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А Б С Т Р А К Т С

V.I. DERYABINA, G.B. SLEPCHENKO, I.O. MAKSYMCHUK, T.I. SHCHUKINA

INCREASING IN EFFICIENCY OF SAMPLE PREPARATION FOR VOLTAMMETRIC ANALYSIS OF AGRICULTURAL SECTOR OBJECTS

By example voltammetric determination of total content of selenium and its forms (organic and inorganic), the methods of sample preparation were proposed based on the distillation of SeBr_4 and sorption on natural sorbent «Enterosorbent ETS-1».

Key words: voltammetric analysis, sample preparation, selenium forms

E.V. BULYCHEVA, E.I. KOROTKOVA, O.A. VORONOVA, E.V. PETROVA, A.A. KUSTOVA

METHOD OF INTRACELLULAR MEASUREMENT OF METABOLITE QUANTITY *IN SITU* AT ASSESSING OVERALL BACTERIAL CONTAMINATION OF NATURAL WATERS

Luminescence analysis of the medicine "Colibacterin" sample containing coliform bacteria chosen for given work as test objects was carried out. As the analytical signal the signal of metabolite was selected. This metabolite can be used for determination of a live bacteria presence in the sample. The selected signal was shown to be suitable to estimate the total bacterial contamination of water with biological testing method.

Key words: bio-testing, colibacillus, water bacterial contamination

E.N. DYACHENKO, N.A. KOLPAKOVA

GOLD DETERMINATION BY INVERSION VOLTAMMETRY USING GRAPHITE ELECTRODE MODIFIED WITH BISMUTH

The paper considers the possibility of determining the gold (III) by inversion voltammetry on bismuth modified graphite electrode. It was shown that at the precipitate electrooxidation of bismuth - gold on the current-voltage curve the electrooxidation anodic peaks of bismuth, gold and peak of selective electrooxidation bismuth from BiAu_2 were observed. The determination of bismuth by inversion voltammetry can be carried out as from the peak of selective electrooxidation of bismuth with gold as and the peak of the gold electrooxidation from the surface graphite electrode. Modification of the graphite electrode by bismuth increased the sensitivity of gold detection.

Key words: voltammetry, bismuth, gold, graphite electrode, quantitative determination

S.V. NEKHOROSHEV, G.B. SLEPCHENKO, T.M. GINDULLINA, I.O. MAKSIMCHUK, M.S. VTORUSHIN, I.V. RAMUS

DETERMINATION OF TRACE ELEMENTS ON CUT PAPER BY METHODS OF ATOMIC-EMISSION SPECTROMETRY AND INVERSION VOLTAMMETRY FOR CUTTING TOOL IDENTIFICATION

This work contains the results of research of the composition of the paper after it was cut with metal cutting tool. By the method of scanning electron microscopy it was shown that in the process of paper cutting on its surface the traces of metallization are remained elemental content of which corresponds to the work surface applied cutting tool. Using the methods of inversion voltammetry or atomic emission spectrometry for the determination of iron, nickel and chromium, it can be possible judged on the elemental composition of the working surface of the cutting tool.

Key words: judicial chemistry, voltammetry, electron microscopy, paper analysis, metallization traces

M.G. KAMBALINA, N.P. PIKULA, N.V. GUSEVA

CHOICE OF METHOD FOR DETERMINATION OF SILICON CONCENTRATION IN NATURAL WATERS OF DIFFERENT TYPES

The main methods of quantitative determination of silicon compounds in natural water and its forms of existence were considered. Recommendations are offered on a choice of the method for determination of

silicon compounds concentration in natural waters depending on the pH and types of waters. It was established that it is necessary to use the method of atomic absorption spectrometry for fresh neutral waters and both methods of spectrophotometric and atomic absorption spectrometry for alkaline and brackish and salty waters.

Key words: silicon, determination, natural waters, silicon forms

M.A. GAVRILENKO, T.A. KASYMOVA, N.A. GAVRILENKO
CONCENTRATING FLUOROBENZOIC ACIDS ON PHTHALOCYANINE COMPLEXES
OF TRANSITION METALS

The technique of HPLC determination of fluorobenzoic acids with pre-concentration by solid phase extraction on a chelate-containing sorbent was proposed. Sorption properties of Zn, Cu, Co, Ni phthalocyanines were investigated with respect to fluorobenzoic acids in a version of solid phase extraction. The possibility of concentration with extraction efficiency up to 78 % and determination of fluorobenzoic acid up to 60 ng / l was shown.

Key words: fluorobenzoic acid, chelate, sorbent, solid phase extraction

D.A. VISHENKOVA, E.I. KOROTKOVA, E.V. DOROZHKO, O.A. VORONOVA
INVESTIGATION OF ELECTROCHEMICAL PROPERTIES OF GUANINE AND THYMINE
ON SURFACE OF GLASSY CARBON ELECTRODE BY METHOD OF VOLTAMMETRY

In this paper for investigation of electrochemical properties of nitrogenous bases guanine (G) and thymine (T) the method of voltammetry with constant-current potential sweep with differentiation was used. The electrochemical behavior of G and T on the surface of glassy carbon electrode was investigated. Conditions of registration for their joint detecting in a solution were chosen. The field of linear dependence is stored in the range of concentration of G from $2.0 \cdot 10^{-7}$ to $3.0 \cdot 10^{-6}$ mol/dm³ ($R^2=0.9966$) and from $6.0 \cdot 10^{-6}$ to $1.1 \cdot 10^{-4}$ mol/dm³ ($R^2=0.9987$) for T from $1.0 \cdot 10^{-5}$ to $1.1 \cdot 10^{-3}$ mol/dm³ ($R^2=0.999$).

Key words: voltammetry, nitrogen bases, guanine, thymine

V.I. SOBOLEV, R.V. OSTVALD, S.I. IVLEV, V.V. SHAGALOV, I.I. ZHERIN
SYNTHESIS OF BARIUM FLUOROBROMATE(III) USING LIQUID BROMINE TRIFLUORIDE
AND STUDIES OF ITS BASIC PHYSICAL-CHEMICAL PROPERTIES

The barium fluorobromate(III) Ba(BrF₄)₂ was obtained by treating barium fluoride with liquid bromine trifluoride. By the thermogravimetric method the process of Ba(BrF₄)₂ decomposition was researched. The quantitative analysis was held by chemical and instrumental methods. The measurement of Ba(BrF₄)₂ density was carried out by a bottle technique. The heat effect of the reaction of barium fluoride interaction with bromine trifluoride was determined by an isothermal calorimetric technique. Also, kinetic parameters of the synthesis process were calculated.

Key words: bromine, fluorine, halogen fluorides, fluoro halogenates

O.V. VETROVA, K.B. KONOVALOV, M.A. GAVRILENKO
USE OF HUMIC SORBENTS FOR Pb²⁺, Cu²⁺, Hg²⁺ IONS PRECONCENTRATION
FROM AQUEOUS SOLUTIONS

The sorbent prepared by sequential treatment of silica gel by polyhexamethylene guanidine of linear structure and peat humic acids was proposed for sorption concentration of metal ions (Pb²⁺, Cu²⁺ и Hg²⁺) from aqueous solutions.

Key words: sorption, humic sorbent, pre-concentrating, polyhexamethylene guanidine

D.V. MARTEMYANOV, A.I. GALANOV, T.A. YURMAZOVA, E.I. KOROTKOVA, E.V. PLOTNIKOV
SORPTION OF AS³⁺, AS⁵⁺ IONS FROM AQUEOUS SOLUTIONS ON VERMICULITE CONCRETE
AND AERATED CONCRETE MODIFIED WITH IRON OXOHYDROXIDES

New sorption materials were developed on the basis of vermiculite concrete and aerated concrete modified with oxohydroxides of iron. A high sorption activity of new sorbents for water purification from ions of As³⁺, As⁵⁺ was shown.

Key words: aerated concrete, vermiculite concrete, iron oxohydroxide, arsenic, water purification, sorption

T.V. VAKALOVA, L.P. GOVOROVA, A. Yu. TOKAREVA
**DUNITE ROCK OF IOVSK (KYTLYMSK) DEPOSIT AS A PROSPECTIVE RAW MATERIAL
FOR CERAMIC PROPPANTS**

One of the most prevalent modern methods of oil extraction intensification is oil reservoir hydraulic fracturing. Its carrying out is impossible without the use of ceramic proppants. The results of the comprehensive investigation of Iovsk deposit dunite rock as the raw material for the production of forsterite proppants are presented in the paper. The results of chemical and mineralogical investigations of Iovsk dunite composition and its structural-phase changes at heating are presented.

Key words: layer hydraulic fracturing, ceramic proppants, magnesium-silicate raw materials, dunites, forsterite ceramics

*I.V. FROLOVA, V.V. TIKHONOV, O.I. NALESNIK, A.D. SOKOLOVA,
A.A. STRELTSOVA, R.V. SITNIKOV*

STUDY OF TAILS ENRICHMENT OF BOM-GORKHON TUNGSTEN ORES DEPOSIT

The results of mineralogical studies of technogenic tungsten-containing materials (stale tails of Bom-Gorkhons deposit) are presented. Particle size distribution and distribution of tungsten and associated elements on fractions were determined. The necessity to grind the heaps up to 0.2–0.25 mm was established. It allows increasing in the degree of extraction by two or more times in comparison with the conventional method of tails processing.

Key words: tungsten, ore, technogenic deposit, concentration, particle size distribution, physical and mechanical characteristics, X-ray analysis

N.V. MALANOVA, V.I. KOSINTSEV, V.V. KOROBOCHKIN

**MICRO HETEROGENEOUS PROCESSES IN SOFTENING TECHNOLOGY OF WESTERN
SIBERIA GROUNDWATER**

The possibility of application of micro bubbles processing in the chemical treatments of water softening was shown. The formation of micro bubble gas-liquid medium is increased in a rate of conversion of calcium hydrocarbonate to carbonate by 1.4 times at water treatment with ammonium hydroxide. It allows reducing the hardness of tap water to 1.6 mmol/l.

Key words: micro bubble gas-liquid medium, hydrodynamic generator, water hardness, water softening

E.N. GRYAZNOVA, L.N. SHIYAN, S.I. GALANOV, O.I. SIDOROVA, V.V. KOROBOCHKIN
**MANGANESE-CONTAINING CATALYSTS FOR DEEP OXIDATION OF METHANE BASED
ON NANOFIBROUS ALUMINUM OXYHYDROXIDE**

Aluminum oxyhydroxide nanofibers modified by manganese ions (II) was shown to have catalytic properties in a reaction of methane deep oxidation. It was established that the catalytic activity was increased at heating the samples in air at 850 °C, which is associated with the formation of the manganese oxide phases on the surface of aluminum oxide. The most promising catalyst for the high-temperature combustion of methane was found to be the system with manganese content in a catalyst of 5.7 wt. %.

Key words: manganese catalysts, aluminum oxyhydroxide nanofibers, modification, thermal activation, catalytic activity

N.V. USOLTSEVA, V.V. KOROBOCHKIN, M.A. BALMASHNOV, A.S. DOLININA
**PORE STRUCTURE OF PRODUCTS OF NON-EQUILIBRIUM ELECTROCHEMICAL
OXIDATION OF COPPER AND ALUMINUM**

Products of AC electrochemical oxidation of copper and aluminum were investigated by X-ray diffraction, BET, and SEM. Electrolysis products possess mesopore structure; the prevailing pore size is about 4nm. Product of aluminum electrochemical oxidation represents flower-like agglomerates (1–5 μm) that are formed from lamellar particles of 10 nm thickness. AC electrochemical copper oxidation lead to copper oxide preparation that particles is in the shape of plate of 500 nm thickness. Air carbonization of copper oxide results in basic copper carbonate formation that may be represented as fascicle of wire of 4–6 μm length.

Key words: AC electrolysis, copper oxide, aluminum oxide, phase composition, pore structure, microstructure

V.V. KOROBOCHKIN, A.S. DOLININA, N.V. USOLTSEVA, M.A. BALMASHNOV, D.A. GORLUSHKO, S.E. PUGACHEVA

REGULARITIES OF JOINT ELECTROCHEMICAL OXIDATION ON ALTERNATING CURRENT OF METALLIC COPPER AND CADMIUM

The dependencies of the rate of the joint process of electrochemical oxidation on the alternating current of industrial frequency metallic copper and cadmium on the composition and concentration of electrolytes, current density and temperature electrolysis were studied. The rate of metal oxidation was established to decrease in the increasing concentration of electrolytes in the interval of 3–25 % wt. and increase in the range of the current density of 1–3 A/cm² for cadmium by 3–4 times, and for copper by 6–8 times under the same conditions.

Key words: electrolysis, alternating current, kinetics, copper and cadmium oxides

T.N. VOLGINA, V.T. NOVIKOV, O.Yu. FEDOROVA

SYNTHESIS OF ACTIVE OXIDIZERS IN SULFURIC ACID SOLUTION *IN SITU*

The oxidizing system formed by passing the electric current through aqueous solutions of sulphuric acid and its salts was investigated. The influence of current density, temperature, concentration of ammonium persulfate on the formation rate of mono- and persulphuric acid, ozone and oxygen was established. The yield of oxidizers has maximum at current density of 0.83 A/cm², process temperature of 50 °C and at concentration of ammonium persulfate of 0.07 %.

Key words: sulfuric acid electrolysis, electro oxidation, electro synthesis, persulfuric acid, mono persulfuric acid, Karo acid, persulfates

M.A. DUSHKINA, O.V. KAZMINA

INFLUENCE OF IRON-CONTAINING ADDITIVES ON PROCESS OF OBTAINING FOAM GLASS CRYSTAL MATERIALS

According to the results of experimental work it was found that iron-containing additives increase in a reactionary ability of blend at the synthesis step of low-temperature granulated material. The amount of glass phase in a granulated material obtained with the addition of 2% Fe₂O₃, is increased to 77 %. It was shown that the increasing in foaming coefficient of the granules at 850 °C was observed at addition of iron-containing additives in an amount of 2% to the initial mixture. The addition of Fe₂O₃ above 1% in the foaming mixture reduces the foaming coefficient.

Key words: foam-glass crystalline material, iron oxide, iron ore, silicate formation, foaming, density

E.V. POPOK, A.I. LEVASHOVA, N.V. CHEKANTSEV, M.V. KIRGINA

ULTRADISPERSED CATALYSTS OF HYDROCARBON SYNTHESIS FROM CO AND H₂ BASED ON ELECTROEXPLOSIVE IRON POWDERS

The structure and properties of particles of electroexplosive iron-based powders were studied using a laser diffraction method, transmission electron microscopy and x-ray phase analysis. The catalytic activity of ultra dispersed iron powders in a synthesis of hydrocarbons from CO and H₂ was estimated on the concentration of the paramagnetic particles measured with the electron paramagnetic resonance. The synthesis of hydrocarbons on laboratory set up was carried out at various compositions of initial mixture.

Key words: Fisher-Tropsch synthesis, ultra dispersed catalyst, catalytic activity, hydrocarbons synthesis

M.A. MOROZOVA, M.E. TRUSOVA, I.O. MAKSIMCHUK, V.D. FILIMONOV

STUDY OF REDUCTION REACTIONS OF ARENEDIAZONIUM TOSYLATES

For the first time, hydro-diazotization reactions of arenediazonium tosylates (ADT) were studied using chemical and electrochemical methods. The reduction of ADT with electronodonor substituting groups was shown to be not selective in ethanol solution. However, reduction process with iron nano particles covered with carbon or thermo-expanded and untreated graphite is chemically selective and quantitative in an aqueous solution at room temperature. The given reduction method corresponds completely to requirements of “Green chemistry”.

Key words: diazonium aromatic salts, reduction, metal nano particles covered with carbon, Green Chemistry

V.N. GLOTOVA, M.K. ZAMANOVA, T.N. IZHENBINA, V.T. NOVIKOV.
LACTIDE PURIFICATION WITH RECRYSTALLIZATION METHOD

The process of lactide purifying by recrystallization from different solvents and with using sorbents was investigated. The content of impurities in lactide was determined by HPLC and Fischer titration. The sorbents application was shown to increase essentially in the purity of the obtained lactide.

Key words: lactic acid, lactide, polylactide

A.V. YARKOVA, V.T. NOVIKOV, A.A. SHKARIN, Yu.E. POKHARUKOVA
SYNTHESIS OF LACTIDE FOR BIODEGRADABLE POLYMERS PRODUCTION

The optimal conditions for the steps of lactic acid oligomerization in the presence of a catalyst were found out. It was shown that oligomer molecular weight significantly affects on the yield and purity of the raw lactide.

Key words: synthesis, biodegradable polymer, lactic acid, lactic acid oligomer, lactide

V.G. BONDALETOV, A.A. TROYAN, N.O. KUKHLENKOVA, V.D. OGORODNIKOV,
L.I. BONDALETOVA
KINETICS OF CATALYTIC DIMERIZATION OF CYCLOPENTADIENE IN PRESENCE
OF TITANIUM TETRACHLORIDE

By means of NMR ¹H-spectroscopy the regularities of the reaction of cyclopentadiene with vinyltriethoxysilane at the conditions of Diels-Alder reaction were revealed. At 20 °C the prevailing reaction was established to be a dimerization of cyclopentadiene, which is accelerated under the influence of catalytic amount of titanium tetrachloride.

Key words: cyclopentadiene, dimerization, dicyclopentadiene, Diels-Alder reaction, titanium tetrachloride, vinyltriethoxysilane

V.V. BOCHKAREVA, N.A. SMIRNOVA
KINETICS OF ANILINE REACTION AND NITROBENZENE IN PRESENCE
OF TETRAALKYLAMMONIUM CHLORIDE

The study of kinetics of aniline reaction and nitrobenzene in the presence of (CH₃)₄NCl/NaOH catalytic system was carried out. Non-linear dependences of observed rate constant on aniline concentration, alkali and catalyst show the complex mechanism of condensation reaction. The relative activity of different catalytic systems in reaction under study was established to decrease in the series of (C₂H₅)₄NCl/NaOH (1.02) ≈ (CH₃)₄NCl/NaOH (1.00) > (C₃H₇)₄NCl/NaOH (0.72) > (C₄H₉)₄NCl/NaOH (0.37).

Key words: aniline, nitrobenzene, 4-nitrophenol, 4-nitrozodiphenylamine, tetraalkylammonium chloride, condensation reaction, reaction kinetics

V.G. BONDALETOV, L.I. BONDALETOVA, K.S. STARTSEVA, O.V. BONDALETOV, M.V. PANGINA,
N.V. EMELYANOVA
SYNTHESIS AND PROPERTIES OF EPOXIDIZED PETROLEUM RESINS BASED ON BROAD
FRACTION OF HYDROCARBONS C₅₉

The object of study was the oxidation of petroleum resins using the peracetic acid obtained as product of in situ reaction between hydrogen peroxide and acetic acid in the presence of sulfuric acid. Primary petroleum resins were synthesized as a result of polymerization of unsaturated compounds of liquid pyrolysis product C₅₉ fraction. The introduction of carboxyl and epoxy groups into the resin structure was proved using spectroscopic and titrimetric methods.

Key words: petroleum resins, oxidation, peracetic acid, epoxy groups

S.K. MUKHAMETZHANOVA, V.V. SHTRYKOVA, V.Yu. KUKSENOK, V.D. FILIMONOV
NEW APPROACH TO SEMICARBAZONE, THIOSEMICARBAZONE AND AMINOGUANIDINE
SYNTHESIS

A universal and highly efficient methods for preparing substituted semicarbazones, thiosemicarbazones and aminoguanidine in the presence of iodine, and under mechanical activation at solvent free conditions were developed. Methods were tested on a number of carbonyl substrates.

Key words: synthesis, semicarbazone, thiosemicarbazone, aminoguanidine, benzophenone, benzaldehyde, acetophenone, iodine catalysis, mechanical activation.

N.I. KRIVTSOVA, E.D. IVANCHINA, A.A. TATAURSHCHIKOV, I.K. ZANIN
**STUDY OF ACTIVITY OF INDUSTRIAL CATALYSTS OF HYDROPURIFICATION OF DIESEL
FUEL ON MATHEMATICAL MODEL**

The program allowing calculating the residual sulfur content in a product of the catalytic hydro purification of diesel fuel was developed. The program takes into consideration the properties of different catalysts and technological parameters of set up. Using that program the GKD-202 catalyst which is applied on the

LG-24/7 LLC "KINEF" set up was tested as well as the domestic GK-35 GDK-205 catalysts.

Key words: mathematic modeling, hydro purification, catalyst activity, process efficiency

M.V. KIRGINA, B.V. SAKHNEVICH, M.V. MAIYLIN, E.D. IVANCHINA, N.V. CHEKANTSEV
**DEVELOPMENT OF INTELLECTUAL COMPUTER SYSTEM FOR MAINTENANCE
OF PRODUCTION PROCESS OF MOTOR FUEL**

The process of trade gasoline blending is complex chemical technology from viewpoint of optimization. Development of intellectual computer system for the maintenance and economic planning of motor gasoline blending process on the physic-chemical base is an effective tool for increasing the energy and resource efficiency of this process. Intellectual computer system «Compaunding», supplemented with the module of automatic chromatography analysis data systematization «Unichrom» allows to develop optimal blending recipes of trade gasolines Euro quality standards and to give recommendations on involving the different feedstock into the blending process.

Key words: fuel, octane number, mixing recipe, computer system

E.D. IVANCHINA, E.S. SHAROVA, I.V. YAKUPOVA
**INCREASE IN RESOURCE EFFICIENCY OF CATALYTIC REFORMING PROCESS
OF GASOLINES BY MATHEMATICAL MODELING METHOD**

The analysis of factors influencing on the efficiency of industrial installation of catalytic reforming of gasoline was carried out. It was revealed, that one of the ways to improve the resource efficiency of the catalyst reforming units is to conduct continuous monitoring and prognostication of their operation using computer-modeling systems. An intelligent system for monitoring and prognostication of the catalyst operation created at the Department of Chemical Technology of Fuel and Chemical Cybernetics of Tomsk polytechnic university is presented. Using this program, the full monitoring of industrial catalytic reforming unit was done: the degree of catalyst deactivation was assessed, technological regimes were analyzed, and the influence of raw material composition was investigated. On the basis of the conducted research the need for uninterrupted monitoring in order to improve the resource efficiency of an industrial process was showed.

Key words: resource efficiency, reforming, monitoring, catalyst, activity, deactivation

N.S. BELINSKAYA, E.D. IVANCHINA, E.N. IVASHKINA, G.Yu. SILKO, E.V. FRANTSINA
**OPTIMIZATION OF TECHNOLOGICAL REGIME OF DIESEL FUELS
HYDRODEPARAFFINIZATION UNIT BY MATHEMATICAL MODELING METHOD**

The method of mathematical modeling of hydrodeparaffinization of diesel fuels process is presented. The method includes thermodynamic analysis of reactions, hydrocarbons conversion scheme development and estimation of kinetic parameters of the model. Using developed model the influence of technological parameters on the composition of the product were studied in the range of 345–405 °C and 5000–53000 m³/h, respectively.

Key words: hydrodeparaffinization, mathematic model, optimization, thermodynamic

E.D. IVANCHINA, N.V. CHEKANTSEV, V.A. CHUZLOV, V.I. PRODAN
**MATHEMATIC MODELING OF CATALYTIC PROCESS OF ISOMERIZATION
OF PENTANE-HEXANE FRACTION OF STRAIGHT-RUN GASOLINE**

The method of building the mathematic model of process of catalytic isomerization of light fuel fractions was given. The method includes the consecutive carrying out the following steps: thermodynamic analysis of process reactions, composition of hydrocarbon transformation scheme, development of kinetic model, assessment of kinetic parameters of model, building reactor model. The model obtained was realized in the Delphi software environment. Using the experimental data from industrial set-up for isomerization the model adequacy to real process was shown.

Key words: isomerization, mathematic model, kinetics, thermodynamics

M.A. SAMBORSKAYA, E.A. LAKTIONOVA, A.V. WOLF, V.V. MASHINA
**ACCOUNTING CATALYST DEACTIVATION AT OPTIMIZATION OF FRACTIONATION
REFINING GASOLINE PRODUCTS**

The approach to the objective function formation that takes into account changes in qualitative and quantitative composition of the reaction products caused by catalyst deactivation and the constraints imposed by the requirements for products quality and equipment specifications was proposed. Heuristics were formulated for all apparatus of the flowsheet. The search for optimal conditions in an example of the separator for products of straight-run gasoline refining on zeolite catalyst was carried out.

Key words: optimization, target function, fuel reforming, catalyst activity

E.D. IVANCHINA, E.N. IVASHKINA, I.O. DOLGANOVA, V.V. PLATONOV, N.S. BELINSKAYA
**IMPROVING «REACTOR-REGENERATOR» SYSTEM JOINT WORK OF BENZENE
ALKYLATION DEVICE WITH OLEFINS**

The article describes the problems of linear alkyl benzenes production that consist in periodic violations of catalyst regeneration column. An approach to «reactor-regenerator» system of alkylation unit joint work optimization is based on the mathematical description of the processes occurring in dual equipment, as well as establishing the optimal values of HF-catalyst activity depending on the composition of raw materials and modes of operation of devices in the previous steps of production.

Key words: alkylation, optimization, linear alkyl benzene, alkylation device, catalyst regeneration

N.V. USHEVA, O.E. MOIYZES, S.F. KIM, S.N. GIZATULLINA
**INFLUENCE OF TECHNOLOGICAL PARAMETERS ON PROCESSES OF DEHYDRATION
AND DESALINATION OF OIL**

The analysis of technological parameters influence on dehydration and desalting of crude oil in a three phase separator was carried out. Calculations were accomplished with simulation system based on module principle of creation of devices mathematical models. The mathematical formulation of water separation from oil and desalting processes was developed.

Key words: mathematical modeling, oil dehydration, oil desalting, oil treatment

A.A. MANANKOVA, V.G. BONDALETOV, D.V. BESTUZHEVA
**SYNTHESIS OF PETROLEUM POLYMER RESINS ON BASIS OF DICYCLOPENTADIENE
FRACTION OF LIQUID PYROLYSIS PRODUCTS UNDER ACTION OF $TiCl_4$ AND $Ti(ORCl)Cl_3$**

The paper presents the results of the polymerization of high-boiling fractions of liquid products of pyrolysis containing cyclonpentadiene. The properties of the petroleum resins obtained and coatings on its basis were studied.

Key words: petroleum-polymer resins, oligomerization, liquid fractions of pyrolysis products, titanium monoalkoxytrichloride