KESSLER, A.; MARIANI, E.; PAULINY-TOTHOVA, V.

The diffusion coefficient of zinc in NaCl crystals. Chekhosl fiz zhurnal 14 no.1:34-43 '64.

1. Institute of Physics, Slovak Academy of Sciences, Bratislava.

KESSLER, Arnost, RNDr. CSc.

Thermal resistances in multidimensional heat flow in electric machines. El tech cas 15 no. 4:205-212 '64.

1. Institute of Physics, Slovak Academy of Sciences, Bratislava, Dubravska cesta.

KESSLER, Arnost; MARIANI, Emil

On the electric conductivity and dielectric loss of "pure" artificially grown and natural NaCl crystals. Mat fyz cas SAV 14 no.4:317-323 '64.

1. Institute of Physics of the Slovak Academy of Sciences, Bratislava, Dubravska cesta.

KESSLER, F.M

Czechoslovakia/Physical Chemistry - Crystals, B-5

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 60869

Author: Kessler, F. M., Vecerikova, V.

Institution: None

Title: Roentgenographic Study of the Process of Thermal Processing of Petroleum Coke

Original Periodical: Studium kalcinace smolneho a petrolejoveho koksu pomoci X-paprsku, Paliva, 1954, 34, No 6, 154-162; Czech

Abstract: Performed were roentgenographic investigations, chemical elemental and technical analyses, and measurements of electric resistance of 2 samples of coke from pitch (I and II), petroleum coke (III) and semicoke from pitch (IV) before and after thermal processing at 1,300°-1,380° in retorts of Glover-West type. X-ray diffraction patterns were obtained by the powder method with Cu-Kα radiation. For determination of radii of diffused interference lines of the patterns use was made of previously

Card 1/2

Czechoslovakia/Physical Chemistry - Crystals, B-5

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 60869

Abstract: described procedure (Referat Zhur - Khimiya, 1955, 8209). Structure of all samples of coke is 2-dimensional: graphite planes are irregularly oriented. Powder patterns of samples differ in intensity and width of lines. Thermal processing results in decreased diffusion of lines, especially line (004). From width of lines of powder patterns it was determined that dimensions of coke granules are increased after processing. Authors consider an index of calcined coke a content H ~ 0.15% regardless of the initial content (~0.3-0.5% for I and II, and 4% for III). With decrease in H content after themal processing the electric resistance drops considerably. The authors consider that in the technological calcination process it is appropriate to utilize specimens of coke the production temperature of which did not exceed 700° so that the H-content be of not less than 0.5%. There was noted a correlation between granule dimensions of initial and calcined samples and their contents of water, volatiles and ash.

Card 2/2

KESSLER, F.; VECERIKOVA, V.

"Study of Graphitization of Resin and Petroleum Coke by Means of X Rays", P. 188, (PALIVA, Vol. 34, No. 7, July 1954, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.

KESSLER, F.M.

3699. MEASUREMENT OF PARTICLE SIZE BELOW 0.06 MM. I. MICROSCOPIC METHODS. Vecerikova, V., Stastka, F. and Kessler, F.M. [illegible] Vyzk. Vy [illegible] (Prague), 1955, [illegible] The following [illegible] [illegible] [illegible] suitable for practical requirements, but [illegible] however, since [illegible] is eliminated [illegible] photometric curves is not recommended.

KESSLER, F. M.

3

Polarographic determination of molybdenum in ores. F. M. Kessler. *Práce Ústavu pro Výzkum a Využití Paliv,* Publ. No. 1-9, 140-53(1955) (English summary).—A polarographic method was worked out which serves for Mo ores contg. molybdenite (I), for concentrates and for any ores which contain only traces of Mo. The samples are dissolved in HNO_3, then repeatedly brought to dryness with HCl to remove SiO_2, then treated with NH_4OH to remove $Fe(OH)_3$ and $Al(OH)_3$. The soln. is then brought to pH 5.0 with 14*N* AcOH, and the polarogram is obtained after removing all O_2, under N_2 protection, in the presence of ethylenediamineacetic acid, AcOH, and $AcONH_4$ at pH about 4.0. The method can also be used to det. Bi and Cu side by side. Werner Jacobson

CH

Pm

Kessler, F. M.

5

3

Measurement of particle size below 0.06 mm.: I, Microscopical methods. V. Vecerikova, F. Stastka, and F. M. Kessler. *Prace Ustavu Vyzkum Vyuziti Paliv,* 1953, No 5, pp 101–16; abstracted in *J Appl Chem* (London), 6 (1) i 155 (1956).—Experiments were made to assess the relative merits of the following methods for measuring the particle size of coal and inorganic dusts: (1) enlarging photomicrographs to 24 x 30 cm and measuring the particles with a paper stencil, (2) measuring the blackening of a photographic plate with a recording photometer; and (3) measuring the particle size on the screen of a projecting microscope. Methods 1 and 3 were equally suitable for practical requirements, but method 3 is cheaper and quicker because it involves no photographic work. It is recommended for the rapid and precise determination of particle sizes <0.06 mm.

V R E

KESSLER, F. M

Basic research in the field of solid fuels in the USSR. p. 154.
(PALIVA, vol. 35, no. 5, May 1955, Praha)

SO: Monthly List of East European Accession, (EEAL), LC, Vol. 4,
No. 11, Nov. 1955, Uncl.

Kessler, F.M.

2

Fuel

821. DETERMINATION OF MANGANESE IN COAL ASHES. Kessler, F.M. and Dočkalová, L. (Paliva (Fuel, Prague), 1955, vol. 35, 178-181; abstr. in Chem. Abstr., 1956, vol. 50, 3732). The spectrophotometric determination of manganese does not furnish satisfactory results. For this reason a polarographic method was devised which detects manganese in concentration 10^{-1} to 10^{-2}% manganomanganic oxide in alkaline medium of triethanolamine (TEA) at half-wave potential of -1.69 V. Magnesium interferes owing to changing the height of wave. (L).
C.A.

Kessler, E.A.

KESSLER, F M

✓ **Direct oxygen determination in coal.** H. Romovačková and F. M. Kessler. *Paliva* 35, 351-4(1955).—A method direct O detn., app., and calcn. are given. The app. consists of a N-purification train with pure Cu heated to 500° and an O- to CO-conversion train with acetylene soot heated to 1125° in Si tube and absorber with Mg chlorate. The O is converted according to $I_2O_5 + 5\,CO = 5\,CO_2 + I_2$ and the formed CO_2 is gravimetrically detd. J. L.

(1)

KESSLER, F. M.

KESSLER, F. New products of the Zeiss Works in Jena. p. 385

Vol. 36, no. 11, Nov. 1956
PALIVA
TECHNOLOGY
Praha, Czechoslovakia

So: East European Accession Vol. 6, No. 2, 1957

Kessler, F.M.

970. POLAROGRAPHIC DETERMINATION OF MAGNESIUM IN COAL ASH. Kessler,
[illegible]

Koscles Fred Nash III

A study of the titanium determination [illegible]

ibin

KESSLER, F.

An international conference on coal research in Holland.

P. 238, (Paliva) Vol. 37, no. 7, 1957, Praha, Czechoslovakia

SO: Monthly Index of East European Acessions (EEAI) Vol. 6, No. 11 November 1957

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rabot, 1957, 22, No 4, 1097-1105.

Abstract: A new method of determination of graphite lattice para-
meters, in which the asymmetrical position of the photofilm
and a radiation of [illegible] great wave length (λ of Cr)
are used, is described. It is pointed out that the method
of inverse reflection has not justified itself at the study
of inter-
of graphites. The accuracy of the determination of inter-
planar distances by the proposed method is ± 0.003 A. This

Card : 1/2

Card : 2/2

KESSLER, F.

"Present state of coal research."

PALIVA, Praha, Czechoslovakia, Vol. 39, No. 5, May 1959.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 9, September 1959.

Unclassified.

DOCKALOVA, L.; KESSLER, F.M.

Examination of volatile matter in coke by thermogravimetric analysis. Paliva 42 no.12:368-371 D '62.

1. Hornicky ustav, Ceskoslovenska akademie ved.

KESSLER, Ferdinand, inz., CSc.; VECERIKOVA, V., inz.

Examination of the possibility of determining crystallic SiO_2 in ore and coal dust by infrared spectroscopy. Rudy 11 no.8: 274-279 Ag '63.

1. Hornicky ustav, Ceskoslovenska akademie ved, Praha.

KESSLER, F.

American Conference on Coal Research. Uhli 7 no.3:108-110 '65.

1. Institute of Mining of the Czechoslovak Academy of Sciences, Prague.

KESSLER, G.

Iterative calculation of girders on elastic supports.

p. 399 (Industria Constructiilor Si A Materialelor De Constructii. Vol. (7) no. 7, 1956. Bucuresti, Rumania)

Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 2, February 1958

Kessler, H.

GEOGRAPHY & GEOLOGY

Budapest. Vizgazdalkodasi Tudomanyos Kutato Intezet. BESZAMOLO. Budapest. 1954

Detailed study of the sources of the Aggtelek Karst area. p. 134.

Monthly List of East European Accessions (EEAI). LC, Vol. 8, No. 2, February 1959, Unclass.

Kessler, H.

HUNG.

Calculation of the per [illegible] conservative yield in karst [illegible] [illegible] 1954 [illegible]

From the [illegible] to [illegible] the quantit[illegible] withdrawn from [illegible] the equilibrium [illegible] ficient of permeability of the [illegible] In the Mecsek Mountain [illegible] [illegible] precipitation [illegible] [illegible] year. The [illegible] determinative rainfall [illegible] rainfall of the last [illegible] [illegible] on the basis of [illegible] above mentioned [illegible] which allows the reading of the [illegible] determinative rainfall pertaining to the percentage of [illegible] the first within an average [illegible] [illegible] the water [illegible] summer [illegible] [illegible] permanent [illegible] [illegible] over many [illegible] is between

KESSLER, H.

New data on the infiltration curve. p. 158. HIDROLOGIAI KOZIONY.
HUDROLOGICAL JOURNAL. (Magyar Hidrologial Tarsasag) Budapest.
Vol. 35, no. 5/6 May/June 1955.

Source: East European Accessions List (EEAL), Vol. 5, No. 2,
February 1956

MULLER, H

TANAY, Jeno; PAPP, Ferenc, dr., prof.; PAPP, Szilard, dr., prof.; SCHMIDT, Eligius Robert, dr., prof.; KESSLER, Hubert, dr., mernok.

Karstic water exploration near Veszprem. Hidrologiai kozlony 38 no.3:175-181 Je'58.

PAPP, Ferenc, dr.; BOZSONY, Denes; VAGAS, Istvan; OROSZLANY, Istvan;
SCHULHOF, Odon, dr.; SZIGYARTO, Zoltan; HETENYI, Endre; HOLENYI,
Laszlo; GABRI, Mihaly; HOLLO, Istvan; KESSLER, Hubert, dr.;
WISNOVSZKY, Ivan; FINALY, Lajos; RATKY, Istvan; SZALAY, Miklos;
IHRIG, Denes; KIRALY, Lajos; KERTAI, Ede

Report on the 1959 general meeting arranged by the Hungarian Hydrological Society. Hidrologiai kozlony 40 no.4:345-348 Ag '60.

1. Magyar Hidrologiai Tarsasag elnoke (for Papp). 2. Magyar Hidrologiai Tarsasag fotitkara (for Bozsony). 3. "Hidrologiai kozlony" szerkeszto bizottsagi tagja (for Vagas, Oroszlany, Schulhof, Szigyarto and Hollo).

KESSLER, Hubert, dr.

Following the path of a spring. Elet tud 16 no.25:789-790
18 Je '61.

KESSLER, Hubert, dr.

What is the composition of the Bukk hot water and what diseases can be cured by it? Elet tud 16 no.32:994 6 Ag '61.

1. Vizgazdalkodasi Kutatointezet tudomanyos fömunkatarsa.

KESSLER, Hubert, dr.

Rumanian caves. Elet tud 17 no. 15:462-463 Ap'62.

LECZFALVY, Sandor; KESSLER, Hubert, dr.

Hot springs, some questions of the heat supply of artificial hot spring explorations. Hidrologiai kozlony 44 no.12:546-551 D '64.

1. Water Resources Planning Office, Budapest (for Leczfalvy).

STAROSTIN, V.A.; KESSLER, I.N.; POL', E.R.

Tool for cleaning rolled roofing materials. Suggested by V.A.Starostin, I.N.Kessler, E.R.Pol'. Rats.i izobr.predl. v stroi. no.11:104-106 '59. (MIRA 13:3)

1. Rabotniki normativno-issledovatel'skoy stantsii pri treste Bazstroy Sverdlovskogo sovnarkhoza.

(Roofing)

KESSLER, I.N., inzh.; ROVEYN, A.I., inzh.

Machine for making glazier's paste and putty. Suggested by I.N.Kessler, A.I.Rovein. Rats.i izobr.predl.v stroi. no.12: 42-44 '59. (MIRA 13:5)

1. Stroitel'no-montazhnyy trest Bazstroy Sverdlovskogo sovnarkhoza, Krasnotur'insk, Sverdlovskoy oblasti.
(Putty)

MASALKIN, N.K. (Perm'); KHOROSHAVIN, B.P. (Chelyabinsk); KESSLER, L.V. (Kurgan); ROSHCHEVSKIY, M.P., kand. biolog. nauk, red.; BERDICHEVSKIY, I.M., tekhn. red.

[Farm management system inUral Mountain region] Sistema vedeniia sel'skogo khoziaistva zony Urala. Sverdlovsk, 1960. 678 p.
(MIRA 14:10)

1. Sverdlovsk. Ural'skiy nauchno-issledovatel'skiy institut sel'skogo khozyaystva.
(Ural Mountain region—Farm management)

KESSLER, M.

"First All-Union Congress of Fuel Engineers and its Significance in Planning Research on Coal", P. 258, (PALIVA, Vol. 34, No. 9, Sept. 1954, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.

KESSLER-M.F.

Fuel

The oxidation of black coal. M. P. Kessler (Ústav výzkumu a využití paliv, Prague). Uhlí 5, 342-7(1955).—The process of black-coal oxidation was studied by thermogravimetric analysis. The obtained oxidation curves, depending on temp., are characteristic in shape and their utilization makes it possible to det. exactly the ignition point and to distinguish the individual types of coal. The worked-out method is not only a criterion of the basic properties of the coal substance but represents a way for solving the question of the spontaneous ignition of coal by means of altering the ignition point of the same specimen under different conditions of oxidation. I. Hypr

1

KESSLER, M.; DOCKALOVA, L.

Study of the determination of manganese in coal ashes. p. 178.
International Congress on Gasification of Fuel in Liege, 1954. p.181.
PALIVA. (Ministerstvo paliv a energetiky) Praha. Vol. 35, no. 6,
June 1955.

SOURCE: East European Accessions List (EEAL), Library of Congress,
Vol. 4, No. 12, December 1955.

F'

KESSLER, M.; DOCKALOVA, L.

Determining sodium and potassium in coal ashes. p. 212.
International Congress on Gasification of Fuel in Liege in 1954. p. 212.
(PALIVA, vol. 35, no. 7, July 1955, Praha)

SO: Monthly List of East European Accession,(EEAL), LC, Vol. 4,
No. 11, Nov. 1955, Uncl.

KESSLER, M.F.

1

✓ **Researches on the Thermal Decomposition of Coal.** M. F. Kessler. (*Paliva*, 1955, **35**, 10), 302-305. (In Czech) [illegible] decomposition of coal as a function of temperature [illegible] in nitrogen [illegible]

Fuel

Kessler, M. F.

2

✓ 958. STUDY OF THE STRUCTURE OF THE PETROGRAPHIC COMPONENTS (OF COAL) BY MEANS OF X-RAYS. Kessler, M.F. and Vacerikova, M. (Uhli (Coal, Prague), Jan. 1956, 28-30). The authors have studied the fine structure of the coal substance by means of X-rays. They give the quantitative evaluation of the radiographs, and conclude that the grid interval "d" is the basic criterion of the structural changes; they analyse its dependence on the carbonification.

N.C.B.

KESSLER, M. F.

KESSLER, H.

"Determination of variations in the lattice parameter of graphite samples.
In German."

p.1097 (Sbornik Chekhoslovatskikh Khimicheskikh Rabot, Vol. 22, no. 4, Aug. 1957
Praha, Czechoslavakia)

Monthly Index of East European Accession (EEAI) LC, Vol. 7, No. 8, August 1958

KESSLER, M.; VECERIKOVA, F.

Use of monochromator for study of changes of fine structure of coal and coke.
p. 90

PALIVA. (Ministerstvo paliv a Ceskoslovenska vedecka technicka spolecnost
pro vyuziti pri Ceskoslovenske akademi ved) Praha, Czechoslovakia.
Vol. 39, no. 3, Mar 1959

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 7, July 1959
Uncl.

KESSLER, M.
VECERIKOVA, V.

"Contribution to the methods of the X-ray analysis of metallurgic coke."

HUTNICKE LISTY. Brno, Czechoslovakia, Vol. 14, March 1959.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 8, September 1959.
Unclas.

HOLUBAR, Vl., C.Sc.; KESSLER, M.F., inz., C.Sc.

Determining the porosity and density of coke. Hut listy 18 no.2:80-84 F '63.

1. Hornicky ustav, Ceskoslvenska akademie ved, Praha.

KESSLER, M.F., inz., C.Sc.

Raw material base, development and outlook of metallurgical coke production in the world. Hut listy 18 no.1:6-14 Ja '63.

1. Hornicky ustav, Ceskoslovenska akademie ved, Praha.

VECERIKOVA, V.; KESSLER, M.F.

Determining the fine structure of coke by chrome anode radiation and monochromated radiation. Paliva 43 no.1:13-16 Ja '62.

1. Hornicky ustav, Ceskoslovenska akademie ved.

KESSLER, Miroslav F., inz., CSc.

World coal situation and the forecast of future production.
Uhli 5 no.9:325-328 S'63.

1. Hornicky ustav, Ceskoslovenska akademie ved, Praha.

KESSLER, M. F., inz., CSc.

Development of coal consumption up to 1975 in the industrial countries of the world. Uhli 5 no. 12: 421-424 D '63.

1. Hornicky ustav, Ceskoslovenska akademie ved, Praha.

KESSLER, M.F., inz., CSc.; HOLUBAR, Vl., CSc.

On Czechoslovak Standard 44 1345: Micropetrographic Coal Analysis. Paliva 43 no.8:261-262 Ag'63

1. Hornicky ustav, Ceskoslovenska akademie ved.

KESSLER, M. F.

Scientific seminar on the properties of metallurgical cokes in Berlin. Vestnik CSAV 73 no. 1: 170-171 '64.

VECERIKOVA, V.; KESSLER, M.F.

Infrared spectra of the black coal from Ostrava-Karvina Basin.
Vysl ban vyzk 3:227-244 '64.

1. Institute of Mining, Czechoslovak Academy of Sciences, Prague.

L 3114-66

ACCESSION NR: AP5026879 CZ/0034/65/000/006/0383/0388

AUTHOR: Kessler, Miroslav (Engineer, Candidate of sciences)

TITLE: Properties of carbonaceous materials in calcination with particular respect to pitch coke

SOURCE: Hutnicke listy, no. 6, 1965, 383-388

TOPIC TAGS: carbon compound, calcination, coke, pitch material

ABSTRACT: Carbonaceous materials resulting in calcination of pitch tar can be classified with respect to their ash content as follows: petroleum coke, pitch semi-coke, and pitch coke. With the increasing ash content in the sequence quality decreases. The quality of the calcined pitch coke is a function of the hard pitch carbonization. With increasing pitch coke carbonization, the variation in its properties in subsequent calcinations is reduced; this is contrary to what is quite frequently believed. Orig. art. has: 9 graphs, 4 tables.

ASSOCIATION: Hornicky ustav CSAV (Mining Institute CSAV)

SUBMITTED: 00	ENCL: 00	SUB CODE: MT, FP
NR REF SOV: 002	OTHER: 010	JPRS

Card 1/1

L 34426-66

ACC NR: [illegible] SOURCE CODE: CZ/0034/65/000/011/0766/0769

B

AUTHOR: Kessler, M. F. (Engineer; Candidate of sciences); Dockalova, L.--Dochkalova, L.

ORG: Mining Institute, CSAV (Hornicky ustav CSAV)

TITLE: Criticial notes on the CO sub 2 method of determining coke reactivity [Paper presented at the 35th International Congress of the Chemical Industry held in Warsaw in September 1964]

SOURCE: Hutnicke listy, no. 11, 1965, 766-769

TOPIC TAGS: coke, carbon dioxide

ABSTRACT: The article discusses changes of the coke mass which take place during the degassing of coke up to 1000°C, as a result of which the coke reactivity determined by the CO sub 2 method is not unequivocal. A method should be used in which the composition and properties of the coke do not change before the measurements. Orig. art. has: 1 figure and 3 tables. [Based on authors' Eng. abstract] [JPRS: 33,732]

SUB CODE: 21 / SUBM DATE: none / ORIG REF: 001 / OTH REF: 005

UDC: 669.162.1

Card 1/1

0976 1742

KESSLER, V.Yu.

Retroperitoneal novocaine block in the differential diagnosis of injury in blunt wounds of the abdomen. Vest. khir. 84 no.5:39-42 My '60. (MIRA 13:12)

(ABDOMEN—WOUNDS AND INJURIES)
(LOCAL ANESTHESIA)

KESSLER, V.Yu., kand.med.nauk (Leningrad, per. Grivtsova, d.5., kv.21)

Significance of vagosympathetic novocaine block for the diganosis of "acute abdomen." Vest.khir. no.9:105-108 '61. (MIRA 15:3)

1. Iz 2-y kafedry khirurgii (zav. - prof. G.A. Gomzyakov) Leningradskogo instituta usovershenstvovaniya vrachey im. S.M. Kirova na baze bol'nitsy im. Lenina.
(ABDOMEN--DISEASES) (NOVOCAINE)
(NERVOUS SYSTEMM SYMPHATETIC)

Kessler, Yu. M.

USSR/Thermodynamics. Thermochemistry. Equilibria. Physico-Chemical Analysis. Phase Transitions. B-8

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26089

Author : Yu.M. Kessler

Title : Rapid Non-Ionic Reactions of Double Decomposition in Non-Aqueous Medium

Orig Pub : Izv. AN SSSR, Otd. khim. n., 1956, No 5, 513-515

Abstract : If solid salt $Hg(Hal)_2$ (Hal being Cl or Br) is added to the solution of SnI_4 in benzene or nitrobenzene, an instantaneous interchange of halogens takes place, resulting in the formation of HgI_2 in accordance with the surmised equation $SnI_4 + Hg(Hal)_2 \rightarrow Sn(Hal)_2I_2 + HgI_2$. Basing on the study of electrical conductivity of mixtures of $Hg(Hal)_2$-solvent, SnI_4-solvent, $Hg(Hal)_2$-SnI_4-solvent (Hal being Cl, Br, or I; solvent being C_6H_6 or $C_6H_5NO_2$) and the kinetics of the evaporization of the solvent from the mixtures $Hg(Hal)_2$-C_6H_6 and SnI_4-C_6H_6, it is asserted that this interchange is not connected with the presence of ions or stable complexes in solutions under study and does not depend on the difference in properties of the solvents in question.

Card : 1/1

Inst. Gen. & Inorganic Chem. im N. S. Kurnakov

KESSLER, Yu.M.; GORBANEV, 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) (Alkalit metal chlorides) (Hydrogen peroxide)
(Electrolysis)

KESSLER, Yu. M.

KESSLER, Yu.M.; GORBANEV, 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)

4/50

Kessler, Yu. M.

20-3-22/52

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

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 C° 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 (Debaye) range

Card 1/3

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_0 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. Brönsted (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 H_2O. 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

KESSLER, Yu. M., Cand Chem Sci —(diss) "Study of temperatures of formation of solutions of chlorides of alkaline metals in highly concentrated hydrogen peroxide at 0°." Mos, 1958, 15 pp with graphs (Acad Sci USSR, Inst of General and Inorganic Chemistry im N.S.Kurnakov), 150 copies (KL,24-58, 116)

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

TITLE: Notes on the Glauberman 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 Glauberman and Yukhnovskiy equation for the electrostatic part of the free energy of the electrolyte solution is dealt with. This equation reads as follows:

$$F_e = -(T / 2D_0) \sum N_i z_i^2 \varepsilon^2 \qquad (B_1 / 2\beta^3 \chi^2 T),$$

where B_1 is equal to

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

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

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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Notes on the Glauberman and Yukhnovskiy Equation SOV/62-58-8-17/22

that $\Delta W_{(1)}$ is equal to $-\infty$ at $\chi = 0$. The authors conclude that the equation $F_e = (T/2D_0) \cdot \sum \nu_i z_i^2 \varepsilon^2 (B/2\beta^3 AT)$ leads to the uncertain form $\Delta W_{(8)} = 0/0$ (at $\chi = 0$). This indeterminacy was investigated by the authors. It was found that $\lim \Delta W_{(8)} = 0$ at $\chi \to 0$. 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 $\beta \sim 4$A as well as $\partial\beta/\partial T \sim 5 \cdot 10^{-4}$ A/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

Electrical Conductivity of the System Tin Tetrabromide - Nitrobenzene SOV/62-59-7-29/38

molten tin tetrabromide do not conduct the current at all. The conductivity present in the mixture is originated by a chemical interaction of the two components. The viscosity of the solution does not influence the isotherm of K. Thus, it may be influenced solely by the dependence of the dissociation degree of the forming compound upon ε of the medium and upon the concentration of the solution in relation to the compound mentioned. Hence, the isotherm of K is to be ascribed to the type of irrational isotherms. There are 1 figure and 4 references, 2 of which are Soviet.

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) Khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva (Institute of Chemical Technology imeni D. I. Mendeleyev)

SUBMITTED: December 29, 1958

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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 Electrolytes

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SOV/62-59-12-8/43

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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125 6-30/61

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 $\lg f_{exp} = \lg f_D - \lg f_c$ (f_{exp} = experimentally

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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.

Some Regularities in the Properties of the Solutions of Strong Electrolytes

SOV/20-125-6-30/61

ASSOCIATION: Institut elektrokhimii 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

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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

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 elektrokhimii AN SSSR.
(Formamide)

34824

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), $(CH_3)_3SiCl$ (II), $C_6H_5SiCl_3$ (III), $SiCl_4$ (IV) with NaCl (a), NaF (b), KF (c), CsCl (d), CsF (e), NH_4Cl (f), $(CH_3)_4NCl$ (g), $(C_2H_5)_4NBr$ (h), $(C_4H_9)_4NCl$ (i), $(C_4H_9)_4NBr$ (k), $(C_4H_9)_4NI$ (l), ethyl pyridine bromide (m) by chemical analysis (for hydrolyzable Cl, and argentometrically), conductivity 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
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Physicochemical study of complexes ... B110/B101

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 $\varkappa = 2.7\cdot10^{-4}$ for III:i = 5.4 : 1 (unsaturated solution); $\varkappa = 7.4\cdot10^{-5}$ 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 $[(CH_3)_3SiCl]_3(C_4H_9)_4NCl$ 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 ... S/020/62/142/005/015/022
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 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 $[(CH_3)_3SiCl]_3(C_4H_9)_4NCl$ complex and its benzene solutions (1 mole of complex : 10 moles of benzene) at D_a = 4 a/dm^2, silicon dissolves with almost 100 % current yield (referred to Si^{4+}). Complex formation, layer formation, extraction of two $(CH_3)_3SiCl$ 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 elektrokhimii Akademii nauk SSSR (Institute of Electrochemistry of the Academy of Sciences USSR)

PRESENTED: October 7, 1961, by A. N. Frumkin, Academician

Card 3/4

Physicochemical study of complexes ...

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

SUBMITTED: October 2, 1961

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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 elektrokhimii AN SSSR.
(Electrolyte solutions) (Chemistry, Physical and theoretical)

POVAROV, 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 elektrokhimii AN SSSR. Predstavleno akademikom A.N.Frumkinym.

(Cesium chloride)
(Formamide)
(Activity coefficients)

KESSLER, Yu. M.; LIPIKHIN, N. P.; KUCHINSKIY, Ye. M.

Solubility in the system water - sulfuric acid - p-chlorobenzenesulfonic acid. Zhur. ob. khim. 32 no.12:3871-3876 D '62. (MIRA 16:1)

(Benzenesulfonic acid) (Sulfuric acid)
(Solubility)

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

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

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

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 elektrokhimii AN SSSR.

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 elektrokhimii AN SSSR.
(Formamide—Dipole moments)

GOL'DSHTEYN, 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 elektrokhimii 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 elektrokhimii AN SSSR.

POVAROV, 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 elektrokhimii AN SSSR. Predstavleno akademikom A.N.Frumkinym.

KESSLER, Yu.M.; ALPATOVA, N.M.; OSIPOV, O.R.

Electrochemical and physicochemical properties of aluminum compounds in nonaqueous solutions. Usp.khim. 33 no.3:261-295 Mr '64.
(MIRA 17:4)

1. Institut elektrokhimii AN SSSR.

ALPATOVA, N.M.; KESSLER, Yu.M.

Complex compounds of silicon. Zhur.strukt.khim. 5 no. 2:
332-353 Mr-Ap '64. (MIRA 17:6)

1. Institut elektrokhimii AN SSSR.

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 elektrokhimii 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 elektrokhimii AN SSSR.

FADEYEVA, L.Ye.; KESSLER, Yu.M.; POVAROV, Yu.M.

Activity coefficients of sodium and cesium chlorides in a mixture of formamide with acetamide at 25° C. Elektrokhimiia 1 no.7:822-827 Jl '65. (MIRA 18:10)

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 Jl '65. (MIRA 18:10)

1. Institut elektrokhimii AN SSSR.

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

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

1. Institut elektrokhimii AN SSSR.