
Summaries

UDC 546.55/.59:544.773.422:544.653.2/.3

**Korshunov A.V., Perevezentseva D.O.,
Konovchuk T.V., Mironets E.V.**
**THE INFLUENCE OF SILVER AND GOLD SOL DISPERSION
COMPOSITION ON THEIR ELECTROCHEMICAL ACTIVITY**

Electrochemical behavior of silver and gold sols obtained by chemical reduction in solutions without high-molecular stabilizers, on carbon-based electrodes has been studied. The dependence of the ratio of oxidized and reduced metal forms in sols on conditions of their obtaining and storage life was shown. The nature of electrochemical signal in sols conditioned by joint participation in electrode process of the oxidized metal form and dispersed phase particles was determined. The influence of sol dispersion composition on anodic dissolution current magnitude after preliminary accumulation in the mode of stripping voltammetry was shown. It was shown on the basis of calculation results that the oxidized metal form content in the sol is determined by the metal nature and conditions of sol obtaining.

UDC 544. 653.1

**Korobochkin V.V., Usoltseva N.V., Gorlushko D.A.,
Balmashnov M.A.**
**LAWS OF SYNTHESIZING NANODISPERSED
COPPER OXIDES BY ELECTROLYSIS
ON ALTERNATING CURRENT IN ALKALI LIQUOR**

The possibility of obtaining copper oxides with high specific area by metal copper electrolysis using alternating current of industrial frequency has been shown. The parameters influencing the rate of oxide formation were studied. Phase composition and characteristics of electrosynthesis product porous structure depending on process modes was determined.

UDC 544.653.2

Korobochkin V.V., Balmashnov M.A., Usoltseva N.V.
**PHASE COMPOSITION PROPERTIES OF ALTERNATING
CURRENT ELECTROCHEMICAL TIN OXIDATION PRODUCTS**

Phase composition properties of alternating current electrochemical tin oxidation products are studied. It is illustrated the composition of electrolysis products consists of oxides and hydroxides of tin(II) and tin(IV) and it depends on the sodium chloride concentration in solution.

UDC 541.18

Ilyin A.P., Tolbanova L.O.
**THE TEMPERATURE OF STARTING OXIDATION
OF ALUMINUM, MOLYBDENUM, TUNGSTEN
NANOPOWDERS, CHROME POWDER AND THEIR MIXTURES**

It was determined experimentally that after mixing nano- and coarsely dispersed powders with nanopowders the temperature of starting mixtures oxidation is not defined by the temperature of starting the oxidation of thermally less persistent component but takes on a new value differing from the temperature of starting oxidation of the initial components. Such law is explained by interaction of double electric layers formed due to oxidation-reduction processes in surface and near-surface layers of nanoparticles.

UDC 541.16;621.762

Matrenin S.V., Ilyin A.P., Tolbanova L.O., Zolotareva E.V.
**ACTIVATION OF OXIDE CERAMIC SINTERING
BY NANODISPERSED POWDER ADDITIVES**

Ceramic sintering on the basis of Al_2O_3 and ZrO_2 , activated by additives of nanopowders Al_2O_3 and Al has been studied. It was shown that additive of nanopowder Al_2O_3 to 20 wt. % into coarse powder $\alpha-Al_2O_3$ activated alumina ceramic sintering: its density and microhardness increased. The possibility of obtaining sintered ceramic from nonstabilized ZrO_2 by introducing not less than 10 wt. % Al nanopowder additive into initial nanopowder ZrO_2 was ascertained. Sintering pressings from ZrO_2 nanopowders with the additive of 20 wt. % Al nanopowder in ammoniac glow discharge plasma the ceramic material with signified inhomogeneous chemical and phase composition and different microstructure was obtained. .

UDC 544.723

**Galanov A.I., Yurmazova T.A., Mitkina V.A.,
Saveliev G.G., Yavorovskiy N.A.**
**STUDYING THE ADSORPTION MECHANISM OF ANTITUMOR
DRUGS ON FERRIED-CARBON NANOPARTICLES**

It was ascertained that composite ferried-carbon nanoparticles have negative surface charge, ξ -potential value amounts to -71 mV. It was shown by the example of antitumorals (doxorubicin, gemzar, cyclophosphamide, fluorouracil) and coloring agents (methyl blue, eosin) that nanoparticles sorbe efficiently the organic substances being in solutions in cationic form. It was ascertained that the adsorption processes of doxorubicin, gemzar and methyl blue occur at formation of fast chelate adsorption complexes with carbonyl and amine groups of organic cations with vacant orbitals of iron d-sublevel.

UDC 544.54;544.55

**Grinyaeva E.A., Kochkorov B.Sh.,
Ponomarev D.V., Sazonov R.V., Kholodnaya G.E.**
**NONEQUILIBRIUM PLASMA CHEMICAL SYNTHESIS
OF CRYSTAL NANODISPERSED COMPOSITE OXIDES**

The results of studying the properties of composite nano-scale powder $(TiO_2)_x(SiO_2)_{1-x}$ have been introduced. The powders are synthesized in a chain plasma chemical process initiated by a pulse electron beam. The powders $(TiO_2)_x(SiO_2)_{1-x}$ consist of sphere particles with the diameter 20...100 nm. The occurrence of the bond Si-O-Ti is typical for all composite powders.

UDC 544.54;544.55

**Kochkorov B.Sh., Kholodnaya G.E.,
Ponomarev D.V., Sazonov R.V.**
**THE INFLUENCE OF $SiCl_4$ INITIAL CONCENTRATION
ON GEOMETRICAL DIMENSION OF SiO_2 PARTICLES
AT PULSE PLASMA CHEMICAL SYNTHESIS**

The amorphous nanodispersed powder of SiO_2 has been obtained from $SiCl_4$ in nonequilibrium plasma chemical process initiated by the pulse electron beam at constant mixture of oxygen and hydrogen. It was shown that at silicon dioxide synthesis by plasma chemical method the particle size changes depending on $SiCl_4$ initial concentration.

UDC 628.16.08:549.742.121:621.9.048.6

Ilyin A.P., Milushkin V.M., Nazarenko O.B., Smirnova V.V.
THE DEVELOPMENT OF NEW METHODS
OF WATER PURIFICATION FROM SOLUBLE
IMPURITIES OF HEAVY METALS

The composition and morphology of interaction products of dolomite and water in pseudo-boiling layer under ultrasound influence have been studied. The diagram of physicochemical processes occurring in the system «dolomite – water» under ultrasound influence was proposed. It was shown that water is purified from heavy metal soluble admixtures in the system «dolomite – water – ultrasound»

UDC 628.1:658.265

Kulikova M.V., Kosintsev V.I., Sechin A.I.,
Bordunov S.V., Prokudin I.A., Kudrin O.A.
PACKAGE UNIT FOR UTILITY
AND DRINKING WATER SUPPLY

A cycle of experiments on water iron elimination on fibrous sorbents from polypropylene and studying of silvered zeolite antimicrobial characteristics has been carried out. The units for utility and drinking water supply with the capacity 200...1000 l/h which allow bringing water quality up to San PiN 2.1.4.1074-01 were designed, tested and certified.

UDC 661.183.55

Sirotkina E.E., Pogadaeva N.I., Fufaeva M.S.
CRYOGEL-SORBENT ON THE BASIS OF POLYVINYL
ALCOHOL AND IRON-CONTAINING PRECIPITATION
FOR OIL AND PHENOL REMOVAL FROM WATER

The method of obtaining composite cryogel-sorbent on the basis of polyvinyl alcohol, containing disperse filler – iron-containing residual, precipitated at water abstraction of Akademgorodok (Tomsk) gas been considered. Sorption properties of cryogel-sorbent relative to oil and phenol at water purification were studied. It was ascertained that the cryogel-sorbent on the basis of iron-containing precipitation heat-treated at 250 °C possesses the highest phenol- and oil absorbing property. The water degree of purification amounted to 89,5 and 93,5 % by oil and phenol, respectively.

UDC 665.6:/7

Kravtsov A.V., Usheva N.V., Moizes O.E.,
Kuzmenko E.A., Balyasina D.A., Kapustina L.V.
STUDYING THE DYNAMIC OF THE PROCESS
OF OIL-WATER EMULSION SEDIMENTATION

The influence of oil-water emulsion agitation level and introduction of demulsifier on the processes of oil dehydration in West Siberia deposits has been studied experimentally. The change of water amount segregated at sedimentation at different initial oil water contamination and variation of process conditions was determined.

UDC 665.63:544.478

Kanashevich D.A., Feduschak T.A., Petrenko T.V.
DIESEL FRACTION HYDRODESULFURIZATION WITH CATA-
LYSTS OBTAINED BY MECHANOCHEMICAL ACTIVATION

New catalysts on the basis of electroexplosive and gas-phase nanopowders of molybdenum, tungsten, cobalt, nickel have been obtained by solid-phase method. Their physicochemical properties, hydrodesulfurization and denitrogenation activity relative to S-, N-containing heteroatomic compounds of straight run diesel fraction were studied.

UDC 66.012-52

Chursin Yu.A., Goryunov A.G., Rogoznyy D.G.,
Shentsov E.Yu., Mikhalevich S.S.
THE DEVELOPMENT OF THE MODEL OF EXTRACTION
COLUMN SYSTEM OF THE UNIT FOR TREATING URANIUM
CONCENTRATES AS A CONTROL OBJECT

The features of uranium concentrate extraction treatment have been considered. The extraction column system was analyzed as a control object; its mathematical description was developed subject to engi-

neering process features. The model of multi-component extraction process in column device which may be used for developing the automated control system was formed on the basis of mathematical description.

UDC 661.489

Dyachenko A.N., Kraidenko R.I., Petlin I.V., Travin B.M.
IMPROVING ALUMINUM FLUORIDE PRODUCTION

Fluorite concentrate consumption has been analyzed. The existing scheme of producing aluminum fluoride was described. A new method of recovering fluorine hydride on ammonium fluoride was proposed; the method of obtaining aluminum fluoride through the stage of forming ammonium cryolite was examined. Mass balance of fluorine-ammonium technique of obtaining aluminum fluoride was calculated.

UDC 661.689:661.686

Borisov V.A., Dyachenko A.N., Kantaev A.S.
DETERMINING OPTIMAL PARAMETERS OF AMMONIUM
HEXAFLUOROSILICATE SUBLIMATE PURIFICATION FROM
IMPURITIES

B₂O₃ and NH₄HF₂ interaction has been studied. The reaction products were identified by the methods of Infrared and X-ray phase analysis. The energies of NH₄BF₄ and (NH₄)₂SiF₆ sublimation activations were determined by the kinetic experiment. Impossibility of their separation by sublimation technique was ascertained. The elemental analysis of desublimation products was carried out. Optimal temperature of (NH₄)₂SiF₆ desublimation for its purification from impurities was experimentally determined.

UDC 66.049.6:661.682

Demianova L.P., Buinovskiy A.S.,
Rimkevich V.S., Malovitskiy Yu.N.
RATIONAL PROCESSING OF SILICA CONTAINING
RAW MATERIAL BY FLUORIDE TECHNIQUE

The fluoride technique of silica containing raw material rational processing under the influence of ammonium bifluoride has been proposed. The kinetics of initial raw material interaction with ammonium bifluoride, ammonium hexafluorosilicate sublimation and amorphous silica formation were described. The constants of rate and energy of chemical reaction activation were determined.

UDC 666.291.3

Sedelnikova M.B.
THE LAWS OF CHANGING CHROMOPHORE SOLUBILITY
LIMITS IN CERAMIC PIGMENT SILICATE STRUCTURES

The laws of integrating ion-chromophores into natural silicate crystal lattice depending on their charge and ion radii have been studied. The comparison of coordination polyhedra parameters showed that cobalt ions may be integrated in calcium and magnesium positions in wollastonite and diopside structures, chromium ions may be integrated only into magnesium positions. In zeolite structure isomorphous substitutions occur due to exchange cations located in channels and cavities of frame structure. It was ascertained that introduction of 5...10 wt. % chromophores into the formed crystal structure does not cause considerable distortion of containing crystal lattice.

UDC 546.05/06+546.41:185

Petrovskaya T.S., Rasskazova L.A., Kulyashova K.S.,
Korotchenko N.M., Sharkeev Yu.P., Kozik V.V.
SYNTHESIZING AND STUDYING ORDINARY
AND CARBONATE-REPLACED HYDROXYLAPATITE

Liquid-phase synthesis of hydroxylapatite samples including the ones modified with carbonate-ion, has been carried out. The elemental and phase compositions of synthesis products, their water solubility at 20 °C in comparison with allogenic (biological) hydroxylapatite were determined. It was ascertained that the ratio Ca/P in the product of synthesis with long-term ageing in spent liquor is closest to the required one. Carbonate-modified samples by phase composition are the closest to allogenic hydroxylapatite.

UDC 669.054.8

**Vodyankin A.Yu., Zherin I.I., Strashko A.N.
OBTAINING NEODYMIUM OXIDE FROM GRINDING
WASTE OF PERMANENT MAGNET PRODUCTION**

Kinetic laws of solubilizing grinding wastes of permanent magnet production by sulfuric acid solution have been studied. Activation energy was computed and it was shown that the process occurs in transition region. The mathematical model of neodymium oxalate deposition from sulfuric solutions was constructed; optimal deposition conditions were determined. The influence of calcination temperature and time on neodymium oxalate thermal decomposition was studied.

UDC 544.031:661.643

**Mustafin E.S.
EXPERIMENTAL AND RATED VALUES OF STANDARD
ENTHALPY OF FORMING ALKALI AND ALKALI-EARTH
METAL ARSENATES**

Thermo chemical characteristics of alkaline-earth metal chloride interaction with sodium ortho-arsenate in water environment have been studied.

UDC 541.49:546.817:543.57

**Egorov N.B., Eremin L.P., Larionov A.M., Usov V.F.
TRANSFORMATIONS OF THIOSULFATES-THIOUREA
LEAD COMPLEXES AT HEATING**

Thermolysis of thiosulfates- thiourea lead complexes in temperature 20...500 °C has been studied in nitrogen atmosphere. X-ray, IR- and mass-spectra of thermal decomposition products were obtained at different stages of the process. Thermolysis products were identified and the sequence of their obtaining was discussed.

UDC 542.87:543.062

**Antonova S.G., Noskova G.N., Kolpakova N.A.
DETERMINING SELENIUM (IV) USING THE METHOD
OF ANODIC STRIPPING VOLTAMMETRY**

The investigations on using gold carbon bearing electrodes for determining Se(IV) using the method of anodic stripping voltammetry have been carried out. Optimal conditions of electrode treatment and regeneration were selected. The method of determining Se(IV) at the following optimal conditions: base solution is the solution of 0,003 M citric acid, electrolysis potential is $-(1,2...1,7)$ V; time of electrolysis is 5...100 s, rate of potential changing is 40 mV/s, was developed. Minimum determined concentration of the element is 0,05 µg/l. The method allows determining Se(IV) at chloride content in solution less than 150 mg/l.

UDC 544.06;541.13

**Gabdurakhmanova E.M., Gorchakov E.V.,
Glyzina T.S., Kolpakova N.A.
ESTIMATING PHASE COMPOSITION OF ELECTROLYTIC
DEPOSITS CONTAINING PLATINUM**

The calculation method for potential displacement value (ΔE_{red}) in the case of selective electro-oxidation of electronegative component (Hg, Bi, In) from electrodeposit has been proposed. The potential of selective electro-oxidation maximum of electronegative component from intermetallic compound is estimated by this value and the potential of pure metal electro-oxidation peak. The rated data comparison with the experimental ones obtained at sediment electro-oxidation allows estimating phase composition (AxBy) of intermetallic compounds formed on electrodes.

UDC 622.331+547.99

**Shishmina L.V., Chukhareva N.V.
STUDYING HUMIC ACIDS COMPOSITION AND PROPERTIES
OF SAIM DEPOSIT PEAT TOMSK REGION**

The results of comparative investigations of humic acids of Saim deposit peat in Tomsk region and humic acids taken from the same peat after its preliminary thermal modification by experimental and theoretical methods have been introduced. The efficiency of applying the integral transformation method, at processing the results of humic acids thermal analysis for detecting their chemical structure changes under the action of acid hydrolysis and thermal influence on peat, was shown.

UDC 66.01;004.422.8

**Dolganova I.O., Fetisova V.A.,
Shnidorova N.O., Ivanchina E.D.
THE DEVELOPMENT AND SOFTWARE SUPPORT OF INVERSE
KINETIC PROBLEM SOLUTION ALGORITHM FOR THE
PROCESS OF BENZENE ALKYLATION WITH OLEFINS C₁₀-C₁₄**

The algorithm for identifying kinetic parameters of benzene alkylation by olefins в среде C₁₀-C₁₄ has been developed and implemented software in Delphi Borland Developer Studio environment. Pre-exponential reaction coefficients occurring in the given process were estimated.

UDC 665.613.23;622.276/.279

**Serebrennikova O.V., Sherstyuk S.N.,
Stakhina L.D., Kadychagov P.B.
CHANGE OF COMPOSITION AND PROPERTIES
OF VISCOSITY OIL UNDER THE INFLUENCE
OF COMPOSITIONS FOR INCREASING EOR**

The changes of composition and properties of field samples of viscosity highly resinous oil in Usinskoe deposit (Republic of Komi) as a result of hot vapor and oil-displacement system influence on reservoir have been studied. It was ascertained that the saturated hydrocarbon content increases and aromatic hydrocarbon content decreases under the influence of such compositions in the produced oil. It was shown that resinous-asphaltenic material content grew during the first months after reservoir treatment with compositions and then decreases step-by-step. Vapor and oil-displacement system integrated effect on the reservoir results in increase of both saturated and aromatic hydrocarbons content in oil and decrease of its density.

UDC 665.61

**Gerasimova N.N., Kovalenko E.Yu.,
Min R.S., Sagachenko T.A., Sergun V.P.
FEATURES OF COMPOSITION OF HEAVY OIL
HETEROATOMIC COMPOUNDS PRODUCED BY APPLYING
THERMAL METHODS OF INCREASING EOR**

Distribution and composition of nitrogen and sulfur compounds in heavy oils of Usinskoe deposit produced at natural mode and applying stationary water vapor pumping have been studied. It was shown that the content of low molecular nitrogen compounds increases in oil under the influence of vapor; a part of nitrogen-containing acids and ethers displaying strongly-and weakly basic properties grows in their composition. A number of low molecular sulfur compounds decreases owing to reduction of relative content of the condensed aromatic components in their composition. It was ascertained that vapor-heat method of developing field does not influence the qualitative group composition of low molecular heteroatomic components. High content of a part of polycyclic compounds of large size of aromatic and naphthene molecules fragments is their peculiarity.

UDC 541.64;532.74;620.184.4;532.1.135

Trufakina L.M., Petrenko T.V.
THE INFLUENCE OF TEMPERATURE AND FILLER ON PROPERTIES OF WATER-BASED POLYMER COMPOSITIONS

Flow and surface properties of polymer compositions based on water solutions of carboxymethylcellulose, polyacrylimide, polyvinyl alcohol have been studied by the methods of viscosimetry, spherical indenter penetration and metal plate lift from polymer body. The influence of the temperatures from -20 to $+60$ °C on properties of polymer composition as well as hard filler introduced into polymeric matrix was shown.

UDC 543.067.2:543.8

Bondarev A.A., Smirnov I.V., Postnikov P.S., Trusova M.E., Martynyuk O.A.
QUANTUM CHEMICAL CALCULATION OF QUERCETIN COMPLEXATION IN WATER MEDIUM WITH ANILINE, BENZOATE-ION AND NITROBENZENE

Quantum chemical calculation has been carried out for explaining experimental data of increasing sensitivity of quercetin voltammetric determination on organo-modified electrodes. Quercetin forms the strongest complex with functional group $-\text{Ph}-\text{COO}^-$ $\Delta G = -53,4$ kJ/mole. For the groups $-\text{Ph}-\text{NH}_2$ $\Delta G = -49,5$ kJ/mole, and for $-\text{Ph}-\text{NO}_2$ $\Delta G = -38,6$ kJ/mole. The obtained results correspond by complexation constants with comparative experimental sensitivity values at quercetin voltammetric determinations. The mechanism of increasing sensitivity is explained by quercetin adsorption growth on electrode surface.

UDC 547.62

Chaikovskiy V.K., Sarycheva T.A., Portnaya V.V., Kets T.S., Nguen Kh.M.
INTERACTION OF IODINE-DERIVATIVE CONDENSED AROMATIC HYDROCARBONS WITH PHENYLACETYLENE, CATALYZED BY PALLADIUM AT COAL

It was shown, that in reaction with phenylacetylene at catalysis with palladium at coal, iodine atoms in hydrocarbon iodine-derivatives with the condensed benzene rings are easily substituted by phenylacetylene groups forming the efficient organic phosphors.

UDC 547.823:615.212

Akhmetova G.S., Amantaeva A.K., Yu V.K., Praliev K.D., Moiseeva L.M., Lukyanova M.S., Koltunova A.A., Voronina E.I.
SYNTHESIS AND PHARMACOLOGIC PROPERTIES OF A NEW HOMOLOGUE OF DOMESTIC ORIGINAL ANALGESIC DRUG PROSIDOL

Tertiary phenyl alcohol and propionic ether of the latter which displays high analgesic activity have been synthesized on the basis of 1-(3-ethoxypropyl)-4-oxo-piperidine.

UDC 547.823:615.212

Akhmetova G.S.
SYNTHESIS AND PHARMACOLOGIC ACTIVITY OF SOME COMPLEX ETHERS OF KETOXIM OF N-SUBSTITUTED PIPERIDINE-4-ON

Oxime and its compound ethers (acetate, propionate, benzoate) were synthesized on the basis of 1-(2-ethoxyethyl)-3-methyl-4-oxo-piperidine. Hydrochloride of propionic ether of 1-(2-ethoxyethyl)-3-methyl-4-ketoxime-piperidine displays analgesic, spasmolytic and antiallergic activity.

UDC 547.304.2

Bochkarev V.V., Soroka L.S., Chaikina A.A.
THE PERSPECTIVE METHODS OF OBTAINING 4-AMINODIPHENYLAMINE AND INTERMEDIATE PRODUCTS OF ITS SYNTHESIS

Critical analysis of the existing and developed methods of obtaining 4-aminodiphenylamine has been carried out. It was noted that the methods based on the reaction of aniline condensation with nitrobenzene in alkaline environment with further hydrogenation of the formed intermediate products are economically and ecologically perspective. The investigation of condensation process using high-basic anionite as the catalyst showed that the process is controlled both by kinetic and diffusion factors.

UDC 665.625.3-402:543.544

Bondaletov V.G., Vakhrameeva O.V., Bondaletova L.I., Ogorodnikov V.D., Srybnykh A.V.
COMPOSITION FILM-FORMING MATERIALS ON THE BASIS OF HYDROGENATION CO-PRODUCTS OF ETHANE-ETHYLENE FRACTION

The possibility of professional use of oligomeric hydrogenation co-products of ethane-ethylene fraction of straight-run gasoline pyrolysis as film-forming material components has been shown. The optimal solution is achieved by compounding these products with the oxidized and non-oxidized semidrying vegetable fats. The obtained film-forming materials possess high strength properties and may be proposed for developing paint-and-lacquer materials.

UDC 665.625.3-402:543.544

Bondaletov V.G., Vakhrameeva O.V., Bondaletova L.I., Lyapkov A.A., Ogorodnikov V.D.
STUDYING FILM-FORMING MATERIALS ON THE BASIS OF HALOGENATED OLIGOMERIC HYDROGENATION PRODUCTS OF ETHANE-ETHYLENE FRACTION

The possibility of using the co-products of ethane-ethylene fraction hydrogenation at platinum-palladium catalysts as paint-and-lacquer materials has been considered. It was shown that compositions of heat-treated oligomeric products with oxidized semidrying vegetable fats possess high engineering characteristics and may be recommended for developing the efficient protective coatings.

UDC 541.64:547.759.32

Sutyagin V.M., Lyapkov A.A., Rotar O.V.
LINEAR RELATIONS IN RADICAL POLYMERIZATION OF UNSATURATED CARBAZOLE DERIVATIVES

Correlation relations between polymerization activation energy of unsaturated carbazole derivatives and nearby parameters depending on monomer structure, have been found that give the possibility of predicting reactivity of unstudied compound.

UDC 678.7;542.943.5.

Troyan A.A., Bondaletov V.G., Ogorodnikov V.D.
STUDYING OZONIZATION PROCESS OF CYCLOALIPHATIC PETROLEUM RESINS

Modifying petroleum resins obtained by catalytic polymerization of dicyclopentadiene fraction of pyrolysis liquid products by ozonization reaction has been considered. The influence of process technological parameters (temperature, resin solution concentration) on product properties was studied. The obtained modified resins possess the properties allowing using them as film-forming components for paint and varnish materials.

UDC 678;665.7.03;542.08

**Troyan A.A., Bondaletov V.G., Dmitrieva Z.T.
RHEOLOGICAL PROPERTIES
OF PETROLEUM RESIN SOLUTIONS**

The dependences of dynamic viscosity on shear stress of viscous flow of petroleum resin hydrocarbon solutions, on strain rate gradient, temperature, synthesizing method have been studied. Empirical correlation between shear stress and the rate of changing deformation shift constant, characterizing the sequence of structuring and the degree of non-Newtonian behavior of resin solutions have been determined.

UDC 678.724.23:66.095.262.002.51

**Klimov I.G.
MODERNIZATION OF TECHNOLOGICAL PROCESS
«POLIMIR» OF POLYETHYLENE PRODUCTION
AT «TOMSKNEFTEKHIM»**

The results of implementing the program of developing the high pressure polyethylene production on the base of «Tomskneftekhim» by improving technological process for increasing ethylene conversion, improving product quality, extending brand assortment have been introduced. The comparison with process project indices, the level of technique development at the other domestic enterprises, achievements of the best world technologies is given.

UDC 678.724.23:66.095.262.002.51

**Klimov I.G.
RADICAL ETHYLENE POLYMERIZATION IN TUBE
AND AUTOCLAVE REACTORS**

The features of implementing technological parameters of ethylene polymerization process, their influence on monomer conversion and properties of synthesized polymers have been considered for the existing two types of technologies of producing high pressure polyethylene.

UDC 678.743.2

**Shabalin E.Yu., Mescheryakov E.P.,
Arkotov O.L., Dudchenko V.K., Maier E.A.
THE DEVELOPMENT OF BASIC DATA FOR MODERNIZATION
OF POLYPROPYLENE PRODUCTION AT CHANGE OVER USING
MODERN TITAN-MAGNESIUM CATALYSTS**

The results of experiment on developing product brand assortment using a new industrial catalytic system on the basis of titan-magnesium catalyst have been introduced. The influence of technological process simplification on polymer properties was simulated; the references on industrial development were given.

UDC 678.743.2

**Shabalin E.Yu., Mescheryakov E.P.,
Agafonova A.I., Koval E.O., Maier E.A.
THE DESIGN OF THE ORIGINAL DATA
FOR DEVELOPING POLYMER BRAND ASSORTMENT
USING TITAN-MAGNESIUM CATALYST**

Process limits and control procedures have been experimentally developed for producing polypropylene by simplified technology using titan-magnesium catalysts. The original data for designing propylene polymerization facilities to be upgraded were prepared.

UDC 54(092)

**Kolpakova N.A.
LESSONS OF ARMIN GENRIKHOVICH STROMBERG**

One of the oldest professors of the Tomsk polytechnic university Armin Genrikhovich Stromberg (1910–2004) is the outstanding scientist in the field of physical chemistry, the author of the manual on physical chemistry and the problem book on chemical thermodynamics. A.G. Stromberg established the school of electro analysts in Tomsk. He made a great contribution to the development of the inversion voltammetry method by his scientific works. His life was interesting, inspired by the age when he lived and worked.