

L 27603-65

ACCESSION NR: AP5001395

ASSOCIATION: Upravleniye uglerudovoznogo flota Chernomorskogo parokhodstva
(Coal and ore fleet board, Black Sea steamship fleet)

SUBMITTED: 00

ENCL: 00

SUB CODE: NG

NO REF SOV: 000

OTHER: 000

Card 2/2

GORBANESCU, Gheorghe

"Cosmic electrodynamics" by Dzh. Danzhy [Dungey, J.W.]. Reviewed
by Gheorghe Gorbanescu. Studii fiz tehn Iasi 13 no.2:303-304
'62.

GORBANESCU, Gheorghe

"Production of heavy water." Reviewed by Gheorghe Gorbanescu.
Studii fiz tehn Iasi 13 no.2:315-316 '62.

GORBANETS, V.K.; KHAZNAFEROV, A.I.

Experimental investigations of the flooding of unrecovered oil from
drowned strata with a solvent. Nefteprom. delo no.9:7-11 '64.

(MIRA 17:10)

1. Krasnodarskiy filial Vsesoyuznogo neftegazovogo nauchno-issledovatel'skogo instituta.

GORBAINEV, A. I.

CA 24

1ST AND 2ND SECTIONS PROCESSES AND PROPERTIES INDEX 3RD AND 4TH SECTIONS

The optimum proportions of the components in the production of mercury fulminate. K. M. Voroshin and A. I. Gorbainev. *Vysdy Khar'kov. Khim.-Tekhnol. Tsif. Im S. M. Kirova* 4, 145-8 (1944).—Short note. The highest yield, 94-6%, is obtained with 1 part (by wt.) Hg, 8.8 parts HNO₃ (61.5%), 8.8 parts HCl (chemically pure), 8.8 parts EtOH (96%), and electrolytic Cu 1% of the wt. of Hg. Higher amts. of Cu or HCl impair the quality of the fulminate, lower amts. slow the reaction and impair the yield somewhat. Excess EtOH slows the reaction and impairs the yield. N. Thon

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

EDSON SYMBLIVE EDSON BOWLAV

EDSON SYMBLIVE EDSON BOWLAV

GORBANEV, A. I.

Gorbanev, A. I. - "The 25th anniversary of the Ukrainian State Institute for Applied Chemistry, of the All-Union Institute of the Soda Industry (1923-1948), Trudy Vsesoyuz. in-ta sodovoy promsti, Vol. V, 1949, p. 5-8

SO: U-4631, 16 Sept. 53, (Letopis 'Zhurnal 'nykh Statey, No. 24, 1949).

GORBANEV, A. I.

Gorbanev, A. I. and Ginzburg, D. M. - "Direct transformation of soda into sodium hydroxide by the action of water vapor", Trudy Vsesoyuz. in-ta sodovoy prom-sti, Vol. V, 1949, p. 229-42, - Bibliog: 12 items.

So: U-4631, 16 Sept. 53, (Letopis 'Zhurnal 'nykh Statey, No. 24, 1949).

GORBANEV, A. I.

3

✓ Sodium Sulfate (Sul'fat natriya). A. I. GORBANEV AND V.
Ya. NIKOLINA. Goskhimizdat, 1954, 224 pp. PRICE R 9.50.
Reviewed in *Zhur. Priklad. Khim.*, 28 [8] 906-909 (1955).--This
first monograph on sodium sulfate covers physicochemical charac-
teristics, most important deposits and methods of working,
methods of dehydrating mirabilite, and the industrial process for
making sodium sulfate. Considerable space is given to the con-
version of sodium sulfate into sodium sulfide, soda, caustic soda,
etc. Detailed bibliographies.
B.Z.K.

①

PM [signature]

GERBANEY, H. L.

July 21, 76. At higher H₂O content the objects did not fuse together: apparently fusion was prevented by the increased rate of ...

ducting gas was initially ...

GORBANEV, A. I.

USSR.

Preparation of sodium carbonate from sodium sulfate by gas reduction. III. The reduction of sodium sulfate by semi-water gas. A. I. Gorbanev. *Zhur. Priklad. Khim.* 27, 1033-41 (1954); *Chem. Abstr.* 49, 1287g. The exptl. procedure differed from that previously used (see ref. I) in that the air was satd. with H_2O before it entered the gas generator so that it contained H_2 as well as CO . The best yields (87.2% reduction and 92.7% Na_2CO_3) were obtained at 630° and 0.35 atm. pressure (water). The operating time was increased to 3 1/2-6 1/2 hr and the best temp. lowered. Contrary to the free-energy predictions for the 4 more likely reactions which take place best results were obtained with a gas contg. an equal vol. of CO and H_2 in $CO + H_2 + Na_2SO_4$. Higher proportions of H_2 fused the charge and consequently reduced the yields.

GORBANEV, A.I.

Study of the reaction of sodium sulfate with generator gas. Zhur.
prikl.khim. 27 no.9:921-929 S '54. (MIRA 7:10)
(Sodium sulfate) (Reduction, Chemical)

ГОРБАНИН, А. И.

KESSLER, Yu.M.; GORBANOV, A.I.

Heat of dilution of the solutions of alkali metal chlorides in concentrated hydrogen peroxide. Report No.1. Izv.vost.fil.AN SSSR no.4/5:75-89 '57. (MLRA 10:9)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova. (Heat of solution) (Alkali metal chlorides) (Hydrogen peroxide) (Electrolysis)

~~GORDANEV A. I.~~
KESLER, Yu. M.; GORBANOV, A. I.

Heat of dilution of the solutions of alkali metal chlorides in concentrated hydrogen peroxide. Report No.2. Izv.vost.fil.AN SSSR no.6:50-63 '57. (MLRA 10:9)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova. (Heat of solution) (Electrolysis) (Hydrogen peroxide)

GORBANEV, A.I.

GORBANEV, A.I.; NIKOL'SKAYA, Yu.P.

Mineral lakes of Western Siberia are a rich basis for the development of the chemical industry. *Izv. vost. fil. AN SSSR no.12:68-77 '57.*

(MIRA 11:1)

1. *Sovet po koordinatsii i Zapadno-Sibirskiy filial AN SSSR.*
(Siberia, Western--Mines and mineral resources) (Lakes)

GORBANEV, A. I.

AUTHOR: None given
TITLE: Presidium of the AN USSR. On the Activities of 30-8-14/37
the Dagestan Branch of the AN USSR (V prezidium Akademii
nauk SSSR. O deyatel'nosti Dagestanskogo Filiala)
PERIODICAL: Vestnik Akademii Nauk SSSR, 1957, Vol.27, Nr 8, pp.80-81 (USSR)
ABSTRACT: The president of the academy received a report by Kh.I.Amirkhanov, member of the ~~Azerbaijani~~ branch of the AN USSR (as well as a report by A.I.Gorbanev, Doctor of Technical Sciences, which is connected with the first-mentioned report). The Dagestan Branch obtained remarkable successes during the last 3 years. The research results obtained have already been utilized by various plants of the ~~Azerbaijani~~ republic. Thanks to the work carried out by the research institute for geology it was possible to discover new mineral oil deposits in the autonomous Checheno-Ingushskaya ASSR so that mineral oil production will be increased considerably in this autonomous republic. In spite of the successes obtained by this branch, there are still some deficiencies which prevent full development of the already obtained scientific successes. Measures have been

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30-8-14/37

On the Activities of the Dagestan Branch of the AN USSR

taken to eliminate these deficiencies.

AVAILABLE: Library of Congress

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Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 148

indicates the anisotropy of the γ -factor. Consequently, the absorption may be attributed to the free radical HO₂, the presence of which has been postulated previously, or the OH, which is less probable, because the latter could hardly be preserved in a trap even at 77°K due to its high reaction capacity.

Card 2/2

AUTHORS:

Kessler, Yu. M., Gorbanev, A. I.

20-3-22/52

TITLE:

Deviations of the Thermodynamical Properties of the Solutions of Strong Electrolytes from the Limit Law in the Debye Range of Concentrations (Ob otkloneniyakh termodinamicheskikh svoystv rastvorov sil'nykh elektrolitov ot predel'nogo zakona v Debayevskoy oblasti kontsentratsiy).

PERIODICAL:

Doklady AN SSSR , 1957, Vol. 117, Nr 3, pp. 437-440 (USSR)

ABSTRACT:

First, some previous works dealing with the same subject are discussed. The authors determined the integral solution heats ΔH_m of NaCl, KCl, RbCl and CsCl in H_2O_2 at 0° by means of an ice calorimeter. The difference between the signs of the experimental and the theoretical values ΔW and ΔW_D begins to manifest itself in the case of H_2O_2 at much lower concentrations than in the case of H_2O . Taking account of the dependence $D = f(c)$ (where c denotes concentration in mol/l), of the repeated collisions, of the eigenvolume of the ions, of the modification of the distance a of the extreme approximation of ions in the case of a change of temperature, etc. cannot explain the occurrence of the positive solution heats in the Debye (Debye) range

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Deviations of the Thermodynamical Properties of the
Solutions of Strong Electrolytes from the Limit Law in the
Debye Range of Concentrations

20-3-22/52

of concentrations. The only possible causes are the production of ion pairs and the dependence of the structure of the solution on concentration. The solution energy ΔG_o connected with the production of ion pairs can be determined in the most general form on the basis of the theory of the "specific interaction" of ions developed by J. N. Brønsted (Ref.7), and E. A. Guggenheim (Ref. 8). The authors consider the specific interaction of ions to be the result of their approximation to the distance $r_{ij} < a_i + a_j$, where a_i and a_j are the radii of the solvation domains of the ions. The course taken by the computation according to the two above theories is described in short. The satisfactory agreement between theory and experiment extends as far as $c = 0.025$, i. e. up to the boundary of the Debye range. In order to carry out such a comparison, corresponding computations were carried out on the basis of published data for NaCl in ethylene glycol, NaCl, NaBr and NaJ in formaldehyde and KCl in H₂O. In aqueous solutions agreement between theoretical and experimental values extends from ΔW to the highest

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concentration $c > 0,1$, but in the case of solutions in H_2O_2 this agreement extends along the smallest range. With a given concentration the greatest difference between theoretical and experimental values of ΔW is found in the case of solutions in H_2O_2 . The smallest difference is found in H_2O . Ethylene glycol and formic amid take up a middle position. The modification of the structure of aqueous solutions with a change of concentration is probably small in spherical ions at least up to $c = 0.1$. There are 1 figure, 1 table, and 24 references, 9 of which are Slavic.

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

PRESENTED: April 27, 1957, by I. I. Chernyayev, Academician

SUBMITTED: April 23, 1957

AVAILABLE: Library of Congress

Card 3/3

GORBANOV, A.I.; TSENTSIPER, A.B.; ZHITENEVA, P.M.; DANILOVA, M.S.

Reaction of dissociated vapors of H_2O_2 at a temperature of $-196^\circ C$.

Izv. Sib. otd. AN SSSR no.5:43-52 '58.

(MIRA 11:9)

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

(Hydrogen peroxide) (Electric discharges through gases)

AUTHORS: Kessler, Yu. M. Gorbanev, A. I. SOV/62-58-8-17/22

TITLE: Notes on the Glauber and Yukhnovskiy Equation (Zamechaniye k uravneniyu Glaubermana i Yukhnovskogo)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1958, Nr 8, pp. 1010-1011 (USSR)

ABSTRACT: In this short report the correction of an inaccuracy in the Glauber and Yukhnovskiy equation for the electrostatic part of the free energy of the electrolyte solution is dealt with. This equation reads as follows:

$$F_e = -(T / 2D_0) \sum N_i z_i^2 \epsilon^2 \quad (B_1 / 2\beta^3 \kappa^2 T),$$

where B_1 is equal to

$$\frac{1}{5} (x_1 - 1)^5 - \frac{2}{3} (x_1 - 1)^3 + (x_1 - 1) + \frac{1}{20} (x_1 - 2)^5 + \frac{1}{4} (x_1 - 2)^4 x_1,$$

$$x_1 = \sqrt{1 + 2\beta\kappa} + 1;$$

β is the parameter of the theory denoting the mean diameter of the ions. Otherwise the notation is as usual. In employing this equation for determining the heat of dilution ΔW it turned out

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SOV/62-58-8-17/22

Notes on the Glauber and Yukhnovskiy Equation

that $\Delta W_{(1)}$ is equal to $-\infty$ at $\kappa=0$. The authors conclude that the equation $F_e = (T/2D_0) \cdot \sum v_i z_i^2 \epsilon^2 (B/2\beta^3 AT)$ leads to the uncertain form $\Delta W_{(8)} = 0/0$ (at $\kappa=0$). This indeterminacy was investigated by the authors. It was found that $\lim_{\kappa \rightarrow 0} \Delta W_{(8)} = 0$ at $\kappa \rightarrow 0$. Therefore the equation given by the authors may be assumed to be correct. The equation for $\Delta W_{(8)}$ sufficiently describes the experimental data for aqueous 1-1 electrolyte solutions at 25°C and $\beta \sim 4\text{Å}$ as well as $\partial\beta/\partial T \sim 5 \cdot 10^{-4} \text{ Å/degree}$. There is 1 reference, 1 of which is Soviet.

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

SUBMITTED: March 7, 1958

Card 2/2

GORBANEV, A.I.

Thermodynamic analysis of the data on formation of soda from
sodium sulfate. Zhur. prikl. khim. 31 no.7:1105-1109 J1 '58.
(Sodium sulfate) (Soda industry) (MIRA 11:9)

GORBANEV, A.I.

Experimental study of gaseous reduction process of Na_2SO_4 to
 Na_2CO_3 in a shaft furnace. Zhur. prikl. khim. 31 no.8:1270-1273
AG '58. (MIRA 11:10)
(Sodium sulfate) (Sodium carbonate) (Reduction, Chemical)

5.4600

77064
SOV/62-59-12-8/43

AUTHORS: Kessler, Yu. M., Gorbanev, A. I.

TITLE: A Comment on the Theory of Solutions of Strong Electrolytes

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 12, pp 2116-2118 (USSR)

ABSTRACT: The authors list all the corrections of the Debye-Hückel theory made by various authors (with a list of literature references). The fact that parameters a (average effective ionic diameter) and h (hydration number) vary in equations obtained by different authors, and that equations for ΔW (heat of dilution) and \bar{L}_2 (relative partial molar heat capacity), derived by Wicke and Eigen (E. Wicke, M. Eigen, Naturwissenschaften, 38, 453 (1951); 39, 545 (1952); Z. Electrochem., 56, 551 (1952); and Robinson and Stokes (R. A. Robinson, R. Stokes, Ann. N. Y. Acad. Sci., 51, 593 (1949)) on the basis of the Debye-Hückel theory, do not describe

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A Comment on the Theory of Solutions of
Strong Electrolytes77064
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experimental conditions accurately (unless a temperature dependence of a and h is assumed), suggest that additional corrections are needed. The assumption

that $\frac{da}{dT} > 0$ and $\frac{dh}{dT} > 0$, that would adjust the theoretical values of ΔW and \bar{L}_2 , contradicts experimental evidence. The authors conclude that in order to explain experimental deviations of the data on ΔW and \bar{L}_2 from the Debye-Huckel theory, it is necessary to consider the existence of ion-pairs and the changes in the structure of solutions affected by increasing concentration. There is 1 table; and 39 references, 5 Soviet, 12 German, 2 Indian, 2 Japanese, 2 Dutch, 1 French, 1 Canadian, 2 U.K., 12 U.S. The 5 most recent U.K. and U.S. references are: D. G. Miller, J. Phys. Chem., 60, 1296 (1956); E. Glueckauf, Trans. Faraday Soc., 51, 1235 (1955); J. B. Hasted, S. H. M. El-Sabeh, Trans. Faraday Soc., 49, 1003 (1953); R. A. Robinson, R. Stokes, Ann. N. Y. Acad. Sci., 51, 593 (1949); J. B. Hasted, D. M. Ritson, C. H. Collie, J. Chem.

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A Comment on the Theory of Solutions of
Strong Electrolytes

77064
SOV/62-59-12-8/43

Phys., 16, 1 (1948).

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

SUBMITTED: April 7, 1958

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5(2)

SOV/78-4-9-2/44

AUTHORS:

Tsentiper, A. B., Danilova, M. S., Kanishcheva, A. S.,
Gorbanev, A. I.

TITLE:

New Data on the Existence of a Higher Hydrogen Peroxide

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 9,
pp 1952-1957 (USSR)

ABSTRACT:

The glassy substance formed at -196° in the vapors of water and hydrogen peroxide dissociated by glow discharge, and by reaction of hydrogen atoms with oxygen or with liquid ozone has been described by many authors (Refs 1 - 11), among others by N. I. Kobozev, L. I. Nekrasov and Ye. N. Yeregin (Ref 11). In the present paper the X-ray analysis of this substance is reported on. The substance was synthesized by means of a glow discharge in an $H_2O - H_2O_2$ atmosphere in the apparatus described in reference 17, and by causing atomic H to react with liquid O_2 . The goniometer head of the X-ray camera is given in figure 1, the Dewar vessel in figure 2. Table 1 gives data obtained from radiographs of the substance investigated, and table 2 the chemical analyses. The authors state that the substance is formed in the amorphous state regardless of the synthetic method applied. It begins to crystallize slowly at -115° , crystallization being completed

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SOV/78-4-9-2/44

New Data on the Existence of a Higher Hydrogen Peroxide

after 5 hours. Grinding of the substance under liquid nitrogen also induces crystallization. Only the lines of ice and hydrogen peroxide were visible in the radiograph, as well as the halo of the amorphous substance, for which the composition H_2O_4 was determined. The substance evidently is a higher hydro-

gen peroxide. The authors express their thanks to G. A. Gol'der for his valuable advice. This investigation was carried out together with the Fizicheskiy Institut Akademii nauk SSSR (Institute of Physics of the Academy of Sciences, USSR). There are 2 figures, 2 tables, and 19 references, 6 of which are Soviet.

SUBMITTED: May 5, 1958

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5 (4)

AUTHORS:

Gorbanev, A. I., Kessler, Yu. M.,
~~Povarov, Yu. M.~~, Sevost'yanov, E. S.

SOV/20-125-6-30/61

TITLE:

Some Regularities in the Properties of the Solutions of Strong
 Electrolytes (Nekotoryye zakonomernosti svoystv rastvorov
 sil'nykh elektrolitov)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 6,
 pp 1281-1284 (USSR)

ABSTRACT:

The authors state that it is possible to explain the
 deviation of the properties of electrolytes from the Debye-
 Hückel-law only by taking the specific ion interaction into
 account. On the basis of assumptions made in an earlier
 paper (Ref 4) the contribution f_c of ion interaction is given

as amounting to $\ln f_c = \frac{4}{3} \pi a^3 Bc - B\beta_1 c$ (1). [$a = r_+ + r_-$,
 the sum of the crystallographic radii of the cation and anion,
 $B = 6.024 \cdot 10^{20}$, β_1 = coefficient taking the solvation energy
 of the ion pair into account (Formula 2), c = concentration].
 The deviation $\lg f_{\text{exp}} = \lg f_D - \lg f_c$ (f_{exp} = experimentally

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determined behavior, F_D = theoretical behavior according to Debye-Hückel) was investigated at 25° and $c = 0.01$ in aqueous electrolyte solutions. The following increase of the deviation was found: $LiCl < KClO_4 < NaF, NaNO_3, NaClO_4, RbCl, CsCl, CsBr < KCl < KBr < LiNO_3, NaCl < KJ < LiBr < NaJ < NaBr < LiClO_4 < KF < CsF$. It follows herefrom that there is no agreement between the deviation and the solvation ability of the ions. As the energy of electrostatic interaction and quantum-mechanical energy compensate each other, with an increase of the ion radius, the lack of agreement must be due to individual differences between the ion pairs, which manifest themselves in their solvation energy. Therefore, the values for $B\beta_1 c$ were calculated and the curve of the function $B\beta_1 c = f(a)$ for 0° and 25° was plotted (Figs 1, 2). An existing connection now becomes noticeable. The considerable straggling of measured values may be explained by the omission of all other interaction factors. Investigation of the dependence between

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$B\beta_1c$ and b (dipole effect) as well as g (charge interaction) resulted in no connection in the case of water. On the basis of data (Ref 7) for formamide the values of $B\beta_1c$ in a formamide solution were calculated and represented as $f(a)$ and $f(b)$ (Fig 3). The authors, however, emphasize that this connection, which now becomes apparent, may be due to a misapprehension. It happens that the salts for which data in formamide are available, show a continuous connection between a , b and g (Fig 4). Thus, the real argument of the function $B\beta_1c$ can therefore only be one of the variables a , b , g . In order to clear this up, it is necessary to determine the values for salts which do not fit in to the curve of figure 4. There is no connection between a , b and g and the deviation from the law of dilution heat. The dilution heat is influenced in the same manner by the various effects of ion interaction. In this case the entropy terms of the equation must not be omitted. There are 4 figures and 7 references, 4 of which are Soviet.

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Some Regularities in the Properties of the
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SOV/20-125-6-30/61

ASSOCIATION: Institut elektrokhemii Akademii nauk SSSR (Institute for
Electrochemistry of the Academy of Sciences, USSR)

PRESENTED: January 14, 1959, by A. N. Frumkin, Academician

SUBMITTED: December 26, 1958

Card 4/4

5.4130

78085
SOV/62-60-1-31/37

AUTHORS: Gorbanev, A. I., Kessler, Yu. M.

TITLE: Brief Communications. Concerning Calculation of Ions Effect on the Structure of Water

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, Nr 1, pp 140-141 (USSR)

ABSTRACT: It was shown by a series of mathematical transformations that the method for calculating the ion effect on the structure of water, proposed by I. G. Mikhaylov and Yu. P. Syrnikov (Vestn. Leningr. univ., Nr 10, Seriya fiziki i khimii, vyp. 2, 5, 1958) is quite reasonable and interesting from the qualitative side, but quantitatively it is expressed incorrectly. There is 1 Soviet reference.

ASSOCIATION: Institute of Electrochemistry, Academy of Sciences USSR (Institut elektro-khimii Akademii nauk SSSR)

SUBMITTED: June 23, 1959 Card 1/1

GORBANEV, A.I.

ATTENDS: Callahan, J. S.; Gerasovskiy, S. S.; Budnikova, P. P.
Kadner, A. J.; Gorbanev, A. I.
[REDACTED] (1901-1959)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1960, Vol. 34, No. 9, pp. 2130-2135

NOTE: An obituary note is given in honor of the field of the katalytic electrochemically produced Karboronnyy prikladnyy khimicheskiy Institut in V. I. Lenin (Chair of Electrochemistry) Professor of the Dnepropetrovsk Polytechnic Institute Leonid V. I. Lenin). Professor A. E. Szygoyev, who died on January 4, 1960. Following the obituary, a list of the scientific works published by him is given. In 1926, he defended his thesis at the Karboronnyy tekhnologicheskii institut (Karboron Tekhnologicheskii Institut). From 1924 to 1935 he worked with Professor I. P. Shubnikov on "Electrolysis Without Electrodes by Means of a Special Cell" in which occasion several experiments made by Professor A. E. Szygoyev were reported, and as a result of the conference 1/2

literary results obtained by the student A. E. Szygoyev and Professor Szygoyev, a controversy followed, in the course of which the latter was proved to be right. The work mentioned was published in the Zhurnal Fizicheskoy Khimii. A. E. Szygoyev's research field was analytical chemistry, he investigated the carbon-oxygen element, the effect of a magnetic field upon the course of chemical reactions, the properties of liquid crystals, as well as various semiconductor properties. Szygoyev also published his article "Acquisition of P. 10718 in the latter field, and also published his article "Acquisition of P. 10718 in the field of chemistry and technology of solid materials" in the Zhurnal Fizicheskoy Khimii. Szygoyev occupied himself with the production of calcium carbide, phosphorus, and slag wool were established under his supervision in Uzbekistan. In the last years of his life, Szygoyev occupied himself with electroplating and investigated the structure of various metal deposits. There are 1 figure and 39 Soviet references.

Card 2/2

SINYAKOV, Yu.I.; GORBANEV, A.I.; POVAROV, Yu.M.; KESSLER, Yu.M.

Density of N-methylformamide. Izv. AN SSSR. Otd.khim.nauk
no.8:1514-1515 Ag '61. (MIRA 14:8)

1. Institut elektrokhemii AN SSSR.
(Formamide)

GORBANEV, A.I.; KESSLER, Yu.M.; KRYLOV, V.V.

Effect of the structure of strong electrolyte solutions on thermodynamic properties. Zhur.strukt.khim. 2 no.3:260-267 My-Je '61.
(MIRA 15:1)

1. Institut elektrokhemii AN SSSR.
(Electrolyte solutions) (Chemistry, Physical and theoretical)

KESELER, Yu.M.; POVAROV, Yu.M.; GORBANEV, A.I.

Close interaction of ions in solutions. Zhur.strukt.khim. 3
no.1:93-94 Ja-F '62. (MIRA 15:3)

1. Institut elektrokhimii AN SSSR.
(Electrolyte solutions)

SEVAST'YANOV, E.S.; GORBANEV, A.I.; KESSLER, Yu.M. (Moscow)

Apparatus for measuring electric conductivity. Zhur. fiz.
khim. 36 no. 3:644-645 Mr '62. (MIRA 17:8)

1. Institut elektrokhemii AN SSSR.

34024

S/020/62/142/005/015/022
B110/B101

5.2620

AUTHORS: Alpatova, N. M., Gorbanev, A. I., Kessler, Yu. M., and
Lozhkina, L. G.

TITLE: Physicochemical study of complexes between alkyl (aryl)
chlorosilanes and halides of tetrasubstituted ammonium

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 142, no. 5, 1962, 1073-1076

TEXT: The authors studied the complex formation between CH_3SiCl_3 (I),
 $(\text{CH}_3)_3\text{SiCl}$ (II), $\text{C}_6\text{H}_5\text{SiCl}_3$ (III), SiCl_4 (IV) with NaCl (a), NaF (b), KF
(c), CsCl (d), CsF (e), NH_4Cl (f), $(\text{CH}_3)_4\text{NCl}$ (g), $(\text{C}_2\text{H}_5)_4\text{NBr}$ (h),
 $(\text{C}_4\text{H}_9)_4\text{NCl}$ (i), $(\text{C}_4\text{H}_9)_4\text{NBr}$ (k), $(\text{C}_4\text{H}_9)_4\text{NI}$ (l), ethyl pyridine bromide (m) ✓
by chemical analysis (for hydrolyzable Cl, and argentometrically), con-
ductivity measurement, and visual observation of the dissolution. The
synthesis was conducted in Ar atmosphere at 35 - 40°C during 3 - 12 hr,
depending on the dispersity of the salt. I, II, III, IV reacted with e,
h, i, k, l. With halides of tetrasubstituted ammonium salts, complexes
Card 1/4

S/020/62/142/005/015/022
B110/B101

Physicochemical study of complexes ...

are formed if the alkyl radical is long enough. Their ability to form complexes increases with decreasing anion radius. In I and II, which behave similarly, i dissolves with formation of two layers. The one has an organosilicon compound: salt ratio of 3:1 (viscous, at room temperature supercooled, colorless, or yellow liquids), the other a ratio of ~40:1 (movable, organic compound with some dissolved salt). Dissolution of k is analogous. l yielded no complexes, only slight yellow coloring, and a slight increase in conductivity of the organosilicon compound. IV behaves like I and II but forms poorly fusible complexes. i and k dissolve in III without layer formation to give a yellow solution with high temperature coefficient of solubility. The solubility of i in III is much higher than in I and II, the conductivity $\kappa = 2.7 \cdot 10^{-4}$ for III:i = 5.4 : 1 (unsaturated solution); $\kappa = 7.4 \cdot 10^{-5}$ for III:k = 45 : 1 (saturated solution). In the system II-i the layer composition does practically not depend on time and temperature. This is confirmed by equal conductivities of the isolated complex and the complex together with the second layer. The behavior of $[(\text{CH}_3)_3\text{SiCl}]_3(\text{C}_4\text{H}_9)_4\text{NCl}$ to solvents proves a stronger bond of the one molecule than that of the other two. Si was not separated

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Physicochemical study of complexes ...

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B110/B101

off during electrolysis of the systems I-i; II-i; I-k, and the solutions of i and k in I at $D_c = 0.25 - 10 \text{ a/dm}^2$. Low-resistance. p-type silicon was dissolved in the systems I-i; II-i, and the solution of i in III. In the $[(\text{CH}_3)_3\text{SiCl}]_3(\text{C}_4\text{H}_9)_4\text{NCl}$ complex and its benzene solutions (1 mole of complex : 10 moles of benzene) at $D_a = 4 \text{ a/dm}^2$, silicon dissolves with almost 100 % current yield (referred to Si^{4+}). Complex formation, layer formation, extraction of two $(\text{CH}_3)_3\text{SiCl}$ molecules by aliphatic solvents, the dependence of the complex formation on anion radii and cation dimensions, the anodic behavior during electrolysis are similar to the behavior of analogous Al compounds, the cathodic behavior during electrolysis is different. There are 3 tables and 10 references: 3 Soviet and 7 non-Soviet.

ASSOCIATION: Institut elektrokhemii Akademii nauk SSSR (Institute of Electrochemistry of the Academy of Sciences USSR)

PRESENTED: October 7, 1961, by A. H. Frumkin, Academician
Card 3/4

Physicochemical study of complexes ...

S/020/62/142/005/015/022
B110/B101

SUBMITTED: October 2, 1961

4

Card 4/4

POVANOV, Yu.M.; GORBANEV, A.I.; KESSLER, Yu.M.; SAFONOVA, I.V.

Activity coefficients of cesium chloride in N-methylformamide.
Dokl. AN SSSR 142 no.5:1128-1129 F '62. (MIRA 15:2)

1. Institut elektrokhemii AN SSSR. Predstavleno akademikom
A.N.Frumkinym.

(Cesium chloride)
(Formamide)
(Activity coefficients)

KESSLER, Yu.M.; POVAROV, Yu.M.; GORBANEV, A.I.

Problem of the salting-out effect. Zhur.strukt.khim. 4 no.1:100-
102 Ja-P '63. (MIRA 16:2)

1. Institut elektrokhemii AN SSSR.
(Salting-out)

GOL'DSHTEYN, I.P.; KESSLER, Yu.M.; POVAROV, Yu.M.; GORBANEV, A.I.

Dipole moment of N-methylformamide. Zhur.strukt.khim. 4 no.3:
445-446 My-Je '63. (MIRA 16:6)

1. Institut elektrokhemii AN SSSR.
(Formamide—Dipole moments)

ALPATOVA, N.M.; KESSLER, Yu.M.; GORBANEV, A.I.

Interaction of hydrogen chloride with halides of quaternary
ammonium salts. Izv. AN SSSR. Ser. khim. no.8:1369-1372 Ag '64.
(MIRA 17:9)

1. Institut elektrokhemii AN SSSR.

GOL'DSHEYN, I.P.; ALPATOVA, N.M.; KESSLER, Yu.M.; GUR'YANOVA, Ye.N.;
GORBANEV, A.I.

Interaction of hydrogen chloride, tetra-*n*-butyl ammonium chloride
with trimethylchlorosilane in benzene solutions. Izv. AN SSSR.
Ser.khim. no.9:1683-1685 S '63. (MIRA 16:9)

1. Institut elektrokhemii AN SSSR.
(Ammonium compounds) (Silane) (Hydrochloric acid)

POVAROV, Yu.M.; KAZARINOV, V.Ye.; KESSLER, Yu.M.; GORBANEV, A.I.

Solubility of AgCl in solutions of NaCl and CsCl in
N-methylformamide and in formamide. Zhur.neorg.khim. 9 no.4:
1008-1010 Ap '64. (MIRA 17:4)

1. Institut elektrokhemii AN SSSR.

POVAROV, Yu.M.; KESSLER, Yu.M.; GORBANEV, A.I.

Thermodynamic properties of strong electrolyte solutions in
solvents with dielectric constants. Izv. AN SSSR. Ser. khim.
no.10:1895-1896 O '64. (MIRA 17:12)

1. Institut elektrokhemii AN SSSR.

POVROV, Yu.M.; KESSLER, Yu.M.; GORBANEV, A.I.; SAFONOVA, I.V.

Thermodynamic properties of solutions of strong electrolytes in solvents having high dielectric constants. Dokl. AN SSSR 155 no.6:1411-1414 Ap '64. (MIRA 17:4)

1. Institut elektrokhemii AN SSSR. Predstavleno akademikom A.N.Frumkinym.

POVAROV, Yu.M.; KESSLER, Yu.M.; GORBANEV, A.I.

Thermodynamic properties of strong electrolyte solutions in solvents
with high dielectric constants. Elektrokhimia 1 no.10:1174-1181 0
'65. (MIRA 18:10)

1. Institut elektrokhimii AN SSSR.

L 12898-66 EWT(m)/ETC(F)/EWG(m)/EWP(j)/T/EWP(t)/EWP(b) IJP(c) DS/JD/RM
ACC NR: AP5027580 SOURCE CODE: UR/0364/65/001/011/1344/1351

AUTHOR: Alpatova, N. M.; Kessler, Yu. M.; Gorbanev, A. I. *WJH*

ORG: Institute of Electrochemistry, Academy of Sciences SSSR (Institut elektrokhimii Akademii nauk SSSR) *WJH*

TITLE: Anodic behavior of silicon in some nonaqueous solvents. II.

SOURCE: *21* Elektrokhiimiya, v. 1, no. 11, 1965, 1344-1351

TOPIC TAGS: silicon, oxidation, organic solvent, electrochemistry, organosilicon compound, electroplating

ABSTRACT: This article reports on the continuation of work previously reported in *Elektrokhiimiya*, 1, 844 (1965). To determine the nature of the anodic reaction of the first polarization wave during the dissolution of Si in chloride solutions in N-methylformaamide solvent, polarization studies were conducted with stationary and rotating electrodes. Measurements were also made in methylchlorosilane solutions. *p*-type silicon of 0.045 ohm·cm resistivity and *n*-type silicon of 0.040 ohm·cm resistivity were used as anodes. Polarization measurements were made with the lower faces of cylinders 1.8-3.0 mm in diameter, pressed into teflon. The faces of the silicon cylinders were successively electro-

UDC: 541.13

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ACC NR: AP5027580

plated with palladium and copper and copper leads were soldered to them. The potential of the anode was measured with respect to the aqueous saturated calomel electrode. Electrode polarization was both galvanostatic and potentiostatic. The anode polarization curve for p-type silicon in N-methylformaamide solutions has two waves, where the first wave corresponds to the dissolution of silicon with the participation of solvent and the second wave corresponds to the oxidation of the solvent. The reaction is inhibited prior to the second wave, which is explained on the basis of adsorption of chloride ions on the electrode surface. It was shown that the holes participate in the anodic dissolution of silicon just as in the case of aqueous solutions. It is concluded that the results of this work will be useful in the preparation of silicon surface relatively free of oxide film, electropolishing of silicon, and production of new organosilicon compounds. The authors wish to express their gratitude to L. I. Krishtalik for the valuable remarks which he made in the course of the discussion of the results. Orig. art. has: 7 figures.

SUB CODE: 07/ SUBM DATE: 30Mar65/ ORIG REF: 006/ OTH REF: 004

Card 2/2

APR 1965
E/T(m)/ENG(m)/T JAJ/DS
AP5017958

UR/0062/65/000/006/0989/0094
537.311

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16
B

AUTHOR: Alpatova, N. M.; Kessler, Yu. M.; Gorbanev, A. I.

TITLE: Electrical conductivity of benzene solutions of hydrogen chloride and tetra-n-butylammonium chloride

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 6, 1965, 989-994

TOPIC TACS: quaternary ammonium base, hydrogen halide, tetrabutylammonium chloride, benzene solution, conductivity isotherm, electrical conductivity

ABSTRACT: The system $(n-C_4H_9)_4NCl - HCl$ was studied by measuring the electrical conductivity of isomolar series in benzene at 25, 15, and 10C. The HCl concentration ranged from 85 to 40-30 mole %. The electrical conductivity isotherms belong to the irrational type. The inflection point $(\frac{\partial^2 \chi}{\partial x^2} = 0, x$ being the

concentration) corresponds to the composition tetra-n-butylammonium chloride : HCl = 1:1, and does not shift as the temperature changes, indicating the formation of a compound of this composition. At the ratio of 1:3, a faint inflection is also observed, but it is fairly indistinct and the formation of the corres-

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ACCESSION NR: AP5017958

ponding compound cannot be ascertained from these data. In the interaction between R_4NX and HX at room temperature, the following stages are distinguished: (1) formation of solid (crystalline) compounds $R_4NX(HX)_n$; (2) formation of liquid compounds of this composition; (3) reaction between R_4NX and HX in an inert solvent. The first two stages are treated thermodynamically for $X = Cl, Br, \text{ and } I$ by means of thermochemical cycles. It is concluded that the dissociation of R_4NX is facilitated as R increases in length. The theoretical considerations are in accord with the formation of the compound $(n-C_4H_9)_4NCl \cdot HCl$, mentioned in this work. Orig. art. has: 2 figures and 10 formulas.

Институт электрохимии Академии наук СССР (Institute of Electrochemistry of the Academy of Sciences, USSR)

ALPATOVA, N.M.; KESSLER, Yu.M.; GORBANEV, A.I.

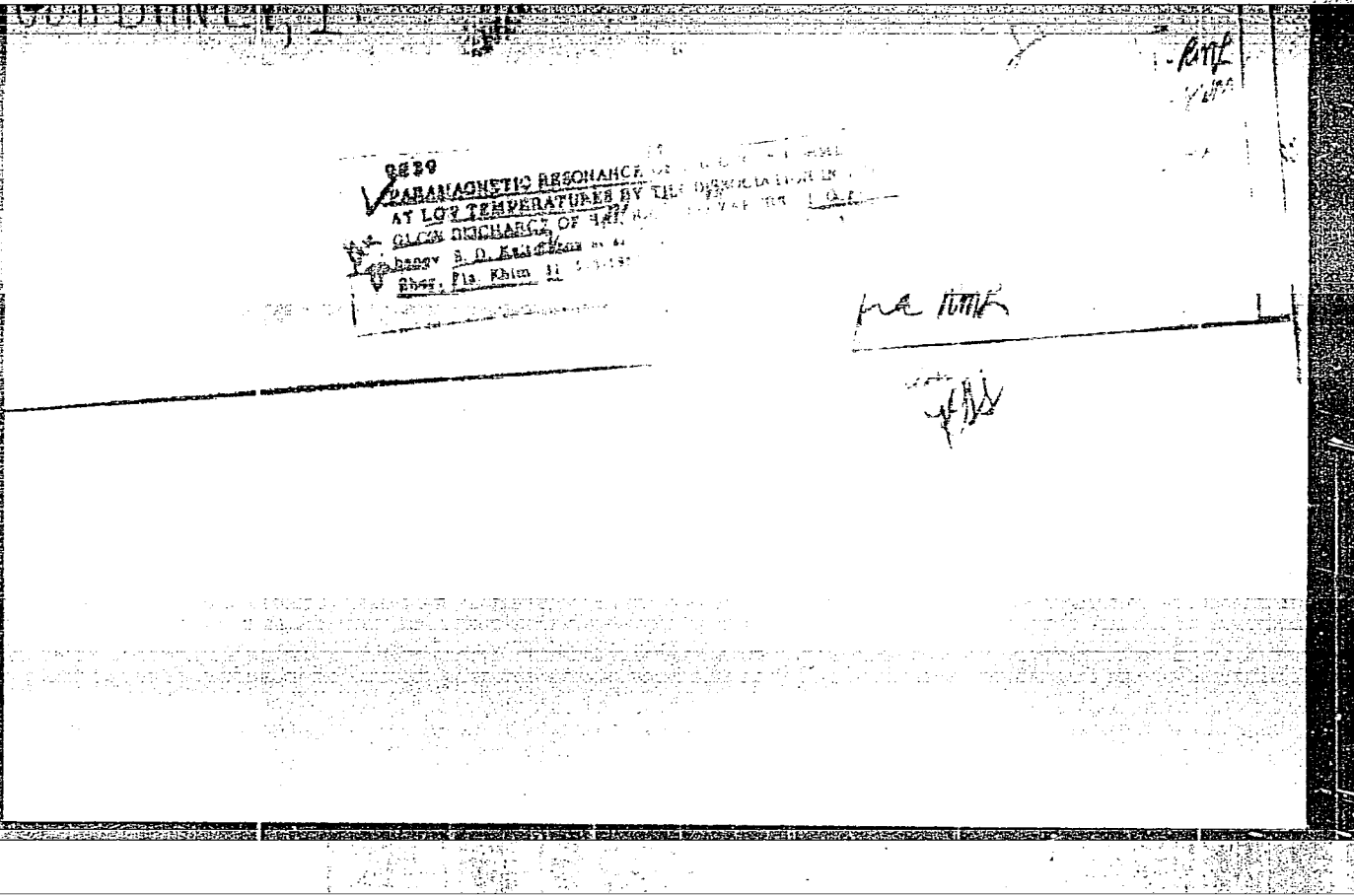
Interaction between methylchlorosilanes with complex compounds
of tetra-substituted ammonium halides and HCl. Zhur. neorg.
khim. 10 no.7:1566-1571 J1 '65. (MIRA 18:8)

1. Institut elektrokhimii AN SSSR.

ALPATOVA, N.M.; KESSLER, Yu.M.; GORBANEV, A.I.

Anodic behavior of silicon in some nonaqueous solutions.
Elektrokhimiia 1 no.7:844-850 JI '65. (MIRA 18:10)

1. Institut elektrokhemii AN SSSR.



GORBANEV, I.V., insh.; KOVALEV, M.L., insh.

Device for adjusting flooring slabs. *Biul.stroi.tekh.* 12
no.9:17 S '55. (MIRA 12:1)

1. *Trest Zakavkazmetallurgstroy.*
(Floors, Concrete)

GOHBANEV, V.

Building without wood on collective farms. Sel', stroi. 11 no.4:29
'56 [1.9. '57]. (MLRA 10:6)

1. Korrespondent gazety "Leninskoye snanya."
(Building)

KUZNETSOV, V.; GORBANEV, V.

Lathe operator Svetlana Iliushicheva. Mashinostroitel' no.4:6
Je '63. (MIRA 16:7)

(No subject headings)

GORBANEV, V.

Done by members of the All-Union Volunteer Society for Assistance
to the Army, Air Force, and Navy. Radio no.3:16 Mr '60.

(MIRA 13:6)

1. Zamestitel' redaktora gazety "Zavet Il'icha."
(Radio)

GORBANEV, V.; KUZNETSOV, V.

In Orel area. Ischr.1 rats. no.2:41 F '61.

(MIRA 14:2)

1. Chleny redkollegii zavodskoy mnogotirashki "Za tekhnicheskiy progress", g. Orel.

(Orel—Leather industry)

GORBANEV, V. (Orel)

Rural feldsher. Fel'd. i akush. 26 no.6:58-59 Je.'61.

(MIRA 1r:7)

(BABASKINA, ZINAIDA SEMEMOVNA)

KISELEV, P., dispatcher; AFONSKIY, P.; GORBANEV, V.; SHMYGANOVSKIY, V.
(g. Odessa); IONESCU, Ion (Rumynskaya Narodnaya Respublika)

The fraternal international relations are growing stronger.
Sov. profsoiuzu 17 no.21:32-33 N '61. (MIRA 14:10)

1. Makeyevskiy koksokhimicheskiy zavod (for Kiselev). 2. Predsedatel' Khar'kovskogo oblastnogo komiteta profsoyuza rabochikh mashinostroyeniya (for Afonskiy). 3. Redaktor zavodskoy gazety "Za tekhnicheskiy progress" Orlovskogo zavoda imeni Medvedeva, g. Orel (for Gorbanev).

(Trade unions)

MEZHENNIKOV, A., inzh.; KIZATOV, P., starshiy inzh. po tekhnicheskoy informatsii; GERASIMOV, Ye.; GORBANEV, V.; KOSTENKO, P.

Exchange of experience. Izobr.i rats. no.5:22 My '62.

(MIRA 15:5)

1. Byuro tekhnicheskoy informatsii Karbyuratornogo zavoda, Leningrad (for Mezhennikov). 2. Kombinat "Sikhali", pos. Tetyukhe, Primorskiy kray (for Kizatov). 3. Chlen prezidiuma oblastnogo soveta Vsesoyuznogo obshchestva izobretateley i ratsionalizatorov, g. Irkutsk (for Gerasimov). 4. Sekretar' oblastnogo soveta Vsesoyuznogo obshchestva izobretateley i ratsionalizatorov (for Kostenko).
(Technological innovations)

POZHILYKH, N.; GORBANEV, V.

Designer Nikolai Vorob'yev. Mashinostroitel' no.2:5-6 F '64.
(MIRA 17:3)

ROGOVSKIY, L.V., inzh.; CHERKASHIN, V.A., kand.tekhn.nauk, starshiy nauchnyy sotrudnik; GORBANEV, V.P.; TRUBIN, V.A., glavnyy red.; SOSHIN, A.V., zam.glavnogo red.; GRINEVICH, G.P., red.; YEFIFANOV, S.P., red.; ONUFRIYEV, I.A., red.; KHOKHLOV, B.A., red.; ZIMIN, P.A., red.; YUDINA, L.A., red.isd-va; RYAZANOV, P.Ye., tekhn.red.; GOL'BERG, T.M., tekhn.red.

[Earthwork operations under winter conditions] Proizvodstvo zemlyanykh rabot v zimnikh usloviakh; spravochnoe posobie. Moskva, Gos. izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1961. 149 p. (MIRA 14:4)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu. 2. Rukovoditel' laboratorii zemlyanykh rabot Nauchno-issledovatel'skogo instituta organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu (for Rogovskiy). 3. Laboratoriya zemlyanykh rabot Nauchno-issledovatel'skogo instituta organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu (for Cherkashin). 4. Starshiy tekhnicheskoy pomoshchi stroitel'stvu (for Gorbanev).

(Earthwork--Cold weather conditions)

GORBANEV, V.

Machinery unit for the manufacture of soles. Kozh.-obuv.
prom. 6 no.9:22 S '64. (MIRA 17:12)

GORBANEV, V.S.

New annealing furnace for producing insulators on an assembly
line. Stek. i ker. 18 no. 3:36-37 Mr '61. (MIRA 14:5)
(Glass manufacture) (Assembly-line methods)
(Electric insulators and insulation)

GORBANEV, V.S.

Experimental PMZ unit. Stek. i ker. 18 no.10:45-46 0 '61.
(MIRA 14:11)

(Conveying machinery) (Glass manufacture)
(Automobiles--Windows and windshields)

~~GORBANEV, V.S.~~

Automatic production line for large bottles. Stek. 1 ker. 20
no.6:38 Je '63. (MIRA 16:6)

1. Orlovskiy saved imeni Medvedeva.
(No subject headings)

GORBANEV, V.S.

New semiautomatic machine. Stak. i ker. 21 no.10:38 0 '64.
(MIRA 18:11)

1. Orlovskiy mashinostroitel'nyy zavod imeni Medvedeva.

Fast-furnace practice with the use of Kriovel Rod fixed

09-103(1967) - A study of the effect of B. Melty incre. wt. of
sinter from 0.25 to 1.2 and change in the amt. of 5-65%

Exposed when the gang is refractory

file
MT

GORBANEV, YA. S.

133-58-4-8/40

AUTHORS: Raspopov, I. V. Docent and Gorbanev , Ya. S. and
Sviridenko, F. F., Engineers

TITLE: The Use of a High Basicity Sinter for Smelting
Phosphorus Pig Iron (Primeneniye aglomerata vysokoy
osnovnosti pri peredele fosforistykh chugunov)

PERIODICAL: Stal', 1958, Nr 4, pp 306-311 (USSR)

ABSTRACT: The use of a high basicity sinter for the intensification
of the process of removal of phosphorus during the melting
period was tested in the open hearth melting shop of the
Azovstal' Works when smelting rail steel. Chemical
composition and size distribution of raw materials used
for the production of sinter - Table 1, characteristics
of sinter produced under laboratory conditions - Table 2
and that produced under industrial conditions - Table 3
(sinter basicity up to 14.3). Changes in the composition
of metal and slag in the course of heat when using high
phosphorus iron and fluxed sinter are shown in Fig.3,
similar changes when using ore - Fig.1. The comparison
of operating indices of open hearth heats carried out with
the use of sinter and ore are given in Table 4.

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Conclusions: The production of sinter with a wide range of

The Use of a High Basicity Sinter for Smelting Phosphorus Pig
Iron

133-58-4-8/40

fluxing from rich in iron and low-silica materials is possible. The melting temperature of fluxed sinter is considerably lower than the unfluxed sinter and in particular of that of raw ore. The use of highly fluxed sinter during smelting high phosphorus pig iron decreases the duration of the heat on average by one hour, 23 mins, and permits a substantial increase of the concentration of phosphorus in the slag. The increase of the cost of the mineral part of the charge is compensated by the increasing yield of steel. The productivity of open hearth furnaces increases by 9%. The following participated in the work: Professor I. G. Kazantsev, and Engineers: M. T. Bul'skiy, P. N. Slepkanov, A. G. Alimov, Ye. V. Tret'yakov and a research group of the Ukrainian Scientific Research Institute of Metals. There are 4 tables, 3 figures and 4 references, all of which are Soviet.

ASSOCIATIONS: Zhdanovskiy metallurgicheskiy institut
(Zhdanov Metallurgical Institute) and Zavod "Azovstal'"
Card 2/2 (Azovstal' Works)

1. Sintered iron--Effectiveness
2. Steel--Manufacture
3. Slags
--Properties

SOV/133-58-8-2/30

AUTHORS: Raspopov, I.V., Dotsent, and Gorbanev, Ya.S.,
Gulyga, D.V., Engineers

TITLE: The Production and Smelting of Fluxed Sinter from the
Kerch Ores (Proizvodstvo i domennaya plavka
oflyusovannogo aglomerata iz Kerchenskikh rud)

PERIODICAL: Stal', 1958, Nr 8, pp 676 - 682 + 1 plate (USSR)

ABSTRACT: The production of fluxed sinter ($\text{CaO/SiO}_2 = 0.6-0.9$)
and the results of operation of blast furnaces with 80%
of sinter in the burden are described. Operating indices,
material, heat and hydrogen balances of the furnace
operation with sinters of basicities 0.16, 0.6 and 0.9
are given in Tables 4, 6, 7 and 8, respectively. Main
points: for each ton of limestone withdrawn from the
burden by increasing the sinter basicity from 0.16 to
0.6, a saving in coke of 365 kg was obtained. With
further increase in basicity to 0.9, the amount of coke
saved per 1 000 kg of limestone withdrawn from the
burden decreased to 283 kg. Above 40% of hydrogen intro-
duced into the furnace was oxidised to water. From 15
to 20% of As present in the sinter mix is removed during
sintering. Conclusions: 1) on smelting a burden
consisting of 80% of sinter and 20% of ore, an increase

Card1/2

SOV/133-58-8-2/30

The Production and Smelting of Fluxed Sinter from the Kerchensk Ores

in the sinter basicity from 0.16 to 0.6 increased the furnace output by 6% and decreased the coke rate by 8%; the cost of iron was decreased by 10 roubles/ton. The above increase in sinter basicity was accompanied by a decrease in the limestone charged directly to the furnace by 32%; 2) for further improvement of the furnace performance, better screening of sinter is necessary. There are 8 tables, 4 figures and 3 Soviet references.

ASSOCIATIONS: Zhdanovskiy metallurgicheskii institut (Zhdanov Metallurgical Institute) and Zavod "Azovstal'" ("Azovstal'" Works)

Card 2/2

1. Sintered ores--Production
2. Blast furnaces--Operation
3. Iron--Production

SOV/133-58-8-3/30

AUTHORS: Lukashev, G.G., ~~Gorbanev, Ya. S.~~, Prikhod'ko, L.D. and Gulyga, D.V., Engineers

TITLE: A Study of the Movement of Materials in a Blast Furnace Using Radioactive Indicators (Izucheniye dvizheniya materialov v domennoy pechi s pomoshch'yu radioaktivnykh indikatorov)

PERIODICAL: Stal', 1958, Nr 8, pp 682 -- 687 (USSR)

ABSTRACT: The above investigation was carried out using radioactive phosphorus and cobalt which were enclosed in lumps of limestone, coke and steel shells (Figure 1) on two furnaces operating with a 100% sinter burden (30% of fluxed sinter, $\text{CaO/SiO}_2 = 0.9$). Radioactive specimens were introduced into the furnace through a pipe (Figure 2) at the following distances from the inwall: 110, 460, 860, 1 370, 2 230 and 3 150 mm. The rate of descent was determined either by the appearance of radioactivity in the iron (samples were taken at the beginning, middle and the end of the casting) or using counters enclosed in water-cooled probes (Figure 2) which could be introduced at various furnace levels (Figure 3). The experimental results are given in Tables 2-4 and Figures 5, 6 and 7. It was found that:

Card1/3

SOV/133-58-8-3/30

A Study of the Movement of Materials in a Blast Furnace Using
Radioactive Indicators

- 1) under normal operating conditions, burden materials descend at a minimum rate on the periphery and at a maximum over the zone of combustion of coke in front of tuyeres. Mean rates of descent of materials in the furnace cross-section vary. Under certain conditions, the maximum rate of descent can appear in the central zone;
- 2) the distribution of the maximum rate of descent along the furnace height was as follows: up to 10 m/h in the top part, in the middle part of the stack up to 4-5 m/h and in the bottom third of the stack up to 3.5 m/h;
- 3) deviations of the path of materials from vertical could not be determined by the set-up used in the experiments;
- 4) the actual deviations of the paths of the individual burden components can take place not only towards widening of the stack but also towards zones with a maximum rate of descent;
- 5) the most economical operation of the furnace was characterised by the following distribution of mean relative velocities of the descent materials :

Card2/3

SOV/133-58-8-3/30

A Study of the Movement of Materials in a Blast Furnace Using
Radioactive Indicators

Distance from the inwall of the throat, mm	0-200	400-1 000	1500-2000	centre
Mean relative velocity, mm/min	80	100	95	85

6) the overtaking in time of coke by limestone during
the descent from the stock level to tuyere level is about
10 - 30 min. The maximum overtaking relates to sectors
with a minimum rate of descent. There are 4 tables and
7 figures.

ASSOCIATION: Zavod "Azovstal'" ("Azovstal'" Works)

Card 3/3 1. Blast furnaces--Performance 2. Radioisotopes--Applications

STARSHINOV, B.N., kand.tekhn.nauk; LEBEDEV, A.Ye., kand.tekhn.nauk;
LUKASHOV, G.G., inzh.; SAVELOV, N.I., inzh.; TARASOV, D.A., inzh.;
SUPRUN, I.Ye., inzh.; TIKHOMIROV, Ye.N., inzh.; SINITSKIY, V.D.,
inzh.; GORBANEV, Ya.S., inzh.; PRIKHOD'KO, L.D., inzh.

Operation of a blast furnace with a capacity of 1513 m³. Biul.
TSIICHM no.9:1-6 '60. (MIRA 15:4)
(Blast furnaces)

STARSHINOV, B.N., kand.tekhn.nauk, SAVELOV, N.I., inzh., TARASOV, D.A.,
inzh., SUPRUN, I.Ye., inzh., GORBANEV, Ya.S., inzh., FLISKANOVSKIY,
S.T., insh.

Adopting a blast furnace with a useful capacity of 1719 m³.
Metallurg 5 no.7:7-9 J1 '60. (MIRA13:7)
(Blast furnaces)

27848

S/133/61/000/008/017/025
A054/A129

1.1700 1413

AUTHOR: Gorbanev, Ya.S.

TITLE: News in brief

PERIODICAL: Stal', ²⁴no. 8, 1961, 744

TEXT: In the "Azovstal'" Plant. 1) Tests were carried out to investigate the endurance of welded seams and the brittleness of MCr.3 (MSt.3) type steels with a 0.15% As content and MCr.3кп (MSt.3кп) steels with a 0.17 - 0.19% As content. Of steels almost identical in composition, those containing arsenic displayed better mechanical properties than steel melted from Krivoy Rog ores. The elongation values were identical for both types, the average yield values were 29.2 and 24.1 kg/mm², strength limit values 45.3 and 37.0 kg/mm², respectively. The notch toughness values of the As-containing steel and of steel not containing As (of the Yenakiyevo Plant) are the following (numerator - with As content; denominator - without As):

Test temperature, °C	+20	0	-20	-40	-60
σ_k , kg/cm ² :					
longitudinal samples	$\frac{11.6}{12.3}$	$\frac{9.0}{9.4}$	$\frac{6.2}{5.8}$	$\frac{3.2}{0.8}$	$\frac{0.72}{0.29}$

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transversal samples	$\frac{6.8}{7.5}$	$\frac{4.8}{4.9}$	$\frac{3.4}{4.1}$	$\frac{1.9}{0.68}$	$\frac{0.70}{0.28}$
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2) Tests were made to increase the service life of some parts of metallurgical equipment. "Sorbitization" is applied for the heavy-duty crane-wheels to a depth of 20 mm to eliminate splitting; nitrating is applied for parts subjected to friction; long and thin machine parts are cemented with a subsequent straightening at 300 - 400°C and the same treatment is applied to parts having a higher (up to 0.4%) carbon content; high-frequency hardening is applied to the wheels of small-load cranes and the working rolls of the blooming mill; a rest is constructed on the lathe to facilitate machining of the hardened parts. 3) The surface hardening of rails along their entire length was tested on 1.5 - 2.0 m long pieces of P-50 (R-50) rails by high frequency hardening in the MГ3-102 (MГZ-102) test equipment. After hardening the hardness had increased to 302 - 400 H_B, the strength limit by 10%, the yield limit by 40 - 50%, relative contraction by 20%, notch toughness by 150% when hardening on air and by 300% when hardening in water. Relative elongation decreased by 1.8%. When hardened with pressurized air the rails containing carbon and manganese do not increase sufficiently in hardness (at the lower limit). When hardened with a water-air mixture their mix composition becomes difficult to control. The best results are obtained with warm,

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softened water (38 - 40°C). The depth of the hardened layer at a 2,500 cps current frequency is about 9 - 10 mm with an intermediate zone, while the rate of displacement of the inductor in relation to the rail amounts to 6 mm/sec. 4) The heat-treatment of crushing mill balls has also been established. The hardening process for 40, 50, 60, 80, 100 and 125 mm-diameter balls made of M76 (M76) and CT.6 (St.6) steels was investigated. The crops of the standard 10-ton M76-steel rail ingots were increased. Based on the tests the hardening equipment for ball mills was reconstructed. The analysis made in YuGOK shows that rail steel hardened to 300 - 400 H_B is the most suitable for 125, 100 and 80 mm-diameter balls, while for softer balls the St.6 brand can be used. An excessive hardness results in fracture of the balls and accelerated wear of the crusher lining.

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VOLOSHIN, A.I.; BOGOYAVLENSKIY, K.A.; AKHTYRCHENKO, A.M.; TURIK, I.A.;
 ZHIDKO, A.S.; LYALYUK, V.S.; GABAY, L.I.; ONOPRIYENKO, V.P.;
 STARSHINOV, B.N.; BABIY, A.A.; SAVELOV, N.I.; Primali
 uchastiye: TORYANIK, E.I.; VASIL'YEV, Yu.S.; SHEMEL', T.I.;
 SENYUTA, V.I.; BONDARENKO, I.P.; AMTISLAVSKIY, D.M.;
 ANDRIANOV, Ye.G.; SERGEYEV, G.N.; ZAMAKHOVSKIY, M.A.;
 LYUKIMSON, M.O.; IVONIN, V.K.; TSIMBAL, G.I.; SEN'KO, G.Ye.;
 KONAREVA, N.V.; SOLODKIY, Yu.L.; LUKASHOV, G.G.; TARASOV, D.A.;
 GORBANEV, Ya.S.; SUPRUN, I.Ye.; TIKHOMIROV, Ye.I.; KONONENKO, P.A.;
 PROKOPOV, V.N.; GULYGA, D.V.; PLISKANOVSKIY, S.T.; PONOMAREVA, K.Ye.

Effect of the length of coking on coke quality and the performance
 of blast furnaces. Koks i khim. no.12:26-32 '61.

(MIRA 15:2)

1. Ukrainskiy uglekhimicheskiy institut (for Voloshin,
 Bogoyavlenskiy, Akhtyrchenko, Turik, Zhidko, Lyalyuk, Toryanik,
 Vasil'yev, Shemel'). 2. Zhdanovskiy koksokhimicheskiy zavod
 (for Gabay, Senyuta, Bondarenko, Amstislavskiy, Andriyanov,
 Sergeyev, Zamakhovskiy, Lyukimson, Ivonin, Tsimbal). 3. Ural'skiy
 nauchno-issledovatel'skiy institut chernykh metallov (for
 Onopriyenko, Starshinov, Babi, Sen'ko, Konareva, Solodkiy).
 4. Zavod "Azovstal'" (for Savelov, Lukashov, Tarasov, Gorbanev,
 Suprun, Tikhomirov, Kononenko, Prokopov, Gulyga, Pliskanovskiy,
 Ponomareva).

(Coke)

(Blast furnaces)

GULIGA, D.V., inzh.; GORBANEV, Ya.S., inzh.; CHEREPIVSKIY, A.A., inzh.

Studying the flow of charge materials in blast furnaces during
the smelting of Kamysh-Burun sinters. Stal' 23 no.8:686-689
Ag '63. (MIRA 16:9)

1. Metallurgicheskiy zavod "Azovstal'."
(Blast furnaces)

KRASOVITSKIY, V.S., kand.tekhn.nauk; BOL'SHAKOV, L.A., kand.tekhn.nauk;
TURCHENKOVA, Ye.K., inzh.; GORBANEV, Ya.S., inzh.; YEGNUS, R.M.,
inzh.; CHUMAK, M.A., inzh.; KISSEL', N.N., inzh.; SAL'MAN, B.Sh.,
inzh.

Increasing the stability of ingot molds by an addition of
ferrotitanium. Stal' 23 no.8:717-718 Ag '63. (MIRA 16:9)

1. Zhdanovskiy metallurgicheskiy institut, zavod "Azovstal'" i
zavod im. Il'icha. (Ingot molds)

KAZANTSEV, I.G., prof.; LUKASHOV, G.G., inzh.; GORBANEV, Ya.S., inzh.; TARASOVA,
L.P., inzh.; SAPELKIN, N.F., inzh.

Strength of welded joints in arsenic containing structural steel pro-
duced at the "Azovstal'" Plant. Stal' 23 no.12:1112-1114 D '63.

(MIRA 17:2)

1. Zhdanovskiy metallurgicheskiy institut i metallurgicheskiy zavod.
"Azovstal'".

GERSHGORN, M.A.; SVIRIDENKO, F.F.; KAZARNOVSKIY, D.S.; KRAVTSOVA, I.P.;
POPOVA, A.N.; FRADINA, M.G.; Primali uchastiye: LUKASHOV, G.G.;
RUDOL'SKIY, N.L.; SLEPKANEV, N.P.; PLISKANOVSKIY, S.T.; GORBANEV,
Ya.S.; BUL'SKIY, M.T. [deceased]; ARKHANGEL'SKIY, Yu.N.; SHAROV,
B.A.; VISTOROVSKIY, N.T.; RAKHANSKIY, B.I.; SAPOZHKOVA, V.Ye.;
RYABININ, N.G.; KARAKULINA, R.R.; FADEYEVA, A.M.; ZVEREV, D.A.

Improving the production of high-strength rails by alloying
them with granulated ferrochromium in the ladle. Stal' 25
no.5:408-411 My '65. (MIRA 18:6)

1. Ukrainskiy nauchno-issledovatel'skiy institut metallov i zavod
"Azovstal".

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 6, p 69 (USSR) SOV/137-57-6-9790

AUTHORS: Dukhankina, L.S., Khan, O.A., Gorbaneva, Z.I.

TITLE: The Solubility of Antimony Oxides in Zinc Sulfate Solutions (Rastvorimost' okislov sur'my v rastvorakh sernokislogo tsinka)

PERIODICAL: Tr. Altaysk. gorno-metallurg. n.-i. in-ta, 1956, Vol 3, pp 132-135

ABSTRACT: An isothermic method is used to study the solubility (S) of Sb oxides in chemically pure preparations in neutral ZnSO₄ solutions, there being 18 g H₂SO₄/liter. It is found that the S of Sb₂O₃ with elevated Zn concentrations of from 20 to 120 g/liter rises from 0.0718 to 0.1162 g/liter, the S of Sb₂O₅ being constant and equal to ~0.14 g/liter. As temperature rises from 20 to 80°, the S of Sb oxides in ZnSO₄ solution rises at Zn concentrations of 120 g/liter, while in a solution acidified by H₂SO₄ (up to 18 g/liter), the S curves lie considerably higher. Sb concentration may attain 100 mg/liter in solutions of nearly commercial composition.

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A.Ye.

GORBANEVA-TIMOFEEVA, L.V., kandidat meditsinskikh nauk

Graphic investigation of the reorganization of masticatory functions following osteoplasty of the jaws. Stomatologia no.1:51-53 Ja-F '55. (MLRA 8:5)

1. Iz kafedry ortopedicheskoy stomatologii (zav. prof. I.S.Rubinov) Leningradskogo meditsinskogo stomatologicheskogo instituta (dir. prof. R.I.Gavrilov).

(JAWS, surgery,

postop. masticatory changes, graphic determ.)

(MASTICATION,

graphic determ. of changes after jaw surg.)

GORBANEVA--TIMOFYEVA, L.V., kandidat meditsinskikh nauk

Peculiarities of making prostheses for children with cleft palate.
Stomatologia no.4:48-52 J1-Ag '55. (MLRA 8:10)

1. Iz kafedry ortopedicheskoy stomatologii (sav.--prof. I.S. Rubinov) stomatologicheskogo fakul'teta Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta.

(CLEFT PALATE, therapy
prosthetic)

GORBANEVA TIMOFEYEVA, L.V.

Orthodontic treatment of anomalies of the bite in cleft palate.
Trudy ISGMI 63:37-42 '60. (MIRA 15:1)
(CLEFT PALATE) (TEETH ABNORMALITIES AND DEFORMITIES)

Enel

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