

A B S T R A C T S

*M.O. KOIFMAN, N.Zh. MAMARDASHVILI***SYNTHESIS AND COMPLEX-FORMING PROPERTIES OF MONOCARBOXY- SUBSTITUTED ZINC PORPHYRINATES REGARDING TO AROMATIC AMINOACIDS**

A synthesis a number of new mono carboxy-substituted porphyrins with different positions of reactionary sites in the macro cycle have been carried out and by the method of spectrophotometric titration and ¹H NMR a recognizing ability of their zinc complexes regarding to the methyl ethers of orto-, metha- and para- aminobenzoic acids in dichloromethane has been studied at standard conditions.

Key words: porphyrins, aromatic amino acids, complexation, recognition.

*A.A. BOGOMAZOVA, S.A. TIMOFEEVA, S.S. ZLOTSKY***INTERACTION OF PYROCATECHIN WITH 1,2,3-TRIHALOGENPROPANES**

This article deals with studies of pyrocatechin interaction with 1, 2, 3-trihalogenalkans as result of which the 2-haloidalliloxyphenols are obtained.

Key words: pyrocatechin, 1, 2, 3-trihalogenalkan, interaction, 2-haloidalliloxyphenols.

*U.A. GASANOVA***METALLATION OF DIPHENYLMETHANE AND ANISOLE BY ALKALINE METAL COMPLEXES WITH CROWN ESTERS FOLLOWING BY CARBOXYLATION**

The biphenyl methane and anisole metallation has been carried out with complexes of alkaline metals with crown-esters. The metallation resulted in a formation of sodium and potassium derivatives. Under their treatment with the solid carbon dioxide the appropriate carboxylic acids are formed with the yields of 91% and 61%, respectively.

Key words: metallation, crown-ester complexes, biphenyl methane metal derivatives, anisole, carboxylation.

*O.A. DYACHUK***ECOLOGICAL –ANALYTICAL LUMINESCENT DETERMINATION OF PYRENE ON MODIFIED CELLULOSE MATRIX**

The pyrene sorption processes on cellulose matrix modified with surfactants have been studied by luminescent method. The application of surfactants for sorption modification of cellulose matrix in a luminescent method has been shown to promote the increase in method sensitivity and the decrease in detection limits of substances under analysis. The given method has been recommended for use in various ecological departments for ecological toxic agents control in aqueous media.

Key words: pyrene, luminescence, surface-active agent, cellulose matrix.

*N.M. KHLINOVA, K.S. CHEMEZOVA***FORMATION OF ANODE PHOSPHATE FILM ON SILVER ELECTRODE**

On voltammetry graphs of electro-dissolution of precipitates forming on the silver electrode in the solutions containing phosphate-ions the one peak of electric current is registered. The quantity of deposit formed on the surface of an electrode during anodic process, is proportional to the concentration of phosphate-ions in the solution and may be used for determination of those. The optimal conditions for electro-deposition and electro-dissolution of precipitation are recommended.

Key words: electro-deposition, electro-dissolution, silver electrode, phosphate film.

*Yu.I. RUSYAEVA, A.A. SHABARIN, O.P. LASAREVA***ION-METRICAL DETERMINATION OF MOLYBDENUM (VI)**

The possibility of ion-metric determination of molybdenum (VI) in the form of peroxide complex has been shown. The conditions of carrying out the analysis have been optimized. The obtained anion electrode function $E = f(pC_{Mo(VI)})$ obeys to Nernst's equation in the range of 1.2 – 4.5 pC units and has a slope equal to 59 ± 4 mV/pC. The selectivity of determination in the presence of some cations and anions has been investigated by the method of "mixed" solutions. The method was tested using etching electrolyte for molybdenum kerns.

Key words: ion-selective electrode, molybdenum (VI) peroxide complex, electrode function slope, detection limit, calibration curve linearity range, determination selectivity.

A.E. PASEKA, V.K. CHEBOTAREV, E.G. ILINA, I.Yu. POLYAKOVA, R.A. TERENCEV, O.Yu. FOMENKO
POTASSIUM DIDECILDITHIOPHOSPHATE APPLICATION IN POTENTIOMETRIC TITRATION OF Fe³⁺, Pb²⁺, Ni²⁺ IONS

Using the known solubility products of the reagent chelates, proceeding degrees of individual reactions and two component mixtures the possibility of application of potassium didecildithiophosphate as a potentiometric titrant have been predicted as well as the selectivity of possible individual titration of 19 sulfide-forming ions and two and multi component mixtures titration. Potentiometric titrations of Fe³⁺, Pb²⁺, Ni²⁺ ions have been carried out and optimal conditions of this titration have been determined.

Key words: potentiometric titration, potassium didecildithiophosphate, sulfide-forming ions determination.

E.V. RUMYANTSEV, A. DESOKY, E.V. ANTINA

**DEPROTONATION EQUILIBRIA OF DIPYRROLYLMETHENES ALKYLATED SALTS AND ITS ANALOGS.
INFLUENCE OF COMPOUND STRUCTURE ON REACTION SITES BASICITY**

Deprotonation equilibria of dipyrrolylmethenes alkylated salts and its analogs in solution have been studied by the electron spectroscopy method. It has been established that even at conditions of base excess the formation equilibrium of the dipyrrolylmethenes anion form has not been achieved. The isobestic points correlation has been carried out as well as deprotonation reactions of acid forms of compounds. The increase in the radius of halogen-ion has been shown to result in the decrease of stability of protonated form of compounds in salt composition. Applying the results of ^1H NMR-spectroscopy and earlier obtained IR-spectroscopy data the interrelations between structure of heterocyclic ligands under study and basicity of its reaction sites are marked.

Key words: dipyrrolylmethenes, protonated forms, deprotonation equilibria, electron spectroscopy, reaction sites, basicity characteristics.

A.S. MOLCHANOV, S.F. LEDENKOF, V.A. SHARNIN

**ACID DISSOCIATION OF DOFAMINE AND STABILITY OF ITS COMPLEX WITH Cu(II) IONS
IN WATER-ETHANOL MIXTURES**

By potentiometric titration method with glass electrode the acid dissociation constants and complexation constants of dofamine with Cu(II) ions both in water solutions and water-alcohol mixtures containing 0-0.8 mole fraction of the ethanol have been determined. The formation of the $[\text{Cu}_x\text{H}_y\text{Dop}_z]$ complexes where (x:y:z=1:0:1; 1:0:2; 1:1:1; 1:1:2; 1:2:2) has been established. Their share distribution as a function of medium pH has been considered.

Key words: dofamine, (neuro) mediators, complexes, acid-base properties, ionometry, water-ethanol, binary solvents.

R.P. TARASOV, A.V. VOLKOV, M.I. BAZANOV, A.S. SEMEYKIN

**STANDARD ENTHALPY OF COMBUSTION AND FORMATION OF TETRAKIS(4-METOXYPHENYL)
PORPHINE COMPLEXES WITH Ni (II), Cu (II) AND Zn (II) IN CRYSTAL STATE**

The energies of combustion of tetrakis(4-methoxyphenyl) porphine complexes with nickel, copper and zinc have been determined in liquid calorimeter with isothermal shell and stationary calorimetric bomb. The standard enthalpy of combustion and formation have been calculated for nickel complex $D_c\text{H}^\circ = -23868 \pm 6$ kJ/mole, $D_f\text{H}^\circ = 404 \pm 6$ kJ/mole; for copper complex $D_c\text{H}^\circ = -26422 \pm 9$ kJ/mole, $D_f\text{H}^\circ = 2227 \pm 9$ kJ/mole; for zinc complex $D_c\text{H}^\circ = -24118 \pm 9$ kJ/mole, $D_f\text{H}^\circ = 192 \pm 8$ kJ/mole.

Key words: metal porphirines, combustion calorimetry, standard combustion enthalpy, standard formation enthalpy.

D.M. FREIK, L.V. TUROVSKAYA, V.V. BORYK, L.I. MEZHYLOVSKAYA

CRYSTAL-CHEMICAL MECHANISM OF DOPING PbTe CRYSTALS WITH Ga, In, TI IMPURITIES

Crystal-chemical models of defect subsystem of n- and p-PbTe crystals doped with the elements of III Group of Periodic Table M (Ga, In, Tl) are offered. Taking into account the disproportion of impurity charge state the dependences of point defects concentrations and Hall's carrier concentrations of charge have been calculated as a function of basic matrix composition and a content of doping impurity.

Key words: lead telluride, point defects, doping, crystal -chemistry.

D.V. FILIPPOV, M.V. ULITIN, A.V. KRAVCHENKO, M.A. RYAZANOV

PROMOTER ADDITION INFLUENCE ON ACID-BASIC PROPERTIES OF SKELETON NICKEL CATALYST

The acid-basic and adsorption properties of active sites of skeleton nickel surface promoted by molybdenum have been investigated by the combination of potentiometric and pK-spectroscopy methods in aqueous solutions.

Key words: skeleton nickel, promoted nickel catalyst, pK-spectrum, adsorption.

E.V. SMIRNOVA, E.A. KURGANOVA, N.V. LEBEDEVA, G.N. KOSHEL, S.G. KOSHEL

**STUDY OF KINETIC REGULARITIES OF LIQUID-PHASE INITIATED OXYDATION OF ISOPROPYL
DERIVATIVES OF BENZENE, TOLUENE AND CYCLOHEXYLBENZENE**

The reaction of liquid phase oxidation of isopropyl benzene (IPB), methyl isopropyl benzene (MIPB) and cyclohexyl isopropyl benzene (CHIPB) initiated with AIBN has been studied. The reactivity of compound mentioned above has been determined from the $k_2/\sqrt{k_6}$ values. The main kinetic parameters of oxidation have been measured: oxidation rate (W), initiation rate (W_i). Ionization potential, enthalpy of formation of initial molecular systems and radicals has been calculated with the AM-1 method.

Key words: isopropyl benzene), methyl isopropyl benzene, cyclohexyl isopropyl benzene, initiated oxidation.

O.V. ELISEEVA, A.A. DYSHIN, M.G. KISELEV

DENSIMETRIC STUDY OF METHANOL-HEPTANE (OCTANE) SYSTEM AT VARIOUS TEMPERATURES

The density of methanol-heptane and methanol-octane solutions has been measured at temperatures of 288.15 K, 298.15 K, 308.15 K, 318.15 K and 328.15 K with accuracy of $\pm 1 \cdot 10^{-5}$ g/cm³ by means of Anton Paar 4500 densitometer. Excess molar mixing volumes in methanol-heptane and methanol-octane mixtures have been calculated from experimental data. The obtained dependences have been explained on the base of the solvophobic interactions theory occurring in solutions.

Key words: methanol, heptane, octane, density temperature dependence, excess mole volume.

T.R. USACHEVA, I.A. KUZMINA, M.O. DZHUMASHEVA, N.S. SIDORENKO, V.A. SHARNIN

SOLVATION THERMODYNAMICS OF 18-CROWN-6 ETHER IN WATER-ETHANOL BINARY MIXTURE

By means of method of interphase distribution the Gibbs transfer energies of the 18-crown-6 ether from water into water-ethanol solvents have been determined at 298.15 K. The increasing in the concentration of ethanol in the mixture has been

established to result in a weakening of macro cycle solvation due to the enthalpy contribution to the Gibbs energy of transfer of crown-ligand.

Key words: thermodynamic, solvation, Gibbs energy, enthalpy, entropy, binary solvents, 18-crown-6 ether.

A.V. BAHTIN, Yu.I. TARASOV, M.A. GOLDSHTRAKH, S.G. DOROFEEV, N.N. KONONOV, A.A. ISHCENKO
MOLECULAR STRUCTURE AND GAS-SENSITIVE PROPERTIES OF COPPER (II)
AND ZINC (II) ETHIOPORPHYRINES

Porphyrines metallocomplexes are known to be the gas-sensitive elements of adsorption-resistive-type sensor for the determination of atmosphere pollutants. The results of experimental and theoretical studies of gas-sensitive properties of copper (II) and zinc (II) ethioporphyrines thin films are presented. The simplified theoretical model of interaction of free ethioporphyrines molecules in ground and excited states with molecules of electro-donor gases (water, ammonia) has been used. A conformation analysis of molecules of ethioporphyrine metal complexes and attachment adducts has shown the equiprobable existence of all conformers. The thermodynamic study of given attachment reaction has shown the possibility of reversibility of that process.

Key words: porphyrine, metal complex, sensor, ammonia, water.

O.I. KROPACHEVA, E.S. SALMINA, N.A. BARANOVA
STUDY OF COMPATIBILITY OF POLYBUTYLMETHACRYLATE AND ITS CO-POLYMER
WITH DIFFERENTIAL SCANNING CALORIMETRY METHOD

The compatibility of polybutylmethacrylate (PBMA) and methacrylic acid – butylmethacrylate co-polymers has been studied in films obtained from dioxane solutions. The compound homogeneity has been shown to increase at the copolymer content is below 30 % (m/m). By the DSC method the discrepancy between specified and established mixture compositions has been found. The excess of copolymer amount indicates its surface activity a manifestation of which promotes the increasing in content of methacrylic acid units.

Key words: polybutylmethacrylate, methacrylic acid, co-polymer, compatibility.

O.I. NIKOLAEVA, T.A. AGEVA, S.T. RASHIDOVA, O.I. KOIFMAN
SYNTHESIS AND STUDY OF CO-POLYMERS OF METHYL METHACRYLATE AND METHYL
PHAEOPHORBIDE «A» IN TETRAHYDROFURAN SOLUTION

The method of co-polymers synthesis of natural porphyrin - methylphaeophorbide «a» and methyl methacrylate in a tetrahydrofuran solution with use of radical polymerization initiators has been developed. For the first time, appropriate copolymers of various compositions have been obtained. The temperature effect on stability of methylphaeophorbide «a» in a reaction system has been investigated. A solubility of porphyrin in methyl methacrylate, tetrahydrofuran and in their mixtures has been investigated. In a binary solvent a solubility of methylphaeophorbide «a» has been shown to be higher, than in each from individual solvents. It has allowed to select the optimal conditions of co-polymer synthesis. Molecular-mass characteristics of synthesized co-polymers have been estimated.

Key words: monomers, porphyrins, spectra, solutions, co-polymerization.

O.S. KUNDIY, N.I. ZHELEZNYAK
VOLUME PROPERTIES OF SOME AQUEOUS SOLUTION OF NON-ELECTROLYTE

On the base of experimentally obtained densities of mixtures of water with 1,4-dioxane, formamide, dimethyl formamide and hexamethyl phosphorus three amide the excess, apparent and partial molar volumes of organic non-electrolytes have been calculated under 298.15. The limiting values of apparent and partial molar volumes related to appropriate values of non-electrolyte molar volumes at infinite dilution with water have been established to depend slightly on organic non-electrolyte nature and lie in the range of 94-96% from values of non-electrolyte molar volume.

Key words: water, aqueous solutions, density, solution volume properties.

K.V. IVANOV, A.V. AGAFONOV, A.G. ZAKHAROV
SOL-GEL SYNTHESIS OF NANOSIZE ACETOTITANILES OF BARIUM, BARIUM-STRONTIUM
AND BARIUM-CALCIUM AND THEIR THERMAL EVOLUTION TO TITANATES

The sol-gel synthesis of nanosize $\text{BaTiO}(\text{CH}_3\text{COO})_4$, $\text{Ba}_{0,9}\text{Ca}_{0,1}\text{TiO}(\text{CH}_3\text{COO})_4$ and $\text{Ba}_{0,9}\text{Sr}_{0,1}\text{TiO}(\text{CH}_3\text{COO})_4$ with partial replacement of Ba atom with the Sr and Ca atoms and their transformation to titanates at high temperature heating is presented. The study of materials has been carried out by X-ray diffraction, FT-IR spectroscopy, thermal analysis, differential scanning calorimetry. Materials dielectric characteristics have been measured as well.

Key words: sol-gel synthesis, acetonitriles, barium, barium-strontium, barium-calcium, titanates.

I.G. PUKHOV, N.N. SMIRNOV
MECHANOCHEMICAL MODIFICATION OF CARBON-BLACK ADSORBENT

The process of mechanochemical modification of the carbon-black adsorbent in a liquid media (phosphoric acid, acetic acid, ethyl alcohol) has been investigated. The mechanical impacts have been shown to accelerate the reaction between carbon black and acids or alcohols. It allows to carry out the modification at room temperature. The activation time is reduced from several hours at high-temperature chemical treatment to several minute in case of application of intensive mechanical impacts.

Key words: adsorbents, carbon materials, mechano-chemistry.

T.P. LAZAREVA
ABOUT SEPARATION OF ELECTRODE SPACE IN SYNTHESIS OF SODIUM PERBORATE

The influence of electrode space separation with membrane on electro synthesis of sodium perborate has been studied.

Key words: carbonate-borate electrolyte, anion-cation membranes, ammonium thiocyanate, electro synthesis, sodium perborate, current yield.

M.A. MATYUSHIN, T.V. ERSHOVA, T.F. YUDINA
STUDY OF PROCESS OF TITANIUM CHEMICAL SILVERING

The study of non-cyanic electrolytes of chemical silvering with ammine and triethanolamine complexes has been carried out. The special attention has been attended to reaching the optimal technological parameters – the solution stability and the deposition rate. The comparative characterization of studied solution has been given.

Key words: titanium, chemical silvering, non-cyanic electrolyte.

*N.N. PAVLOV, V.M. BARANTSEV, S.V. DEGTYAREV, N.P. DUBANKOVA, T.E. PLATOVA,
O.V. MIKHAYLOVA, A.V. MASLENNIKOVA*
**NEW IN FUCTIONALIZATION OF SYNTHETIC FIBERS AND MATERIALS FROM THEM
BY MEANS OF COMPLEX COMPOUNDS OF METALS**

On the surface of the polymer materials the metal oxides layers have been obtained, properties and structure of which essentially change the physic-chemical characteristics of fiber-forming polymers. The mechanism of formation of surface oxide structure has been proposed.

Key words: modification of properties of polymers and fibers, metal salts.

V.G. MAKAROV, R.M. SINELNIKOVA, M.V. DYULDINA
**APPLICATION OF HAMMETT ACIDITY FUNCTION FOR ESTIMATION
OF POLYMER CHEMICAL RESISTANCE**

A lifetime of glass-plastic goods is determined with resin chemical resistance. Chemical stable resins containing ester groups are undergone hydrolysis which is catalyzed with protons. The protons concentration in concentrated acids and its mixtures is determined with Hammett acidity function which can be used both at laboratory tests and in real media of industry.

Key words: hydrolysis, protonation, unsaturated polyester resin, epoxyvinylester resin, Hammett acidity function.

S.V. SMIRNOVA
MODIFICATION OF KERATIN FIBERS BEFORE DYEING WITH REACTIVE DYES

The complex estimation of influence of the preliminary modification of the keratin fibers on the wool reactive dyeing process has been carried out. The influence of modification on dyeing kinetic parameters as well as on color and strength characteristics of dyed fibers has been studied. On the base of study results the effective dyeing technology has been developed.

Key words: modification, wool fiber, alkaline destruction, reactive dyes.

*E.S. RYZHOVA, N.B. MELNIKOVA, M.V. GULENOVA, D.A. PANTELEEV, T.V. SALIKOVA,
L.N. NISTRATOVA, A.A. VOLKOV*
PHOSPHATE SALT COMPLEXES OF KRISTAPHON. PROPERTIES AND OBTAINING

The formation of N-(6-methyl-2,4-dioxo-1,2,3,4-tetrahydro-5-pyrimidinsulfon)-N'-isonicotinhydrazide phosphates complexes (Kri-Ph) in 1M H₃PO₄ has been studied by UV-, IR-, ¹H, ¹³C, ³¹P NMR-spectroscopy, photo colorimetric and potentiometric titration methods. During the time the solubility of Kri-Ph has been established to decrease in 5-10 times due to a formation of pyrophosphate bonds. The stabilization of Kri-Ph is achieved by introducing in reaction mixture the following components: either protogenic -dimephosphon or protophilic- trisamine. The immunotropic activity of phosphate salt complex has been shown to improve as comparing with kristaphon one.

Key words: phosphate complexes of pyrimidine derivatives, kristaphon, tautomerism.

E.S. PATMAR, N.I. KOLTSOV
DETERMINATION OF NUMBER OF STATIONARY STATES OF CATALYTIC REACTIONS. PART I

The method of determination of maximum number of internal stationary states (ISS) for the catalytic reactions has been developed. Proposed method is based on an analysis of structure of stage schemes of such reactions. The determination of ISS number is carried out by means of analysis of boundary stationary states (BSS) for the set of stages which are the part of mechanism under study followed by addition to it other stages of initial mechanism and determination of new ISS and BSS which can appear from ISS found on previous step. Mechanisms possessing three and more BSS have been studied. The mechanism of carbon monoxide oxidation reaction on platinum having nine BSS is presented.

Key words: method, internal and boundary stationary states, catalytic reactions, intermediate substances, stoichiometry, stage, mechanism.

A.V. MITROFANOV, A.V. OGURTZOV, V.E. MIZONOV, K. TANNOUS
MODELING HEAT TRANSFER BETWEEN PARTICLES AND GAS IN FLUIDIZED BED

A cell mathematical model of heat transfer between particulate phase and gas in a fluidized bed has been proposed. The model consists of two parallel chains of cells for particles and for gas with mutual influence of transition probabilities to each other in similar cells. Besides that, the similar cells can exchange with heat at each time transition by means of heat transfer. Some results of calculation of particulate heating up with the gas are shown.

Key words: fluidized bed, heat transfer, temperature distribution, cell model, transition matrix.

S.A. KIRLAN, L.Z. ROLNIK
**INTERRELATION "STRUCTURE-ACTIVITY-TOXICITY" OF HETEROCYCLIC COMPOUNDS
WITH FUNGICIDAL AND INSECTICIDAL PROPERTIES**

Results of researches of interrelation between a structure of heterocyclic compounds, its fungicidal and insecticidal activity and toxic properties are presented. Regularities of influence of functional groups and their combinations on activity and toxicity manifestation have been revealed. The complex of mathematical models for a forecasting of pesticidal properties and

toxicity with level of recognition more than 70 % has been formed. Results of research can be used at modeling and estimation of properties of effective and less toxic heterocyclic compounds with pesticidal activity.

Key words: structure, heterocyclic compounds, fungicidal and insecticidal activity.

A.A. FOGEL, V.A. SOMIN, L.F. KOMAROVA
**TECHNOLOGY OF WASTE WATER PURIFICATION OF PLATING PROCESSES
WITH APPLICATION OF SORBENT ON BASE OF BENTONITE AND SAW DUST**

In given work the method of obtaining a new sorption-ion-exchange material on the base of bentonite clays and saw dust has been considered. The static and dynamic capacities of obtained sorbent on ions of copper and chromium have been studied. On the base of the carried out researches the technology of washing water purification of plating area has been offered.

Key words: sorption materials, bentonite, heavy metals, ion-exchange, water purification.

G.M. FROLOVA, E.I. CHEREVACH, T.P. YUDINA, Yu. V. BABIN
TRITERPENE GLYCOSIDES OF ROOTS OF DOUBLE FORM OF SAPONARIA OFFICINALIS L

The mixture of two main glycosides has been isolated from heterogeneous mixture of triterpene glycosides of *Saponaria officinalis* L. roots (double form). Their structure has been investigated by methods of mass spectrometry (negative ESI-MS and MALDI-TOF) and NMR-spectroscopy (^{13}C and ^1H). Both glycosides have been shown to be bidesmosides of quillaic acid containing nine monosaccharide residues with different composition of monosaccharides. Close structure of glycosides, i.e. replacement in one of the glycosides of xylose molecule with glucose, causes difficulties of their separation. Despite common structural fragments, glycosides differ from dominant glycoside of roots of usual form of plant – saponarioside A with a structure of carbohydrate chains.

Key words: roots of *Saponaria officinalis* L. (double form), structure of triterpene glycosides, saponins.

V.A. PADOKHIN, N.E. KOCHKINA, N.R. KOKINA, D.V. NAZAROV, B. TAL-PHIGEL
STOCHASTIC MODEL OF KINETICS OF STARCH GRANULES DESTRUCTION

The stochastic mathematic model of kinetics of starch swelling granules destruction has been developed. On the base of that model the expression allowing estimating quantitatively a change of granules destruction degree after thermal, mechanical and combined mechano-thermal deformations has been obtained.

Key words: starch granules, stochastic model, destruction kinetics.

A.N. LABUTIN, A.E. ISAENKOV, G.V. VOLKOVA
OPTIMAL SYNTHESIS OF FLEXIBLE REACTOR SYSTEM

By way of example of the task of reactor unit optimization the possibility of application of control theory methods and mathematic modeling has been shown for creation of flexible automatic chemical-technological processes. The version of structural and algorithmic synthesis of control system of reactor unit has been proposed.

Key words: optimization, reactor unit, flexible technological process, control system.

A.B. ZHIDKOVA, V.Yu. PROKOFIEV, N.E. GORDINA
**X-RAY STUDY OF SOLID PHASE SYNTHESIS OF SODIUM ALUMINUM SILICATE
WITH STRUCTURE OF ZEOLITE**

Processes of sodium aluminum silicate synthesis from different row have been studied with the method of mechanical-chemical activation. Zeolite structures have been established to form under the kaolin usage. The composition of forming compounds determines with the type of alkaline component. Zeolite structures with the low silicate module have been shown to synthesize at usage of sodium silicate.

Key words: mechanical-chemical synthesis, X-ray study, aluminum silicate.

V.M. VOROTYNTSEV, I.V. VOROTYNTSEV, T.V. GAMAYUNOVA
**THERMAL PARAMETERS OF WATER VAPOR SORPTION WITH ACETATE CELLULOSE ON DATA OF IN-
VERSED GAS CHROMATOGRAPHY**

With the method of inversed gas chromatography the isotherms of water vapor sorption on the cellulose acetate have been obtained. These isotherm have been approximated in the frame of quasi-chemical model proposed by M. Lindstrom and M. Laatikaynen. Parameters of thermal equation have been determined as well as the concentration dependence of partial mole enthalpy of sorption has been calculated. The comparison of experimental data obtained with the inversed chromatography method and static methods has been carried out.

Key words: chromatography, adsorption, water vapor, cellulose acetate, sorption enthalpy.

S.N. GRIDCHIN
**THERMODYNAMIC PARAMETERS OF PROTOLYTIC EQUILIBRIA
FOR D-ASPARAGINE IN AQUEOUS SOLUTION**

Protolytic equilibria of D-asparagine in aqueous solutions at 298.15K and ionic strength values of 0.1, 0.5 and 1.0 (KNO_3) have been investigated using a potentiometric and calorimetric methods. The amino acid stepwise dissociation reaction constants and heats have been determined. The standard thermodynamic parameters (pK° , DG° , DH° , DS°) have been calculated for studied equilibria.

Key words: amino acids, dissociation, thermodynamic, asparagine.