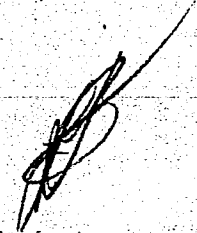STAROBINETS, G.L.

Relation between the dielectric constant and the activity coefficient in binary mixtures of polar and nonpolar substances. G. L. Starobinets. *Uchenye Zapiski Beloruss. Univ.* 1953, No. 14, 82-8; *Referat. Zhur., Khim.* 1954, No. 30352.—It is assumed that the deviations of the dielec. const. ($\Delta\epsilon$) and the activity coeff. ($\Delta\gamma_1$) of solns. as compared to a standard state should be expressible by similar functions of the compn. Furthermore, the relation between $\Delta\epsilon$ and $\Delta\gamma_1$ should be linear. To test this assumption, the dielec. consts. of mixts. MeOH, EtOH, PrOH, and BuOH with C_6H_6 were detd. by the pulsation method at 25° and a wide range of concn. The resulting data were compared with the activity coeffs. of the same mixts. previously obtained (Ciacalone, *C.A.* 38, 1937[1]). At concns. of 5 to 70-80 mol. % alc., the ratio of $\Delta\gamma_1/\Delta\epsilon$ is const. within the limits of 0.11-0.12. At small concns. of alc. when γ_1 practically equals 1, $\Delta\gamma_1/\Delta\epsilon$ decreases, and at very high concns. it increases. On the basis of these established linear relations it is concluded that the Kirkwood equation for dielec. polarization should express the changes in the activity coeff. of a nonpolar solvent with the concn. of the mixt.   M. Hoseh

STAROBINETS, G.L.; FISHER, I.Z.; MIL'CHINA, M.G.

Surface demixing. Kolloid. Zhur. 15, 219-22 '53.   (MLRA 6:5)
(CA 47 no.18:9103 '53)

1. STAROBINETS, G. L.; KOMAROV, V. S.

2. USSR 600

4. Rubber

7. Equilibrium between rubber and binary alcohol-benzene solutions, Koll. zhur, 15, No. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

STAROBINETS, G.L.

ν

Rubber Abstract
Vol. 31
November 1953
Vulcanised
Natural Rubber

4674. Equilibrium between rubber and alcohol-benzene solutions. G. L. Starobinets and V. S. Komarov. Kolloid Zhur., 1953, 15, 60-8; Chem. Abs., 1953, 47, 5153. Vulcanised natural rubber was suspended in the vapour for 10 days, and the amounts Q_1 and Q_2 g. of alcohol and benzene taken up by 1 g. of rubber at 20° were determined interferometrically. Over pure benzene, Q_2 was 0.16. Over pure alcohol, Q_1 increased from methyl alcohol to hexanol, and (at 60°) octadecanol. Over benzene containing little alcohol Q_1 was greater, and over alcohol containing little benzene, Q_2 was greater, the smaller the molecular weight of the alcohol. Over the intermediate solutions, the mole fraction n_1 of an alcohol in the rubber varied with the composition of the liquid (n_2) in the same manner as the mole fraction n_3 in the vapour; between n_2, 0.2 and 0.8, n_3 was approximately equal to $3n_1$. At n_2, 0.09 of methyl alcohol, Q_2 and $Q_1 + Q_2$ passed through a maximum; this maximum was less pronounced for ethyl alcohol and propyl alcohol and absent for butyl alcohol, hexanol, and octadecanol, $Q_1 + Q_2$ had a minimum at $n_2 = 0.5$.

2/2, D. L. Starovlinla and L. S. Komarov

of octadecanol. In analogy with vapour-pressure curves, the maximum and the minimum of the $Q_1 + Q_2$ curve occurred when the composition of the liquid in the rubber was identical with that in the liquid. This was confirmed by measurement of the dielectric constant. Rubber takes up single molecules of alcohol. The $Q_1 + Q_2$ is greater, the stronger the quasi-crystalline structure of the solution.

STAROBINETS, G. L.

5007. Thermodynamics of the swelling of natural rubber and sodium-butadiene rubber in binary mixtures. G. L. STAROBINETS and K. M. ALEKSANDROVICH. *Koll. Zhur.*, 1954, 16, 287-96. *Rubb. Chem. Technol.*, 1955, 28, 838-49. Studies of vulcanisates in saturated vapours of benzene and lower alcohols (methyl to butyl) at 20 and 50°C are reported. The general form of the curves of isothermic equilibrium were found to conform to Konovalov's law. The selectivity of absorption of the solution increases with the cohesive energy density of the alcohol, and is more pronounced in natural than in sodium-butadiene rubber, probably because of the larger concentration of oxidised groups in natural rubber. The free energy, heat content, and entropy changes involved are deduced and discussed. There are 11 references.   63461

Lab. Physical & Colloid Chem., Belorussian State U.

im. V. I. Lenin

STAROBINETS, G.L.

TEYTEL'BAUM, B.Ya.

Remarks on interface separation (answer to the article by G.L.Sta-
robinets, I.Z.Fisher, and M.G.Mil'china. "Interface separation.")
Koll.zhur. 16 no.4:309-311 Jl-Ag '54.   (MLRA 7:7)

1. Khimicheskiy institut im. A.Ye.Arbuzova, Kazanskiy filial
Akademii nauk SSSR.
       (Surface chemistry) (Starobinets, G.L.) (Fisher, I.Z.)
       (Mil'china, M.G.)

STAROBINETS, G.L.

[Once more about interface separation (Answer to the article of
B.IA.Teitel'baum "Remarks on interface separation".) Koll.shur.
16 no.4:312 Jl-Ag '54.   (MLRA 7:7)

1. Belorusskiy gosudarstvennyy universitet im. V.I.Lenina, Minsk.
     (Surface chemistry) (Teitel'baum, B.IA)

STAROBINETS, G. L.

Measurement of surface tension in solutions of substances with long chain lengths. G. L. Starobinets and M. Z. Gurevich. *Uchenye Zapiski, Belorus. Gosudarst. Univ. im. V. I. Lenina, Ser. Khim.* 1954, No. 20, 88-105.—The surface tension of $Me(CH_2)_nOH$ in $p\text{-}C_6H_5Cl$ was measured at 55°, 60°, and 65°, by detg. (a) the force on a glass plate held edgewise in the liquid, (b) the force necessary to pull the plate free from the liquid, and (c) the max. pressure on bubbles of air forming at the rate of 1 in 5 min. The slow rate was chosen since it had been thought that the slow rate of diffusion of long-chain mols. would make this method inapplicable to them. The following results are reported for 55°: (mol. fraction alc. and surface tension in dyne-cm. by methods a, b, and c resp. given) 0.050, 31.50, 31.67, 31.51; 0.1, 30.96, 31.09, 31.05; 0.2, 30.59, 30.95, 30.82; 0.3, 30.40, 30.95, 30.59; it would appear that method c is applicable to such solns. Tables of surface tension by methods a and b are given at 60° and 65°. The Eötvös const. was calcd. to be 3.   John Howe Scott

STAROBINTS, Grigoriy Lazarevich

Academic degree of Doctor of Chemical Sciences, based on his defense,
20 May 1955, in the Council of the Belorussian State U imeni Lenin,
of his dissertation entitled: "Absorption of Binary Mixtures of
Saturated Steam by Rubberlike High Polymers and Adsorption on the
Solution-Air Boundary in Solvents-Non-Solvent Solutions."

Academic degree and/or title: Doctor of Sciences

SO: Decisions of VAK, List no. 25, 10 Dec 55, Byulleten' MVO SSSR,
     Uncl. JPRS/NY 548

STAROBINETS, G. L.

3315. Distribution of components of binary media between solution and polymer phases in the swelling process. G. L. STAROBINETS and I. N. ERMOLENKO. Uchenye Zapiski Beloruss. Gosudark. Univ. im. V. J. Lenina, Ser. Khim., 1955, No. 24, 48–57; Chem. Abs., 1957, 51, 5456. The swelling of vulcanised rubber was studied at 60°C in para-dichlorobenzene—ethyl alcohol,—butyl alcohol,— iso-butyl alcohol and benzene ethyl alcohol mixtures. The quantities of aromatic alcohol and the aromatic compounds in both phases were measured at 96 and 360 hr. Diagrammatic representations are given for the distribution of components in the swollen rubber as a function of the composition of the liquid phase. 63481

STAROBINETS G. L.

Effective sorption of saturated binary vapors by vulcanizates of natural and sodium-butadiene rubbers. G. L. Starobinets. *Doklady Akad. Nauk S.S.S.R.* 103, 685-7 (1955).—The selective sorption of binary solns. by butadiene and natural rubbers was studied, with attention focused on solvent-nonsolvent types, in which the sorptive nature of the process is particularly pronounced. The binary systems were the nonpolar solvents C_6H_6, cyclohexane, CCl_4, and p-$C_6H_4Cl_2$; solvents with a small dipole moment-toluene; and the polar solvents $CHCl_3$, $C_2H_4I_2$, C_2H_5Br. The nonsolvent components were fatty alcs., acetic, isovaleric, benzoic, and salicylic acids, Me_2CO, $MeCOEt$, EtOAc, PhOH, $PhNO_2$, hexane, and dioxane. Only a few of the results are published. The method of measurements was described by Starobinets and Komarov [1, 47] and Zhukhovitskii (*Zhur. Fiz. Khim.* 12,) W. M. Sternberg

STAROBINETS, G L.

Selective sorption of binary solutions by rubbery high polymers. G. L. Starobinets. *Uspekhi Khim.* 25, 1502-17 (1956).—Review with 75 references of selective sorption of components of various binary mixts. by rubberlike high polymers and copolymers. The theoretical part is an account of work done by Gee (C.A. 39, 2218⁶). G. M. K.

STAROBINETS, G.L.

Selective sorption of binary solutions by rubber type high polymer.. Uch.zap. BGU no.29:151-174 '56.   (MIRA 11:11)
(Sorption)   (Solution (Chemistry))   (Polymers)

STAROBINETS, G.L.; RUBENCHIK, K.F.

Jet-electrochemical method for determining the thickness of
electroplating. Uch.zap. BGU no.29:175-177 '56.   (MIRA 11:11)
(Electroplating--Testing)   (Thickness measurement)

STARCBINETS, G.L.; TIKAVYY, V.F.

Effective sorption of binary solutions by rubber in relation to
the degree of its vulcanization and filling. Uch.zap. BGU no.29:
178-188 '56.   (MIRA 11:11)
                (Rubber)   (Sorption)

STAROBINETS, G.L.

Nature of Shreder effect. Uch.zap. BGU no.29:277-281 '56.
(Polymers) (Sorption) (MIRA 11:11)

STAROBINETS, G. L.

USSR/Surface Phenomena. Adsorption. Chromatography. Ion Interchange B-13

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26377

Author   : G.L. Starobinets, V.S. Komarov
Title   : Sorption of Binary Solutions by Vulcanized Natural and Syn-
           thetic Rubbers. II. Application of Laws of D.P. Konovalov
           and Rule of M.S. Vrevskiy to Equilibrium Polymer - Binary
           Solution.

Orig Pub : Zh. fiz. khimii, 1956, 30, No 8, 1771-1775

Abstract : The analogy between the azeotropism in binary systems and
           the appearance of extremums on isotherms of general sorption
           (IGS) by high polymers (HP), for example, vulcanised rubbers,
           was noted. It is shown that the properties of IGS are des-
           cribed by the laws of D.P. Konovalov and the rule of M.S.
           Vrevskiy; the total amount of the substance sorbed by the HP
           rises with the concentration rise of the solution component,
           which is richer in HP-s; the composition of the solution in
           the phase of HP-s is equal to the composition of the equili-
           brium binary solution at points corresponding to the exremums
           of IGS; with a rise of the temperature, the maximum on IGS
           shifts to the side of the component, the heat of evaporation

Card   : 1/2

STAROBINETS, G.L.

Sorption of binary solutions by natural and synthetic rubber
vulcanizates. Part 3. Model analysis of the system polymer-
solvent-non-solvent [with English summary in insert] Zhur.fiz.
khim. 30 no.9:2029-2038 S '56.   (MIRA 9:12)

1. Belorusskiy gosudarstvennyy universitet imeni V.I. Lenina,
Minsk.
              (Rubber)   (Sorption)

SOV/81-59-12-44604

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 12, p 534 (USSR)

AUTHORS: Starobinets, G.L., Komarov, V.S.

TITLE: The Modelling of the Systems: Rubber-Like High-Polymer-Binary Mixture of Low-Molecular Components

PERIODICAL: Sb. nauchn. rabot. In-t khimii AS BSSR, 1958, Nr 6, pp 154-162

ABSTRACT: The distribution in the systems high-polymer-binary mixture of low-molecular components has been studied for vulcanizates of natural rubber and mixtures of chloroform-acetone, chloroform-ethyl alcohol, CCl_4-methyl alcohol, ethyl chloride-heptane and benzene-chloroform. The curves of equilibrium between the polymer and binary solutions have been calculated by the method of modelling. They agree with the experiment.

From the authors' summary

Card 1/1

Determination of Normal Hydrocarbons in Paraffins by Means of   75-13-2-15/27
the Adsorption Analysis

paraffins end in clearly expressed horizontal lines, which
correspond to the complete adsorption of the dissolved paraffin.
The isothermal curves of the commercial paraffins, on the
contrary run out on the same conditions into lines, which are
inclined towards the abscisse and which indicate the fact
that the adsorption process in this case represents the sum
of 2 processes: The adsorption of the normal hydrocarbons
and the adsorption of the iso-hydrocarbons. It was shown that
the ordinate, which was obtained by extrapolation of the
inclined final line on an urea content of zero, represents a
measure for the percentage of normal hydrocarbons in the
paraffin which is to be examined. The result of the analysis,
obtained this way, is independent of the nature of the solvent.
This fact proves the reliability of the method.
3) The methods, described in publications, for the determin-
ation of normal hydrocarbons by means of urea in general
give too low results. These methods correspond in their
essence to the investigation of only one point of the iso-
thermal curve, while a unique conclusion on the percentage
of normal hydrocarbons in commercial samples is possible
only because of the examination of the whole isothermal

Card 2/3

Determination of Normal Hydrocarbons in Paraffins by Means of 75-13-2-15/27
the Adsorption Analysis

adsorption curve, which is concluded from the results of this
paper.
4) This method, worked out by the authors, is simple in an
experimental respect and can be performed with small substance
quantities. It is based upon the analysis of the solutions,
which are in equilibrium, and therefore it is free from
errors, which are caused by transfer, washing out, and
decomposition of the complex compound of urea with the
hydrocarbons.
There are 5 figures, 1 table, and 22 references, 11 of which
are Soviet.

ASSOCIATION: Belorusskiy gosudarstvennyy universitet im. V. I. Lenina,
                Minsk (Minsk,Belorussian State University imeni V. I. Lenin)

SUBMITTED: May 31, 1957

                1. Methanes--Analysis   2. Hydrocarbons--Adsorption   3. Hydrocarbons
                --Determination

Card 3/3

AUTHORS: Starobinets, G. L., Pikulik, V. A.   76-32-4-3/43

TITLE: The Structure of the Adsorption Layer at the Interface Between
            Air and Concentrated Solution. II. (Stroyeniye adsorbtsionnogo
            sloya na granitse kontsentrirovannyy nevodnyy rastvor -
            vozdukh. II.)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1958, Vol. 32, Nr 4,
            pp. 756-759 (USSR)

ABSTRACT: In a previous paper it was shown that the possibility of the
            formation of a polymolecular adsorption layer is greatest in
            two cases: When the energy of the intermolecular interactions
            1-2 is relatively small compared to those between 1-1 or
            2-2. When the molecules of the active surface component form
            groups with parallel oriented dipoles. In order to investigate
            the first case the authors investigated in this paper the
            system benzene-polar derivatives of benzene (benzyl alcohol,
            phenol, nitrobenzene and chlorobenzene) with the active
            benzene acting as surface component. The thermodynamic benzene
            activity as well as the dielectric permeability and density
            (at $70^\circ C$) were determined for this system by Martin (ref. 2).
            A table of the additional measurements of the surface tensions

Card 1/3

76-32-4-3/43

The Structure of the Adsorption Layer at the Interface
Between Air and Concentrated Solution. II.

at 70°C as well as of the calculated adsorption in the air-
-solution interface, and of the dielectric polarization
according to Onsager-Kirkwood and of the correlation para-
meter of the polar component according to Kirkwood is given.
From the graphically given results it can be seen that the
maximum adsorption of benzene in benzyl-alcohol is abnormally
great and decreases according to the series of solvents
phenol-nitrobenzene-chlorobenzene. The diagrams of the thermo-
dynamic benzene activity composition show that the deviation
from the ideal case as well as the maximum quantity of
benzene adsorption take place sympathetically. The abnormally
great benzene adsorption is explained by the group formation
of molecules of the surface-inactive components. Investigations showed
of the correlation parameter of the polar components showed
that the concentration of dimers in the system benzylalcohol-
-benzene is greater than in phenol-benzene, in the former
the depth of the zone of negative adsorption of the polar
components being greater. The distribution coefficients of
benzene between the surface and the center of the solvent
were calculated according to the theory by A. A. Zhukovitskiy,
and were represented graphically. It is shown that the

Card 2/3

The Structure of the Adsorption Layer at the Interface   76-32-4-3/43
Between Air and Concentrated Solution. II.

adsorption layer of benzene in nitrobenzene and chloro-
benzene is monomolecular, and in phenol and benzylalcohol
polymolecular. Finally the authors state that the abnormal
properties of the adsorption layers found are to be traced
back to a polymolecular character as well as a conditioned
adsorption depth which is determined by the mean length of
the molecular groups.
There are 4 figures, 2 tables, and 5 references, 3 of
which are Soviet.

ASSOCIATION: Belorusskiy gosudarstvennyy universitet im. V. I. Lenina
               Minsk (Minsk, Belorussian State University imeni V. I.
               Lenin)

SUBMITTED: May 21, 1956

AVAILABLE: Library of Congress

               1. Adsorption--Theory   2. Benzene derivatives--Adsorptive
Card 3/3   properties   3. Benzene--Adsorptive properties

SOV/81-59-5-14810

Translation from: Referativnyy zhurnal, Khimiya, 1959, Nr 5, p 88 (USSR)

AUTHOR: Starobinets, G.L.

TITLE: The Structure of Adsorption Layers at the Solution-Air Interface
              in the Solvent-Non-Solvent-Type Systems of Rubber

PERIODICAL: Uch. zap. Belorussk. in-t, 1958, Nr 42, pp 139 - 150

ABSTRACT: In a summary the results of a systematic investigation are given
              conducted by the author (RZhKhim, 1956, 18926), on the proper-
              ties of adsorption layers on the interface between solution-air
              in binary systems, consisting of non-polar (benzene, dichloro-
              benzene) and polar (lower fatty alcohols and acids, nitrobenzene
              and others) components and models of the system: rubber-solution.
              It is established that all the systems containing alcohols, have
              anomalous properties, which lead to the fact that the adsorption
              layers in them have a polymolecular thickness, and the maximum
              values of adsorption are reached, in contrast to aqueous solutions,
              at very slight decreases in the surface tension. In systems con-

Card 1/2

STAROBINETS, G.L.

Nature of systems of latticed rubberlike high polymers with binary
mixtures of low molecular weight components. Uch.zap.BGU no.42:151-158
'58.   (MIRA 12:1)
          (Macromolecular compounds)
          (Solvents)

PHASE I BOOK EXPLOITATION   SOV/3779

Starobinets, Grigoriy Lazarevich, and Vladimir Stepanovich Komarov

Kauchukopodobnyye polimery - sorbenty i khromatograficheskiy materialy
    (Elastomers as Sorbents and Chromatographic Materials) Minsk, Izd-vo
    Belgosuniversiteta, 1959. 127 p. 1,500 copies printed.

Sponsoring Agencies: Minsk. Belorusskiy gosudarstvennyy universitet imeni
    V.I. Lenina; Akademiya nauk BSSR. Institut obshchey i neorganicheskoy khimii;
    BSSR. Ministerstvo vysshego, srednego spetsial'nogo i professional'nogo
    obrazovaniya.

Ed.: N.D. Ges'; Tech. Ed.: I.Ye. Belen'kaya.

PURPOSE: This book is intended for researchers studying the physicochemical
    properties of polymers, and for persons interested in the theory and practical
    application of sorption and chromatographic processes.

Card 1/4

Elastomers as Sorbents and Chromatographic Materials   SOV/3779

Card 3/4

S/081/60/000/007/001/012
A006/A001

AUTHORS: Starobinets, G. L., Ariko, P. G.

TITLE: Thermodynamic Properties and Structure of High-Molecular Paraffin Hydrocarbon Solutions in Benzene

PERIODICAL: V sb.: Thermodinamika i stroyeniye rastvorov, Moscow, AS USSR, 1959, pp. 207-210

TEXT: The method of gas saturation at 49, 55, 58.3°C was used to determine the benzene vapor pressure over solutions of two fractions of high-molecular hydrocarbons separated from technical paraffin of 270 and 340 mol. weight respectively. The activities and partial values of free energy, enthalpy and entropy of the components were calculated. Deviations from the Raoult law and excessive changes in the free energy of the solutions are negative and increase in their absolute values with increasing molecular weight of paraffin and with raising temperatures. The formation of solutions occurs at a diminished entropy. It is concluded that the thermodynamic properties of high-molecular hydrocarbon solutions are one of the factors for their stability. In benzene solutions

Card 1/2

STAROBINETS, G.L. [Starobinets, H.L.]; ALEKSANDROVICH, Kh.M.

Mikhail Mikhailavich Pauliuchenka; on his 50th birthday.
Vestsi AN BSSR.Ser.fiz.-tekh.nav.   no.2:132-135 '59.
(MIRA 12:11)

(Pauliuchenka, Mikhail Mikhailavich, 1909-)

STAROBINETS, G.L.; TIKAVYY, V.F.

Dielectric permeability of systems composed of a rubberlike high polymer, a solvent, and a nonsolvent. Dokl. AN BSSR 3 no.6:249-252 Je '59.
(MIRA 12:10)

1.Predstavlenr akademikom AN BSSR N.F. Yermolenko.
(Polymers—Electric properties)

STAROBINETS, G. L.

SOV/75-14-4-30/30

AUTHOR: Bilimovich, G. N.

TITLE: Section of Analytical Chemistry of the VIII Mendeleyev Congress on General and Applied Chemistry

ABSTRACT: Approximately 300 persons participated in the work of the Department of Analytical Chemistry, among them representatives of various scientific research institutes, higher schools and industrial enterprises in Russia, scientists from China, Bulgaria, the GDR, Poland, Hungary, and Italy. Approximately 70 reports were heard. In his opening speech I.P. Alimarin reported on the achieved results and on modern problems of analytical chemistry. I.V. Tananayev reported on the application of physico-chemical analysis in heterogeneous system for the solution of a series of problems of analytical chemistry. I.I. Kuznetsov reported on modern aims in the use of organic reagents; A.K. Babko showed at the example of halide and thiocyanate complexes the correlation between the stability of complexes and the position of the corresponding central atoms in the periodic system. L.M. Bukhova and I.M. Korenman lectured on the stability of oximates of Cu, Co, and Ni as depending on the structure of the oxime molecule. V.V. Fadeyeva lectured on the structure of complexes. The problem of the application of heteropolyacids in analytical chemistry was dealt with in the lectures of L.P. Bukhova and co-workers, and A.I. Kokorin and N.A. Polotebnova. A large number of lectures dealt with the use of new organic reagents in analysis: A.I. Buser and V.I. Kuzmin used organic reagents for the separation of elements; A.I. Portnov and his co-workers reported on the application of dialkyl and diaryl dithio-phosphoric acid for the separation of elements; A.I. Portnov and aryl arsonic acid and aryl phosphinic acid. B.P. Lastovskiy and co-workers treated some properties of new complexons. The lectures of I. Lazarenko, G.C. Shiltsyeva and A.I. Kononenko dealt with the photometric determination of a series of elements using fluorine derivatives. A.I. Cherkasov lectured on the use of halochromism in analytical chemistry. B.V. Bobkin and T.M. Malyutina lectured on the determination of tantalum using differential spectrophotometry. Yu.L. Morachevskiy and I.A. Stolyarova reported on new highly sensitive analysis methods using an ultraviolet microscope. Several lectures dealt with methodical and theoretical problems of spectrum analysis (N.I. Zakharov and G.A. Sharma; E. Ya. Varshavskiy and co-workers). M.S. Polyaktov and K.N. Nikonova treated the perfection of flame photometry. Several lectures dealt with the determination of elements by polarography (B.I. Sinyakova; V.M. Bogdashkinskaya and I.A. Yarovoy; Ye.P. Gokhshteyn). New results in using fixed electrodes were reported by I.D. Panchenko and Yu.S. Lyalikov and co-workers. The lecture of N.I. Gusliteva and F.M. Tarliy treated the use of amperometric titration with two electrodes in the chemistry of uranium and thorium. N.M. Sergyevin showed possibilities of predicting the their position in the periodic system. N.A. Polyevskaya reported on conditions of chromatographic separation of elements based on the use of ion exchange in the investigation of the state of substances in solutions. A.S. Vernidub and V.I. Petrashed lectured on the chromatographic separation of a series of elements. E.G. Polyanskiy reported on adapting the properties of ion exchanger resins. V.M. Chenyakin and associates reported on the chromatographic proof of sulfonilamide preparations in liquids of the organism. G.L. Starobinets and associates treated the application of high polymers in chromatographic analysis. The lecture of A.I. Zhukhovitskiy and E.M. Turkeltaub, G. Shay with gas chromatography. Several lectures treated the use of radioactive isotopes for the chromatographic investigation of complex formation (G.I. Ryabchikov and associates) ions of rare metals with sulfides (M.A. Ridner) and for determining rare elements by means of isotope dilution (L.B. Alimarin, G.N. Bilimovich). In the field of elementary organic microanalysis, the lectures of M.O. Korshun, T.E. Gelman and V.A. Klimova with associates have to be mentioned, who treated the elaboration of rapid micromethods for the simultaneous determination of several elements from one weighed portion of boron, fluorine and silicium-organic compounds.

Card 1/4

Card 2/4

Card 3/4

SOV/20-128-2-31/59

5 (4)
AUTHORS: Starobinets, G. L., Tikavyy, V. F.

TITLE: Dielectric Properties of Reticulate Rubberlike High Polymers
             Swollen in Binary Solvent - Nonsolvent Mixtures

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 2, pp 333-336 (USSR)

ABSTRACT: The dielectric constant and the dielectric polarization of a
             vulcanized co-polymeric butadiene-styrene is investigated at
             25°, swollen in benzene or carbon tetrachloride, mixed with
             a nonsolvent fluid, in this case with low alcohols. Further
             the partial isothermal line of the sorption of the low-molecular
             components of the polymer was determined as well as its distri-
             bution between both phases. Figure 1 shows the curve of the
             dielectric constant in a system polymer-benzene-methyl alcohol,
             figure 2 shows the relation between the isothermal line of the
             dielectric constant and the isothermal line of the partial
             sorption of the alcohol in the system polymer-carbon tetrachlo-
             ride-ethyl alcohol. In all studied systems both isothermal
             lines pass a maximum in the same direction. It is confirmed
             that the dependence of the dielectric polarization   in the
             combination of the swollen polymer agrees with the theory due
             to Onsager-Kirkwood (Ref 4) for the solution of polarized

Card 1/2

Dielectric Properties of Reticulate Rubberlike High   SOV/20-128-2-31/59
Polymers Swollen in Binary Solvent - Nonsolvent Mixtures

molecules in nonpolarized solvents. As shown on figure 3 the
specific polarizations in system high polymer - benzene - n-
butyl alcohol are placed on the line calculated in reference
to Onsager-Kirkwood. An orientation of the dipols in the
alcohol molecule parallel to the double bond of the polymer
occurs. The alcohol molecules form dimers with double bonds.
There are 3 figures and 9 references, 6 of which are Soviet.

ASSOCIATION: Belorusskiy gosudarstvennyy universitet im. V. I. Lenina
               (Belorussian State University imeni V. I. Lenin)

PRESENTED: May 4, 1959, by V. N. Kargin, Academician

SUBMITTED: May 2, 1959

Card 2/2

S/081/60/000/022/001/016
A005/A001

Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 22, p. 78, #87885

AUTHOR: Starobinets, G. L.

TITLE: The Structure of the Adsorption Layers at the Solution - Air Interface in Systems of the Caoutchouc Solvent - Non-Solvent Type

PERIODICAL: Tr. Khim. fakt. Belorussk. un-t. Minsk, 1960, pp. 45-52

TEXT: On the basis of measurements of the dielectric constant and density of solutions, the values of the dielectric polarization were calculated in accordance with the Onsager-Kirkwood theory as well as the values of the Kirkwood correlation parameter for the solutions of CH_3OH, C_2H_5OH, $n-C_3H_7OH$, $n-C_4H_9OH$, iso-C_4H_9OH, iso-$C_5H_{11}OH$, and $C_7H_{15}OH$ in benzene and n-dichloro benzene. It turned out that values of the correlation parameter of about 3 correspond to the maximum of alcohol adsorption, from which results that the surface layer of an alcohol solution and pure alcohol in liquid state have the same structure. It is shown that the surface layers of systems containing alcohols as surface active substances consist of linear-polymerized alcohol groups. The dependence of the correlation

Card 1/2

Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 22, p. 566, #91066

AUTHORS: Starobinets, G. L., Povarkov, E. V.

TITLE: The Dynamical Sorption of Binary Solutions by the Vulcanized Rubber of Sodium Butadiene Caoutchouc

PERIODICAL: Tr. khim. fak. Belorussk. un-t, Minsk, 1960, pp. 65-73

TEXT: A dynamical method was developed for studying the distribution of a binary mixture of the solvent - non-solvent type between a polymer and a solution. The polymer powder is placed into a column and saturated by the solvent. Then from above the non-solvent is poured over, and the composition of the fractions, sampled successively, of the solvent coming out from the column is determined. The equations are derived for calculating the equilibrium curves. The method is checked at the following systems: vulcanized rubber of sodium butadiene caoutchouc - benzene - ethyl-alcohol and vulcanized rubber - benzene- n-butyl-alcohol. The equilibrium curves obtained agree with the curves obtained earlier (RZhKhim, 1955, No. 14, # 28699) by the static method. The dynamic method is somewhat less precise

Card 1/2

S/081/60/000/022/015/016
A005/A001

The Dynamical Sorption of Binary Solutions by the Vulcanized Rubber of Sodium Butadiene Caoutchouc

than the static one, but it makes it possible to estimate quickly the distribution of low-molecular components between the polymer and the binary solution.

I. Slonim

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

86151

5.5600   2209, 1282   S/065/60/000/009/005/006/XX
          1274   E194/E184

AUTHORS: Starobinets, G.L., and Tikavyy, V.F.

TITLE: The Separation of Mixtures of Aromatic and Aliphatic
            Hydrocarbons by Means of Butadiene-Nitrile Co-polymers

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1960, No. 9,
            pp. 16-19

TEXT: Previous work has shown that rubberlike polymers and
co-polymers may find extensive application as selective sorbents
and they may be used in several kinds of distributive and
adsorption chromatography. In order to study the influence of
the chemical composition of rubberlike polymer on the sorption
properties work was done with resins based on butadiene-nitrile
co-polymers containing 18, 26 and 40% nitrile acrylic acid.
The binary solutions were of the type solvent/polar non-solvent,
the specific energy of cohesion of which was greater than that of
the polymer (in the present work benzene-aliphatic alcohols), and
systems of the type solvent/non-polar non-solvent, the specific
energy of cohesion of which is less than that of the polymer
(benzene-aliphatic hydrocarbons). Experimental data obtained for
Card 1/3

86151

S/065/60/000/009/005/006/XX
E194/E184

The Separation of Mixtures of Aromatic and Aliphatic Hydrocarbons
by Means of Butadiene-Nitrile Co-polymers

typical systems of benzene-methanol and benzene-hexane are given
in Figs 1-3 as equilibrium curves. Fig.1 shows that as the content
of nitrile in the polymer increases the asymmetry of the
equilibrium curve decreases in the system polymer-benzene-methanol.
Fig.2 shows that in the benzene-hexane system there is also a
clearly expressed selective sorption of benzene. In this system
as the nitrile content is increased in the co-polymer the sorption
potential of benzene increased; this is explained by reference to
Fig.3 which shows curves of partial sorption of hexane and
methanol from the systems benzene-hexane and benzene-methanol.
Various theoretical considerations are given. It is concluded
that nitrile co-polymers with a high nitrile content are
excellent sorbents for various kinds of separation of mixtures of
aromatic and aliphatic hydrocarbons. Increase in the molecular
weight of the aliphatic hydrocarbons should increase the efficiency
of separation. The conclusion is confirmed by the experimental
data. It is to be concluded that butadiene-nitrile co-polymers

Card 2/3

86151

S/065/60/000/009/005/006/XX
E194/E184

The Separation of Mixtures of Aromatic and Aliphatic Hydrocarbons by Means of Butadiene-Nitrile Co-polymers

should be used to separate aromatic hydrocarbons from petroleum distillates and for their quantitative determination.

There are 3 figures and 8 references: 4 Soviet and 4 non-Soviet.

ASSOCIATION: Institut nefti i gaza AN UzSSR
(Institute of Petroleum and Gas, AS UzSSR)

Card 3/3

S/075/60/015/004/006/030/XX
B020/B064

AUTHORS: Starobinets, G. L. and Povarkov, E. V.

TITLE: Partition Chromatography of Aromatic Hydrocarbons on
              Rubber-like Polymers

PERIODICAL: Zhurnal analiticheskoy khimii, 1960, Vol. 15, No. 4,
              pp. 405 - 408

TEXT: Hydrophobic carrier substances, such as crude and vulcanized
rubber, as well as benzene and n-heptane were successfully used as steady
phases in partition chromatography for separating some mixtures of polar
organic compounds (sebacic acids, nitrotoluenes, etc). Since it is
difficult to find a carrier whose adsorption may be entirely neglected,
the attempt was made to use rubber-like polymers as steady phases; in
this connection it was found that the latter are selective solvents for
hydrocarbons, and that equilibrium is quickly established, especially
when loosely linked and unfilled polymers are used. In the present
investigation, the chromatographic method of separating mixtures of
aromatic hydrocarbons is used, which is based upon the distribution of the

Card 1/4

Partition Chromatography of Aromatic Hydro-   S/075/60/015/004/006/030/XX
carbons on Rubber-like Polymers   B020/B064

constant volume concentration of alcohol. These diagrams are straight
lines for the system methanol - water - toluene whose angle of inclination
depends on the volume concentration of alcohol in the ternary mixture.
The calibration diagram:angle of inclination of the straight line as a
function of the volume concentration of alcohol is also plotted. All
calibration diagrams (Fig. 2) were plotted at $22 \pm 0.5°$. Fig. 3 shows the
calibration diagrams characteristic of a benzene-toluene-n-xylol-mesi-
tylene mixture. The mean error of determination is not higher than 5%.
Table 2 gives the mobility of the hydrocarbons and also the distribution
coefficients for benzene and toluene determined therefrom. A considerably
higher ratio of the cross sections for the steady and mobile phases can
be attained as compared with silica gel and other carriers when polymers
are the steady phase; thus, an increase in the selectivity of separation
is possible. The method suggested is suited for analyzing hydrocarbons in
petroleum distillates. This paper was read in the Section of Analysis of
the VIII Mendeleyevskiy s"yezd (VIII Mendeleyev Congress) on March 21,
1959. There are 3 figures, 2 tables, and 7 references: 2 Soviet, 2 US,
1 British, 1 Polish, and 1 Dutch.

Card 3/4

Partition Chromatography of Aromatic Hydro-   S/075/60/015/004/006/030/XX
carbons on Rubber-like Polymers   B020/B064

ASSOCIATION: Belorusskiy gosudarstvennyy universitet im. V. I. Lenina,
             Minsk (Belorussian State University imeni V. I. Lenin,
             Minsk)

SUBMITTED: June 2, 1959

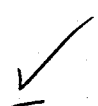Card 4/4

S/069/60/022/02/023/024
D034/D002

5(

AUTHORS: Starobinets, G.L., Barkan, A.S.

TITLE: Nikolay Fedorovich Yermolenko (60 Years Old and 36 Years of Scientific, Pedagogical and Social Work).

PERIODICAL: Kolloidnyy zhurnal, 1960, Vol XXII, Nr 2, pp 259-260 (USSR)

ABSTRACT: This article was written on occasion of the sixtieth birthday (January 29, 1960) and the thirty-sixth anniversary of the beginning of the scientific, pedagogical and public career of Nikolay Fedorovich Yermolenko. From 1930 the scientist is the head of the Kafedra obshchey i neorganicheskoy khimii Belorusskogo universiteta (Chair of General and Inorganic Chemistry of the Belorusskiy University). In 1932 he organized the Kolloidnaya laboratoriy (Colloidal Laboratory) at the Akademiya nauk BSSR (AS of the

Card 1/4

S/069/60/022/02/023/024
D034/D002

Nikolay Fedorovich Yermolenko (60 Years Old and 36 Years of Scientific, Pedagogical and Social Work).

Belorusskaya SSR), which is also under his guidance up to the present day. The scientific interests of N.F. Yermolenko comprise a wide range of subjects. In addition to works on colloidal chemistry, the physical chemistry of high polymers and the adsorption from solutions - the article gives more detailed information on the achievements in these fields which were the main object of interest to the scientist-, N.F. Yermolenko and his followers carried out investigations on general, inorganic and applied chemistry, and also on the history of chemistry - in all more than 200 works. The scientist also took part in the development of a number of branches of the chemical industry of the Belorusskaya SSR. N.F. Yermolenko trained many scientists and founded a

Card 2/4

S/069/60/022/02/023/024
D034/D002

Nikolay Fedorovich Yermolenko (60 Years Old and 36 Years of Scienti-
fic, Pedagogical and Social Work).

scientific school, whose representatives teach and
develop the chemical science at the Akademy of
Sciences of the BSSR, the Belorusskiy University and
a number of other scientific research institutes and
vuzes of the republic. The public activites of the
scientist are also remarkable. For many years he
has had the leading position at the Minskoye otdelen-
iye Mendeleyevskogo obshchestva (Minsk Section of the
Mendeleyev Society), and he is a permanent member
of the Minsk Oblastnoy Sovet deputatov trudyashchikh-
sya (Minsk Oblast' Council of the Worker Deputies)
of the last four convocations. N.F. Yermolenko
was awarded the Order of Lenin, two orders of the
Trudovoye Krasnoye Znamya (Red Banner of Labor), the
medal "Za doblestnyy trud v Velikoy Otechestvennoy

Card 3/4

S/069/60/022/02/023/024
D034/D002

Nikolay Fedorovich Yermolenko (60 Years Old and 36 Years of Scientific, Pedagogical and Social Work).

> voyne" ("For valiant labor in the Great Patriotic War"), and the Pochetnaya gramota Verkhovnogo Soveta BSSR (Diploma of the Supreme Council of the Belorusskaya SSR). He also received the honorary title of Zasluzhennyy deyatel' nauki BSSR (Honored Scientist of the Belorusskaya SSR), There is 1 photograph.

Card 4/4

Sulfo Cation Exchangers Based on   78230
Polybutadienes   SOV/80-33-3-31/47

            elution column. There are 4 figures; and 9 refer-
            ences, 1 U.S., 1 German, and 7 Soviet. The U.S.
            reference is: J. Phys. Chem., 58, 456 (1954).

ASSOCIATION: Minsk, The V. I. Lenin Belorussian State University
                (Minsk, Belorusskiy gosudarstvennyy universitet imeni
                V. I. Lenina)

SUBMITTED: June 24, 1959

Card 2/2

STAROBINTS, G.L., prof., red.; NAYDOVICH, A.N., red.; BELEN'KAYA, I.Ye.,
tekhn. red.

[Sorption from solutions by high polymers and carbons] Sorbtsiia iz
rastvorov vysokopolimerami i ugliami. Minsk, Izd-vo Belgosuniv.,
1961. 151 p.   (MIRA 14:9)
      (Sorption)   (Polymers)   (Carbon)

BOL'SHOVA, T.A.; STAROBINETS, G.L.

    Partition chromatography of hydrocarbons from solid petroleum
    paraffins on carbamide. Khim. i tekh. topl. i masel 6 no.5:17-21
    My '61.   (MIRA 14:5)

    1. Belorusskiy gosudarstvennyy universitet im. V.I. Lenina.
       (Hydrocarbons—Analysis) (Urea)

STAROBINETS, G.L.; MECHKOVSKIY, S.A.

Chromatographic separation of halide ions. Zhur.anal.khim. 16
no.3:319-322 My-Je '61.   (MIRA 14:6)

1. V. I. Lenin Byelorussian State University, Minsk.
                    (Halides)

STAROBINETS, G.L.; MARTINCHIK, G.S.

Separation of mixtures of alkali metal ions and isolation of
magnesium by eluent chromatography. Zhur.anal.khim. 16
no.5:538-543 S-O '61.   (MIRA 14:9)

1. Institut of General and Inorganic Chemistry, Academy of
Sciences, Byelorussian S.S.R., Minsk.
        (Alkali metals--Analysis) (Magnesium--Analysis)

AUTHORS: Starobinets, G. L. and Tikavyy, V. F.

TITLE: Sorption of binary solutions by butadiene nitrile copolymers

PERIODICAL: Kolloidnyy zhurnal, v. 23, no. 1, 1961, 112-117

TEXT: The sorptive properties of rubber on the basis of butadiene nitrile copolymers containing 18, 26, and 40% acrylonitrile were studied. The butadiene nitrile copolymers contained 2% sulfur, 1.5% stearic acid, 1.5% Captax, and 5% ZnO per 100% by weight of the copolymer. Vulcanization at 143°C and 3 atm lasted for 40 minutes. The authors used as binary systems: 1) a system of a solvent and a polar non-solvent with higher specific cohesion energy than that of the polymer; 2) a system of a solvent and a non-polar non-solvent with a specific cohesion energy lower than that of the polymer. To the first kind of systems belong mixtures of aromatic hydrocarbons with aliphatic alcohols, to the second kind mixtures of aromatic hydrocarbons with aliphatic hydrocarbons. The systems of the first kind were analyzed by extraction of the samples, study of the total and of the partial sorption isothermal lines of the components,

Card 1/7

and by means of an interferometric technique, whereas the systems of the second kind were analyzed with the help of an ИРФ-23 (IRF-23)-type refractometer. The experimental data obtained for typical systems are shown in Figs. 1-3 in the form of curves of the molar fraction of the non-solvent in the polymeric phase (N_2^p), of the molar fraction of the non-solvent in the equilibrium binary solution (N_2), and in the form of curves of the total sorption $Q = f(N_2)$ and of the partial sorption of the non-solvent $Q_2 = f(N_2)$. The experiments were carried out in an air thermostat with a propeller mixer and a contact thermometer; temperature fluctuations did not exceed $\pm 0.5^\circ C$. The distribution coefficients of the components between the polymeric and the solution phase were calculated from the initial slopes of the equilibrium curves:

$$K_1 = (dN_1^p/dN_1)_{N_1 \to 0}; \quad K_2 = (dN_2^p/dN_2)_{N_2 \to 0};$$

in the same way, the sorption potentials of the components in calories per mole were calculated: $\psi_1 = RT \ln K_1$; $\psi_2 = RT \ln K_2$. The results obtained

Card 2/7

Sorption of binary solutions ...

S/069/61/023/001/007/009
B124/204

for the system benzene-methanol at 25 and 50°C were used as an example.
The distribution coefficient of the solvent and its sorption potential in
the system of solvent and polar non-solvent are determined by the flexibili-
ty of the polymer chain. The latter decreases when going over from
butadiene rubber to a copolymer with a nitrile content of 40%, whereas in
a system of a solvent and a non-polar non-solvent the sorption potential
of benzene rises with the concentration of the nitrile groups in the co-
polymer. Konovalov and Vrevskiy are mentioned. There are 3 figures,
1 table, and 8 references: 5 Soviet-bloc and 5 non-Soviet-bloc.

ASSOCIATION: Belorusskiy universitet im. V. I. Lenina, Khimicheskiy
fakul'tet, Minsk (Belorussian University imeni V. I. Lenin,
Division of Chemistry, Minsk)

SUBMITTED: July 1, 1959

Card 3/7

STAROBINETS, G.L.; SEDNEV, M.P.

Use of the reaction isotherm in elution chromatography. Dokl. AN
BSSR 6 no.3:172-176 Mr '62.   (MIRA 15:3)

1. Institut obshchey i neorganicheskoy khimii AN BSSR. Predstavleno
akademikom AN BSSR M.M.Pavlyuchenko.
                          (Chromatographic analysis)

STAROBINETS, G.L. [Starobinets, H.L.]; SOLDATOV, V.S. [Saldatau, V.S.]

Thermodynamic function of ion-exchange equilibria. Vestsi
AN BSSR. Ser. fiz.-tekh. nav. no.3:69-74 '62.   (MIRA 18:3)

STAROBINETS, G.L.; SOLDATOV, V.S.

Thermodynamics of ion exchange. Dokl.AN BSSR 6   no.4:233-236
Ap '62.
                                              (MIRA 15:4)

1. Belorusskiy gosudarstvennyy universitet imeni V.I.Lenina.
Predstavleno akademikom AN BSSR N.F.Yermolenko.
            (Ion exchange)   (Thermodynamics)

ACCESSION NR: AT4001413   S/3029/63/000/000/0020/0024

AUTHOR: Martinchik, G. S.; Starobinets, G. L.

TITLE: Sorption of alkali metals by ion-exchange in zirconium polyphosphate

SOURCE: Ionoobmen I sorbtsiya iz rastvorov. Minsk, 1963, 20-24

TOPIC TAGS: chromatographic analysis, column chromatography, ion exchange, cation exchange, adsorption, sorption, selective adsorption, cation separation, alkali metal cation, synthetic cation exchanger, inorganic cation exchanger, zirconium polyphosphates, inorganic polymer, preparation, ion exchange equilibrium, equilibrium constant, temperature dependence, ion exchanger composition

ABSTRACT: In view of the lack of information in the literature on ion exchange on inorganic cation-exchange resins, the authors studied the effect of temperature on the selectivity of the equilibrium exchange between ammonium ions and the alkali metals (Li, Na, K) between 0 and 90C, at $\mu/= 0.1$, on zirconium polyphosphate obtained from either zirconyl nitrate or zirconyl chloride by the method of Larsen (J. Phys. Chem. v. 64, no. 11, 1960). The polyfunctional resins obtained from the nitrate and the chloride had molar ratios (ZrO_2/P_2O_5) of 1.3 and 1.24, and exchange capacities of 4 and 3.24 meq/g, respectively. The results presented in Figs. 1, 2 and 3 of the Enclosure show that the selectivity co-

Card   1/6

ACCESSION NR: AT4001413

'efficients were significantly affected by both the temperature and the composition of the ion-exchange phase; both the selectivity coefficient per se and the effect of temperature were greater for the resin obtained from the chloride. The results indicate that the ammonium form of zirconium polyphosphate may be useful in the chromatographic separation of the alkali metals. Orig. art. has: 3 figures.

ASSOCIATION: none

SUBMITTED: 00   DATE ACQ: 21Nov63   ENCL: 04

SUB CODE: MA, CH   NO REF SOV: 002   OTHER: 005

Card   2/6

STAROBINETS, G.L. [Starobinets, H.L.]; DUBOVIK, T.L.

Selectivity of anion exchange on highly basic ion-exchange resins.
Vestsi AN BSSR. Ser. Fiz.-tekh. nav. no.2:48-52 '63.   (MIRA 17:1)

L 11054-63   EWT(m)/BDS—ASD—RM

ACCESSION NR: AP3000473   S/0153/63/006/001/0068/0071

AUTHOR: Soldatov, V. S.; Starobinets, G. L.

TITLE: Investigating the temperature dependence of the apparent equilibrium constants of ion exchange processes

SOURCE: Izv. VUZ: Khimiya i khim. tekhnologiya, v. 6, no. 1, 1963, 68-71

TOPIC TAGS: ion exchange equilibrium, ion exchange resins, thermodynamic constants, apparent equilibrium constants, Li separation, alkali metals, ion exchange

ABSTRACT: The ion exchange equilibrium was studied in sulfonated styrene ion exchange resins containing 6.5, 10.5, and 25% divinylbenzene (DVB) at 0.1, 25, 60 and 90 degrees for Li-H and Ca-H ions; the thermodynamic and apparent equilibrium constants were calculated. These were found dependent on temperature, degree of resin netting and phase of the ion exchanger. For Ca the equilibrium constant decreased with temperature increase and increased with DVB increase, k always greater than 1; for Li decreases noticeably with temperature decrease, k always less than 1. For example, at 90 degrees in resin containing 6.5% DVB, the apparent equilibrium constants for Cs and Li, k = 2.6 and 0.81 respectively; at 0 degrees, 25% DVB, the separation is more than 200 to 1. This phenomenon offers a means of separating Li from other alkali metals by ion exchange.

Card 1/2,   Belorussian State University

SOLDATOV, V.S.; STAROBINETS, G.L.

Study of the thermodynamic functions of ion exchange processes.
Izv. vys. ucheb. zav.; khim. i khim. tekh. 6 no.3:420-424 '63.
(MIRA 16:8)

1. Belorusskiy gosudarstvennyy universitet imeni Lenina, kafedra
analiticheskoy khimii.
(Ion exchange)   (Thermodynamics)

S/250/63/007/002/007/008
A059/A126

AUTHORS: Starobinets, G. L., Novitskaya, L. V.

TITLE: The swelling pressure of ionites

PERIODICAL: Doklady Akademii nauk BSSR, v. 7, no. 2, 1963, 103 - 105

TEXT: A systematic investigation was performed on the swelling properties
of sulfonated polystyrene ionites with different degrees of crosslinking which
contain H^+, Li^+, Na^+, K^+, Rb^+, Cs^+, Ag^+, and Tl^+ as the opposed ions in the
binary mixtures water - acetone, water - methanol, and water - dioxane. The
isotherms of total swelling and those of the sorption of water and the organic
component were determined as well as the distribution of the components between
the phase of the ionite and that of the solution in the whole system character-
ized by the curves: molar portion of the organic component in the ionite phase
(N_2^i) - molar portion of the same component in the equilibrium solution phase (N_2).
The asymmetry of the distribution curve and, consequently, the selective sorption
of water increase with the increasing degree of crosslinking of the ionite, and
the selective water absorption decreases with the increasing degree of hydration

Card 1/3

The swelling pressure of ionites

of the opposed ion. The swelling pressure can be calculated from thermodynamic
values using the equation:

$$\pi \overline{V} = RT \ln \frac{p}{p_0} - RT \ln \overline{a}_w,\qquad (1)$$

where p/p_0 is the relative tension of water vapor (or the activity of water) in
the external solution, $\overline{a}_w$ the activity of water in the ionite phase, π the swel-
ling pressure, and $\overline{V}$ the partial molar volume of water. Since the activity of
water in the ionite phase is unknown, the simplified equation:

$$\pi = \frac{RT}{\overline{V}} \ln \frac{p}{p'},\qquad (2)$$

was used, where p' is the vapor tension above the ionite with a low degree of
crosslinking. The value of π calculated from equation (2) represents therefore
not the total swelling pressure, but only its component due to the lattice
stress. The calculated boundary values of the swelling pressures for the ca-
tionites KУ-2 (KU-2) show linear variation with the degree of crosslinking,
being 2,000 atm for its hydrogen form, and the zeroth degree of crosslinking in-

Card 2/3

The swelling pressure of ionites

creasing by 70 atm when the styrene content in the polymer is raised by 1%. Thus, the total swelling pressure is found to be equal to the sum of two components, one due to the primary hydration of the moving ions and the other to the stress in the lattice. There are 2 figures.

ASSOCIATION: Belorusskiy gosudarstvennyy universitet im. V. I. Lenina (Belo-russian State University imeni V. I. Lenin)

PRESENTED: by N. F. Yermolenko, Academician of the AS BSSR

SUBMITTED: June 27, 1962

Card 3/3

STAROBINETS, G.L.; MECHKOVSKIY, S.A.

Partition chromatography on ion exchangers. Report No.2:
Separation of halogenate and halogenide ions. Zhur. anal.
khim. 18 no.2:255-260 F '63.

(MIRA 17:10)

1. Lenin White Russian State University, Minsk.

STAROBINETS, G.L.; MECHKOVSKIY, S.A.

Partition chromatography on ion exchangers. Report No.3:
Separation of anions oxidizers. Zhur. anal. khim. 18
no.3:298-303 Mr'63.   (MIRA 17:5)

1. Belorusskiy gosudarstvennyy universitet imeni Lenina,
Minsk.

STAROBINETS, G.L.; NOVITSKAYA, L.V.

Swelling of ion exchangers in binary solutions. Part 1: Factors influencing the selective sorption of water. Koll.zhur. 25 no.6:689-694 N-D '63.
(MIRA 17:1)

1. Belorusskiy universitet imeni V.I.Lenina, Minsk.

S/076/63/037/002/005/018
B101/B186

Thermodynamics of the ion ...

by the "negative near hydration" of these ions leading to a stronger binding between cation and ionite and to the formation of ion pairs. This is also confirmed by the different coefficient of selectivity $K_{H^+}^{M^+}$ with poor filling. With 0.1 filling and $0°C$, $K_{H^+}^{M^+}$ is for $Cs^+ \sim 7.3$, $Rb^+ \sim 5.0$, $K^+ \sim 3.0$, $Na^+ \sim 1.5$, and $Li^+ \sim 0.8$. With 0.9 filling, all $K_{H^+}^{M^+}$ approach the value ~ 1.6, except Li^+ (~ 0.5). In dilute solution, the activity coefficients are for K^+, Rb^+, Cs^+ lower than for Li^+ and Na^+. The concept of O. Ya. Samoylov (Struktura vodnykh rastvorov elektrolitov i gidratatsiya ionov [Structure of aqueous electrolyte solutions and hydration of ions], Izd-vo AN SSSR, M., 1957, 76) on the hydration of the ions as statistic process is important for the interpretation of the selectivity of the ion exchange. There are 4 figures and 1 table.

ASSOCIATION: Belorusskiy gosudarstvennyy universitet im. V. I. Lenina (Belorussian State University imeni V. I. Lenin)

SUBMITTED: July 20, 1961

Card 2/4

Thermodynamics of the ion ...

S/076/63/037/002/005/018
B101/B186

		Rb⁺ — H⁺			
273,3	2,84	—568	—1972	—1404	—5,2
298,2	2,05	—424	—1601	—1177	—4,0
333,2	1,65	—333	—1284	— 953	—2,9
363,2	1,44	—263	—1184	— 921	—2,6
		Cs⁺ — H⁺			
273,3	3,23	—647	—1997	—1350	—5,1
298,2	2,30	—495	—1568	—1073	—3,7
333,2	1,90	—378	—1300	— 922	—2,9
363,2	1,61	—344	—1200	— 856	—2,5

Card 4/4

L 42175-66   EWP(j)/EWT(m)   IJF(c)   RM/DS

SOURCE CODE: UR/0081/65/000/019/S081/S081

ACC NR: AR6014535

AUTHORS: Starobinets, G. L.; Dubovik, T. L.

TITLE: Effect of the polymer structure upon selective properties of the derived ion exchanger

SOURCE: Ref. zh. Khimiya, Abs. 19S508

REF SOURCE: Sb. Geterogen. reaktsii i reakts. sposobnost'. Minsk, Vyssh. shkola, 1964, 14-19

TOPIC TAGS: polymer structure, ion exchange resin, synthetic rubber, sulfonation

ABSTRACT: The preparation of ion exchange resins was undertaken by: 1) sulfonation with 98% H_2SO_4 at 97--98C of chloroprene rubber, stretched to the limit and maintained at this state for 2 months and of chloroprene rubber kept at 150C for 3 days and cooled to -20C for 1 month (annealed rubber); and 2) sulfonation with chlorosulfonic acid at -20C of chloroprene rubber maintained in a stretched state. Exchange capacities for NaCl and NaOH and degree of swelling of all produced samples of ion exchangers were investigated. The selectivity of the equilibrium exchange of H^+--Li^+, H^+--Na^+, H^+--K^+ on resins obtained by sulfonation of polymers with 98% H_2SO_4 was also studied, as was the selectivity of the H^+--Na^+ exchange on the resin obtained from stretched chloroprene rubber by sulfonation with chlorosulfonic acid.

Card 1/2

0

It was shown that selectivity of ionic exchange is related to the structure of the polymer from which the exchanger was prepared. Selectivity is poorer in the case of unc stretched and of the annealed chloroprene rubber, the stretched exhibited better selectivity of exchange. Exchange selectivity of ion exchanger obtained by chlorosulfonic acid sulfonation of rubber maintained in a stretched state corresponds to all practical purposes, with the selectivity exhibited by exchange resin produced by H_2SO_4 sulfonation of that rubber. N. Shamis /Translation of abstract/

SUB CODE: 11, 07

Card 2/2

L 40963-66   EWT(m)   RM/DS

ACC NR: AR6016970   SOURCE CODE: UR/0081/65/000/024/S073/S073

37
B

AUTHOR: Sednev, M. P.; Starobinets, G. L.

TITLE: Effect of heat treatment on selective properties of sulfocationites

SOURCE: Ref. zh. Khimiya, Abs. 24S511

REF SOURCE: Sb. Geterogen. reaktsii i reakts. sposobnost'. Minsk, Vyssh. shkola, 1964, 20-25

TOPIC TAGS: ion exchange resin, polymer structure, desulfurization, heat resistance, Sulfone

ABSTRACT: A method was worked out for thermally desulfurizing ion exchange resins under conditions of rigid thermostatic control and continuous removal of the desulfurization products with a stream of superheated steam in the absence of contacting the ionite with atmospheric oxygen. This makes it possible to obtain an ionite with a specified sulfo group content with maximum retention of all other properties. It was observed that the exchange capacity and the degree of swelling decrease in the heat treating process but the bound sulfur content increases, apparently due to the formation of sulfone bridges.

Card 1/2

L 40963-66

ACC NR: AR6016970   0

It was shown that cationite KU-2x6 has greater heat stability than
cationite KU- /Translator's Note: Latter part of designation
illegible/. Cationite KU-2x6 in the Na-form is completely stable to
225-230°. The density of the ionite decreases during desulfurizing
while the density, in relation to the same number of sulfo groups in
the original and heat treated cationite, increases. This indicates
packing of the ionite structure during heat treatment. N. Shamis.
/Translation of abstract/.

SUB CODE: 11,07

Card 1/2 /DLP

STAROBINETS, G.L.; NOVITSKAYA, L.V.

Swelling of ion exchangers in binary solutions. Part 2: Swelling
pressure of ion exchangers. Koll.zhur, 26 no.1:105-109 Ja-F
'64.   (MIRA 17:4)

1. Belorusskiy universitet imeni Lenina, Minsk.

SOLDATOV, V.S.; STAROBINETS, G.L.

Thermodynamics of ion exchange on sulfonated copolymers of styrene and divinylbenzene. Part 4. Zhur. fiz. khim. 38 no.6: 1523-1529 Je '64.
(MIRA 18:3)

1. Belorusskiy gosudarstvennyy universitet, Minsk.

STAROBINETS, G.L.; SOLDATOV, V.S.

Thermodynamics of ion exchange on sulfonated copolymers of styrene and divinylbenzene. Part 3. Zhur. fiz. khim. 38 no.4:992-995 Ap '64.   (MIRA 17:6)

1. Belorusskiy gosudarstvennyy universitet.

L 11300-65   EWT(m)   Po-4   ESD(gs)/ASD(d)/AFWL/ASD(a)-5/SSD/ASD(p)-3/ASD(m)-3/
AFETR/AS(mp)-2/AEDC(a)   RM
ACCESSION NR: AP4041753   S/0076/64/038/006/1523/1529

AUTHOR: Soldatov, V. S. ; Starobinets, G. L.

TITLE: Thermodynamics of ion exchange on sulfonated styrene -- divinylbenzene
copolymers. IV Activity coefficients of resinates.

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 6, 1964, 1523-1529

TOPIC TAGS: activity coefficient, ion exchange, lithium, cesium, silver, thallium,
standard state, thermodynamics

ABSTRACT: The purpose of this study was to calculate the activity coefficients and
to analyze the obtained results. In choosing a standard state a condition was
imposed -- that the standard state must be such that resinates with the same acti-
vity coefficients would be equivalent energywise and that their mixing would not
lead to change of the energy of the system. Consequently, in the standard state

$$\Delta F^O = -RT \ln K = 0$$

where F^O is Gibbs free energy and K is the thermodynamic equilibrium constant.
With such a condition one could determine only the ratio of activity coefficients,

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L 11300-65
ACCESSION NR: AP4041753

and consequently it becomes necessary to choose a "standard" resinate with respect to which one could conduct the calculation of activity coefficients. Since in this case the exchange always involves H^+ ion, then it was convenient to choose the swollen ionite in H^+ form as the standard state. The authors calculated the activity coefficients of mixed resinates M^+ —— H^+ for all simple monovalent metal cations which are stable in aqueous solutions: Li, Na, K, Rb, Cs, Ag and Tl. The main relationships of the activity coefficients have been established as a function of temperature, lattice structure and composition of resins. It was found that temperature increase, decrease in the lattice structure and decrease of the difference between the sizes of exchanging ions always lead to the formation of more ideal resinate. Orig. art. has: 4 figures

ASSOCIATION: Belorusskiy gosudarstvennyy universitet (Belorussian State University)

SUBMITTED: 18Jun63   ENCL: 00

SUB CODE: IC, TD   NO REF SOV: 007   OTHER: 005

Card 2/2

L 29102-65   EWT(m)/EWG(m)   RM/RWH/JD/JW

ACCESSION NR: AP5004351

s/0076/65/039/001/0030/0034

AUTHORS: Soldatov, V. S. (Minsk); Starobinets, G. L. (Minsk)

TITLE: Thermodynamics of ion exchange on sulfonated styrene and divinylbenzene copolymers. 5. On the possibility of simulating an ion-exchange process

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 1, 1965, 30-34

TOPIC TAGS: copolymer, electrolyte, ionic charge, entropy, enthalpy, equilibrium constant, simulation test

ABSTRACT: An attempt was made to simulate a concentrated electrolyte solution ion-exchanger containing various types of ions. The exchange process in this model is represented by $(I_1{}^+A^-)_{c_1} + (I_2{}^+)_\infty \rightleftharpoons (I_2{}^+A^-)_{c_2} + (I_1{}^+)_{\infty}$, and expressions are given for entropy change and total enthalpy change in the exchange process. The ion-exchanger selected was 6.5% divinylbenzene. The list of the cations, anions, and the electrolyte activation coefficients is given in a table. The results show that different electrolytes have various activation coefficients and have different departures from the ideal case. The entropy, enthalpy, free energy change, and the activation coefficient (equilibrium constant) ratio are then compared with the experimental values. The agreement is found to be generally poor. For each electrolyte, an

Card 1/2

L 29102-65

ACCESSION NR: AP5004351

agreement was found between some properties but not between the others. The general conclusion is that the simulation model is inadequate. Orig. art. has: 2 tables.

ASSOCIATION: Akademiya nauk BSSR, Institut obshchey i neorganicheskoy khimii (Academy of Sciences BSSR, Institute of General and Inorganic Chemistry)

SUBMITTED: 25Sep63   ENCL: 00   SUB CODE: GC, OC

NO REF SOV: 005   OTHER: 012

Card 2/2

Selectivity of the anion exchange of fatty acids of normal
structure. Vestsi AN BSSR. Ser. khim. navuk, no.4:67-72
'64.   (MIRA 18:3)

L 33322-65   EWT(m)/EWG(m)/EWP(t)/EWP(b)   IJP(c)   RWH/JD/JW/JG/RM
S/0076/65/039/001/0035/0039

ACCESSION NR: AP5004352

AUTHORS: Soldatov, V. S. (Minsk); Starobinets, G. L. (Minsk)

TITLE: On the thermodynamics of ion-exchange of sulfonated styrene-divinylacetylene copolymers

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 1, 1965, 35-39

TOPIC TAGS: ion exchange, styrene, copolymer, alkali metal, silver thallium, hydrogen, thermodynamic property, hydration, dielectric permeability, network density

ABSTRACT: Exchanges of alkali metal ions, of silver and thallium ions and of hydrogen ions were studied. Alkali ions fall into two subgroups. In the lithium and sodium subgroup the apparent equilibrium constants and thermodynamic functions are almost independent of ionic compositions: the coefficients of activity of the resinates are constant; function $T \Delta S^0 = f(\Delta H^0)$ remains unchanged; the swelling of the ionites is large and depends strongly on the ionic radius. In the potassium, rubidium, and cesium subgroup ion exchanges cause sharp drops of equilibria constants and of thermodynamic properties with the saturation of the

Card 1/3

L 33382-65

ACCESSION NR: AP5004352

resin by metallic ions; the coefficients of activity change considerably, and function $T \Delta S^0 = f(\Delta H^0)$, though constant within the group, differs from the function for lithium and sodium ions . The exchange of silver and thallium ions depends on their properties of strong polarizers and on the power of hydration which is strong in silver and weak in thallium. The exchanges of silver and hydrogen ions on resins of medium and high network densities depend on some factor which favors the decrease of apparent equilibrium constants with the saturation of the ionite by metallic ions. On low density networks this factor is practically absent. The binding is not entirely ionic and the interactions are not entirely coulombic. Decreases of dielectric permeability increase the interactions of ions. Changes of entropy are weakly negative or positive during silver hydrogen exchange. Thallium-hydrogen exchange is similar to the silver-hydrogen exchange, with a slight difference caused by the lack of hydration in thallium. In the ionite phase, lithium and sodium do not enter into ionic interaction, while potassium, rubidium, and cesium are partially bound to short ionic couples, and silver and thallium ions are bound to couples closely related to nondissociated molecules. Orig. art. has: 3 tables and 2 formulas.

ASSOCIATION: Akademiya nauk BSSR, Institut obshchey i neorganicheskoy khimii (Academy of Sciences BSSR, Institute of General and Inorganic Chemistry)

Card 2/3

L 33322 -65
ACCESSION NR: AP5004352

SUBMITTED: 30Sep63

NO REF SOV: 010

ENCL: 00

OTHER: 014

SUB CODE: GC, OC

Card 3/3

ROGINETS, G.I.; CHIZHEVSKAYA, A.B.; DUBOVIK, T.L.

Entropy of ion exchange with negative hydration. Vestsi AN BSSR.Ser.khim.nav. no.2:110-111 '65.

(MIRA 18:12)

SOLDATOV, V.S.; STAROBINETS, G.L. (Minsk)

Thermodynamics of ion exchange on sulfonated styrene and
divinylbenzene copolymers. Report No. 5. Zhur. fiz. khim.
39 no. 1:30-34 Ja '65   (MIRA 19:1)

Thermodynamics of ion exchange on sulfonated styrene and
divinylbenzene copolymers. Report 6. Ibid.:35-39.

Surface molecular properties of alpha-alkylthiophanes.
Ibid.:168-170.

1. Institut obshchey i neorganicheskoy khimii AN Belorusskoy
SSR. Submitted December 10, 1963.

STAROBINETS, G.L.; SEDNEV, M.P.; DUBOVIK, T.L.

Concentration and separation of small amounts of elements by eluent chromatography. Trudy Kom. anal. khim. 15:323-330 '65. (MIRA 18:7)

STAROBINETS, G.L.; MECHKOVSKIY, S.A.

Concentration of electrolyte impurities by means of salting-out reversed
chromatography. Trudy Kom. anal. khim. 15:346-352 '65.   (MIRA 18:7)

STAROBINETS. G.L.; KHAREVICH, O.F.

Some characteristics of molecular sorption on ion exchangers. Dokl. AN BSSR 9 no.8:516-519 Ag '65. (MIRA 18:10)

1. Institut obshchey i neorganicheskly khimii AN BSSR.

ROBINSON, C.I.; GIEM, I.F.

...exchange of weak organic electrolytes. Zhur. fiz. khim. 39
n.9.2188-2192 S '65.   (MIRA 18:10)

1. Institut obshchey i neorganicheskoy khimii AN BSSR.

SEDNEV, M.P.; STAROBINETS, G.L.; AKULOVICH, A.M.

Separation of strontium from calcium and magnesium by ion-exchange
chromatography. Zhur. anal. khim. 21 no. 1:23-27 '66
(MIRA 19:1)

1. Belorusskiy gosudarstvennyy universitet imeni Lenina i In-
stitut obshchey i neorganicheskoy khimii AN BSSR, Minsk.

ZLATOPOL'SKAYA, R.D.; STAROBINETS, G.M.; SHULICHENKO, A.I.; ROMASHKO,
    Yu.V.; KRASOVITSKAYA, A.M.

Experience in cupping foci of epidemic hepatitis in children's
preschool establishments. Vop.virus. 7 no.6:724-725 N-D '62.
                                                (MIRA 16:4)

1. Khar'kovskiy nauchno-issledovatel'skiy institut vaktsin i
syvorotok imeni Mechnikov, Ukrainskiy institut usovershenstvo-
vaniya vrachey i Khar'kovskaya gorodskaya sanitarno-epidemilogi-
cheskaya stantsiya.
            (HEPATITIS, INFECTIOUS)   (GAMMA GLOBULIN)

DIKENSHTEYN, G.Kh.; KUTUZOVA, V.V.; MASHRYKOV, K.K.; BABAYEV, A.G.;
POL'STER, L.A.; YUFEREV, R.F.; SHISHOVA, A.I.; BAREYEV,
R.A.; MAKAROVA, L.N.; MURADOV, K.; PYANOVSKAYA, I.A.;
SEMOV, V.N.; SIROTINA, Ye.A.; TURKINA, I.S.; FEL'DMAN,
S.L.; KHON, A.V.; KUNITSKAYA, T.N.; GOLENKOVA, N.P.;
ROSHINA, V.M.; FARTUKOV, M.M.; SHCHUTSKAYA, Ye.K.;
ALTAYEVA, N.V.; DYKADOROV, V.A.; KOTOVA, M.S.; SMIRNOV,
L.M.; IBRAGIMOV, M.S.; KRAVCHENKO, M.F.; MARKOVA, L.P.;
ROZYYEVA, T.R.; UZAKOV, O.; SLAVIN, P.S.; NIKITINA, Ye.A.;
MILOGRADOVA, M.V.; BARTASHEVICH, O.V.; STAROBINETS, I.S.;
KARIMOV, A.K.

[Splicing of the wires of overhead power transmission lines]
Soedinenie provodov vozdushnykh linii elektroperedachi. Mo-
skva, Energiia, 1964. 69 p. (Biblioteka elektromontera,
no.132)   (MIRA 17:9)

STAROBINETS, I. S.

"The Application of the Chromatographic Technique to Lumenescence-Capillary Analysis of Crude Oils and Asphalts" (Chemistry: Analytical) Izv. An Turkm. SSR, No. 5, 1953

Abs

W-31146, 1 Feb 55

·STAROBINETS., I.S.

D.

USSR/ Cosmochemistry. Geochemistry. Hydrochemistry

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11536

Author   : Starobinets I.S.
Inst   : Academy of Sciences Turkmen SSR
Title   : On Some Geochemical Characteristics of Petroleum of the Pribalkhanskiy
             Rayon

Orig Pub : Izv. AN Turkm SSR, 1956, No 1, 35-41

Abstract : Petroleum-bearing matter, conditions of sedimentation basin, rock litho-
             logy had no, or little effect upon the formation of different types of
             petroleum of the fields of the Pribalkhanskiy Rayon. This differentia-
             tion is connected primarily with secondary changes. Study of differen-
             ces in properties of fluids of various tectonic units of the same field
             supports the possibility of the occurence of oxidative processes under
             subterranean conditions, as a result of which the more cyclic bitumi-
             nous and oxidized petroleum is formed from those higher in methane.
             Discovery of ozocerite in districts of the occurence of practically pa-
             raffin-free petroleum in Western Turkmeniya in the form of stratified
             deposits supports the assumption that paraffin petroleum from which

X

STAROBINETS, I.S.

Role of the oxidation factor in the formation of main petroleum types of the Balkan region in western Turkmenia. Neft.khoz.34 no.8:54-57 Ag '56.   (Balkhan--Petroleum)   (MIRA 9:10)

STAROBINETS, I.S.; PARPIYEV, A.

Equilibrium constants of main petroleum Hydrocarbons. Izv. AN
Turk. SSR no.1:101-103 '57.   (MIRA 10:4)

1. Turkmenskiy filial Vsesoyuznogo nauchno-issledovatel'skogo
instituta.
                    (Hydrocarbons)

STAROBINETS, I. S. Doc Jand Chem Sci -- (diss) "Main types

of petroleum of Pribalkhanskiy Rayon ~~depression~~ (West Turk-
~~deposits~~
meniya) and geo-chemical characteristics of their distribution."

/Ashkhabad/, 1958. 12 pp 19 cm. (All-Union ~~Petroleum~~ Sci~~entific~~
(Geol Prospecting Petroleum) VNIGN I
~~Research~~ Inst. ~~for Geological Survey~~. Turkmen Affiliate of the

All-Union ~~Pe~~troleum ~~and~~ Gas Scientific Research Inst) TF VNII)

(KL, 21-57, 99)

-22-