposition of ions onto the NASICON surface makes it possible to synthesize stable and