

BUSLAYEV, Yu.A.; GORBUNOVA, Yu.Ye.; GUSTYAKOVA, M.P.

Zirconium and hafnium oxo-fluorides. Izv. AN SSSR Otd.khim.nauk
no.2:195-201 F '62. (MIRA 15:2)

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova
AN SSSR.

(Zirconium fluoride)

(Hafnium fluoride)

BUSLAEV, Yu.A., kand.khimicheskikh nauk

"Chemistry and technology of uranium fluorides" by N.P.Galkin
and others. Reviewed by IU.A.Buslaev. Khim.prom. no.3:226-227
Mr '62. (MIRA 15:4)
(Uranium fluorides) (Mayorov, A.A.) (Veryatin, U.D.)
(Sudarikov, B.N.) (Nikolayev, N.S.) (Shishkov, Yu.D.)
(Krutikov, A.B.)

35588

S/062/62/000/003/003/014
B110/B101

11.2130
5.2420
AUTHORS:

Buslayev, Yu. A., Bochkareva, V. A., and Nikolayev, N. S.

TITLE:

Reaction of titanium dioxide with hydrofluoric acid

PERIODICAL:

Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 3, 1962, 388-392

TEXT: The solubility of titanium dioxide in hydrofluoric acid, and the composition of the compounds formed in the solid phase and in solution were determined. The TiO_2 (~0.5 % impurities) dissolved in HF, was stirred, together with the solid phase, for 24 hrs at 25°C. In order to control the equilibrium obtained, saturated solutions of TiO_2 in HF were kept for three months in the exsiccator over KOH. When removing HF and H_2O from the solution, a solid phase was separated which was stirred in the thermostat together with the solution, and analyzed for Ti- and HF content. Ti was reduced by means of Zn-Hg, brought into ferric sulfate solution and titrated by means of $KMnO_4$. HF in the presence of Ti was determined

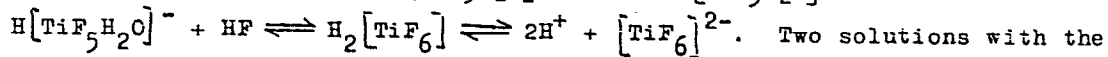
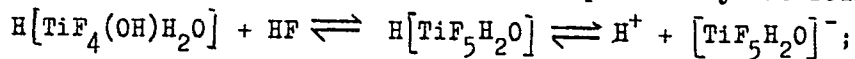
Card (13)

Reaction of titanium dioxide with...

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potentiometrically. To reduce the solubility of K_2TiF_6 , 4-6 ml C_2H_5OH were added besides KF. The solubility of TiO_2 increases almost linearly with the HF concentration. In saturated solutions, the molar ratio of fluorine varies between 4.01 and 4.33, as $[TiOF_4]^{2-}$ was formed in the solution. The first solid phase is about TiO_2 . At 25.95-39.60 % of HF, $TiOF_2 \cdot H_2O$ is formed. In a solution with the ratio F:Ti = 4, a change of the particle number from 1.45 to 1.22 was determined cryoscopically. Concentration dependence and dissociation point towards

$TiF_4 + 2H_2O \rightleftharpoons [TiF_4 \cdot 2H_2O] \rightleftharpoons H^+ + [TiF_4(OH)H_2O]$. The degree of dissociation of hydrated TiF_4 agrees with the electric conductivity of titanium solutions of the ratio F/Ti = 4.2. The steep rise of the molar conductivity with the ratio F:Ti is explained by the following equilibrium:



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35589

S/062/62/000/003/004/014
B110/B101

11.2130
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AUTHORS: Kharitonov, Yu. Ya., and Buslayev, Yu. A.

TITLE: Infrared absorption spectra of oxofluorides of some metals of the fourth and fifth group of the periodic system

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 3, 1962, 393-401

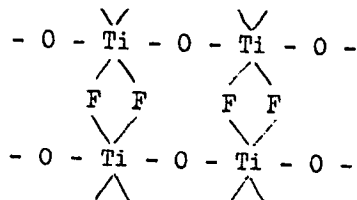
TEXT: The character of the metal-oxygen bonds in solid oxo-fluorides of titanium, zirconium, hafnium and vanadium was investigated on the following compounds: $TiOF_2 \cdot H_2O$, $VOF_2 \cdot H_2O$, $KNbOF_5 \cdot H_2O$, ZrO_2 , $Zr_4F_{10}(OH)_6 \cdot 3H_2O$, $Zr_4F_{10}(OH)_6 \cdot H_2O$, $Zr_4F_{10}O_3$, $ZrF_4 \cdot 3H_2O$, $ZrF_4 \cdot H_2O$, $Zr_4F_{14}O$, $ZrOF_2$, $KZrOF_2 \cdot 2H_2O$, $Hf_4F_{12}O_2$, $HfF_4 \cdot H_2O$, $Hf_4F_{12}O_2$, $HfF_4 \cdot H_2O$, $HfF_{14}O$, $HfOF_2$. K_2NbOF_5 was obtained by dissolving Nb metal in the aqueous mixture of HF and H_2O_2 and precipitation by KF addition. The infrared absorption spectra were obtained between $650-2000\text{ cm}^{-1}$. The wide band at

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Infrared absorption spectra of...

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$\sim 750-950 \text{ cm}^{-1}$ of $\text{TiOF}_2 \cdot \text{H}_2\text{O}$ was characteristic of the bond Ti-O-Ti-O-Ti , and was also present in $\text{TiOSO}_4 \cdot \text{H}_2\text{O}$. As a wide band is maintained for anhydrous TiOF_2 between $\sim 750-950 \text{ cm}^{-1}$, the following structure can be assumed.



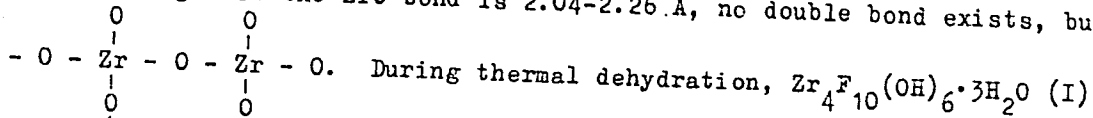
Since the frequency of the stretching vibrations is $< 950 \text{ cm}^{-1}$, the Ti-O bond is a double one. A TiO bond is also proved by the small TiO distance (1.78 \AA) in the crystal lattice of $[\text{TiCl}_2(\text{C}_2\text{H}_5)]_2\text{O}$, which corresponds to the TiO distance (1.80 \AA) in the crystal lattice of $\text{TiOSO}_4 \cdot \text{H}_2\text{O}$. For $\text{VOF}_2 \cdot 2\text{H}_2\text{O}$, two effects, corresponding to the loss of the two water

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Infrared absorption spectra of...

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molecules, exist in the thermograph. An intensive narrow band (1001 cm^{-1}) proves the stretching vibrations of the $\text{V}=\text{O}$ bond. As the force constant of the VO band is 7.2 mdyne/\AA , a multiple bond exists. The frequencies at 459 and 517 cm^{-1} correspond to VF bonds, those of $\sim 3163, 3331$ and 3500 cm^{-1} to the stretching vibrations in the water molecules. The NbOF_5^{2-} ion contained in the crystal lattice of $\text{K}_2\text{NbOF}_5 \cdot \text{H}_2\text{O}$ is presumably of octahedral structure, with the Nb atom in the center. An intensive narrow absorption band at 928 cm^{-1} corresponds to the NbO -bond, the intensive band at 1630 cm^{-1} to the $\delta(\text{H}_2\text{O})$. A multiple (≥ 2) bond in the NbO is also proved by the force constant of 6.9 mdyne/\AA . Since in the monoclinic zirconium dioxide each Zr -atom is surrounded by seven O -atoms and the length of the ZrO bond is $2.04\text{-}2.26\text{ \AA}$, no double bond exists, but



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Infrared absorption spectra of...

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loses two H₂O molecules \rightarrow Zr₄F₁₀(OH)₆·H₂O (II), which again loses water \rightarrow Zr₄F₁₀O₃ (III). Tetramers are presumed, and no ZrO double bonds in I. In II (\sim 875-975 cm⁻¹) and III (\sim 877 cm⁻¹), Zr=O double bond presumably exists. The force constants of Zr=O in III are 6.2 mdyne/Å. When heating ZrF₄·3H₂O (IV), water is separated and ZrF₄·H₂O (V) and then Zr₄F₁₄O (VI) are formed. In air ZrF₄O hydrolyzes to Zr₄OF₂ (VII). Dehydration of HZrF₅·4H₂O produces HZrF₅·4H₂O \rightarrow (V) \rightarrow (VI) \rightarrow (VII).

$O_3F_3Zr \begin{array}{c} \diagup F \\ \diagdown F \end{array} ZrF_3O_3$ exists in the crystal lattice of IV. No ZrO double bond

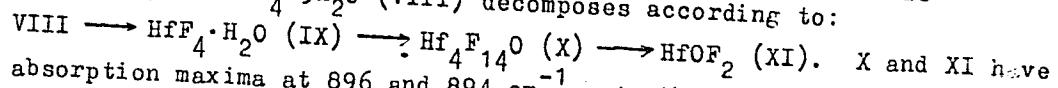
exists, only for VII (864 cm⁻¹) there exists the zirconyl group. The force constant of the ZrO bond is here 6.0 mdyne/Å. KZrOF₃·2H₂O has the ZrO double bond (absorption band at 833 cm⁻¹), force constant 5.6 mdyne/Å. The thermal decomposition of [Hf₄F₁₂(OH)₄·3H₂O]·2H₂O goes over to Hf₄F₁₂O₂ due

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Infrared absorption spectra of...

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to the gradual loss in water. A narrow band at 889 cm^{-1} corresponds to the stretching vibrations of the HfO group, the force constant is 6.8 mdyne/\AA . $\text{HfF}_4 \cdot 3\text{H}_2\text{O}$ (VIII) decomposes according to:



absorption maxima at 896 and 894 cm^{-1} . As the force constants are 6.9 mdyne/\AA , the HfO group is maintained during the X \longrightarrow XI transition. The stability of the MO bonds in oxofluorides increases:

$\text{Ti}(4+) < \text{Zr}(4+) < \text{Hf}(4+)$. The increased strength of the MO bond can be explained in terms of the theory of multiple bonds by M. Ye. Dyatkina et al. ((Zh. neorgan. khimii, 6, 575 (1961)). There are 4 figures and 2 tables. The most important reference to English-language publications is: C. G. Barraclough et al. J. Chem. Soc. 1959, 3552.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences USSR)

SUBMITTED: October 14, 1961

Card 5/5

NIKOLAYEV, N.S.; BUSLAYEV, Yu.A.; VLASOV, S.V.

Chemical methods of dehydration of hydrogen fluoride. Zhur.-
neorg.khim. 7 no.4:945-946 Ap '62. (MIRA 15:4)
(Hydrofluoric acid) (Dehydration (Chemistry))

BUSLAYEV, Yu.A.

Instability constants of complex zirconium fluorides. Zhur.-
neorg.khim. 7 no.5:1204-1206 My '62. (MIRA 15:7)
(Zirconium fluorides)

40139

S/078/62/007/007/011/013
B119/B101

5.2420

AUTHORS: Nikolayev, N. S., Buslayev, Yu. A., Gustyakova, M. P.

TITLE: Study of the interaction in the system HF - ZrF₄ - H₂O at 25°C

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 7, 1962, 1685 - 1692

TEXT: The solubility isotherm of the system HF - ZrF₄ - H₂O at 25°C in the HF concentration range between 0 and 70.49 % was studied. Using ZrF₄·3H₂O as solid initial phase and following the method of investigation described in an earlier paper by the two first-mentioned authors with J. V. Tananayev (Zh. neorgan. khimii, 1, 274 (1956)). At 25°C, the system shows the following solid phases: Zr₄O₃F₁₀·6H₂O at an HF concentration in the liquid phase of 0.51 - 7.26 % by weight; ZrF₄·3H₂O at 8.50 - 29.28 % HF; HZrF₅·4H₂O at 29.83 - 33.79 % HF; H₂ZrF₆·2H₂O at 33.79 - 70.49 % HF. The compound HZrF₅·4H₂O was analyzed by x-ray diffraction, thermography, and thermogravimetry. It shows endothermic effects at 60, 100, 125, 300, Card 1/2

Study of the interaction in the ...

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B119/B101

and 315°C explicable as follows: at 60°C one H₂O molecule is separated, at 100°C another and at 125°C a third in addition to an HF molecule, whereby the compound ZrF₄·H₂O is formed which is converted to Zr₄OF₁₄ at 300 - 315°C. The latter hydrolyzes by air moisture and ZrOF₂ is the final result. The dissociation of the acids HZrF₅ and H₂ZrF₆ was studied with the anion exchanger AH-2φ (AN-2f) using a method already described by the authors (Izv. Sibirek. otd. AN SSSR, no. 10, 57 (1960)). Cryoscopic and conductivity measurements were made also. HZrF₅ is a strong acid; it decomposes, however, at a concentration of 0.1 moles/liter corresponding to $H^+ + ZrF_5^- \rightleftharpoons HF + ZrF_4$. H₂ZrF₆ occurs in the equilibrium $2H^+ + ZrF_6^{2-} \rightleftharpoons HF + H^+ + ZrF_5^-$. There are 6 figures and 3 tables. The most important English-language reference is: K. A. Kraus, G. E. Moor. J. Amer. Chem. Soc., 71, 3263 (1949).

SUBMITTED: September 28, 1961
Card 2/2

L 9974-65

ENT(m)/EPF(c)/EPR/EWP(b) Prod/Ps-4 JD/JH/MLK

ACCESSION NR: AT4046216

S/0000/63/000/000/0093/0096

AUTHOR: Nikolayev, N. S. (Moscow); Buslayev, Yu. A. (Moscow); Gustyakova, N. P. (Moscow)

TITLE: The solubility of the fluoride salts of zirconium and hafnium in hydrofluoric acid

SOURCE: Yubileynaya konferentsiya po fiziko-khimiicheskomu analizu. Novosibirsk, 1960. Fiziko-khimiicheskiy analiz (Physicochemical analysis); trudy konferentsii. Novosibirsk, Izd-vo Sib. otd. AN SSSR, 1963, 93-96

TOPIC TAGS: zirconium fluoride, hafnium fluoride, fluorozirconate, fluorohafnate, zirconium solubility, hafnium solubility, zirconium hafnium separation

ABSTRACT: The authors determined the solubility of ammonium and potassium fluorozirconates in hydrofluoric acid, and established the coefficient of separation of zirconium and hafnium by means of the radioactive indicator Hf¹⁸¹. The results of the investigation showed that the solubility of ammonium and potassium pentafluorozirconate is similar. At the beginning, the solubility of ammonium fluorozirconate increases sharply with HF concentration, but changes little at high concentrations of HF. Chemical analysis gave an empirical formula of NH₄ZrF₅ and KZrF₅·H₂O. In contrast to (NH₄)₂ZrF₆, the solubility of K₂ZrF₆ increases steadily with an increase in HF concentration. Pentafluorozirconates are more soluble in HF than hexa-

L 9974-65

ACCESSION NR: AT4046216

fluoroziirconates. The coefficient of separation is 1.49, which indicates that the solubility of K_2HfF_6 is 1.49 times as high as that of K_2ZrF_6 . It was also established that during conversion of the hepta- and hexafluoro salts of zirconium and hafnium into the pentafluorosalts, the coefficient of separation of zirconium and hafnium increases. Orig. art. has: 2 tables, 2 figures.

ASSOCIATION: none

SUBMITTED: 10Sep63

ENCL: 00

SUB CODE: 10

NO REF SOV: 002

OTHER: 001

Card 2/2

BUSLAYEV, Yu.A.; GUSTYAKOVA, M.P.

Composition of crystal hydrates and some properties of vanadyl fluoride. Izv. AN SSSR. Ser.khim. no.9:1533-1537 S '63.

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova
AN SSSR. (MIRA 16:9)

(Vanadium fluoride crystals)

KHARITONOV, Yu.Ya.; BUSLAYEV, Yu.A.

Determining the force constant of the U - O bond in the
UO₂²⁺ ion. Opt. i spektr. 14 no.4:586-587 Ap '63.
(MIRA 16:6)

(Uranium oxide's) (Chemical bonds)

S/020/63/148/004/019/025
B142/B144

AUTHORS: Buslayev, Yu. A., Nikolayev, N. S., Tananayev, I. V.,
Academician

TITLE: Solubility and composition of the solid phases in the
system HF - UO_3 - H_2O

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 148, no. 4, 1963,
832-834

TEXT: Data for compounds of the system HF - UO_3 - H_2O known from
publications are compiled. Here the region between UO_3 and HF which
hitherto has received least attention was studied. The method of
isothermal solubility was used. Uranic acid (prepared from the oxide
obtained by calcining $UO_2(NO_3)_2$) and hydrofluoric acid of various
concentrations were stirred in teflon vessels in a thermostat at $20 \pm 0.1^\circ C$
for 2 x 24 hrs. Samples were taken from the liquid and the sediment, and
their contents of U and HF were determined. Decomposition of the uranic
acid ($UO_3 \cdot 2H_2O$) is assumed between 0.58 and 0.73% HF. Then, a compound
Card 1/2

Solubility and composition of the ...

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B142/B144

$U_2O_5F_2 \cdot 2H_2O$ appears, followed by $UO_2F_2 \cdot 2H_2O$ (up to 22.85% HF); between 24.11 and 91.40% HF, $UO_2F_2 \cdot 2HF \cdot 4H_2O$ appears, which has to be considered as a complex acid $H_2[UO_2F_4] \cdot 4H_2O$, in analogy to the corresponding plutonyl fluoride system. Maximum solubility in the system is reached at a content of 62.5% UO_3 . There are 1 figure and 1 table. ✓

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N.S.
Kurnakova Akademii nauk SSSR (Institute of General and
Inorganic Chemistry imeni N. S. Kurnakov of the Academy of
Sciences USSR)

"SUBMITTED: November 2, 1962

Card 2/2

KHARITONOV, Yu.Ya.; BUSLAYEV, Yu.A.

Infrared absorption spectra of oxofluorides of some metals.
Izv. AN. SSSR. Ser. khim. no. 5:803-814 My '64. (MIRA 17:6)

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova
AN SSSR.

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oxid:

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converted to $\text{MeOCl}(\text{NH}_2) \cdot \text{NH}_2$, MeOCl to $\text{MeOCl}(\text{NH}_2) \cdot \text{NH}_2$
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gradual decrease in the number of...

59962-55
ACCESSION NR: AP5011973

ENCLOSURE: 11

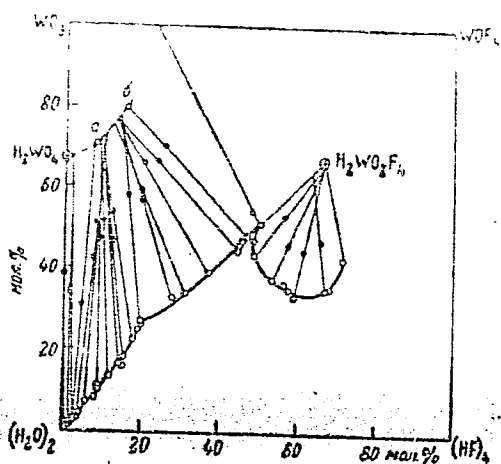


Fig. 1. Solubility in the HF-WO₃-H₂O system at 25°C.

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L-55952-55 LNT(m)/ENG(m)/EPF(g)/EPT(w)-2/EPR/EWP(j)/EWP(t)/T/EN(b) Fe-L/Pr-L/
Ps-L/Pu-L LJP(c) JD/JW/JG/RM

ACCESSION NR: AP5014077

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546.821'161+546.831'151+

546.882'161+546.77'161+

546.78'161

45
45
5

AUTHOR: Buslayev, Yu. A.; Davidovich, R. L.; Bochkareva, V. A.

TITLE: Pyrohydrolysis of complex fluorides of titanium, zirconium, niobium, tantalum, molybdenum, and tungsten

SOURCE: AN SSSR. Izvestiya, Neorganicheskiye materialy, v. 1, no. 4, 1965, 483-490

TOPIC TAGS: fluoride, pyrolysis, hydrolysis, rare metal research

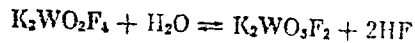
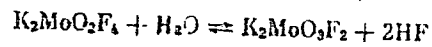
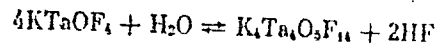
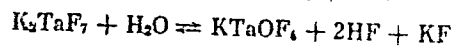
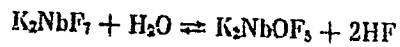
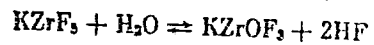
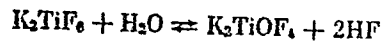
ABSTRACT: The authors studied the interaction of water vapor with K_2TiF_6 , $KZrF_5$, K_2ZrF_6 , K_3ZrF_7 , K_2NbF_7 , $K_2MoO_2F_6$, and $K_2WO_2F_4$ at 200-400°C. The reactions between the fluorides and water vapor are reversible and are characterized by the partial pressure of the HF produced, which was measured. The equilibrium constants were calculated by determining the stoichiometry of the reactions tensimetrically. The process of pyrohydrolysis of the complex fluorides is represented by the following

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ACCESSION NR: AP5014077

reaction equations:



In the process of hydrolysis, the substitution of oxygen for fluorine is associated with the linking by oxygen of the transition metal atoms Ti, Zr, Ta, Mo, and W into -M-C-A-O- chains with a double M=O bond. The partial vapor pressure of HF in the mixture with water vapor at 400°C decreases in the order $ZrF_6^{2-} > NbF_6^{2-} > TaF_6^{2-} > MoF_6^{2-} > WOF_6^{2-}$, owing to the screening effect of fluorine, which hinders the approach of zirconium. "The authors express their appreciation to Yu. Ye. Gontsarov and S. M. Kremer for the x-ray phase analysis of the complex fluorides. The authors have also figures and tables.

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3

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova
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Sciences of the USSR, Sakhovskiy st. 28, Moscow, U.S.S.R.)

SUBMITTED: 14Jan65

ENCL: 00

SUB CODE: IC

NO REF SOV: 010

OTHER: 013

refractory metals / 8

Card 3/3

L 52068-65

ACCESSION NR: AP5014078

The authors found a method of synthesizing niobium oxonitride with a Nb:O:N ratio of 1:1.08:0.9. The starting reagents, NH_3 , $NbOCl_3$ and NH_4Cl , were reacted in a 1:1:1 molar ratio at 4 atm for 2 days. The product $Nb_2O_5 \cdot xN_2O_5$ was obtained in a yield of 100%, yielding niobium oxonitride. Ultimate analysis of the latter showed a formula to be $Nb_2O_{10.16}N_{1.8}$. The oxonitride was a dark blue, finely crystalline powder soluble in water, alkalis, dilute and concentrated mineral acids (including HF) and common organic solvents. Thermogravimetric analysis showed it was stable when heated in air up to 500°C; above this temperature, it decomposed to niobium pentoxide. An x-ray diffraction study of the compound showed it to be a single phase.

APP. CITATION: Institut' obshchey i neorganicheskoy khimii im. N.

1977, No. 1, p. 111-112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

DESCRIPTOR: niobium

oxide

NO REF. SOURCE: N/A

OTHER: N/A

1977

Core 1/2

L 55951-65 FWT(m)/EPA(s)-2/EPF(c)/EWP(s)/EPF(n)-2/EPR/EWP(j)/T/EWP(t) Pu-1/Pu-1/

PB-L/PB-7/Pu-1 IJP(c) JD/WW/JG/RM

ACCESSION NR: AP5014079

UR/0363/65/001/004/0498/0502
546.882:541.6

AUTHOR: Buslayev, Yu. A.; Sinitsyna, S. M.; Glushkova, M. A.; Yershova, M. N.; Polikarpova, M. A.

TITLE: Niobium-base inorganic polymers

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 4, 1965, 498-502

TOPIC TAGS: niobium nitryl chloride, inorganic polymer, niobium chloride, ir spectroscopy, polymer chain

ABSTRACT: The authors attempted to prepare niobium nitryl chloride $NbNCl_2$ from $NbCl_5$ and NH_4Cl in nitrobenzene. The actual formulas of the products obtained were determined as being $Nb_2N_3Cl_7H_6$ (I) (after washing with benzene and ether) and $Nb_3NCl_2O_x(OH)_y$ (II) (after washing with water). Compound (I) is thought to consist of $NbNHCl_3$, $NbNCl_2$, and NH_4Cl . The difference between (I) and (II) is due to the elimination of NH_4Cl and apparently to a partial hydrolysis of (I). Both compounds were found to be diamagnetic (the magnetic properties were studied by V. I. Beleva).

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L 55951-65

ACCESSION NR: AP5014079

3

indicating a high degree of oxidation of Nb. The nature of the bonding in (I) was investigated by means of infrared spectroscopy with a UR-10 spectrophotometer (the IR spectra were recorded and the frequencies assigned by Yu. Ya. Kharitonov) in the range of $2000-1000\text{ cm}^{-1}$ (with a maximum at 740 cm^{-1}), which corresponds to stretching vibrations in the ...NbN ...NbN ...NbN chains. An attempt was made to prepare compounds containing mixed chains composed of phosphorus, nitrogen, and niobium, to this end, a mixture of PCl_5 , NbCl_5 , and NH_4Cl was reacted with benzene at 1600°C . The IR spectra of the products, $\text{P}_3\text{NbN}_{11}\text{Cl}_{11}$ (III) and $\text{P}_2\text{NbN}_{11}\text{Cl}_{11}\text{OH}$ (IV), did not show any absorption bands due to stretching vibrations of ...NbN... or ...PNPN... chains. This leads to the conclusion that the reaction of niobium pentachloride with ammonium chloride in benzene yields a mixture of niobium and phosphorus compounds, including a mixture of phosphonitryl chloride, $\text{P}(\text{O})\text{NCl}_2$, and ...

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry, Academy of Sciences SSSR)

Card 2/3

L 55051-60

ACCESSION NR: AP5014079

SUBMITTED: 19Jan85

ENCL: 00

SUB CODE: IC

NO REF SOV: 004

OTHER: 001

Card 3/3

BUSLAYEV, Yu.A.; KUZNETSOVA, A.A.; PODZOLKO, Yu.G.

Ammonolysis of tungsten (VI) oxo chlorides. Izv. AN SSSR.
Neorg. mat. 1 no.6:903-906 Je '65. (MIRA 18:8)

I. Institut obshchey i neorganicheskoy khimii imeni N.S.
Kurnakova AN SSSR.

BUSIAYEV, Yu.A.; SHCHERBAKOV, V.A.; DYATKINA, M.Ye.

Nuclear magnetic resonance of F^{19} in the solution of
fluorides of the elements of the group IV. Zhur. strukt.
khim. 6 no.1:16-20 Ja-F '65.

(MIRA 18:12)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.
Kurnakova AN SSSR i Radiyevyy institut imeni V.G. AN SSSR,
Leningrad. Submitted August 22, 1964.

BUSLAYEV, Yu.A.; KHARITONOV, Yu.Ya.; SINITSYNA, S.M.

Infrared absorption spectra of $NbCl_5$, NbO_2F , TaO_2F . Zhur.
neorg. khim. 10 no.2:533-535 F 165.2 (MIRA 18:11)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova
AN SSSR. Submitted July 4, 1964.

ANDRIANOV, K.A.; MANEVICH, I.Ya.; BUSLAYEV, Yu.A.; MATKSON, Ye.I.

Acid salts of methylphosphinic acid. Zhur. neorg. khim. 10
no.3:596-600 Mr '65. (MIRA 18:7)

1. Institut elementoorganicheskikh soedineniy AN SSSR i
Institut obshchey i neorganicheskoy khimii imeni E.S.
Kurnakova AN SSSR.

BUSIAYEV, Yu.A.; GUSTYAKOVA, M.P.

Solubility of ThF_4 in HF. *Zhur. neorg. khim.* 10 no.3:662-665
Mr '65. (MIRA 16:7)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova
AN SSSR.

BUSIAYEV, Yu.A.; BOCHKAREVA, V.A.; KREMER, S.M.

System KF - KOH - H₂O at 25 degrees C. Zhur. neorg. khim. 10
no.3:727-729 Mr '65. (MIRA 18:7)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.
Kurnakova AN SSSR.

BUSIAYEV, V. I.; GOSTYAKOVA, M. P.

Constants of fluoberyllate formation. Zhur. neorg. khim. 10
no. 1524-1526 JI '65. (MIRA 18:8)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.
Kurnakova AN SSSR.

L 62927-65 EWT(m)/EPF(c)/EPF(n)-2/EWP(j)/T/EWP(t)/EWP(b) IJP(c)/RPL

PL/AM/RM

ACCESSION NO

AD-62927

UNCLASSIFIED CONFIDENTIAL SECRET

A. T. ...

TOPIC: Synthesis of phosphonitrile chloride in nitrobenzene

SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 8, 1965, 1943-1945

TOPIC TAGS: phosphonitrile, nitrobenzene, chloride, polymer, synthetic material

ABSTRACT: Phosphonitrile chloride was synthesized in nitrobenzene from PCl5 and ... was 70%. The composition of the products formed may be represented by the formula ... The crystalline mass formed apparently consists of a mixture of ... whereas the rubberlike substance is a mixture of ... changes during the synthesis, and that the product ... lined with phosphonitrile chloride. The solubility of many transition ...

Card 1/2

L 62927-65

ACCESSION NR: AP5020504

the presence of certain transition metal chlorides in order to obtain ...
... (orig. ant. has 2 tables)

NO REF SOV: 003

OTHER: 001

Card 202

L 8935-66 EWT(m)/EPF(n)-2/EWP(j)/T/EWP(t)/EWP(b) IJP(c) JD/WJ/JW/JG/RM

ACC NR: AP5027212

SOURCE CODE: UR/0078/65/010/011/2577/2579

AUTHOR: Nikolayev, N. S.; Buslayev, Yu. A.; Gustyakova, M. P.

ORG: None

TITLE: The difference in solubility of complex fluorine salts of zirconium and hafnium

SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 11, 1965, 2577-2579

TOPIC TAGS: fluorine compound, zirconium compound, hafnium compound, solubility

ABSTRACT: Radioactive Hf¹⁸¹ in the form of hafnium dioxide was dissolved in hydrofluoric acid (40%), the excess acid was evaporated off, and zirconium tetrafluoride trihydrate, ZrF₄·3H₂O, containing 0.05% HfO₂, was introduced into the solution obtained. The zirconium tetrafluoride was dissolved by heating, the solution was slowly evaporated until ZrF₄·3H₂O started to crystallize out, and was then placed in a desiccator under KOH. The ZrF₄·3H₂O crystals were filtered out and dried in air. The specific activity of the solid phase was then determined. Zirconium tetrafluoride trihydrate with a known specific activity (800-

Card 1/2

UDC: 546.831.4'161-386+546.832.4'161-386

L 8935-66

ACC NR: AP5027212

1200 impulses/min-mg) was the starting material for the preparation of the salts to be investigated. The experimentally found solubility of ammonium and potassium fluorozirconates in hydrofluoric acid at 20 C and values of the separation coefficient are shown in a table. The separation coefficient reflects the ratio of the specific activity of Hf¹⁸¹ in the saturated solution to the initial specific activity. In the ammonium fluoride salts of zirconium and hafnium a sequence can be established in the solubility of the zirconium and hafnium salts as a function of their composition. The ratio of the solubilities increases on passing from the heptafluorine salts to the pentafluorine salts, as follows:

$$\frac{(NH_4)_7HfF_7}{(NH_4)_7ZrF_7} = 1,07, \frac{(NH_4)_7HfF_6}{(NH_4)_7ZrF_6} = 1,3 \approx \frac{NH_4HfF_5}{NH_4ZrF_5} = 1,6.$$

An increase in the ⁷coordination number in fluorine complexes of zirconium and hafnium decreases somewhat the difference in the properties of these compounds in solution. Orig. art. has: 2 tables

SUB CODE: IC/ SUBM DATE: 03May65/ ORIG REF: 001/ OTH REF: 001

Cord2/2

BUSLAYEV, Yu.A.; DAVIDOVICH, R.L.

Preparation and properties of some complex molybdenyl and tungstenyl fluorides and their properties. Dokl. AN SSSR 164 no.6:1296-1299 O '65. (MIRA 18:10)

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova AN SSSR i Dal'nevostochnyy filial im. V.I.Komareva Sibirskogo otdeleniya AN SSSR. Submitted March 31, 1965.

BUSLAYEV, Yu., inzh.-konstruktor

Once more about the front seat of the "Volga" car. Za rul. 21
no.7:11 J1 '63. (MIRA 16:8)

1. Gor'kovskiy avtomobil'nyy zavod.
(Automobiles--Bodies)

BUSLAYEV, Yu.A.; DAVIDOVICH, R.L.

Potassium oxofluoromolybdates and oxofluorotungstates.
Zhur.neorg.khim. 10 no.8:1862-1871 Ag '65.

(MIRA 19:1)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova
AN SSSR i Dal'nevostochnyy filial imeni V.L.Komarova Sibirskogo
otdeleniya AN SSSR. Submitted July 30, 1964.

GLUSHKOVA, M.A.; YERSHOVA, M.M.; BUSLAYEV, Yu.A.

Synthesis of phosphonitrile chloride in nitrobenzene.
Zhur.neorg.khim. 10 no.8:1943-1945 Ag '65.

(MIRA 19:1)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova
AN SSSR. Submitted November 13, 1964.

NIKOLAYEV, N.S.; BUSLAYEV, Yu.A.; GUSTYAKOVA, M.P.

Difference in the solubility of complex fluorides of zirconium
and hafnium. Zhur.neorg.khim. 10 no.11:2577-2579 N '65.
(MIRA 18:12)

1. Submitted May 3, 1965.

BUSIAYEV, Yu.A.; GUSTYAKOVA, M.P.; TAMM, N.S.

Reaction of beryllium fluoride with hydrogen fluoride in the presence of methyl alcohol. Zhur.neorg.khim. 11 no.1:156-159 Ja '66. (MIRA 19:1)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova AN SSSR. Submitted July 25, 1964.

BUSLAYEVA, M.N.

Theory of the hydration of ions in aqueous solutions. Zhur.
fiz. khim. 38 no.2:529-530 F '64. (MIRA 17:8)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova
AN SSSR.

BUSLAYEVA, M. N.

PHASE I BOOK EXPLOITATION SOV/4186

Strojeniya veshchitsy s spektroskopiy (Structure of Matter and Spectroscopy) Moscow: Izdatvo AN SSSR, 1960. 113 p. Errata slip inserted. 2,300 copies printed.

Ed.: K. V. Atabekov, Professor; Tech. Ed.: T. P. Polenova.

PURPOSE: This collection of articles is intended for physicists and chemists interested in spectroscopic methods of research on the structure of molecules and related problems.

COMMENT: The articles contained in this collection were taken from the first issues of the Zhurnal fizicheskoy khimii (Journal of Physical Chemistry) and are concerned with spectroscopic methods, research on the structure of molecules, the hydrogen bond, theory of effects, problems of magnetochimistry, the structure of adsorbed solutions of electrolytes, and the chemistry of complex compounds. References accompany individual articles.

The author thanks the following for having participated in determining the density of the compounds: V. G. Golov, P. M. Nikolayev, V. T. Kuznetsov, Ye. Z. Zhuravlev, V. I. Murzin, and I. S. Zhilich.

Problem arise in the structure of polyethylene at phase-radial transition

Author: A. M. and M. B. Alkhalaf (Novosibirskiy politehnicheskii universitet) [Novosibirsk Polytechnic Institute].

Author: I. B. Y. M. Allov (Gor'kiy gosudarstvennyy universitet) [Gorky State University].

Author: M. L. V. N. Yermolov and V. V. Posenko, Institute of Surface Tension of Liquid Metal Solutions, I. Sur- face Tension of a Lead-Kilver System. 78

Author: T. I. Coordination Equilibria of Nickel Ions in KO - PO - SiO₂ System Glasses. 84

Author: V. A. [Institute Khimii silikatov (Institute of the Chemistry of Silicates)]. Structure of Spodumene Glass V. I. Averb'yanov is changed for having plotted the curves for α - and β -spodumene and for the crystallization product of spodumene glass. 93

Author: T. K. [Physicochemical Institute Imeni L. Ya. Kar'pov]. Calculation of Excess Electrical Permittivity Susceptibility of Certain Molecules Containing the Phenylmercapto Group With the Aid of the Free Electron Model. 96

The author thanks I. N. Kalashova and B. Ye. Samardov for the numerical calculations, and Ye. N. Or'yambova and M. N. Almov for their suggestions. 102

Author: O. Ya. and M. N. Buslayeva [Institute obshchey i neorganicheskoy khimii Im. N. S. Kurnakova (Institute of General and Inorganic Chemistry Imeni N. S. Kurnakov)]. Temperature Dependence of Coordination Numbers of Alkali Metal Cations in Organic Solutions. 102

Author: O. A. [Fizicheskii politehnicheskii institut Im. S. M. Kirova (Physical Polytechnic Institute Imeni S. M. Kirov, Sverdlovsk)]. Form of Surface Tension Isobars. 111

AVAILABLE: Library of Congress. 3A/37M/6c 10-20-60 1/2

BUSLAYEVA, M.N.; SAMOYLOV, O.Ya.

Coordination numbers of some ions in aqueous solutions and
their temperature dependence. Zhur.strukt.khim. 2 no.5:551-557
S-0 '61. (MIRA 14:11)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova
AN SSSR.

(Ions)

BUSLAYEVA, M.N.; SAMOYLOV, O.Ya.

Thermochemical study of the stabilization of the structure of water
by molecules of a nonelectrolyte. Zhur.strukt.khim. 4 no.4:502-506
Jl-Ag '63. (MIRA 16:9)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova
AN SSSR.
(Water) (Chemical structure) (Thermochemistry)

BUSLAYEVA, M.N.; SAMOYLOV, O.Ya.

Effect of the stabilization of the structure on the coordination numbers of alkali metal cations in aqueous solutions. Zhur. strukt.khim. 4 no.5:682-686 S-0 '63. (MIRA 16:11)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova AN SSSR.

BUSLAYEVA, M.N.; SAMOYLOV, O.Ye.; YASHKICHEV, V.I.

Covsience of cation reaction with water molecules and the heat
of solution of Rb, Tl, Mg, Co and Ni nitrates. Radiokhimiya 7
no.1:113-115 '65.

(MIRA 18:6)

MAZING, L.A.; BUSLAYEVA, N.S.

Use of activated silicates for the coagulation of waste water.
Dum.prom.31 no.10:13-14 0' 56. (MLRA 10:1)

1. Tsentral'nyy nauchno-issledovatel'skiy institut tsellyuloznoy i
bumazhnoy promyshlennosti.
(Factory and trade waste) (Potassium silicates)

Abst.: Waste water from paper mills, contg. alum, kaolin, and suspended
cellulose fibers, was clarified by treating it with a soln. of Na silicate acidified
to incipient gelation. The consumption (as SiO₂) was 45-60 mb./l of water treated.

CONSTANTINESCU, C., prof.; RAZVAN, B., conf.; BUSULENGA-NICOLAU, Carmen, dr.
MIRSAN, M., dr.; BOJINCA, D., dr.

Considerations on the connection between chicken pox and zona zoster.
Microbiologia (Bucur) 6 no. 1:63-67 Ja-F '62.

1. Clinica de pediatrie a Spitalului de copii "Grigore Alexandrescu".

*

RUSSIAN

MOROZKIN, N.I., professor; KHERSONSKAYA, R.Ya., kandidat meditsinskikh nauk;
BUSLENKO, A.I. (Kiyev)

Clinical characteristics of influenza C. Vrach.delo no.5:473-477
My '57. (MIRA 10:8)

1. Institut infektsionnykh bolezney AMN SSSR.
(INFLUENZA)

BUSLENKO
MOROZKIN, N.I., prof.; KHERSONSKAYA, R.Ya., kand.med.nauk; BUSLENKO, A.I.
(Kiyev)

Peculiarities of influenza in 1957. Vrach.delo no.12:1311-1315
D '57. (MIRA 11:2)

1. Institut infektsionnykh bolezney AMN SSSR. 2. Chlen-korrespondent AMN SSSR (for Morozkin)
(INFLUENZA)

USSR/Virology. Human and Animal Viruses. Grippe Virus

E

Abs Jour : Ref Zhur - Biol., No 4, 1959, No 14633

Author : Korniyushenko N.P., Rybinskaya, L.N., Buslenko A.I.

Inst : -

Title : A Clinical Immunological and Virological Study of Manifestations of a Grippal Infection in a Focus.

Orig Pub : V sb.: Gripp., n., Medgiz, 1958, 204-212

Abstract : No abstract

Card : 1/1

- 16 -

MOROZKIN, N.I., prof., KHERSONSKAYA, R.Ya., kand.med.nauk, BUSLENKO, A.I. (Kiyev)

Clinical course of influenza. Vrach.delo no.3:265-267 Mr'58 (MIRA 11:5)

1. Chlen-korrespondent AMN SSSR (for Morozkin).
2. Institut infektsionnykh bolezney AMN SSSR.
(INFLUENZA)

MOROZKIN, N.I., prof.; KHERSONSKAYA, R.Ya., kand.med.nauk; ~~DUSLENKO, A.I.~~

Features of the clinical course of Asian influenza A-57 according to data from the Institute of Infectious Diseases of the Academy of Medical Sciences of the U.S.S.R. Vest.AMN SSSR 13 no.3:12-20 '58.
(MIRA 11:4)

1. Chlen-korrespondent AMN SSSR (for Morozkin)
(INFLUENZA, statist.
Asian (Rus))

MOROZKIN, N.I., prof., KHERSONSKAYA, R.Ya., BUSLENKO, A.I. (Kiyev)

Clinical course of Asiatic influenza. Vrach.delo no.5:455-457
My '58 (MIRA 11:7)

1. Chlen-korrespondent AMN SSSR (for Morozkin). 2. Institut
infektsionnykh bolezney AMN SSSR.
(INFLUENZA)

MOROZKIN, N.I.; KHERSONSKAYA, R.Ya.; BUSLENKO, A.I.

Third wave of Asian influenza. Vop. virus. 5 no. 2:145-151 My-8
'60. (MIRA 14:4)

1. Institut infeksionnykh bolezney AMN SSSR, Kiyev.
(INFLUENZA)

MOROZKIN, N.I.; BUSLENKO, A.I.; BUZHIYEVSKAYA, T.I.

Study of the clinical aspects of influenza and other acute
respiratory diseases. Vest. AMN SSSR 18 no.5:87-93'63.
(MIRA 16:8)
(INFLUENZA) (RESPIRATORY ORGANS--DISEASES)

MOROZKIN, N.I.; KHERSONSKAYA, R.Ya.; BISLENKO, A.I.

Clinical characteristics of sporadic cases of influenza.
Nauch. inform. Otd. nauch. med. inform. AMN SSSR no.1:
24-25-61 (MIRA 16:11)

1. Institut infektionnykh bolezney (direktor - chlen kor-
respondent AMN SSSR, prof. I.L.Bogdanov) AMN SSSR, Kiyev.

*

MOROZKIN, N.I.; BUSLENKO, A.I.; BARCHUK, V.F.; TRINUS, Ye.K. (Kiyev)

Asian influenza of 1962 and the characteristics of its clinical course. Vrach. delo no.1:102-105 Ja'64 (MIRA 17:3)

1. Institut infektsionnykh bolezney Ministerstva zdravookhraneniya UkrSSR.

MOROZKIN, N.I. (Kiyev); TRINUS, Ye.K. (Kiyev); BUSLENKO, A.I. (Kiyev);
BARCHUK, V.P. (Kiyev)

Clinical characteristics of the influenza of 1963. Sbor.nauch.trud.
Inst.infek.bol. no.4:131-136 '64. (MIRA 18:6)

BUSLENKO, A.I. (Kiyev)

Clinical characteristics of the course of influenza in tuberculosis patients. Sbor.nauch.trud. Inst.infek.bol. no.4:168-172 '64.
(MIRA 18:6)

RUSHKOVSKIY, T.V.; ZUBCHENKO, P.I., nauchnyy sotr.; ZUBCHENKO, T.S.,
nauchnyy sotr.; YARMOLENKO, I.M., nauchn. sotr.; VRZHESHCH, Ye.S.,
nauchn. sotr.; ZAPOL'SKAYA, V.A., nauchn. sotr.; VIKTOROV, Ye.P.,
nauchn. sotr.; RYMARENKO, V.S., agronom; RUSLENKO, I.T., agronom;
SAZONOV, V.V., red.; LEVINA, L.G., tekhn. red.

[Sugar beet in Siberia] Sakharnaia svekla v Sibiri. Moskva, Izd-vo
M-va sel'.khoz.RSFSR, 1960. 206 p. (MIRA 15:1)

1. Glavnyy agronom po sakharной svekke Altayskogo krayevogo uprav-
leniya sel'skogo khozyaystva (for Rushkovskiy). 2. Biyskaya
opytno-selektsionnaya stantsiya po sakharной svekke (for Zubchenko,
P.I., Zubchenko, T.S., Yarmolenko, Vrzheshch, Zapol'skaya, Viktorov).
(Siberia--Sugar beets)

BUSLENKO, N.

"Elementary Exposition of the Basic Concepts of Probability Theory"

Voyenny vestnik, No. 2, 1954 pp 64-68.

abs

W-31098, 26 Nov 54

BUSLENKO, N.P. (Moskva); YURKEVICH, O.M. (Moskva)

Operation with units in complex systems. Izv. AN SSSR.
Tekh. kib. no.2:3-11 Mr-Ap'64. (MIRA 17:5)

BUSLENKO, N. P.

"Review of Ashby's article 'Amplifier Circuit of Intellectual Capabilities'" (in the collection Avtomaty (Automata)) (19 October 1956).

Paper presented at the Seminars on Cybernetics at Moscow University during the 1956-57 school year.

Problemy Kibernetiki, No. 1, 1958

BUSIENKO, N. P.

"Solution of Problems in the Theory of Mass Servicing With the Aid of
Simulation on Electronic Computers"

presented at the All-Union Conference on Computational Mathematics and
Computational Techniques, Moscow, 16-28 November 1961

So: Problemy kibernetiki, Issue 5, 1961, pp 289-294

BUSLENKO, Nikolay Panteleymonovich; SHREYDER, Yuliy Anatol'yevich;
ROZENKNOP, V.D., red.; YERMAKOVA, Ye.A., tekhn. red.

[Method for statistical tests (Monte-Carlo) and use of
digital computers in its realization] Metod statistiches-
skikh ispytaniy (Monte-Karlo) i ego realizatsiia na tsif-
rovyykh vychislitel'nykh mashinakh. Moskva, Gos.izd-vo fiziko-
matem. lit-ry, 1961. 226 p. (MIRA 15:2)
(Electronic digital computers) (Mathematical statistics)

S/044/62/000/006/110/127
B166/B112

6.9000

AUTHOR: Buslenko, N. P.

TITLE: Solution of problems of the theory of mass service by simulation on electronic digital computers

PERIODICAL: Referativnyy zhurnal. Matematika, no. 6, 1962, 65, abstract 6V333 (Sb. "Probl. peredachi informatsii". no. 9, M., AN SSSR, 1961, 48-69)

TEXT: The article is devoted to a technique of obtaining realizations of random processes which describe the operation of various mass service systems with a complex structure. The introduction analyzes various assumptions concerning inputs, queue discipline, service time, etc. Section 1 examines questions of simulating various currents (Poisson, Erlang, and others). Consolidated logical block diagrams of possible versions of the simulating algorithm for a single-phase system are analyzed in section 2. It is stated that the suggested technique of solving mass service problems by simulation on computers is quite efficient and practicable. [Abstracter's note: Complete translation.]

Card 1/1

6.9000
16.8000 (1329, 1031, 1132)

33503
S/562/61/000/009/003/012
D201/D302

AUTHOR: Buslenko, N. P.

TITLE: Superimposition of stationary ordinary flows with limited after-effect

SOURCE: Akademiya nauk SSSR. Laboratoriya sistem peredachi informatsii. Problemy peredachi informatsii. No. 9, 1961. Elementy sistem avtomatiki, 79-82

TEXT: The author derives certain formulas related to the superimposition of stationary ordinary flows with limited after-effect, as used in applied problems of mass-service. A random flow is said to be given if the distribution density function $f_k(z)$ of a random interval ζ_k between consecutive calls for $k > 1$ is given. If λ is the call flow density described by distribution $f(z)$ and if every one of n partial flows is an ordinary stationary stream with limited after-effect, the superimposition of flows is also an ordinary stationary flow with density equal to

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33503

Superimposition of stationary ...

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D201/D302

$$\Lambda = \sum_{i=1}^n \lambda_i \quad (2)$$

An important limit theorem related to the above problem has been given by Pal'm and A. Ya. Khnichin (Ref. 1: Tr. Matem. in-ta im. V. A. Steklova. Izd-vo AN SSSR, 1955, v. 49): Let a given flow be a superimposition of stationary ordinary and independent flows. If 1) at $n \rightarrow \infty$ the density of the superimposition flow remains constant and the densities λ_i of partial flows tend uniformly to zero, then 2) at $n \rightarrow \infty$ and if at any large t the probability of not containing a call from this partial flow tends to unity, then the distribution of superimposition flow $P(k, t)$ tends to the Poisson distribution since knowledge of the asymptotic behavior of superimposition flows in an applied problem solution is insufficient. The author considers the distribution laws of superimposition of 2 and

Card 2/ 4

Superimposition of stationary ...

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n independent flows. For 2 independent flows the required density function $f_1^*(z)$ is derived as

$$f_1^*(z) = f_1^{(1)}(z) \int_z^\infty f_1^{(2)}(x)dx + f_1^{(2)}(z) \int_z^\infty f_1^{(1)}(x)dx \quad (9)$$

and for n independent flows a similar reasoning leads to

$$f_1^*(z) = \sum_{v=1}^n f_1^{(v)}(z) \prod_{\substack{i=1 \\ i \neq v}}^n \int_z^\infty f_1^{(i)}(x)dx \quad (13)$$

Card 3/4

33503

Superimposition of stationary ...

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D201/D302

These equations are then used to solve certain examples, from which formulas are obtained which are stated to be useful for solving mass-service problems by statistical methods. There is 1 Soviet-bloc reference.

Card 4/4

BUSLENKO, N.P., doktor tekhnicheskikh nauk, inzhener-polkovnik

Grandiose prospects for the development of science and technology.
Vest.protivovozd.obor. no.10:20-24 0 '61. (MIRA 15:2)
(Science)

PHASE I BOOK EXPLOITATION SOV/6185

Buslenko, N. P., D. I. Golenko, I. M. Sobol', V. G. Sragovich,
and Yu. A. Shreyder

Metod statisticheskikh ispytaniy; metod Monte-Karlo (Method of
Statistical Testing; the Monte Carlo Method) Moscow, Fizmatgiz,
1962. 331 p. (Series: Spravochnaya matematicheskaya biblio-
teka) 22,000 copies printed.

Ed. (Title page): Yu. A. Shreyder; Eds. of Series: L. A.
Lyusternik and A. R. Yanpol'skiy; Ed.: V. D. Rozenknop; Tech.
Ed.: V. N. Kryuchkova.

PURPOSE: This book is intended for mathematicians, physicists,
and engineers engaged in the solution of problems in applied
mathematics. It can also be used by students and aspirants
studying the Monte Carlo method. Knowledge of the basic con-
cepts of the theory of probability is required for reading
this book. Some knowledge of random events and quantities
and their probability characteristics is desirable. Acquaint-
ance with the normal law of distribution, Lyapunov's theorem,

Card 1/8 2

13.9932

S/020/62/144/005/001/017
B125/B104

AUTHOR: Buslenko, N. P.

TITLE: Simulation of production processes with electronic digital computers

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 5, 1962, 1003-1006

ABSTRACT: The formulation of algorithms to allow of simulating assembly-line production processes with electronic digital computers was studied. Mathematical simulation of a production process makes it possible to determine the average number of workpieces, semi-products, rejects, interruptions of the production process, and idle time of machines, etc. At any instant of time, the properties of a semi-product can be described by a certain number of parameters and indices. The production process is represented as of a finite number of the following operations in succession: (1) processing of semi-products; (2) assembly of workpieces; (3) control processes. The following process is simulated for illustration: On an assembly line the machine parts are assembled from

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Simulation of production processes ...

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B125/B104

individual parts. The individual parts nos. 2, 3, ..., l are then assembled upon workpiece no. 1. The assembly line displaces workpiece no. i in such manner that the i-th assembling operation of the j-th workpiece begins at the instant $t_{ij} = t_{1k}$, where $k = j+(j-1)l+i-1$. The instants t_{ij} are determined by the nature of the production process and the algorithm used to simulate that mentioned above can be roughly represented by

$$\Phi_1; A_2; P_3^{15}; A_4; \mathcal{A}; {}^2P_5^{10}; K_6; A_7^{5,7}; P_{0i12}; K_{11}; K_{66}^1; {}^0K_{21}; A_7^1. \quad (2),$$

where Φ_1 is the formation of t_{ij}^1 , and A_2 is their storage; P_3 is the comparison $t_{1j} < T$ (T = duration of the production process); A_4 is the processing and output of the results of simulation; P_5 is the comparison $i < l$; K_6 and K_{66} denote the additions $j+1$ and $i+1$, respectively; the operator P_{0i} replaces the simulating sub-algorithm of the i-th assembling operation; K_{11} is the counting operator of the workpieces that have

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Simulation of production processes ...

S/020/62/144/005/001/017
B125/B104

gone through the i -th assembling operation; and K_{2i} is the counting operator of interruptions suffered by the i -th assembling operation. The operator P_{0i} can be represented, for example, by

$$\begin{aligned}
& A_8; A_9^{10, 21} P_{10, 20}; P_{11, 21}; K_{12}; \Phi_{13}; P_{14, 14}; K_{15}^{10}; \Phi_{16}; \\
& A_{17}; P_{18, 21}; \Phi_{19}^{10, 23} A_{20}; A_{21}; P_{18, 20}^{12, 22}; A_{23}^{10}; A_{22}^{18, 6}; K_{23}^{20}.
\end{aligned} \tag{3}$$

The simulating algorithms for other production processes require complex mathematical models with more complex algorithms. The procedure considered here can be used for calculating the parameters of machines and production processes.

PRESENTED: June 5, 1961, by A. I. Berg, Academician

SUBMITTED: May 11, 1961

Card 3/4

BUSLENKO, N.P. (Moskva)

Contribution to the theory of complex systems. Izv. AN SSSR.
Tekh. kib. no.5:7-18 S-0 '63. (MIRA 16:12)

BUSLENKO, N.P. (Moskva)

Modeling of industrial processes using electronic digital computers.
Probl. kib. no.9:189-210 '63. (MIRA 17:10)

ALIYEV, G.A. (Moskva); BUSLENKO, N.P. (Moskva); KLIMOV, G.P. (Moskva); NAZARENKO, A.I. (Moskva); Primali uchastiye: POLYAKOVA, N.A.; DATSKEVICH, R.T.; GAYDABUKA, L.A.

Modeling of the operation of an automated furnace machine for welding pipes. Probl. kib. no.9:211-240 '63. (MIRA 17:10)

1. Elektrostal'skiy zavod tyazhelogo mashinostroyeniya (for Polyakova, Datskevich, Gaydabuka).

L 60927-65 EWT(d)/T/RWP(1) IJP(c)

TOPIC TAGS: production, operation research, mathematics, automatic control, digital computer, random process

TOPIC TAGS: production, operation research, mathematics, automatic control, digital computer, random process

copies printed.

TOPIC TAGS: production, operation research, mathematics, automatic control, digital computer, random process

PURPOSE AND COVERAGE: digital computers and mathematical models of automatic control systems, random processes, automatic control, digital computer, random process

TOPIC TAGS: production, operation research, mathematics, automatic control, digital computer, random process

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L 60927-65

ACCESSION NR AM5010316

intended for engineers and university students who specialize in the areas of operations research and the automation of production.

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APPENDIX

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ACCESSION NR: AP4028971

S/0280/64/000/002/0003/0011

AUTHOR: Buslenko, N. P. (Moscow); Yurkevich, O. M. (Moscow)

TITLE Operations with aggregates in complex systems

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 2, 1964, 3-11

TOPIC TAGS: cybernetics, information transmission system, information transmission A system

ABSTRACT: A class of complex systems was defined earlier by the author (AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 5, 1963) and named "A-systems." The primary elements of the A-systems — the aggregates — are connected, from the information-transmission viewpoint, by the relations of succession or subordination. Algorithms of various aggregate constructions are determined by developing a system of algebraic operations with the aggregates regarded as elements of a set. Concepts of equality and equivalence of the

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ACCESSION NR: AP4028971

aggregates are formulated. Multiphase and multichannel A-systems are regarded as aggregate constructions; product- or convolution-of-aggregates operation is considered, and its characteristics are investigated. This operation permits finding an equivalent aggregate with input and output poles and internal functions of the A-system in question. For multichannel systems, a summation- or uniting-of-aggregates operation is developed. Orig. art. has: 60 formulas.

ASSOCIATION: none

SUBMITTED: 13Jan64

DATE ACQ: 30Apr64

ENCL: 00

SUB CODE: DP, IE

NO REF SOV: 004

OTHER: 000

Card 2/2

FITILEVA, L.M.; BUSLENKO, N.S. (Moskva)

Characteristics and diagnostic significance of diastolic murmur
in mitral stenosis with regular rhythm of cardiac contraction.
Klin.med. no.7:96-102 '61. (MIRA 14:8)

1. Iz laboratorii funktsional'noy diagnostiki (zav. - kand.med.
nauk G.G. Gel'shteyn) Instituta grudnoy khirurgii AN SSSR
(dir. - prof. S.A. Kolesnikov, nauchnyy rukovoditel' - akad.
A.N. Bekulev) i kliniki fakul'tetskoy khirurgii (zav. - prof.
A.A. Busalov) pediatricheskogo fakul'teta II Moskovskogo
meditsinskogo instituta.

(NITRAL VALVE--DISEASES)

(HEART--SOUNDS)

BUSLER, I.V.

BONDAREV, I.M.; BUSLER, I.V.; ZHIGALINA, L.I.

Method of rapid preparation of electrophoregrams [with summary in English]. Biul.eksp.biol.med. 44 no.8:114-118 Ag '57. (MIRA 10:11)

1. Iz kafedry patologicheskoy fiziologii (zav. - prof. A.N.Gordiyenko) Rostovskogo meditsinskogo instituta. Predstavlena deystvitel'nyim chlenom AMN SSSR N.A.Rozhanskim.

(ELECTROPHORESIS,
rapid prep. of electrophoregram (Rus))

SOV/120-59-1-26/50

AUTHORS: Blokhin, M. A., Busler, I. V., Kramarov, O. P., Chernyavskaya, I. P.

TITLE: The Use of a Monitor in X-Ray Spectral Analysis (Primeneniye monitora pri rentgeno-spektral'nom analize)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 1, pp 106-111 (USSR)

ABSTRACT: In the continuous recording of intensities in X-ray spectra by means of ionisation or scintillation counters, a high stability source of the radiation is necessary. At the same time it is difficult to ensure a high stability in the anode voltage at the relatively high power used by the tube. This problem is particularly complex when the anode current has to be varied within wide limits, for example, in the measurement of the intensity ratio of a very weak and a very bright line. For this and other reasons the present authors have developed methods for measuring line intensity ratios either when the intensity is directly stabilized or when the source of the radiation is not stabilized at all. Ionisation chambers or geiger counters are used for this purpose as monitors. The device is shown diagrammatically in Fig 1. In this figure 1 is the anode of the X-ray tube. Primary X-rays leaving the anode are incident on the specimen under investigation 2 and an addit-

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The Use of a Monitor in X-Ray Spectral Analysis

ional specimen 3 . Fluorescence radiation leaving 2 is analyzed in a spectrometer which uses a geiger counter as the detector. The radiation from the additional specimen 3 enters the monitor 7 through a collimator 4 . The monitor is in the form of a geiger counter. The additional specimen is made from a pure element (or its oxide). The stabilization is ensured by using the output signal of the monitor to stabilize the cathode supply of the X-ray tube. The system is completely automatic, the control circuit being shown in Fig 2. It is shown that the use of a monitor in conjunction with good collimation of the direct fluorescence radiation from the additional specimen enables one to carry out accurate measurements of X-ray intensities without any stabilization of the supplies. Fig 4 shows a typical spectrum obtained with this instrument. Fig 3 shows the root mean square error in the intensity of the K_{α} line as a function of the atomic number Z of the specimen under investigation, the additional specimen being Ni . It follows from this figure that if a

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The Use of a Monitor in X-Ray Spectral Analysis

relative error of 3% is sufficient (the number of counts taken being sufficiently high, i.e. the statistical error being low) then the atomic number of the specimen under investigation may differ from the corresponding number of the additional specimen by 4. Hence altogether nine neighbouring elements may be investigated whose atomic numbers are symmetrically placed on either side of the atomic number of the additional specimen. If the relative statistical counting error does not exceed 4%, then for the above 3% the final relative error would be less than 5%. Thus almost the entire spectral region normally used in analysis by long wave spectrometers may be covered, using a single additional specimen, for example, a chromium specimen. Typical results are shown in Fig 4. There are 4 figures, 2 tables and 12 references, of which 8 are English, 1 is Japanese in English and the rest are Soviet.

ASSOCIATION: Rostovskiy-na-Donu gosudarstvennyy universitet (Rostov-na-Donu State University)

SUBMITTED: January 18, 1958.

Card 3/3

SEMENOV, A.D.; BUSLER, I.V.

Stable amplifier for measuring the pH value of solutions with a glass
electrode. *Gidrokhim.mat.* 34:157-163 '61. (MIRA 15:2)
(Amplifiers (Electronics)) (Hydrogen-ion concentration)
(Electric measurements)

STRADOMSKIY, V.B.; BUSLER, I.V.

Small-base apparatus for measuring weakly active -radiation.
Gidrokhim. mat. 35:177-182 '63. (MIRA 16:7)

1. Gidrokhimicheskiy institut, Novocherkassk.
(Water--Radioactive properties)