

A B S T R A C T S

P.V. NAUMKIN, N.N. VODENKOVA, S.V. VOSTRIKOV
IDENTIFICATION OF AMYL BENZENES IN ALKYLATION PRODUCTS

The identification of fifteen positional and structural isomers of amyl-benzenes, toluenes and xylenes in reaction mixtures of benzene, toluene, meta and orto xylene alkylation with branching alkylating agents has been carried out with mass-spectrometric and chemical methods.

Key words: isomers of amyl-benzenes, toluenes and xylenes, alkylation, mass-spectrometry, identification

A.S. PAVLOVA, I.E. YAKUNINA, A.N. SHUMSKIY, I.V. SHAKHKELDIYAN, Yu.M. ATROCHSHENKO, K.I. KOBRAKOV**SYNTHESIS AND BIO-ACTIVITY OF NEW AMIDES AND UREAS ON BASE OF 2-AMINO-5-(1-R-PHENYLSULPHONYL)-4,5,6,7-TETRAHYDRO-TIAZOLO [5,4-C] PYRIDINE**

The 2-amino-5-(1-arylsulphonyl)-4,5,6,7-tetrahydro-tiazolo[5,4-c] pyridines have been synthesized by means of Hantzsch cyclization of the thiourea and N-substituted 2-bromine-4-piperidone. These substances have been used for obtaining combinatorial libraries of amides and ureas. The anti-microbial activity of some synthesized substances with respect to *Escherichia coli* and *Agrobacterium tumefaciens* has been revealed.

Key words: cyclization, thiourea, 2-bromine-4-piperidone, 2-amino-5-(1-arylsulphonyl)-4,5,6,7-tetrahydro-tiazolo[5,4-c] pyridines

E.N. AFANASIEV, E.S. EGOROVA, I.E. YAKUNINA, A.N. SHUMSKIY, I.V. SHAKHKELDIYAN, Yu.M. ATROCHSHENKO, K.I. KOBRAKOV**SYNTHESIS OF NEW AMIDES OF 1-[3-(ARYLOXY(THIA))PIRAZIN-2-YL]PIPERIDIN-4-CARBOXYLIC ACIDS ON BASE OF 2,3-DICHLOROPYRAZINE**

The method of synthesis of the 1-[3-(aryloxy(thia))pirazin-2-yl] piperidin-4-carboxylic acids by successive substitution of halogen atoms in 2,3-dichloropyrazine under the action of the O(S)- and N-nucleophiles was offered. By means of liquid phase parallel synthesis the combinatorial library of carboxy amide derivatives for the preclinical stage of development of new medicinal substances was created.

Key words: synthesis, 1-[3-(aryloxy(thia))pirazin-2-yl] piperidin-4-carboxylic acids

N.N. USANOVA, T.G. VOLKOVA, M.V. KLYUEV, G.G. MAIYDACHENKO
LIQUID PHASE CATALYTIC HYDROGENATION OF SCHIFF BASES

The hydrogenation of Schiff bases at mild conditions (298-318⁰C; $P_{H_2} = 0.1$ MPa, DMF) on Pd/C has been studied. On the basis of results of quantum-chemical calculations of the compounds under study (method PBE/sbK (DFT), program Priroda) the estimation of molecular descriptors describing their reactivity in hydrogenation has been carried out. It has been shown that use of values of electron affinity and charge on >C=N-bond of the Schiff bases allows obtaining models with good prognostic properties.

Key words: hydrogenation, Schiff bases, quantum-chemical calculations, reactivity

I.F. SHATALAEV, P.P. PURYGIN, A.V. VORONIN, N.I. SHATALAEV
APPLICATION OF DEVICE «FORMAZANE-TEST» FOR WASTE AND NATURAL WATERS TOXICITY ESTIMATION

The technical parameters of the device «Formazane-test» which is intended for biological testing of waste and natural waters toxicity with use of active silt are described. Possibilities and prospects of device application for toxicity estimation of some organic pollutants – phenols, quinones and their derivatives are shown.

Key words: bio-testing, toxicity, waste and natural water, active silt

V.Yu. GUSEV, A.V. RADUSHEV, G.S. BOGOMAZOVA, T.D. BATUEVA
COPPER (II) EXTRACTION BY N',N' DIHEPTYLOCTANOHYDRAZIDE

The new reagent N',N' diheptyloctano-hydrazide has been obtained. The pK₀₁ value has been determined. The reagent extracts copper (II) on 99-99.6% in pH range of 6-1.5 mole/L of NH₃ in form of uncharged complex of

[copper]:[reagent]=1:2. The N',N' diheptyloctanohydrazide has been established to enter into complex in deprotonated form. The adsorption isotherm of copper (II) extraction has been build. The extraction constant of copper from ammonia media has been calculated.

Key words: extraction, copper, N',N' diheptyloctanohydrazide, extraction constant

T.D. BATUEVA, M.I. DEGTEV, N.V. KON'KOVA, T.A. TUKTAREVA
EXTRACTION AND COMPLEXATION OF Cr(VI) WITH N',N'-DIPENTYLHYDRAZIDES OF 2-ETHYLHEZOIC ACID

The extraction of the chrome (VI) by solution of the N',N'-dipentylhydrazides of 2-ethylhezoic acid in kerosene from sulfuric and hydrochloric media has been studied. Optimal conditions of the chrome (VI) extraction such as acid concentration, reagent quantity, and time of phase contact have been established. The composition of extracted complexes has been found. Reextraction conditions of the chrome (VI) from organic phase have been studied.

Key words: chrome extraction, complexation, sulfuric and hydrochloric media

E.Yu. TYUNINA, V.G. BADELIN, V.V. TYUNINA, G.N. LEVOCHKINA
ESTIMATION OF SUBLIMATIONS ENTHALPIES OF SOME DIPEPTIDES FROM GEOMETRICAL DESCRIPTORS OF THEIR MOLECULES

Using relation "structure - property", the estimation of sublimations enthalpies values ($\Delta_{\text{subl}}H$) for 23 dipeptides has been carried out. The geometrical descriptors (molecular volume, the sum of bonds lengths in a molecule) have been chosen as parameters of molecular structure of dipeptides. The tendency of the increase in volumetric - specific sublimation enthalpies of dipeptides with the decrease of parameter of hydrophobicity ($\log P^*$) their molecules has been revealed.

Key words: sublimations enthalpy, peptides, hydrophobicity, structure - property

N.M. BEREZINA, M.I. BAZANOV, A.S. SEMEYKIN
ELECTROCHEMICAL PROPERTIES OF TETRA (PYRIDYL-4') PORPHIN AND THEIR COMPLEXES WITH Co(II), Cu(II), Zn(II)

The comparative investigation of electrochemical and electrocatalytic properties of tetra (pyridyl-4') porphin and their complexes [M(TPyP)] with Co(II), Cu(II), Zn(II) has been carried out using cyclic voltammetry method in 0.1 M KOH. The values of redox potentials connected with the processes of transformation of central metal ion, organic ligand and substituents in porphyrin macro cycle have been obtained.

Key words: electrochemical and electrocatalytic properties, tetra (pyridyl-4') porphin, metal complexes

G.V. ZHURBA, I.V. RODIONOV, Yu.V. SERYANOV
STUDY OF CATHODIC INTRODUCTION OF LANTHANUM IN TERMOXIDE COVERINGS OF OSTEOCLAMPS FROM STEEL 12X18H9T BY NON-STATIONARY GALVANOSTATIC METHOD

For the purpose of improvement of quality of osteointegration of steel osteoclamps for orthopedic surgery the possibility of application of non-stationary galvanostatic method of cathode introduction of the lanthanum – metal with antitrombocide and antiseptic properties – in termoxide covering of bio tolerant steel 12X18H9T has been studied. It has been established, that galvanostatic chronopotentiograms look like quickly growing curves answering to migration transfer of cations of lanthanum and salicylate anions in micron pores of thermo oxide bio covering.

Key words: lanthanum, cathode introduction, steel 12X18H9T, galvanostatic method

E.I. VINOGRADOV, B.A. KHORISHKO, A.L. TRAVIN, I.V. MEKAEVA, O.V. IVANOVA, S.A. KHORISHKO
REGULARITIES OF CATHODE BEHAVIOR OF MAGNETITE IN ALKALINE MEDIUM

The results of thermodynamic analysis and potentiostatic researches of cathode behavior of the magnetite in aqua solution of KOH are given. The comparative estimation of hydrogen evolution mechanism on electrodes from the Fe₃O₄ and iron «Armko» are given. The difference of catalytic activity of studied materials under $E < -1.12$ V has been established.

Key words: magnetite, maggemite, electrode, cathode, electrode potential, polarization, hydrogen evolution, limiting step, diffusion current, recombination, charge transfer, redox reaction, thermodynamic

B.P. SHIPUNOV, I.E. STAS'
APPLCATION OF SLIGHT POWER RF ELECTRO MAGNETIC FIELD FOR DIRECT CHANGE OF HOMOGENEOUS REACTIONS RATE

Results of experimental studies showing possibility of change of model reactions rate by means of applying RF electro magnetic field of slight powder are given. Both catalytic action and inhibition of reaction rate has been

discovered. It has been proposed the explanation connected with the change of activity of hydrogen ions and hydroxyl ones at field action.

Key words: chemical reaction rate, non-thermal activation of chemical reaction, electro magnetic field

V.V. BIKTAGIROV, V.K. POLOVNYAK, E.V. BIKTAGIROVA
INTERMEDIATES IN CATALYST SYSTEM OF $TiCl_4$ + TIBA

The structures of intermediates in catalytic system $TiCl_4$ + TIBA have been determined using quantum chemical calculation. Products structure of interaction between titanium chloride with piperilene and Ti_2Cl_7 with acetophenone are presented.

Key words: quantum-chemical calculations, structure of intermediates, catalysis, titanium tetrachloride

I.A. KURZINA, L.N. CHUKHLOMINA, A.S. BLOKHINA, O.V. VODYANKINA
SILVER-CONTAINING CATALYTIC SYSTEMS ON BASE OF SILICON NITRIDE

Physical-chemical and catalytic properties of silver catalysts supported on silicon nitride from water and organic medium in process of ethylene glycol oxidation to glyoxal have been studied. Studied systems differ on structure and physical-chemical properties of catalytically active phase. It influences on adsorption forms of reagents, catalytic properties and mechanism of surface reactions. Silver-containing systems supported on granulated silicon nitride with application of organic medium have been established to be perspective catalysts for the process of selective oxidation of the ethylene glycol to the glyoxal.

Key words: silver catalyst, silicon nitride, oxidation, ethylene glycol, glyoxal, catalyst structure

M.E. GRYGORIEV, E.M. SUL'MAN, V.G. MATVEEVA
Ru NANOPARTICLES IMPREGNATED IN HYPERCROSSLINKED POLYSTYRENE MATRIX
IN CATALYTIC SYNTHESIS OF D-SORBIT

This article devoted to investigation of catalytic properties of the Ru nanoparticles, impregnated into matrix of hyper crosslinked polystyrene in process of the D-glucose hydrogenation in the D-sorbit. The influence of hydrogen pressure, temperature and substrate initial concentration on process of catalytic hydrogenation of the D-glucose has been studied. Developed catalytic systems showed high activity and selectivity for synthesis of the D-sorbit. An apparent energy of activation and base data for calculation of reaction kinetic parameters has been calculated.

Key words: hydrogenation, Ru nano particles, hyper crosslinked polystyrene, D-glucose, D-sorbit

Z. N. VERDIEVA, P. A. ARBUKHANOVA, N. N. VERDIEV
EXCHANGE REACTIONS IN THREE-COMPONENT RECIPROCAL SALT SYSTEM
WITH DOUBLE COMPOUNDS

The matrix method of reveal of ion exchange processes in three-component reciprocal salt system has been proposed. The equations of chemical reactions corresponding to the system $K,Ca/F,MoO_4$, have been obtained with the method mentioned above.

Key words: ion exchange processes reveal, salt systems

E.P. SUROVOIY, S.P. GOVORINA, N.V. BORISOVA, L.N. BUGERKO
STUDY OF INTERACTION PROCESS OF NANOSIZE COPPER - COPPER (I) OXIDE SYSTEMS
WITH AMMONIA

During deposition of copper films (2-180 nanometers) with the method of a thermal vacuum evaporation ($P=2 \cdot 10^{-3}$ Pa) the Cu – Cu_2O systems have been formed. At interaction of systems with gaseous ammonia at $T=298$ K within 1-60 minutes the Cu – Cu_2O – Cu_3N systems have been formed. Depending on samples thickness the kinetic curves of conversion degree have been described in the frame of reverse logarithmic, parabolic and logarithmic laws. The corrosion model of the copper has been offered.

Key words: copper, copper oxide, copper nitride, vacuum evaporation, ammonia

G.K. NOVIKOV, A.I. SMIRNOV
ELECTRET EFFECT IN POLYOLEFINS CROSSLINKED WITH X-RAY RADIATION
OF ELECTRIC GAS DISCHARGE

Ionizing radiation of electric gas barrier discharge can be used for radiation cross-linkage of poly olefins cable insulation. The electret polarizability of poly olefins can be used for the purposes of controlling the degree of radiation cross-linkage and their homogeneity.

Key words: dielectric barrier discharge, irradiation, cross-linkages, poly olefins

M.F. GALIKHANOV, T.A. LUCHIKHINA, R.Ya. DEBERDEEV, I.A. ZHIGAEVA

INFLUENCE OF POLYMER RATIO IN MIXTURES ON ITS ELECTRET PROPERTIES

Corona-electrets on the base of mixtures of the high pressure polyethylene and sodium-butadiene rubber have been studied. Observed dependence of electret properties of polymer mixtures on composition characterizing with two maxima has been explained from viewpoint of conceptions on colloid heterogeneous structure of mixture.

Key words: corona-electrets, polyethylene, sodium-butadiene rubber

A.K. FRIESEN, S.L. KHURSAN, Yu.B. MONAKOV

STEREOCONTROLLING ACTION OF TITANOCENE DICHLORIDE DURING RADICAL POLYMERIZATION OF METHYL METHACRYLATE

The reactions which proceed during the radical polymerization of the methyl methacrylate in the presence of the titanocenedichloride (Cp_2TiCl_2) and which result in the increase of syndiotacticity of polymer formed have been investigated by means of density functional theory methods. The interaction between the metaloradical $Cp_2Ti^{\bullet}Cl$ formed in situ and the poly(methyl methacrylate) radical has been shown to realize through the carbonyl group of the latter. The part of elementary propagation acts can proceed on the coordination radical polymerization mechanism via participation of the active site formed under simultaneous coordination of carbonyl groups of both monomer and growing macro radical on the titanium atom.

Key words: quantum-chemical calculations, coordination-radical polymerization, titanocenedichloride, poly methyl methacrylate

A.E. DROGUN, A.A. KOLESNIKOV

HELIUM PERMEABILITY OF FILLED FLUORINE-POLYMER FILMS

The possibility of the decrease of helium-permeability of fluorine-polymer films due to application of fillers with plate form of particles has been studied. The influence of nature, amount of introducing filler, dispersibility degree and the method of its introducing into polymer films on level of their permeability has been shown.

Key words: helium-permeability, fluorine-polymer films, plate form fillers

N.V. DVORETSKIY, L.G. ANIKANOVA, Z.G. MALYSHEVA

CESIUM POLYFERRITES SYNTHESIS

The phase and chemical composition of ferrites formation products in the $CsFeO_2 - Fe - Fe_2O_3$ system has been investigated by means of X-ray diffraction, amperometry and atom-absorption spectroscopy. The conditions of formation, chemical composition and properties of the cesium poly ferrite of the β'' -alumina structure have been determined. X-ray diffraction data for $Cs-\beta''Fe_2O_3$ has been given.

Key words: phase and chemical composition, $CsFeO_2 - Fe - Fe_2O_3$ system, synthesis

R.A. VELIEV, E.M. KADYROVA, Z.G. KURBANOV, G.Z. SULEYMANOV

SYNTHESIS OF ZIMANTRENYLDIMETHYLCARBINOL COMPLEX AT CONDITION OF INTERFACIAL CATALYSIS AND STUDY OF SOME KINETIC REGULARITIES OF PROCESS

The one step method of the zimantrenyldimethylcarbinol $(OC)_3MnC_5H_4C(CH_3)_2OH$ synthesis at conditions of non-mixing phases- petroleum-ether-water at volume ratio of 5:1 where in organic phase zimantren and acetone are mixed under mass ratio of 1:1.2 and in inorganic phase there is the catalyst H_2SO_4 has been developed. Under mass ratios of acetone: H_2SO_4 of (1:1) and H_2SO_4 : DEANaF of (1:0.5) in the temperature range of $-10\pm 20^\circ C$ the parameters influencing on oxyacylation rate constant and on the zimantrenyldimethylcarbinol yield have been established. It allowed to improve some kinetic regularities of process.

Key words: zimantren, zimantrenyldimethylcarbinol, interfacial catalysis

A.E. TERESHKO, E.A. INDEIYKIN, I.V. GOLIKOV

RHEOLOGICAL PROPERTIES OF COMBINED POLYMER-PARAFFIN DISPERSIONS

The studies of rheological properties of combined water-based polymer and paraffin dispersions have been carried out. The structuring action of paraffin dispersion has been shown and extreme dependence of structural strength on content of paraffin in system at paraffin dispersion introduction in composition of butadiene-styrene latex has been established.

Key words: rheological properties, polymer and paraffin dispersions

E.S. ABDRAKHIMOVA, I.V. KOVKOV, S.G. SAIYBULATOV, V.Z. ABDRAKHIMOV
**FORMATION OF STRUCTURE AT BURNING ACID PROOF ON BASE OF WASTES
OF MANUFACTURES**

On the basis of results analysis of researches of structure formation features of ceramic materials the scheme of formation process of strong structure of samples on the base of manufacture wastes has been proposed and three periods of burning have been allocated.

Key words: structure formation, ceramic materials, burning, wastes

I.V. PAVLOVA, A.F. HABIBRAKHMANOV, V.K. POLOVNYAK
**COMPOUND OF SULFUR OF PHOSPHORUS AND BORON AS CATALYST POISONS OF PROCESS
OF COKE FORMATION AT HEAVY OIL PYROLYSIS**

In the given work the influence of some compound containing sulfur, phosphorus and boron on process of coke formation has been considered and compared. The given compounds acted as the catalytic poisons reducing catalytic activity of reactor metals.

Key words: compounds of sulfur, phosphorus and boron, catalytic poisons, coke formation, heavy oil

N.A. CHIRKOVA, V.I. CHURSIN
SYNTHESIS AND PROPERTIES OF METHYLOL DERIVATIVES OF URETHANE GLYCOLS

Synthesis conditions of urethane glycols on the base of the laprolate and mono ethanol amine and their interactions with formaldehyde have been investigated. The influence of ratio of initial components on physical and chemical properties obtained oligomers has been shown.

Key words: synthesis, urethane glycols, laprolate, mono ethanol amine, formaldehyde

A.S. OSIPOV, S.V. USACHEV, T.V. SOLOV'YOVA, A.V. SMIRNOVA
**STUDY OF BLENDS PROPERTIES AND RUBBERS OBTAINED BY COMBINING PLASTICATION
PROCESES OF NATURAL RUBBER WITH MIXING PROCESES OF IT WITH INGREDIENTS**

Changes of characteristics of molecular structure of natural rubber during its plastification in rubber mixer in the presence of the dibenzoylamidodiphenyldisulphide and pentochloriophenolate of zink have been studied and established. Peculiarities of properties of mixtures and rubbers obtained under combining plastification process and process of rubber mixtures preparing have been determined.

Key words: natural rubber, structure, plastification, properties

O.V. DYOMIN, M.M. SVIRIDOV, V.F. PERSHIN
WAYS OF EFFICIENCY INCREASE OF LOOSE MATERIALS MIXING

Modern designs of mixers and their influence on the efficiency of mixing process of loose materials have been considered. The design of a single-shaft blade mixer allowing to decrease mixing time and unloading time without the loss of mixture uniformity has been presented.

Key words: mixers, loose materials, blade mixer

A.Yu. CHAIYKA, V.N. ISAEV, E.S. SLIVCHENKO, A.P. SAMARSKIY
STUDY OF SORPTION-STRUCTURAL CHARACTERISTICS OF NYSTATIN MYCELIUM

Sorption-structural characteristics of nystatin mycelium (antifungal antibiotic) have been determined. The comparative estimation of adsorption ability of mycelium with non-porous and microporous adsorbents has been carried out. On the base of that data the conclusion on semi product structure and appropriate methods of its drying has been done.

Key words: sorption, adsorbents, nystatin mycelium, drying

T.V. KORYUKINA, A.I. SOKOLSKIY, Yu.P. OSADCHIY
APPLICATION OF MEMBRANE TECHNOLOGY IN TEXTILE MATERIALS FINISHING

The method of repeated application of used water solutions of dyes with the help of membrane technologies has been offered. The basic scheme of UF unit has been developed.

Key words: membrane technology, dyes, regeneration, equipment, unit

V.P. ZAKHAROV, F.B. SHEVLYAKOV, V.Z. MINGALEEV, P.A. TAIYBULATOV, Yu.B. MONAKOV
DECREASE OF SURFACE TENSION AS NEW METHOD OF INFLUENCE ON HYDRODYNAMIC
MODE OF TURBULENT REACTOR

The new method of action on hydrodynamic regime of operating tubular turbulent devices under proceeding fast chemical processes in liquid-gas mixture due to input of calculated amount of surfactants has been proposed.

Key words: tubular turbulent devices, surfactants, hydrodynamics, chemical reactions

S.P. RYDOBASHTA, S.Yu. MAKHMUD
EXPERIMENTAL STUDY OF MEMBRANE DISTILLATION PROCESS UNDER SEA
WATER DESALINATION

Results of experimental study of membrane distillation of sea water using film composite membranes "Vladipor" of trade mark MFFK 2, MFFK 3 and MFFK 4 are presented. The specific productivity, selectivity of separation as a function of membrane type, temperature, hot flow and its velocity has been studied. The influence of temperature, concentration polarization, membrane thickness and pore size on specific productivity and separation selectivity has been analyzed.

Key words: membrane purification, sea water, selectivity, specific productivity, temperature

B.G. TRYASUNOV, Yu.O. AfANASIEV, A.R. BOGOMOLOV
BURNING OF MILLED FUEL MIXTURE IN HIGH-TEMPERATURE CYCLONE REACTOR

Results of experimental research of burning processes of milled fuel in the new furnace device – a high-temperature cyclone reactor (HCR) are presented. Profiles of temperatures in reactor volume at burning of the wood-coal mixture and the analysis of the ashes rest are shown. It was marked that the wood-coal mixture burning unlike coal accompanied by formation not only small ashes but slag as well.

Key words: burning, milled fuel, cyclone reactor, wood-coal mixture

S.V. FEDOSOV, M.V. AKULOVA, V.A. PADOKHIN, T.E. SLIZNEVA
STUDY OF INFLUENCE OF MECHANO-MAGNETIC ACTIVATION OF IRON-CONTAINING ADDI-
TION WITH WATER OF TEMPERING ON PROPERTIES OF CEMENT PASTE AND CEMENT STONE

The study deals with improvement of physical-mechanical properties of fine-grained concretes using activation of liquid components of concrete mixture. For the solution of given task the study of mechano-magnetic activation influence of iron-containing additives with water of tempering on properties on cement paste and cement stone has been carried out. The kinds and regimes of activators, dependence of cement paste properties and cement stone on activation type of water of tempering with addition of iron sulphate and iron oxide are given.

Key words: concrete, properties, mechano-magnetic activation, iron-containing additives

E.V. LOPATKIN, A.A. KOMAROV, O.V. LEFEDOVA, M.P. NEMTZEVA
INFLUENCE OF DIFFERENT PARAMETERS ON RATE OF O-CHLORANILINE DEHALOGENATION
ON SKELETON NICKEL IN WATER SOLUTIONS OF 2-PROPANOL

It has been established experimentally that the reaction of the o-chloraniline in water solution of the 2-propanol on the skeleton nickel accompanied by hydrogen participation connected with active sites of catalyst surface. The dehalogenation reaction of the o-chloraniline has been characterized with low activation energy and low input of intra-diffusion inhibition to total rate of process.

Key words: dehalogenation, o-chloraniline, skeleton nickel, activation energy, process rate

A.O. CHUNAIEV, P.P. PURYGIN, E.A. STEPANOV, I.V. BARANOVSKIY
HOUBEN-HOESCH REACTION WITH USE OF N-CYANAZOLES

The Houben-Hoesch reaction is the powerful tool of organic synthesis, allowing to receive acylated phenols of various structure. We have synthesized some aromatic imines by interaction of N-cyanazoles with aromatic phenols, amines and ethers on type of electrophilic aromatic substitution.

Key words: Houben-Hoesch reaction, aromatic imines

V.Yu. ORLOV, A.D. KOTOV, D.A. BAZLOV, V.V. GANZHA, N.V. KONOVALOVA
THEORETICAL CALCULATION OF EQUILIBRIUM CONSTANT FOR NITROSO-OXIME TAUTO-
MERIZATION OF PHENYLCYANOMETHYLENECYCLOHEXA-2,5-DIEN-1-ONE-OXIME

The substitution nucleophilic reaction of hydrogen in nitroarene by arylacetonitrile carbanion was investigated in gas phase and in solvent (polarizable continuum model), using quantum chemical modeling methods. The

equilibrium shift of nitroso-oxime tautomerization to direction of para- quinonemonooxime form formation was shown.

Key words: quantum chemical modeling, substitution aromatic nucleophilic reaction, nitro benzene, arylacetonitrile

A.A. NIKASHINA, P.P. PURYGIN, A.N. RESHETILOV, P.V. IL'YASOV
USE OF BIOSENSORS ON BASE OF MICROORGANISMS- DESTRUCTORS FOR DETECTION OF OIL PRODUCTS

The work is devoted to study of opportunity of obtaining analytical signals of membrane type biosensor on the certain grades of oil products. The laboratory model of the biosensor modified by destructor strain of oil hydrocarbons *Pseudomonas* has been created.

Key words: biosensor of membrane type, oil products

F.S. FEDOROV, V.T. FOMICHEV, K. MIKEL, M. ULEMANN, A. GEBERT, L. SHULZ
ELECTRODEPOSITION OF IRON-COPPER ALLOY FROM PYROPHOSPHATE ELECTROLYTE

Details of combined electro deposition of iron and copper ions from low concentrated pyrophosphate electrolyte and structure of obtained alloy were studied.

Key words: electro deposition of iron and copper ions, pyrophosphate electrolyte, copper-iron alloy, cyclic voltammetry, transmission electron microscopy

S.V. NATAREEV, V.E. IVANOV, E.N. VENKIN
DRYING OF DISPERSE MATERIALS IN MULTISECTION DEVICE OF FLUID-BED

In work process of drying of quartz sand and ashes of thermal power station in the multisection device of the fluid-bed has been investigated.

Key words: drying, fluid-bed, dispersion material