

A B S T R A C T S

*N.F. KOSENKO***ALUMINA POLYMORPHISM**

Data on an alumina polymorphic transformation published in recent years are presented and systematized. Peculiarities of various forms formation from alumina hydrates and salts and mutual transitions have been analyzed. New modifications and anomalous conversions have been described. The influence of the mechanical activation and additions has been considered.

Key words: alumina, corundum, polymorphism, mechanical activation

*F.R. GARIEVA, V.I. GAVRILOV, R.R. MUSIN, L.V. AVVAKUMOVA***RESEARCH OF REACTIVITY OF 10-ARYL- 5, 10-DIHYDROPHENARSAZINES**

A reactivity of 5-magnesiumbromo -10-3-chlorophenyl-5,10-dihydrophenarsazine with allyl- and benzylchlorides has been study. The interaction of 5-magnesiumbromo-10-3-chlorophenyl-5,10-dihydrophenarsazine with allyl- and benzylchlorides has been established leads to the formation of 5-allyl-10-3- chlorophenyl-10- allyl-5,10- dihydrophenarsazonium chloride and 5-benzyl-10-3- chlorophenyl-10- benzyl-5,10- dihydrophenarsazonium chloride, respectively.

Key words: allyl chloride, benzyl chloride, heterocycle, arsenic-organic substances

*ZH.V. CHIRKOVA, S.I. FILIMONOV, A.S. DANILOVA, I.G. ABRAMOV***SYNTHESIS OF NEW FLUORESCENT COMPOUNDS BASED ON SUBSTITUTED 5,6-DICYANOBENZOFURANS**

The method of synthesis of new substituted 2-vinyl-5,6-dicyanobenzofurans with fluorescent properties has been developed. Their structure and characteristics have been determined.

Key words: fluorescence, 2-metyl-5,6-dicyanobenzofurans, N,N-dimethylformamide dimethyl acetal, aldehyde, 2-vinyl-5,6-dicyanobenzofurans

*A.V. CHERNYSHEVA, V.M. CHERNYSHEV, V.A. TARANUSHICH***ONE-REACTOR SYNTHESIS OF 3-(5-AMINO-1H-1,2,4-TRIAZOLE-3-YL) PROPIONIC ACID**

The reaction between aminoguanidine and succinic acid in water solutions has been shown to results in the formation of hard separable mixture of 3-(5-amino-1H-1,2,4-triazole-3-yl) propionic acid and 3,3'-(ethane-1,2-diyl)bis(1H-1,2,4-triazole-5-amine). A new selective method for the obtaining the 3-(5-amino-1H-1,2,4-triazole-3-yl) propionic acid by a fusion of aminoguanidine hydrochloride with succinic anhydride and subsequent recyclization of formed 2-(2,5-dioxopyrrolidine-1-yl)guanidine hydrochloride in alkaline medium has been proposed.

Key words: 3-(5-amino-1H-1,2,4-triazole-3-yl)propionic acid, aminoguanidine, succinic acid, succinic anhydride, selectivity, one-reactor synthesis

*N.CH. MOVSUM-ZADE***SYNTHESIS, COMPLEXATION AND CALCULATION OF PARAMETERS OF 3-SUBSTITUTED ACRYLONITRILES**

In given study the methods of synthesis of 3-substituted acrylonitriles and their complexes with salts of metals of transition valency have been proposed. Parameters of synthesized nitriles and their complexes have been found with quantum - chemical calculations. The correlation of molecule parameters of substituted nitriles and their complexes has been established.

Key words: substituted acrylonitriles, quantum – chemical calculations, parameters

T.A. ZHUKOVA, A.V. KRASNOV, N.V. BELOVA, G.V. GIRICHEV, YU.A. ZHABANOV, N.P. KUZMINA
MASS-SPECTROMETRIC STUDY OF VAPORIZATION PROCESSES OF ALUMINUM, GALLIUM AND INDIUM DIPIVALOYLMETHANATES

The sublimation enthalpies of dipivaloylmethanates of aluminum, gallium and indium ($M(\text{thd})_3$) have been determined by the Knudsen effusion method with the mass spectrometric vapour monitoring in the frame

of II low of thermodynamics. The following data have been obtained (kcal/mol): 26.2(2) - Al(thd)₃, 28.4(2) - Ga(thd)₃, 32.3(2) - In(thd)₃.

Key words: metal β-diketonates, aluminum, gallium, indium, mass spectrometric study, molar enthalpy of sublimation

D.P. ZARUBIN

SIZE OF IONS AND SOLUTION OF POISSON-BOLTZMANN EQUATION IN DEBYE-HÜCKEL THEORY

In the Debye-Hückel theory two approximations are often discerned in one of which the ion sizes are supposed to be point-like. In given article it has been shown that the approximate solution of the Poisson-Boltzmann equation in this theory is not compatible with the assumption of the zero size of ions. It requires a determination of minimal distance on which ions can approach to one another.

Key words: Debye-Hückel theory, Debye-Hückel limiting law, ionic size, the point-like ion approximation

A.V. FIRSOV, V.A. MATVEEV, A.P. ILYIN, D.V. MAIYOROV, A.V. ARTAMONOV

FEATURES OF NEPHELINE STRUCTURE AND KINETICS OF ITS INTERACTION WITH ACIDS

A high reactivity of nepheline to acids has been shown to condition with peculiarities of its crystal-structure. The process of acid decomposition of nepheline has been established to proceed in transition region at determinative influence of kinetic factor and process has the first order on an acid.

Key words: nepheline, sulphuric acid, crystal structure, decomposition kinetics

V.I. VIGDOROVICH, S.A. ZAKURNAEV

ESTIMATION OF CORROSION INHIBITOR EFFICIENCY IN PRESENCE OF PROTECTIVE FILMS FORMED BY MEDIUM COMPONENTS

The method of differential estimation of the inhibitor protective action and forming surface film developed by the authors is considered. As an example, the contributions of INKORGAS-T30 inhibitor and carbonate film to the total protective efficiency at the St3 carbon steel corrosion in the high mineralized aqueous solution (50 g/l NaCl) saturated by CO₂ (equilibrium pressure in gas phase is equal to 1,0135×10⁵ Pa) have been studied.

Key words: steel, corrosion, hydrogen sulphide, film, inhibitor, protection, effect, method, estimation

A.B. SHEIN, R.N. MINKH

INFLUENCE OF THIOCYANATE-IONS ON ANODIC DISSOLUTION OF Co₂Si IN SULPHURIC ACID ELECTROLYTE

Anodic dissolution of cobalt and cobalt silicide Co₂Si in 0.5M H₂SO₄ in the presence of NH₄SCN has been investigated by a cyclic voltammetry method. Main regularities of the influence of thiocyanate-ions on the mechanism and kinetics of metal and silicide anodic dissolution have been revealed. Obtained results show the different nature of the passivation processes as well as the different oxide film composition in the case of Co and Co₂Si.

Key words: cobalt, silicide, thiocyanate-ion, anodic dissolution, complexation

E.M. DVORYANOVA, I.M. KONDRATYUK, I.K. GARKUSNIN, A.V. BURCHAKOV

STUDY OF PHASE TRANSFORMATIONS IN Na, K, Rb||F,I SYSTEM

The system partition on simplexes has been carried out. Phase transformations and chemical reactions proceeding in cutting three-component reciprocal systems and four-component reciprocal system Na,K,Rb||F,I have been described. The conversion line has been investigated, the data on crystallizing phases in the system Na,K,Rb||F,I have been obtained. Data have been obtained with X-ray analysis.

Key words: phase states, T-x-diagram, solid solutions

M.V. CHUGUNOVA, I.K. GARKUSNIN, G.E. EGORTSEV

INVESTIGATION OF STABLE TRIANGLE LiF-NaCl-NaBr OF FOUR-COMPONENT RECIPROCAL SYSTEM Li,N a||F,Cl,Br

The system partitioning on simplexes of four-component reciprocal system Li,N a||F,Cl,Br has been carried out with the geometric method and with the method of graphs. Phase transformations and chemical reactions proceeding in cutting three-component reciprocal systems have been described. The conversion line has been studied experimentally. Data on crystallizing phases in compositions prism volume of Li,N a||F,Cl,Br system have been obtained. These data have been confirmed with X-ray analysis.

Key words: phase equilibrium, T-x diagram, solid solutions

A.I. OREKHOVA

ON PROSPECTS OF EXPANSION OF RAW MATERIALS SOURCES OF MAGNESIUM INDUSTRY

The physicochemical bases of magnesium chloride alkali liquor dehydration obtained from Volgograd bischofite, brine of Kuchuk Lake and waste alkali liquor - waste from chemical manufactures have been studied with methods of heterogeneous equilibrium investigation of $\text{MgCl}_2_{\text{кр}} - \text{NaCl}_{\text{кр}} - \text{KCl}_{\text{кр}} - \text{CaCl}_2_{\text{кр}} - \text{HCl}_r - \text{H}_2\text{O}_r$ system using thermal, X-ray phase, and chemical methods of analysis as well as an experimental determination of thermodynamic constants for compounds forming in that system. Also, the dehydration kinetics of chlorine-magnesium row under study has been used. Schemes of raw dehydration have been proposed. It allows expanding a raw source of magnesium industry.

Key words: magnesium industry, dehydration, Volgograd bischofite, thermodynamic constants, thermodynamic

G.R. GURBANOV

STATE DIAGRAM OF SYSTEM $\text{GeSbBiTe}_4\text{-Sb}_2\text{Te}_3$

For the first time, the character of components along the $\text{GeSbBiTe}_4\text{-Sb}_2\text{Te}_3$ system section has been studied using a complex of physico-chemical methods of analysis (differential thermal, X-ray phase, mass-spectrometric, micro-hardness and density ones). The section has been established to be quasy-binary section of triple system $\text{GeTe-Sb}_2\text{Te}_3\text{-Bi}_2\text{Te}_3$. In system $\text{GeSbBiTe}_4\text{-Sb}_2\text{Te}_3$ a solubility on the base of both components has been discovered. A solubility on the base of GeSbBiTe_4 reaches up to 10 mole% of Sb_2Te_3 , whereas on the base of Sb_2Te_3 reaches of ~ 5 mol% of GeSbBiTe_4 . Physical properties of alloys from the fields of solid solutions have been studied.

Key words: physical-chemical method, liquidus, directed crystallization, $\text{GeSbBiTe}_4\text{-Sb}_2\text{Te}_3$ system

L.P. VOLKOV

NEW MULTIPLE RELATIONS OF COBALT PHYSICAL AND CHEMICAL PROPERTIES. THEIR DETERMINATION AND PROPERTIES PREDICTION

With the method of stepwise approximation to given accuracy of determination and prediction of values of physical-chemical properties of substances the intensity of action of protons, neutrons and electrons forming substances on manifestation of multiple interrelations of substance properties influencing on determination accuracy and prediction of values of cobalt properties under study has been discovered.

Key words: physicochemical characteristics, proton, neutron, electron

A.V. CHESHKOVA, T.N. BELYAKOVA, V.A. KOZLOV, V.A. CHESHKOVA

INFLUENCE OF HYDROENZYMIC PROCESSING VEGETATIVE RAW MATERIALS ON YIELD AND MODIFICATION DEGREE OF STARCH

On the base of the complex analysis of physical and chemical properties of the enzymic-modified vegetative raw materials and spectrophotometry results the composition of enzymes providing deep conversion of structure-forming poly- saccharides (pectins and gemicellulose), destruction of starch grains and saturation of hydrolyzate with sugars has been revealed.

Key words: poly-saccharide, enzyme, starch, spectrophotometer

L.N. POTEKHINA, O.V. PACHINA, A.N. SURKOVA, V.M. SEDELKIN, V.V. FEDOSEEV

RHEOLOGICAL AND OPTICAL PROPERTIES OF POLYMERIC SOLUTIONS FOR FILTRATION MEMBRANES PRODUCTION

The influence of sodium bicarbonate and ethanol on rheological and optical properties of solutions from secondary cellulose acetates (SCA) in acetone using for filtration membranes preparing has been studied. The NaHCO_3 concentration has been varied within the range of 0.1 -0.5% (mass), and that of ethanol – 5 -25 % (volume). To investigate viscosity and optical properties of solutions method of viscometry and turbidity spectrum has been used. Dependencies of characteristic viscosity, quantity and size of microgel particles (MGP) on a solution composition have been obtained.

Key words: polymeric membrane, viscosity, solution turbidity, microgel particles

R.Kh. MUDARISOVA, L.A. BADYKOVA, E.I. KOPTYAEVA, Yu.B. MONAKOV

INVESTIGATION OF INTERMOLECULAR INTERACTIONS IN SYSTEM ARABINOGALACTAN OF LARIX SIBIRICA L. – POLYVINYL ALCOHOL

The structure formation in the system arabinogalactan – polyvinyl alcohol has been investigated with physical-chemical methods. The polymer compositions with gentamicin have been obtained and its transport properties have been investigated.

Key words: arabinogalactan, polyvinylalcohol, spectrum of turbidity, structure formation, polymer films

Ya.I. KORENMAN, N.Yu. SANNIKOVA, P.T. SUKHANOV, A.V. GUSEV, E.V. CHURILINA, G.V. SHATALOV
SULFO-AZO DYE EXTRACTION FROM WATER MEDIA WITH WATER-SOLUBLE POLYMERS

The sulfo-azo dyes extraction of E102, E110, E122, E124, E129 by water-soluble polymers poly-N-vinylpyrrolidone and poly-N-vinylcaprolactam and complex of poly-N-vinylpyrrolidone – fullerene C₇₀ from water-salt solutions has been studied. Dependences of dyes extraction characteristics on the structure and the molecular weight of polymer have been established. The interrelation between temperature of phase separation of polymer and an interaction in system of poly-N-vinylcaprolactam – dye has been analyzed.

Key words: extraction, sulfo-azo dyes, water-soluble polymers, salting-out agent, phase division temperature

S.Yu. KHASHIROVA, Z.L. BESLANEEVA, Yu.I. MUSAEV, E.B. MUSAEVA, S.V. PAKHOMOV, M.Kh. LIGIDOV, A.K. MIKITAEV

DEVELOPMENT OF NOVEL ORGANOCCLAYS FOR PRODUCING POLYMERIC NANOCOMPOSITES WITH CONTROLLED PROPERTIES

The peculiarities of organomodification of basal surfaces of Ca- and Na- forms of montmorillonite by means of guanidine acrylate and methacrylate have been studied. The influence of the nature of organomodifier on the properties of polymer nanocomposite based on polyethylene of low pressure has been studied. The structure of montmorillonite organomodifier has been shown to considerably influence on mechanical characteristics of nanocomposite polyethylene.

Key words: polymer nanocomposite, Ca- and Na- forms of montmorillonite, guanidine acrylate, guanidine methacrylate, polyethylene, organomodifier

R. JASIŃSKI, P. MICHORCZYK, E. JASIŃSKA, O.I. KOIFMAN, A. BARAŃSKI
CONJUGATED NITROALKENES IN CYCLOADDITION REACTIONS

5. REACTION MECHANISM OF [4+2] CYCLOADDITION OF CYCLOPENTADIENE TO E-2-P-NITROPHENYL-1-CYANO-1-NITROETHENE IN WATER USING B3LYP/6-31G(D) QUANTUM-CHEMICAL CALCULATION

On the base of quantum chemical calculations B3LYP/6-31G (d) it was shown, that the [4+2] cycloaddition reaction of cyclopentadiene to the E-2-p-nitrophenyl-1-cyano-1-nitroethene in water occurs according to the same mechanism as in weak-polar solvents. The conversion of substrates into 6-exo-p-nitrophenyl-5-exo-cyano-5-endo-nitronorbornene proceeds as a two-step process, whereas their conversion to 6-endo-p-nitrophenyl-5-endo-cyano-5-exo-nitronorbornene carries out as a one-step process.

Key words: B3LYP/6-31G(d), [4+2] cycloaddition, nitroalkenes, cyclopentadiene, mechanism

E.I. YARMUKHAMEDOVA, Yu.I. PUZIN, Yu.B. MONAKOV

1,3,5-TRITHIANE INTO POLYMERIZATION OF METHYL METHACRYLATE

The influence of 1,3,5-trithiane on the radical polymerization of methyl methacrylate has been researched. The kinetic parameters of polymerization process have been determined. The trithiane has been discovered to interact both with benzoyl peroxide and azo-initiator. At the trithiane presence the polymerization has been shown to proceed on complex-radical mechanism.

Key words: polymerization, methyl methacrylate, 1,3,5-trithiane, heminal bis-sulfides

P.P. MUKOVOZ, O.N. DVORSKAYA, V.O. KOZMINYKH

SYNTHESIS AND STRUCTURE PECULIARITIES OF 3,4-DIHYDROXY-1,6-HEXANEDION ACID

The inreaction of alkyl acetates with dialkyl oxalates at Claisen condensation conditions has been studied. The 3,4-dihydroxy-1,6-hexanedion acid esters have been isolated. The structure peculiarities of synthesized compounds are discussed. The structure of obtained compounds has been determined by IR and NMR spectroscopy.

Key words: 3,4-dihydroxy-1,6-hexanedion acid esters, Claisen condensation

A.A. VEDYAGIN, I.V. MISHAKOV, I.A. STRELTSOV, E.A. ZHUKOVA, R.A. BUYANOV
PREPARATION METHODS OF CATALYSTS FOR SYNTHESIS OF CARBON NANOFIBERS
OF DIFFERENT MORPHOLOGICAL TYPES

Different preparation methods of nickel containing catalysts (co-precipitation of hydroxides, mechano-chemical activation of oxides, impregnation of support and ultrasound sublimation of solutions) for CNF synthesis have been considered from viewpoint of possibility to control the diameter of obtained carbon nanofibers. The activity of catalysts in decomposition of propane as well as the morphology of obtained carbon products has been compared for different catalysts. The catalysts obtained by ultrasound sublimation have been shown to provide more thin CNF size distribution and maximum morphological homogeneity of fibers.

Key words: catalysts, carbon nanofibers, nanotubes, pyrolysis of hydrocarbons, propane, nickel, copper, morphology

L.N. CHUKHLOMINA, O.G. VITUSHKINA
SHS-NITRIDING OF FERROSILICON INCLUDING ILMENITE

Using ferrosilicon and ilmenite the $\text{Si}_3\text{N}_4 - \text{TiN} - \text{Si}_2\text{N}_2\text{O} - \text{Fe}$ composite ceramic powder has been obtained by self-propagating high-temperature synthesis. The influence of the basic process parameters (mixture composition, pressure of gas, and diameter of sample) on regularities of synthesis and the phase composition of combustion products have been established. To increase a degree of nitriding it is necessary to input the 30-35 mas. % of preliminary nitrated ferrosilicon to initial mixture of ferrosilicon-ilmenite.

Key words: self-propagating high-temperature synthesis, ceramic composition, ferrosilicon, ilmenite

A.B. KILIMNIK, E.Yu. NIKIFOROVA
INFLUENCE OF FREQUENCY OF ALTERATING SINUSOIDAL CURRENT AND
CONCENTRATION OF SODIUM HYDROXIDE ON NICKEL DESTRUCTION RATE

The influence of the frequency of an alternating sinusoidal current and a concentration of sodium hydroxide on the rate of destruction of nickel electrodes has been studied. The approximate equations of dependencies for the nickel destruction rate in the range of sodium hydroxide concentrations of 1...17 M and the AC frequency of 0...100 Hz have been obtained. The maximal rate of nickel electrodes destruction has been shown to observe in the 17 M solution of sodium hydroxide at a current frequency of 20 Hz.

Key words: nickel, nickel oxide, cyclic voltammetry, sinusoidal alternating current, preparative electrolysis

D.I. VAVILOV, R.A. AHMEDYANOVA, A.G. LIAKUMOVICH, Ya.A. LEVIN
SYNTHESIS ISOPRENE FROM 1,3-DIOXOLANE AND TRET-BUTYL ALCOHOL
IN PRESENCE OF SULFONIC CATION-EXCHANGE RESINS

A possibility of one-step synthesis of isoprene from 1,3-dioxolane and tret-butyl alcohol in the presence of acid heterogeneous catalysts – cation-exchange resins of various marks has been shown. Initial rates of isoprene formation have been calculated and the composition of reaction system has been determined. Optimal conditions of process carrying out have been chosen at which a conversion of 1,3 –dioxolane reached 99 %, selectivity of process on isoprene – 79,8 % and an isoprene yield on converted 1,3-dioxolane - 78,9 %.

Key words: isoprene, tret-butyl alcohol, 1,3-dioxolane, cation-exchange resins

A.M. KLIMOV, S.P. RUDOBASHTA, Yu.A. TEPLYAKOV, V.M. NECHYAEV, G.M. MIKHAIYLOV
INTERNAL MASS TRANSFER OF SUBSTANCES AT EXTRACTION AND DRYING NON-POROUS
POLYMER MATERIALS

The experimental studies of internal mass transfer at extracting and drying polycapramid have been carried out. Mass conductivity coefficients have been determined and their comparison in these processes has been made. The generalized dependence for calculation of mass conductivity coefficient has been obtained on the base of the experimental data and the corresponding published issues on the mass conductivity coefficients in polymers. The given dependence allows predicting the values of mass conductivity coefficients on a single parameter of polymer - volume fraction of an amorphous phase.

Key words: internal mass transfer, mass conductivity coefficient, non-porous polymer materials, extracting, drying, sorption

I.V. POSTNIKOVA, V.N. BLINICHEV, S.G. FROLOV
MILLING MATERIALS IN FLUIDIZED BED WITH ZONES OF INTENSIVE IMPACT

In given article the description of a design and a principle of action of the combined device for processing mineral raw material are given, and principles of its calculation are considered.

Key words: device of combined action, fluidized bed, the block-diagram of calculation

V.P. MESHALKIN, M.I. DLI., O.V. STOYANOVA
INVESTIGATION OF ARTIFICIAL NEURAL NETWORKS USING FOR SIMULATION OF PROPERTIES OF CREATED COMPOSITE NANOMATERIALS

The results of studying the characteristics of artificial neural networks used for modeling properties of produced composite materials have been presented. Ways to improve the quality of approximation provided by artificial neural networks, particularly the account in neural network models expert information and an use of various algorithms of training samples are considered. The results obtained can be used for solving the tasks of mathematical modeling of physical and chemical experiments conducted to study the performance of composite nanomaterials.

Key words: artificial neural networks, modeling, composite nanomaterials

N.A. SOBGAIYDA, Yu.A. MAKAROVA, L.N. OLSHANSKAYA
CLEARING BY COMPOSITE FILTER AT MAGNETIC PROCESSING OF SEWAGE

In article the influence of magnetic processing of sewage on sorption properties of composite filter made from production wastes has been studied. The theory of magnetic processing of solutions and formations of water domains is presented. The influence of cations nature (Cd^{2+} , Zn^{2+} , Cu^{2+}) and their hydrate sheaths on purification processes of sewage with composite filter has been studied.

Key words: magnetic processing solutions, ions of heavy metals, sewage treatment, sorption, the composite filter

S.V. KRASNIKOV, N.V. KAMKINA, T.A. OBUKHOVA, A.Yu. BONDARETS
SYNTHESIS OF 1,2-DIBROMALKYLSUBSTITUTED CARBOXYLIC ACIDS OF AROMATIC SERIES

4-(1,2-dibromoisopropyl)benzoic (3) and 4-(1,2-dibromocyclohexyl)benzoic (4) acids were synthesized using the reaction of free-radical bromination. The most advantageous trans-conformation of acid (4) was confirmed with the ^1H NMR spectroscopy method and counter synthesis.

Key words: free-radical bromination, 4-(1, 2-dibromoalkyl)benzoic acids, ^1H NMR spectroscopy, trans-conformation

S.S. SIMUNOVA, V.K. GORSHKOV, E.V. KLEIN, M.O. MESNIK, E.A. PAVLOV
INFLUENCE OF SELF-PRECIPIATED POLYMER COATING ON RADIO-TECHNICAL PARAMETERS

The paper presents the study of radio-technical characteristics of new protective coating on the real models of MW elements made from aluminum and copper-zinc alloys. The polymer coatings based on modified lacquer КЧ - 0125 result in the slight increase in the relative loss factor.

Key words: self-deposition, lacquer КЧ - 0125, radio-technical parameters

A.V. MITROFANOV, L.N. OVCHINNIKOV, A.V. OGURTSOV, V.E. MIZONOV
COMPUTATIONAL AND EXPERIMENTAL INVESTIGATION OF HEAT PROCESS IN A FLUIDIZED BED

The objective of the study is experimental verification of the cell mathematical model of hydrodynamics and heat exchange in a fluidized bed that was developed earlier. The experimental investigation of transient process of particles heating up was done at a laboratory scale set up, and, under selected criterial relationship for the heat transfer coefficient, showed a good correlation with the calculated kinetics of heating.

Key words: cell model, fluidized bed, heat transfer, heating kinetics

I.M. RAKHIMOVA, B.I. VORONENKO, E.V. KLUCHAREVA, E.A. KANTOR
**SYNTHESIS OF ALLYL ETHERS OF 2 - AND 4-TERT-BUTYLPHENOL BY MODIFIED
REACTION OF WILLIAMSON**

The chromatography-mass spectrometry study of the reaction's product of 2 - and 4-tert-butylphenol with a threefold excess of allyl chloride in isopropyl alcohol in the presence of solid sodium hydroxide has been carried out. Due to space constraints associated with the presence of tert-butyl group in ortho-position of the aromatic ring, allylation of 2-tert-butylphenol is less selective as compare with the allylation of 4-tert-butylphenol.

Key words: allyl phenyl ethers, chromatography-mass spectrometry

R.K. FRANTSEV, S.S. POPOVA, E.S. GUSEVA
**ELECTROCHEMICAL INTERCALATION OF MnO₂- ELECTRODE IN APROTON ORGANIC
SOLUTIONS OF RARE EARTH ELEMENT SALTS**

The mechanism of cathode introduction of lanthanum in a MnO₂-electrode structure was investigated. By means of no-current chronopotentiometry, roentgen phase analysis, secondary ion mass-spectrometry and scanning electron microscope it was shown that a modification of MnO₂ by lanthanum and lithium led to the stability increase of properties of modified LiLa_{0,01}Mn_{1,99}O₄- electrode as cathode material for lithium accumulator.

Key words: MnO₂, lanthanum, lithium, intercalation