

# Contents

**Vol. 73, No. 1, 2000**

Simultaneous English language translation of the journal is available from MAIK "Nauka/Interperiodica" (Russia).  
Distributed worldwide by Kluwer Academic/Plenum Publishers. *Russian Journal of Applied Chemistry* ISSN 1070-4272

---

---

## **Inorganic Synthesis and Industrial Inorganic Chemistry**

- Interaction of Aluminum with Liquid Lead–Antimony Alloys  
*A. G. Morachevskii, Z. I. Vaisgant, M. N. Khabachev, and V. I. Mal'tsev* 1
- Antiscuff Coatings Obtained by Microarc Oxidation of Titanium Alloys  
*S. V. Gnedenkov, P. S. Gordienko, S. L. Sinebryukhov, A. N. Kovryanov, O. A. Khrisanfova,  
A. I. Cherednichenko, S. V. Korkosh, and K. D. Khromushkin* 6
- Precipitation of Bismuth(III) Citrate from Nitrate Solutions  
*Yu. M. Yukhin, L. I. Afonina, T. V. Daminova, and L. E. Danilova* 10
- Use of Hydrogen Peroxide in the Preparation of Soluble Powders of Sodium Silicates by Microwave Drying  
*A. S. Brykov, V. V. Danilov, and V. I. Korneev* 15

---

## **Physicochemical Studies of Systems and Processes**

- Fractal Model of Coagulating Suspension  
*E. E. Bibik and E. A. Popova* 18
- Mean Ionic Activity Coefficients of Sulfurous Acid in Concentrated Aqueous Solutions  
of Sodium Chloride and Sulfite  
*G. M. Poltoratskii, V. A. Makarenko, and V. A. Yakovlev* 23

---

## **Sorption and Ion-Exchange Processes**

- Sorption Properties of Thermally Activated Aluminum Hydroxide with respect to Lithium Ions  
*L. T. Menzheres, N. P. Kotsupalo, V. P. Isupov, and A. D. Ryabtsev* 30
- Solid-Phase Synthesis of Fibrous Fluoroamphibole from Man-made Magnesium Silicate Dihydrate  
*L. A. Khachatryan and S. S. Karakhanyan* 35
- Low-Temperature Activation and Oxidation of Carbon Materials Impregnated with Potassium Carbonate  
*V. V. Strelko, N. V. Gerasimenko, and N. T. Kartel'* 40
- Ion-Exchange, Solvation, and Acid Properties of Complexing Polyacrylonitrile Fiber  
in Water–Dioxane Mixtures  
*L. V. Miroshnik and N. I. Korovnikova* 44

---

## **Applied Electrochemistry and Corrosion Protection of Metals**

- Electrical Conductivity of Tungsten Oxide with Mixed Oxidation States of Tungsten on  $\gamma$ -Al<sub>2</sub>O<sub>3</sub> Surface  
*T. M. Tur, Yu. S. Metelkina, and V. N. Pak* 51
- Effect of Carbon Electrocatalyst "Aging" on Electrosynthesis of HO<sub>2</sub><sup>-</sup> Ions from O<sub>2</sub>  
in Gas-Diffusion Electrodes in Alkaline Medium  
*N. V. Chaenko, G. V. Kornienko, T. A. Kenova, G. E. Selyutin, and V. L. Kornienko* 55
- Effect of Process Parameters on the Electrochemical Activity of C<sub>8</sub>CrO<sub>3</sub> Electrode in Lithium Intercalation  
in Organic Electrolytes  
*L. N. Ol'shanskaya and S. S. Popova* 59
- Mechanism of Anodized Aluminum Coloring in Mineral Salt Solutions  
*O. V. Titorenko, S. S. Popova, and E. A. Savel'eva* 63

Influence of Ammonium Ions on Chemical and Phase Composition of Ni–Mo Alloy Films  
Electrodeposited from Citrate Electrolytes

*L. I. Stepanova, O. G. Purovskaya, and V. V. Sviridov*

66

---

**Catalysis**

Determination of the Amount of Metal Oxides on a Block Cellular Catalyst or on Its Fragment

*A. A. Denisov*

71

Supported Palladium Catalysts Modified with Heteropoly Acids in 1,4-Butynediol Hydrogenation

*N. A. Zakarina and L. D. Volkova*

74

Antioxidation Properties of Rhodanine and Its Analogs and Derivatives

*L. V. Epishina, T. A. Filippenko, A. N. Nikolaevskii, V. V. Artemova, and V. P. Marshutpa*

78

Reduction of Nitrogen(II) Oxide on Spinel and Perovskites

*G. N. Pirogova, N. N. Popova, R. I. Korosteleva, and Yu. V. Voronin*

83

Oxidative Ammonolysis of *o*-Xylene to Phthalimide

*D. Kh. Sembaev, F. A. Ivanovskaya, and N. I. Chukhno*

86

---

**Environmental Problems of Chemistry and Technology**

Treatment of Concentrated Waste Containing Cyanides and Chromium(III) Compounds

*V. E. Stolyarova, R. A. Yanbukhtina, B. M. Laskin, L. N. Povelikina, I. A. Anukhina, and O. A. Tsareva*

89

Electrocatalytic Decontamination of Phenol-containing Water: Study with Model Solutions

*Yu. V. Tsarev, E. V. Sokolova, and V. V. Kostrov*

94

Utilization of Organomineral Component of Moscow River Bottom Sediments

*S. I. Anufrieva, Yu. N. Losev, V. P. Nikolaeva, N. D. Gertseva, A. V. Esin, G. I. Dvoskin,  
V. F. Kornil'eva, I. V. Molchanova, and A. D. Starostin*

98

---

**Processes and Equipment of Chemical Industry**

Hydrodynamics of Non-Newtonian Fluid Flow in Hydrocyclone

*V. O. Yablonskii*

102

Model of Gas Bubble Growth in Flotation Processes

*A. A. Arzamastsev, V. P. Dudakov, and S. P. Rudobashta*

108

---

**Organic Synthesis and Industrial Organic Chemistry**

Abiogenic Methods for Production of Citric Acid

*A. V. de Vekki, D. N. Stepanov, and D. A. de Vekki*

111

Acetals Containing Acetylenic Groups and Their Surface Activity in the System  $\text{LiN}(\text{SO}_2\text{CF}_3)_2$ –Tetraglyme

*N. I. Ivanova, A. A. Gorkovenko, N. K. Gusarova, L. A. Oparina, T. Skotheim, and B. A. Trofimov*

117

Synthesis and Inhibiting Power of *N*-Oligovinyl-*N*-phenyl- $\beta$ -naphthylamine

*E. E. Sirotkina, I. V. Russkikh, and S. I. Pisareva*

121

---

**Macromolecular Chemistry and Polymeric Materials**

Synthesis of Binders Based on Oligoimides with Terminal Norbornene Groups

*V. N. Artem'eva, V. V. Kudryavtsev, N. V. Kukarkina, and A. V. Yakimanskii*

125

Synthesis of Polyimides from Pyrimidine-containing Diamines

*V. N. Artem'eva, V. V. Shamanin, V. P. Borovik, O. P. Shkurko,  
E. M. Nekrasova, G. V. Lyubimova, and V. V. Kudryavtsev*

131

Thermal Cross-linking of Trifluorochloroethylene–Vinylidene Fluoride Copolymer <i>A. O. Pozdnyakov, B. M. Ginzburg, O. F. Pozdnyakov, B. P. Redkov, and M. M. Moiseeva</i>	137
Thermal-Desorption States of Molecularly Dispersed and Crystalline C <sub>60</sub> in the Matrix of Trifluorochloroethylene–Vinylidene Fluoride Copolymer <i>A. O. Pozdnyakov, B. M. Ginzburg, O. F. Pozdnyakov, and B. P. Redkov</i>	143
Fractal Analysis of Inhibited Oxidative Thermal Degradation of Polyethylene <i>V. V. Afaunov, G. V. Kozlov, N. I. Mashukov, and G. E. Zaikov</i>	145
Effect of Water and Plasticizers on Processing Characteristics and Curing of ED-20 Epoxy Oligomer <i>P. V. Nikolaev and L. N. Lebedeva</i>	149
Coagulation of Polybutadiene Latex with 2,2,4-Trimethyl-1,2-Dihydroquinoline Hydrochloride <i>S. S. Nikulin, V. N. Verezhnikov, T. N. Poyarkova, and Zh. V. Shmyreva</i>	153
Copolymerization of Styrene with Unsaturated Compounds Contained in the Bottoms of Distillation of the Recycling Solvent <i>S. S. Nikulin and O. N. Filimonova</i>	157
Effect of Functional Composition of Cellulose Ether Macromolecules on Properties of Their Aqueous Solutions and Gels <i>A. M. Bochek, G. A. Petropavlovskii, L. I. Kutsenko, and E. B. Karetnikova</i>	162

---

### Brief Communications

Formation of Intermediate Metastable Phase in Crystallization of Electrolytic X-ray-Amorphous Tantalum Boride Coatings <i>O. V. Makarova, E. G. Polyakov, L. P. Polyakova, and A. A. Shevyrev</i>	165
Joint Solubility of Acetophenoxime and 1-Phenylethylamine in Aqueous Solutions of Potassium Hydroxide <i>I. M. Osadchenko and A. P. Tomilov</i>	168
Photocatalytic Oxidation of Methane to Formaldehyde on the Tungsten Oxide Surface <i>K. A. Kolmakov and V. N. Pak</i>	170
Synthesis and Corrosion-protecting Properties of 1-Alkylamino-3-(2-vinyloxyethoxy)propan-2-ols <i>B. F. Kukharev, V. K. Stankevich, G. R. Klimenko, N. A. Lobanova, E. N. Kovalyuk, and A. N. Baranov</i>	172
One-Pot Synthesis of Glycidyl Propargyl Ether from Acetylene, Formaldehyde, and Epichlorohydrin <i>V. K. Stankevich, G. R. Klimenko, B. F. Kukharev, and B. A. Trofimov</i>	174

---

### Obituaries

Georgii Vasil'evich Samsonov (Sept. 5, 1920–June 25, 1999)	176
Igor' Avraamovich Aguf (May 3, 1930–Aug. 22, 1999)	178

---

### Book Reviews

V. G. Gilev and V. N. Antsiferov, <i>Vysokoporistye materialy na osnove reaktionno-spechennogo nitrída kremniya</i> (Highly Porous Materials Based on Sintered Silicon Nitride), Perm: Perm. Gos. Tekh. Univ., 1998, 119 pp. <i>A. G. Morachevskii</i>	179
F. Habashi, <i>Principles of Extractive Metallurgy: 4. Amalgam and Electrometallurgy</i> , Québec City (Canada): Laval Univ., Department of Mining and Metallurgy, 1998, 368 pp. <i>A. G. Morachevskii, I. N. Beloglazov, and A. G. Vorob'ev</i>	180
V. Ya. Poznyakov, <i>Severonikel'</i> : <i>Stranitsy istorii kombinata "Severonikel'"</i> (Severonikel': History of the Severonikel' Combine), Moscow: Ruda i Metally, 1999, 432 pp. <i>A. G. Morachevskii and I. N. Beloglazov</i>	181

---