

СОДЕРЖАНИЕ

ХИМИЯ И ТЕХНОЛОГИЯ ОРГАНИЧЕСКИХ ВЕЩЕСТВ

- И.Ю. Филатов, Ю.Н. Филатов, М.С. Якушкин. Электрофор-
мирование волокнистых материалов на основе полимерных микро- и
нановолокон. История, теория, технология, применение. 3
И.Б. Кравченко, А.Е. Корнев, Ю.А. Наумова, В.Г. Никольский,
И.А. Красоткина. Исследование эластичного наполнителя, получаемого
методом высокотемпературного сдвигового измельчения. 19
А.Н. Матвиенко, Ю.П. Мирошников. Оптимизация фазовой
морфологии для пористых материалов на основе многокомпо-
нентных смесей полимеров. 25

ТЕОРЕТИЧЕСКИЕ ОСНОВЫ ХИМИЧЕСКОЙ ТЕХНОЛОГИИ

- Г.А. Григорьев. Изотерма адсорбции для смачивания твердого
тела жидкостью при иммерсионном смачивании. 32
Г.А. Григорьев. О термодинамическом методе описания процесса
смачивания. 36

- Ю.А. Писаренко, Д.М. Бирюков. Полистационарность в непрерывном
процессе равновесного открытого испарения с химической реакцией. 44
Л.А. Серафимов, Л.А. Хахин, А.К. Фролова. Исследование энтропии
равновесного процесса дистилляции с последующей полной
конденсацией паров. 50

ХИМИЯ И ТЕХНОЛОГИЯ ЛЕКАРСТВЕННЫХ ПРЕПАРАТОВ И БИОЛОГИ- ЧЕСКИ АКТИВНЫХ СОЕДИНЕНИЙ

- Т.М. Буслаева, Е.В. Копылова, В.В. Кравченко, Г.А. Федорова.
Кристаллическая структура тиакарбамидного комплекса иридия. 57
А.А. Горшков, В.А. Ломовской, З.И. Фомкина. Температурная
зависимость сдвигового модуля упругости твердого раствора PDH_x . 62
Ф.Н.Карачевцев, В.А. Кутвицкий, О.В. Сорокина. Кинетические
закономерности взаимодействия висмутатнообратных стёкол с
ортофосфорной кислотой. 71
Ф.Н.Карачевцев, В.А. Кутвицкий, О.В. Сорокина. Определение
металлов в сложных оксидных системах. 75

ХИМИЯ И ТЕХНОЛОГИЯ ЛЕКАРСТВЕННЫХ СОЕДИНЕНИЙ И БИОЛОГИЧЕСКИ АКТИВНЫХ ВЕЩЕСТВ

- Я.Ф. Аль Ансари, В.Е. Баулин, Е.В. Савинкина, А.Ю. Цивадзе.
Синтез мезо-тетразамещённых порфиринов, содержащих фос-
форильные и азофенильные группы. 79
В.В. Красильникова, Н.И. Пахарькова, В.И. Попенко, А.П. Каплун.
Использование нанодисперсий, полученных из экстракта бересты,
для солюбилизации плохо растворимых в воде веществ. 85
И.В. Куликова, Д.А. Мурадова, С.Н. Михайлов. Стабильность
3', 5'-о-(тетраизопропилдисиоксан-1,3-диил)нуклеозидов в присутствии
кислот Льюиса. 90
К.В. Мартынова, И.Ю. Нагаев, С.И. Шрам, В.И. Швеи, Н.Ф. Мясоедов.
Синтез и характеристика фотоактивных арилизидных производных
пептидов семакса и Pro-Gly-Pro. 96
С.Г. Романова, Г.А. Серебренникова, А.А. Штиль. Синтез, изучение
цитотоксических свойств и гемолитической активности катион-
ных глицеролипидов алкильного типа. 101

ХИМИЯ И ТЕХНОЛОГИЯ ОРГАНИЧЕСКИХ МАТЕРИАЛОВ

- С.Н. Городский, А.В. Курдюков, О.Н. Темкин. Колебательный
режим в реакции карбонилирования пропаргилового спирта. 106
И.А. Грицкова, Е.Н. Левшенко; Е.Р. Мансурова; И.В. Хачатурян,
Н.И. Прокопов, Г.А. Симакова, В.М. Копылов. Полимеризация стиро-
ла в присутствии кремнийорганических ПАВ различной природы. 111
Abstract 115

Review MITHT

5/2008

Редакция:
Агаянц И.М.
Наумова Ю.А.
Семерня Л.Г.
Середина Г.Д.

Адрес редакции:
119571, г. Москва,
пр. Вернадского, 86,
к. Л-119
телефон: (495) 936-82-88
E-mail: vestnik@mitht.ru

Подписано в печать
16.10.2008 г. Формат 60х90/8.
Бумага офсетная.
Гарнитура Times.
Печать офсетная.
Уч. изд. листов 4,4.
Заказ № 382.
Тираж 500 экз.

Отпечатано с оригинал-макета в
«ГЕЛИОПРИНТ»

119602, Москва, Ак. Анохина, 38, к. 1

CONTENTS

SYNTHESIS AND PROCESSING OF POLYMERIC COMPOSITES

- I.Yu. Filatov, Yu.N. Filatov, M.S. Yakushkin. Electrospun fibrous materials from polymer micro- and nanofibers. History, theory, technology, application. 3
- I.B. Kravchenko, A.E. Kornev, Y.A. Naumova, G.V. Nikolsky, I.A. Krasotkina. Research elastic filler received by method of high-temperature shift crushing. 19
- A.N. Matvienko, Yu.P. Miroshnikov. Optimization of phase morphology for porous materials based on multicomponent polymer blends. 25

TEORETICAL BASED OF CHEMICAL TECHNOLOGY CHEMISTRY AND

- G.A. Grigoriev. Isotherm of adsorption for wetting of a solid by liquid at immersion wetting. 32
- G.A. Grigoriev. On the thermodynamic method of description of the wetting process. 36
- Yu.A. Pisarenko, D.M. Biryukov. Multiple steady states in continuous process of equilibrium open evaporation with chemical reaction. 44
- L.A. Serafimov, L.A. Khakhin, A.K. Frolkova. Entropy research of distilling equilibrium process with the subsequent complete vapours condensation. 50

CHEMISTRY AND TECHNOLOGY OF INORGANIC SUBSTANCES

- T.M. Buslaeva, E.V. Kopylova, V.V. Kravchenko, G.A. Fedorov. The crystal structure of iridium complex with thiocarbamide. 57
- A.A. Gorshkov, V.A. Lomovskoy, Z.I. Fomkina. Temperature function of the shear modulus of resilience of the solid solution PDH_x . 62
- F.N. Karachevtsev, V.A. Kutvitsky, O.V. Sorokina. Kinetic interaction regularity of bismuth-boron glasses with orthophosphoric acid. 71
- F.N. Karachevtsev, V.A. Kutvitsky. Luminescent definition transitional elements in complex oxides systems. 75

CHEMISTRY AND TECHNOLOGY OF MEDICAL PRODUCTS AND BIOLOGICALLY ACTIVE SUBSTANCES

- Ya.F. Al Ansari, V.E. Baulin, E.V. Savinkina, A.Yu. Tsivadze. Synthesis of *meso*-tetrasubstituted porphyrins, containing phosphoryl and azophenyl group. 79
- V.V. Krasil'nikova, N.I. Pakhar'kova, V.I. Popenko, A.P. Kaplun. The use of nanodispersions prepared from birch bark extract for poor soluble substances solubilization. 85
- I.V. Kulikova, D.A. Muradova, S.N. Mikhailov. Stability of 3', 5'-*o*-(tetraisopropylidisiloxane-1,3-diyl)nucleosides in the presence of Lewis acids. 90
- K.V. Martynova, I.U. Nagaev, S.I. Shram, V.I. Shvets, N.F. Myasoedov. Synthesis and characteristic of photoactive arylazide semax and Pro-Gly-Pro peptide derivatives. 96
- S.G. Romanova, G.A. Serebrennikova, A.A. Shtil. Synthesis and study of cytotoxic and hemolytic activity of cationic glycerolipids alkyl type. 101

CHEMISTRY AND TECHNOLOGY OF ORGANIC MATERIALS

- S.N. Gorodsky, A.V. Kurdiukov, O.N. Temkin. Oscillating regime in carbonylation reaction of propargyl alcohol. 106
- Y.A. Gritskova, E.N. Levshenko, E.R. Mansurova, I.V. Hachaturyan, N.Y. Prokopov, G.A. Simakova, V.M. Kopylov. Polymerization of styrene in the presence of different siliconorganic detergents. 84
- Abstract 115

ABSTRACT

- I.Yu. Filatov, Yu.N. Filatov, M.S. Yakushkin. Electrospun fibrous materials from polymer micro- and nanofibers. History, theory, technology, application. 3
This article is devoted to rapid development of such field of chemical fibers technology as electrospinning and dealing with history and theoretical ways of process description.
- I.B. Kravchenko, A.E. Kornev, Y.A. Naumova, G.V. Nikolsky, I.A. Krasotkina. Research elastic filler received by method of high-temperature shift crushing. 19
Possibility of using elastic filler which received of the waste of tyres by conditions of high temperatures and deformation is investigated in rubber technology. The presented part of work has been directed on studying of morphological properties elastic filler, abilities to participation in vulcanization process elastomer material, comparison given kind of filler with the products of recycling of the worn out tyres presented in the modern market.
- A.N. Matvienko, Yu.P. Miroshnikov. Optimization of phase morphology for porous materials based on multicomponent polymer blends 25
Morphology of ternary polymer blend PVB/ PP/PS for porous materials preparation was studied. Dosages providing maximum dispersity level and continuity of PVB phase in PP matrix were determined. PVB forming co-continuous phase in PP was selectively leached resulted in porous material which can be used in a variety of applications.
- G.A. Grigoriev. Isotherm of adsorption for wetting of a solid by liquid at immersion wetting. 32
The fundamental equation of adsorption and the adsorption isotherm for the process of immersion wetting are derived on the basis of Gibbs model. It is shown that in the case of low volatile surface-active component it is possible to calculate its adsorption constants A^{\max} and K at the solid-liquid border from the experimentally measurable value of superficial activity of limiting wetting tension, obtained by the Wilhelmi plate method on the basis of an integral equation similar to Shishkovski equation, with the subsequent specification of the values of adsorption constants by the method of successive approximations. It is shown that such calculation allows to calculate the adsorption constants for solids with small specific surface, when the analytical method (based on the concentration decrease) is impossible to accomplish.
- G.A. Grigoriev. On the thermodynamic method of description of the wetting process. 36
The thermodynamic method of description of the wetting process is suggested. Calculated formulae for the definition of ΔF (free energy variation), ΔS (entropy variation), ΔU (internal energy variation) were obtained using the wetting process of a vertical plate. A suitable standard state is selected, the opportunity is shown for using calculated values for the prediction of the mutual substitution of two nonmiscible liquids on the solid surface. The possibility of application of the well-known thermodynamic relationships at such description of the wetting process was discussed.
- Yu.A. Pisarenko, D.M. Biryukov. Multiple steady states in continuous process of equilibrium open evaporation with chemical reaction 44
There has been received mathematical description of continuous equilibrium evaporation process with chemical reaction. The criterion of multiple steady states occurrence is determined. Their stability is estimated and bifurcation diagrams are also constructed.
- L.A. Serafimov, L.A. Khakhin, A.K. Frolkova. Entropy research of distilling equilibrium process with the subsequent complete vapours condensation 50
Are investigated equilibrium differential evaporation process and process of complete condensation. Is shown, that each of these processes can be theoretically submitted as reversible. A processes combination in a sequence equilibrium vaporization - the total condensation even in case of components reversibility of derivates entropy occurrence at the expense of an temperatures inequality appropriate to differential equilibrium vaporization, and total condensation outlet temperature.
- E.V. Kopylova, T.M. Buslaeva, V.V. Kravchenko, G.A. Fedorova. The crystal structure of Iridium Complex with Thiocarbamide. 57
By interaction of water solutions of $K_3[IrCl_6]$ and Thiocarbamide ($Thio$, $SC(NH_2)_2$) at heating the complex of the composition $[Ir(Thio)_3Cl_3]$ was synthesized. By the method of X-ray diffraction that the compound crystallizes in the monoclinic crystal system with space group $C2/c$, $a = 13.492(3)$ Å, $b = 8.264(2)$ Å, $c = 24.979(5)$ Å, $\beta = 92.79(3)^\circ$, $V = 2782.00(1)$ Å³, $Z = 8$. The compound has a structure with two crystallographically independent iridium atoms: the coordination sphere of the Ir(1) atom involves two Cl atoms and four S atom, whereas the coordination sphere of the Ir(2) atom consists four Cl atoms and two S atom. Coordination of molecules Thio to the Iridium is realized though the sulfur atom.
- A.A. Gorshkov, V.A. Lomovskoy, Z.I. Fomkina. Temperature function of the shear modulus of resilience of the solid solution PDH_x . 62
Spectra of internal dissipation losses as a functions of the temperature and the shear modulus for the polycrystal system of Pd and the solid solution of PdH has been received. These spectra had been developed by the method of free vibrations. Theoretical description of defect of the shear modulus basing on the theory of unresilience is suggested.
- F.N. Karachevtsev, V.A. Kutvitsky, O.V. Sorokina. Kinetic interaction regularity of bismuth-boron glasses with orthophosphoric acid. 71
Have been carry out research of interaction kinetic of bismuth-boron glasses consisting of: 70% Bi_2O_3 , 30% B_2O_3 ; 70% Bi_2O_3 , 27% B_2O_3 , 3% MoO_3 ; 70% Bi_2O_3 , 26.94% B_2O_3 , 3.06% GeO_2 with 87% orthophosphoric acid. On initial interaction stage (under 3 min) establish a quota be chemistry reaction. At increase time (higher 10 min) of interaction primary role in heterogeneous process play stage of diffusion through lay at a surface.

- F.N. Karachevtsev, V.A. Kutvitsky. Luminescent definition transitional elements in complex oxides systems. *Has been displayed possibility of luminescent determination of Re, Mo and W on effect of extinction of luminescence Tb^{3+} and Sm^{3+} . Presence of several lines of a luminescence at rare-earth elements has allowed to carry out quantitative definition of transition and trace elements at their combined presence in complex oxide. The elative error of a method at most 0,08.* 75
- Ya.F. Al Ansari, V.E. Baulin, E.V. Savinkina, A.Yu. Tsivadze. Synthesis of *meso*-tetrasubstituted porphyrins, containing phosphoryl and azophenyl group. *New meso-tetrasubstituted porphyrins of interest as heterotopic ligands were synthesized. Substances are investigated by methods of electronic and IR-spectroscopy, MALDI-TOF mass-spectrometry, 1H NMR spectroscopy and elemental analysis*
- V.V. Krasil'nikova, N.I. Pakhar'kova, V.I. Popenko, A.P. Kaplun. The use of nanodispersions prepared from birch bark extract for poor soluble substances solubilization. *The method of poor soluble substances solubilization with the use of nanodispersions prepared from birch bark extract is proposed. Optimal substance/carrier ratios for methylpheophorbide A, doxorubicin, silymarin and silibinin have been determined.* 85
- I.V. Kulikova, D.A. Muradova, S.N. Mikhailov. Stability of 3', 5'-*o*-(tetraisopropylidisiloxane-1,3-diyl)nucleosides in the presence of lewis acids. *Trimethylsilyl trifluoromethanesulfonate catalyzes effective isomerization of 3',5'-O-(tetraisopropylidisiloxane-1,3-diyl,TIPDS)nucleosides in 1,2-dichloroethane at 0°C into 2',3'-O-TIPDS-derivatives to give 55-90% yields. On the other hand 3',5'-O-TIPDS-nucleosides except for uridine derivative 1a were found to be stable in the in the presence of tin tetrachloride and boron trifluoride etherate* 90
- K.V. Martynova, I.U. Nagaev, S.I. Shram, V.I. Shvets, N.F. Myasoedov. Synthesis and characteristic of photoactive arylazide semax and pro-gly-pro peptide derivatives. *The photoaffine arylazide derivatives of peptides semax and Pro-Gly-Pro have been synthesized. It was shown that these compounds have cytoprotective action in culture of PC12 cells under conditions of oxidative stress.* 96
- S.G. Romanova, G.A. Serebrennikova, A.A. Shtil. Synthesis and study of cytotoxic and hemolytic activity of cationic glycerolipids alkyl type. Synthesis and study of cytotoxic and hemolytic activity of cationic glycerolipids alkyl type. *The synthesis of new cationic ether glycerolipids, non-phosphorus analogues of edelfosine. Are investigated cytotoxic properties and hemolytic activity of the synthesized substances.* 101
- S.N. Gorodsky, A.V. Kurdiukov, O.N. Temkin. Oscillating regime in carbonylation reaction of propargyl alcohol. *In the system $KI - PdI_2 - CH_3OH$ with O_2 the oscillating regime of carbonylation reaction of new substrate – propargyl alcohol was find out. The reaction products were identified, the limits of oscillating area was determined and preliminary mechanism of process was proposed.* 106
- Y.A. Gritskova, E.N. Levshenko, E.R. Mansurova, I.V. Hachaturyan, N.Y. Prokopov, G.A. Simakova, V.M. Kopylov. Polymerization of styrene in the presence of different siliconorganic detergents. *The characteristics of polymer suspensions received in the presence of different siliconorganic detergents were compared. The polymer suspensions have the narrow distribution of particles by size and contain the functional groups on their surface.* 111

Вестник МИТХТ

Журнал выходит один раз в два месяца и публикует обзоры и статьи по актуальным проблемам химической технологии и смежных наук. Журнал основан в 2006 году. Учредителем журнала является Московская государственная академия тонкой химической технологии им. М.В. Ломоносова (МИТХТ).

Журнал входит в Перечень ведущих рецензируемых научных журналов, в которых должны быть опубликованы основные научные результаты диссертации на соискание ученой степени кандидата наук.

• К публикации принимаются материалы, содержащие результаты оригинальных исследований, в виде полных статей, кратких сообщений, а также авторские обзоры и прогнозно-аналитические статьи по актуальным вопросам химической науки, в том числе по:

1. Теоретическим основам химической технологии
2. Химии и технологии органических веществ
3. Химии и технологии лекарственных препаратов и биологически активных соединений
4. Синтезу и переработке полимеров и композитов на их основе
5. Химии и технологии неорганических материалов
6. Химии и технологии редких и рассеянных элементов
7. Математическим методам и информационным технологиям в химии и химической технологии
8. Эколого-экономическим проблемам химических технологий.

• С правилами для авторов можно ознакомиться по адресу: www.mitht.ru

• Электронная версия журнала (CD-ROM и Интернет) выходит с февраля 2006 г.

• Хорошо подготовленные статьи выходят в свет не более чем через 4 месяца после поступления в редакцию.

- Плата за публикации, в том числе с аспирантов не взимается.

Журнал в розничную продажу не поступает. Он распространяется на территории Российской Федерации и стран СНГ по каталогу агентства «Роспечать», индекс **36924**. Подписка на журнал принимается в любом почтовом отделении.