FELINSKI, L. ROTENBERG, S.; BARANOW-BARANOWSKI, St.

Daily oscillations in motor activity of the rumen in sheep. Acta physiol. polon. 10 no.3:365-374 May-June 59.

1. Z Katedry Fizjologii Zwierzat W. S. R. w Szczecinie.
(PERIODICITY) (STOMACH, physiol.)

KIRKOR, W.; BARANOWICZ, J.

Cyclodiones-1,3 and their derivatives. Pt.1. Acta chim 8:69-82 '62.

1. Department of Chemistry, University, Lodz. Presented by W.Kirkor.

[illegible], J.; [illegible]

[illegible] [illegible] '64.

1. Department of General Chemistry [illegible] University.
Presented Nov. [illegible]

BARANOWICZ, L.

"A school's tailless model aeroplane" p. 138 (Skrzydla I Motor, Vol. 8, no. 9, Mar 53, Warszawa)

SO: Monthly List of East European Accessions, Vol 2 No 9 Library of Congress Sept 53 Uncl

BARANOWICZ, ROMAN.

Modernizacja obrabiarek do wysokowydajnego skrawania; tokarki, tokarki rewolwerowe, frezarki. (Wyd. 1) Warszawa, Panstwowe Wydawn. Techniczne, 1955. 160 p. (Modernization of cutting machines of high efficiency; lathes, circular lathes, milling machines. 1st ed. bibl., diagrs., graphs, tables)

SOURCE: East European Accessions List (EEAL), LC, Vol.5,no. 3, March 1956

BARANOWICZ, R.

"Modernizacja obrabiarek do wysokowydajnego skrawania" (Modernization of machine tools for highly productive cutting), by R. Baranowicz. Reported in New Books (Nowe Ksiazki), No. 13, July 1, 1955

KRASNIK, Witold; BARANOWSKA, Bozena

Electrophoretic studies on blood proteins in malignant granuloma. Polskie arch. med. wewn. 29 no.4:443-446 1959.

1. Z II Kliniki Chorob Wewnetrznych A. M. w Poznaniu Kierownik: prof. dr med. J. Roguski

(BLOOD PROTEINS) (HODGKIN'S DISEASE, blood)

KRASNIK, Witold; BARANOWSKA, Bozena

Electrophoretic changes of serum proteins during the course of malignant granuloma. Polskie arch.med.wewnetrz. 29 no.10: 1365-1372 '59.

1. Z II Kliniki Chorob Wewnetrznych A. M. w Poznaniu Kierownik: prof. dr med. J. Roguski.

(HODGKIN'S DISEASE blood)
(BLOOD PROTEINS)

ROSNER, Julian; BARANOWSKA, Bozena

Chromatography of amino acids in psoriasis. Przegl. derm. 50 no.5:399-409 '63.

1. Z Kliniki Dermatologicznej AM w Poznaniu Kierownik: prof. dr A. Straszynski.

(AMINO ACIDS) (CHROMATOGRAPHY) (PSORIASIS)
(URINE) (BLOOD CHEMICAL ANALYSIS)

BARANOWSKA, I.

②

Synthetic plant-growth regulators. J. Kulesza and I. Baranowska. *Przemysl Chem.* 9, 115-19(1953)(English summary).—The plant-growth regulators, *p-nitrophenoxyacetic acid* and 1,4-CS have been synthetized. The results of expts. concerning root taking, growth activation, chem. compn. of plants, and their fruitage are given. G. A. W.

Distr: 4E3d

7

✓ Elimination of thallium compounds from derating of food-storage areas. I. Kulesza, I. Baranowska, and H. Dlugokecka. *Roczniki Panstwowego Zakladu Hig.* 8, 381–90 (1957).—The use of strong poisoned bait, such as Tl salts, against rats should be avoided. In food storage areas only highly selective baits, such as warfarin, can be used. For greater attraction, this can be used in water soln. Strong poisoned bait such as zinc phosphide, extract from sea onion, 1-naphthyl thiourea, some org. P compds., and cyclic nitro compds. should be used outside of food storage areas. G. Melnyk

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dm

Baranowska, J.

The gram stain: conversion of natural gram-negative organisms to the gram-positive state. D. Shugar and J. Baranowska (State Inst. Hyg., Warsaw). *Bull. acad. polon. sci.*, Classe II, 2, 3-7(1954).—Treatment of saline washed gram-neg. *Klebsiella pneumoniae, Neisseria catarrhalis, Escherichia coli, Proteus vulgaris,* or *Azotobacter* with a combination of 4% HCHO and 0.4% protamine, cryst. lysozyme, or cryst. aldolase at pH 7.3 changed them to gram-pos. Pretreatment with bile salts hastened the process but was not essential. Gram-pos. organisms rendered gram-neg. by extn. could be restored to being gram-pos. by the above procedure. Neither HCHO nor protein alone was effective. The findings are interpreted as evidence against the Mg ribonucleotide theory of gram-pos. staining (Henry and Stacey, *C.A.* 41, 2450e). J. A. Bain

POLAND / Microbiology. General Microbiology. F
Investigatory Methods and Techniques.

Abs Jour : Ref Zhur - Biologiya, No 5, 1959, No. 19393

Author : Shugar, D.; Baranowska, J.
Inst : Polish Academy of Sciences
Title : Application of I^{131} to Quantitative Studies on Gram Staining

Orig Pub : Bull. Acad. polon. sci., 1957, cl. 2, 5, No 5-6, 165-168

Abstract : No abstract given

Card 1/1

EXCERPTA MEDICA Sec 4 Vol 12/3 Med. Micro. Mar 59

850\. THE ROLE OF PROTEINS IN, AND THE QUESTION OF LOCALIZATION OF, THE GRAM REACTION - Baranowska J. and Shugar D. Dept. of Biochem., State Inst. of Hyg., Warszawa - ACTA MICROBIOL. POL. 1957, 6/2 (107-114) Tables 1 Illus. 11

Four-day-old cultures of Azotobacter exhibited a feeble retention of the Gram stain in the cell periphery. When such cells are exposed to solutions of protein such as egg albumin, lysozyme or protomine, the Gram reaction is intensified. In most instances the addition of the protein results in intensification only in the cell periphery. The increased staining can be correlated with the uptake of protein by the bacterial cells from the solution. Pepsin and trypsin were without effect in these experiments. Ruptured cells that had been treated with protein still retain the stain. In some instances the retained stain seemed to be diffused throughout the cytoplasm.

Wyss - Austin, Tex.

BARANOWSKA, Janina

Mechanism of Gran's coloring method. Postepy mikrobiol 2 no. 3: 397-415 '63.

1. Katedra Biochemii, Panstwowy Zaklad Hgieny, Warszawa.

BARANOWSKA, Joanna; SHUGAR, D.

Photochemistry of model oligo- and poly-nucleotides. III. Cross-linking and staining properties of ultraviolet irradiated films of nucleic acids and oligonucleotides. Acta biochim.polon. 7 no.4: 505-520 '60.

1. Department of Biochemistry, State Institute of Hygiene, Warsaw.
(NUCLEOSIDES AND NUCLEOTIDES chem)
(ULTRAVIOLET RAYS)
(NUCLEIC ACIDS chem)

BARANOWSKA, Krystyna B. (Sopot)

"Seaway distance tables to Polish seaports" by J.Zaleski, L. Nowakowski. Reviewed by Krystyna B.Baranowska. Czasop geograf 33 no.2:276-277 '62.

BARANOWSKA, Krystyna B., mgr

"Icing phenomena on the Polish shores of the Baltic Sea" by Jozef Baczyk, Maria Czekanska. Reviewed by Krystyna B. Baranowska. Tech gosp morska 13 no.4:112-113 Ap '63.

1. Wyzsza Szkola Ekonomiczna, Sopot.

PTA BARANOWSKA, T. 6

547.657 07

1176

Baranowska T., Celinska D. **The Preparation of Alpha-Naphtylacetic Acid.**

"Otrzymywanie kwasu alfa-naftylooctowego". Przemysl Chemiczny No 3, 1951, pp 175—181, 5 tabs.

This article deals with the preparation of alpha-chloromethylnaphtalene in the presence of H_3PO_4. The amount of H_3PO_4 used is smaller, i. e. 287 g per 1 Kg of alpha-naphtylacetic acid instead of 1885 g; the yield of chloromethylation reaction remains the same. Chloromethylation was also performed using continuous flow of gaseous dry HCl with H_3PO_4 in the presence of 5 g of $ZnCl_2$ and 12 g of silica gel per 1 mole of naphtalene. The yield of the former reaction was 54%, of the latter 50%. A use of chloromethylnaphtalene in agriculture is discussed.

BARANOWSKA, Teresa

Effect of atropine and pilocarpine on the equilibrium of external muscles of the eye. Klin. oczna 24 no.1:23-28 1954.

1. Z Kliniki Ocznej Akad. Med. im. Gen.Karola Swierczewskiego w Szczecinie. Kierownik: prof. dr W.Starkiewicz.
(MUSCLES, OCULOMOTOR, effect of drugs on,
*atropine & pilocarpine, on equilibrium)
(ATROPINE, effects,
*on oculomotor muscles, on equilibrium)
(PILOCARPINE, effects,
*on oculomotor muscles, on equilibrium)

BARANOWSKA, Teresa

On the conditioned reflex nature of visual impressions with special reference to visual acuity. Roczn. pom. akad. med. Swierczewski 9:271-291 '63.

1. Z Kliniki Ocznej Pomorskiej Akademii Medycznej Kierownik: prof. dr W. Starkiewicz.

(REFLEX, CONDITIONED) (VISUAL PERCEPTION)
(REFRACTION, OCULAR)

BARANOWSKA, T.

EXCERPTA MEDICA Sec.12 Vol.9/8 Ophthalmology Aug 55

1298. BARANOWSKA T. Klin. Ocznej pomorskiej Akad. med. Szczecinie. * Ortoptyczne i chirurgiczne leczenie zezów ukrytych. Orthoptic and surgical treatment of hidden squints KLIN. OCZNA 1954, 24/4 (241-253) Graphs 6 Illus. 2

Orthoptic treatment gives a diminution of the squint, the subjective relaxation also causes increase of the fusion. If the squint returns the fusion is higher than before the treatment. In latent squints permanent improvement was seen in 20.8%, in 54.2% it was transient, in 16.4% it remained unchanged. The best surgical intervention in the majority of esophorias is folding of the internal rectus muscles. 24 references.

Szmyt - Lódź

WALCZAKOWA, Maria; BARANOWSKA, Wieslawa (Wroclaw)

The epigenetic Oder River gap at Krapkowice. Czasop geogr 35 no.2:209-212 '64 [illegible] GEORGE, Tere[illegible]

Prevention of [illegible]
treatment of [illegible]. [illegible]
10:453-463 '64.

1. Z Katedry [illegible] (Kierownik:
prof. dr Witold [illegible]
Zeznjacych w [illegible] (Kierownik: dr med. Tere[illegible]
George).

BARANOWSKA-GEORGE, Teresa

The problem of distribution of prismatic correction in both eyes in the treatment of strabismus with excentric fixation. Roczn. pom. akad. med. Swierczewski 11:553-561 '65.

1. Z Katedry Okulistyki Pomorskiej Akademii Medycznej (Kierownik: prof. dr. W. Starkiewicz) i z Wojewodzkiej Przychodni dla Zezujacych w Szczecinie (Kierownik: dr. med. T. Baranowska-George).

BARANOWSKA-STOKWISZEWSKA, Bozena

Utility evaluation of some protective creams against carbon disulfide absorption through the skin. Farmacja Pol 20 no. 8: 286-288 25 Ap '64.

1. Department of Toxicological Chemistry and Industrial Toxicology, School of Medicine, Lodz. Head: Doc. dr T. Dutkiewicz.

BARANOWSKI, Aleksander

Aspects of soil geology concerning the suitability of the RS^3 soil for apple fruit cultures. Rocz nauk roln rosl 82 no.1:91-118 '60. (EEAI 10:7)

(Soils) (Apple)

S/137/62/000/001/129/237
A052/A101

AUTHOR: Baranowski, B.

TITLE: Statistical processing of fatigue test results of metals

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 23-24, abstract 1I155 ("Wytrzymalosc zmeczeniowa tworzyw i elementow metalowych." Warszawa, 1961, 141-149; Polish)

TEXT: The usefulness of application of mathematical statistics methods for determining the durability and σ_w of metals is shown on concrete examples. Various methods of statistical processing of data for determining durability are considered. It is proposed to represent the fatigue test data in the form of the Wöhler curve with the subsequent processing of results by computing durability for each value of the stress amplitude within the adopted interval of reliability, using for this purpose Student's criterion. For determining σ_w it is practicable to process the test results by the statistical step method. (W. Dixon, A. M. Mood. J. Amer. Statist. Assoc., no. 40, 1948). There are 20 references.

V. Matorin

[Abstracter's note: Complete translation]

Card 1/1

37856

S/123/62/000/009/007/017
A052/A101

AUTHOR: Baranowski, B.

TITLE: The effect of tempering at 250 - 400°C on the fatigue strength of wire

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 9, 1962, 36, abstract 9B160 ("Wytrzymałosc zmęczeniowa tworzyw i elementów metalowych." Warszawa, no. 56, Dyskus., 64, 1961, Polish)

TEXT: The effect of tempering in the 250 - 400°C range on σ_w of cold-drawn carbon steel wire (0.58% C) 2.5 mm in diameter was investigated statistically. In the initial state σ_b was 138.5 kg/mm². σ_w was determined on Schenk machines (bending during rotation) on the basis of 5×10^6 cycles. To plot each fatigue curve 85 - 100 samples were tested. It is established that an hour tempering at 250°C in an oil bath raises $\sigma_{0.01}$ from 72.5 kg/mm² (in the initial state) to 127.2 kg/mm². At the same time σ_w practically does not change. After 3-hour tempering at 370°C in a salt bath $\sigma_{0.01}$ increases to 108 kg/mm² and σ_w from 45 kg/mm² (in the initial state) increases to 53.2 kg/mm². The relationship between the statistical value of σ_w and the index $0.5\,(\sigma_{0.2} + \sigma_b) \times \delta$ has been

Card 1/2

confirmed. The positive effect of tempering on the service life of wire ropes manufactured from tempered wire must be checked experimentally.

M. Shapiro

[Abstracter's note: Complete translation]

BARANOWSKI, Boleslaw, doc. mgr inz.

The Polish Standard PN-62/H -04310: Static tensile test of metals. Hutnik P 30 no.12:387-391 D '63.

1. Instytut Metalurgii Zelaza, Gliwice.

BARANOWSKI, Boleslaw, doc. mgr inz.

Statistical interpretation of impact strength tests. Hutnik P 29 no.2:53-59 F '62.

1. Instytut Metalurgii Zelaza, Gliwice.

BARANOWSKI, Boleslaw, doc. mgr inz.

Once more on Standard PN-60/H-04357. Hutnik P 29 no.4:128-130 Ap '62.

1. Instytut Metalurgii Zelaza, Gliwice.

[illegible]

INSTN ③

Metallurgical Abst.
Vol. 21 Apr. 1954
Laboratory Apparatus,
Instruments, Etc.

*Calibration of Extensometers.—B. Baranowski and G. Zaborowski (*Prace Inst. Minist. Hutn.*, 1953, 5, (4), 209–218).—[In Polish]. A review of the existing types of extensometers is followed by a short analysis of errors and a discussion of the known methods of calibration. A description of a comparator developed by the Polish Metallurgical Research Institute is given, and some calibration curves of a Martens mirror extensometer, calibrated with the new comparator, are reproduced.—S. K. L.

DR 6/16/54

BARANOWSKI, BOGDAN

POL.

✓Electrothermodiffusion in aqueous electrolytic solutions. Bogdan Baranowski (Politech., Wroclaw, Poland) and ~~Jadwiga Demichowicz~~. *Roczniki Chem.* 27, 494–504(1953) (English summary); cf. *C.A.* 48, 8593g.—The concn. gradient caused in solns. by temp. difference was studied in an app. consisting of a 10-cm. capillary, outside diam. 1.2, inside diam. 1.0 mm., blown out at both ends into containers of 1 ml. capacity. The capillary is enclosed in a running-water cooling jacket, and into each of the end containers a reversible electrode is introduced. The expts. were run by filling the app. with the test soln. and applying to the electrodes a high alternating voltage (1–4 kv.). Thus the soln. in the capillary is heated, and the water-cooling creates a temp. drop between the center and the walls. A thermodiffusion current develops, normal to the axis of the capillary, and a convection current caused by the d. difference carries the soln. at the walls to the lower container, whereas at the capillary axis the soln. is carried to the upper container. The ratio (*I*) of the concn. of a component in the lower container to the concn. in the upper one was studied as a function of time, voltage applied, and initial concn. for 2 systems: $CuSO_4$–H_2O and $CuSO_4$–H_2O–C_2H_5OH. The first system was studied with Cu electrodes, and the results were: (*a*) *I* increases with time linearly to reach a const. value after a certain time; (*b*) *I* increases with increasing power applied to the electrodes; (*c*) *I* remains practically const. for initial sulfate concn. 0.2–1.0*N*; at lower concns. it decreases rapidly; (*d*) *I* has the highest value for a vertical position of the capillary. The results for the 2nd system were: (*a*) *I* has higher value for the sulfate than for the alc.; (*b*) with increasing voltage *I* increases for $CuSO_4$ steadily, whereas for the alc. the increase stops at a certain voltage; (*c*) addn. of alc. lowers *I* for the sulfate: for an initial $CuSO_4$ concn. of 0.1*N* this decrease is rapid when alc. concn. varies between 25 and 30 vol. %; (*d*) at an initial alc. concn. of 10 vol. %, the value of *I* for the sulfate diminishes rapidly for concns. below 0.2*N*. Henry W. Lawendel

Baranowski, B.

5

The Hittorf effect in a binary electrolyte solution from the point of view of the thermodynamics of irreversible processes. B. Baranowski (Univ. Cracow, Poland). *Bull. acad. ~~polon. sci., Classe~~ III*, 2, 229-32(1954)(in English).—The Hittorf effect, i.e., the appearance of a concn. gradient in the presence of an external elec. field, was studied by means of Onsager phenomenological equations between fluxes and forces. The stationary state is assumed to be that in which anions and cations equally share the transport of charges and the corresponding value of the concn. gradient is calcd. P. Van R.

PDW

BARANOWSKI, B.

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POL. [illegible]

Electrothermal-diffusion method of determining the Soret coefficients in aqueous solutions of copper sulfate. B. Baranowski and I. Demichowicz (Jagellonian Univ., Cracow, Poland). *Bull. acad. polon. sci.*, Classe III, 2, 435-8(1954)(in English).—The thermogravitational method was modified for liquid electrolyte solns. in the following manner: a thin-walled cylindrical glass capillary tube was used for the two walls which must be maintained at different temps. Two electrodes were fitted one at the top and the other at the bottom, to which a high alternating voltage was applied. The heat generated inside the tube produced a horizontal temp. gradient with which was assocd. the thermal diffusion flux. This device, which had no hot wall and which made possible the application of the thermal diffusion process in the presence of an external elec. field, proved useful in testing binary and ternary mixts. The Soret factors were found for $CuSO_4$ solns. and it was shown that Soret's coeffs. did not depend on power input, nor on the concn. ranging from 0.1 to 1*N*. A slight increase was noticeable at about 0.5*N*, while at 0.05*N* a decline was noticed. Compared to other methods, the values of the coeffs. were smaller by the electrothermal method. This may be due to the elec. field, and to the likelihood of occurrence of "current-diffusivity effect." Phenomenological theory of the electrothermal diffusion method in fluids. B. Baranowski. *Ibid.* 439-42.—Equations are developed for the temp. gradient and max. temp. difference in the capillary tube, the velocity of the convection current in the capillary tube, the concn. changes in the containers, and the Soret coeffs.

Bernard Rubin

BARANOWSKI, B.

Bulletin - Vol. 2, no. 9, 1954.

Phenomenological theory of the electrothermal diffusion method in fluids. In English. p. 439.

SO: Monthly list of East European Accessions, (EEAL), LC, Vol. 4, No. 9, Sept. 1955
Uncl.

BARANOWSKI, B.

4

POL

Influence of structure on mechanical properties of structural steels. H. Baranowski (*Prace Inst. Minist. Hutnic.*, 1954, 6, 277—294).—~~The effect of~~ heat-treatment on the structure of steel and the relation between structure and mechanical properties were investigated by tension, fatigue and impact tests on 3 low-alloy structural steels (compositions given). The samples, heated to give tensile strengths of ~110 kg. per mm.^{2} and submitted to quenching, normalising and isothermal treatments during the process, showed different microstructures. Specimens with a microstructure of tempered martensite showed the best strength properties. The appearance of pearlite and ferrite in the microstructure resulted in lower fatigue strength. Isothermally treated "30HGSA" steel (containing 0·20 Ni, 0·95% Cr) was less fatigue-resistant than specimens heat-treated in the ordinary way. The same steel, when exhibiting temper-brittleness, showed considerable scatter in the fatigue test results. The relation between structure and mechanical properties and the connection between fatigue resistance, limits of plastic range and impact resistance, are discussed. (18 references.)

L. S.

[illegible], [illegible].

[illegible] A. [illegible] Fin tic [illegible]
[illegible], [illegible] II, [illegible]

20: [illegible] st [illegible]
[illegible].

BARANOWSKI, B

POL-6

V Phenomenological theory of electrothermodiffusion in liquids. Bogdan Baranowski (Jagellonian Univ., Cracow). — *Roczniki* ~~Chem. 28, 387-97~~ (1954)(English summary); cf. preceding abstr.—Further development is presented of the phenomenological theory of the electrothermodiffusive method (cf. *C.A.* 49, 5930b) in liquids, tiny capillaries being used. It concerns behavior of temp. gradient in the capillary, the velocity course of the convection current in the capillary, and concn. changes in the upper and lower containers. Results showed the linear dependence of the concn. ratio between both containers on the duration of thermodiffusion. The concn. ratio exceeded by 25% the ratio attained by the usual thermogravitational method. The presented theory may also serve for liquid metals or salts. S. N.

MEI

BARANOVSKI, BOGDAN

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 147 - 19/27

Authors : Baranovski, Bogdan

Title : Comments on the work of S. I. Drakin entitled, "Transfer and Distribution of Components of Metal Alloys in an Electrical Field".

Periodical : Zhur. fiz. khim. 28/9, 1676-1677, Sep 1954

Abstract : Comments on the report by S. I. Drakin (Zhur. fiz. khim. 27, page 1586, 1953) dealing in the phenomena of transfer and distribution of components of metal alloys in a constant electrical field, are presented and analyzed. Eight references: 1-USSR; 6-German and 1-Holland (1854-1953).

Institution : The Yagellon University, Faculty of Theoretical Physics, Cracov, Poland

Submitted : April 8, 1954

Distr: 4E2c(j)

7

Anti-Raoult-law properties of certain ternary systems. Maciej Sarnowski and Bogdan Baranowski. *Prace Konf. Elektrochem., Warsaw*, 1955, 755-94(Pub. 1957)(German summary); cf. preceding abstr.—Deviations from Raoult's law of certain ternary solns. are caused by the solvation of ions in the soln. Such ternary solns. are known to form complex or binary solid compds. Sixteen such compds. were obtained by crystn. from anti-Raoult solns. that were partly described by S., *et al.* (*C.A.* 52, 16320*cd*). They were crystd. by isothermal evapn. of water from ternary solns. by use of anhyd. $CaCl_2$. In each system solns. composed of 2-4 different molar ratios of electrolyte to the nonelectrolyte or to the 2nd electrolyte were prepd. The following are the new compds.: $LiNO_3.2CO(NH_2)_2$ obtained from molar ratios in soln. 1:1, 1:2, and 1:3, $LiBr.CO(NH_2)_2.H_2O$ from molar ratios 1:0.7 and 1:1.6, $LiBr.3CO(NH_2)_2$ from molar ratios 1:2.5 and 1:3.5, $LiI.2CO(NH_2)_2$ from molar ratios 1:1, 1:2.5, and 1:3, $LiI.4CO(NH_2)_2$ from molar ratios 1:3.5 and 1:4, $CaCl_2.2CO(NH_2)_2.H_2O$ from molar ratios 1:0.5 and 1:0.6, $Ca(NO_3)_2.CO(NH_2)_2.3H_2O$ from molar ratios 1:0.5 and 1:1.4, $Mg(NO_3)_2.2CO(NH_2)_2.6H_2O$ from molar ratios 1:1, 1:2, 1:2.5, and 1:4, $Cd(NO_3)_2.CO(NH_2)_2.3H_2O$ from ratios 1:0.5 and 1:1, $Cd(NO_3)_2.4CO(NH_2)_2$ from ratios 1:2, 1:4, and 1:6, $Mn(NO_3)_2.4CO(NH_2)_2.2H_2O$ from ratios 1:1, 1:4, and 1:6, $Ca(NO_3)_2.KNO_3.3H_2O$ from ratios 1:0.60 and 1:0.33, $Ca(NO_3)_2.RbNO_3.3H_2O$ from ratios 1:0.67, 1:1, and 1:1.5, $Ca(NO_3)_2.CsNO_3.2H_2O$ from ratios 1:0.4 and 1:0.7, $Ca(NO_3)_2.CsNO_3.3H_2O$ from ratio 1:0.4, and $Cd(NO_3)_2.2KNO_3$ from ratio 1:1. All the above compds. were identified by x-ray analysis. Systems that have anti-Raoult-law properties should show the following characteristics: (1) the ions in the system should have high solvation nos., (2) there should be strong attraction between the ions and the mols. of the nonelectrolyte or the mols. of simple electrolytes, and (3) the system should be able to dissolve the constituents well to permit shifting from the region that obeys Raoult's law to the region in which the law is no longer applicable. 30 references. F. J. Hendel

5

Electrothermodiffusion in aqueous solutions of electrolytes. Jadwiga Demichowicz-Pigoniowa and Bogdan Baranowski. *Prace Konf. Elektrochem.*, Warsaw, 1955, 810-42(German summary 842-6)(Pub. 1957); cf. preceding abstr.—The Soret coeff. in aq. solns. of electrolytes can be detd. by the "electrothermodiffusion method." The same method can be used also for other liquids that are good conductors of elec. current, e.g. molten salts or metal alloys. The electrothermodiffusion method has the advantage of simplicity in accurate detn. of the internal radius of a capillary by weighing a Hg rod of a known length; this eliminates the chief inaccuracy of the thermogravitational method. Detn. of the Soret coeff. by the electrothermodiffusion method requires knowledge of the app. parameters, phenomenological coeffs. of the liquids under investigation, detn. of the coeff. of split at the known voltage that is applied to the capillary, the amperage of the current, and the time required for the split. A thin-walled glass capillary with each end widened to a reservoir of 1 ml. capacity was used. The capillary and the widened parts were surrounded by a cooling-water jacket. Each widened part was provided with a reversible electrode. The app. was vertical. After the app. was filled with the soln. of electrolyte, the electrodes were connected to an a.c. source of several kv. The liquid in the capillary became heated. Outside cooling by water caused a horizontal temp. gradient as great as 300°/cm. that set up a horizontal thermodiffusion current and, because expansion changed the d. and concn. of the soln., a vertical convection current. The latter current conveyed the component enriched at the wall of the capillary to the lower reservoir. This method of electrothermal diffusion differs from the conventional thermogravitational method in that: (1) there is no hot wall, because the highest temp. is along the axis of the capillary, (2) thermodiffusion takes place in the presence of an external elec. field. The new method was used to det. the Soret coeff. of the following aq. solns.: $CuSO_4$, $AgNO_3$, a mixt. of $AgNO_3$ and NH_4NO_3, KCl, NaCl, HCl. For $CuSO_4$ solns. this coeff. was: for 1*N* soln. 9.4, for 0.75*N* 9.1, for 0.5*N* 10.4, for 0.1*N* 10.5, and for 0.05*N* 7.8/degree; all the above figures for the Soret coeff. must be divided by 1000. Coeffs. for other solns. are not given. 44 references.

F. J. Hendel

BARANOWSKI, B.

Migration of Components of Binary Liquid Metallic Alloys in the Electric Field from the Point of View of Thermodynamics of Irreversible Processes. B. Baranowski (*Bull. Acad. Polon. Sci.*, 1955, [iii], 3, (2), 117–120).—[In English]. Theoretical. The equations deduced are the same as those derived by Schwarz (*Z. physikal. Chem.*, 1933, [A], 164, 223; *Met. Abs.* (*J. Inst. Metals*), 1933, 53, 349).—J. L.

MG

BARANOWSKI, B.

Relation between antiraoultic properties of some ternary aqueous solutions and complex formability. M. Sarnowski, B. Baranowski, and J. Zygadło (Inst. Synthet. Chem., ~~Toruń).~~—Bull. acad. polon. sci., Classe III, 3, 457-60 (1955).—An attempt is made to explain the relation between antiraoultic properties (preceding abstr.) and the ability to form complex compds. in some ternary systems. Ternary aq. solns. contg. an electrolyte and a nonelectrolyte and displaying antiraoultic properties are characterized by the ability to form solid complex compds. Also, ternary solns. of electrolytes having antiraoultic properties are assocd. with the formation of solid double salts. Some complex compds. obtained during this research include $Ca(NO_3)_2.CO(NH_2)_2.3H_2O$, $CaCl_2.4CO(NH_2)_2$, $CaBr_2.6CO(NH_2)_2$, $Mg(NO_3)_2.4CO(NH_2)_2$, and $LiBr.3CO(NH_2)_2$. To explain the antiraoultic properties of ternary solns. of an electrolyte and a nonelectrolyte the following interpretation is given: In all interpretations of the salting-in and salting-out effects based on recent electrostatic theories, the solvent is considered as a continuous medium. However, in opposition to this approach the antiraoultic properties can be interpreted as direct interaction between the solvent and the added nonelectrolyte mols. with ions taken into account. It is significant that those electrolytes that display antiraoultic properties in soln. with nonelectrolytes are known for their susceptibility to hydration. Recent theories of ion solvation in water solns. assume that there is a first hydration shell strongly attached to the ions. Thus when urea is added to a soln. of an electrolyte, its mols. may either remain free or they may displace water mols. from the hydration shell. The first effect dominates in dil. solns. and decreases the water vapor pressure, but in concd. solns. the latter prevails and may be responsible for the antiraoultic properties. This would also explain the transitional concn. between the raoultic and the antiraoultic regions. As the amt. of urea in the antiraoultic region increases, the solvation shell that is being formed may reach a state of satn. As a result, the no. of urea mols. unattached to ions increases if the urea component in the soln. increases further, and may thus be the reason why extremes appear. Consequently, the antiraoultic properties cannot be explained solely by the interaction between the electrolyte and the nonelectrolyte that form complex mols. in the soln., but the active coöperation of water mols. must also be accepted. The antiraoultic properties in ternary aq. solns. of electrolytes are explained as follows: Recent theories of solns. of strong electrolytes take into account not only the effect of the vol. of ions on the partition function, but also the possibility of incomplete dissocn. in solns. If it is also assumed that the mols. of double salts may be present in a soln., then antiraoultic properties in ternary solns. of electrolytes may be attributed to decrease in the no. of water mols. in the compn. of hydrates. This interpretation must be based on the assumption that the mols. of double salts are less hydrated than the component ions or the undissocd. mols. of the electrolyte. Support for such assumption can be found in the fact that the no. of water mols. tied up in solid double salts is, on the whole, smaller than in solid component salts.

James C. Eubanks

CH

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BARANOWSKI, B. ; DEMICHOWICZ, J.,

B. BRANANOWSKI, "Thermal diffusion in the liquid phase." <u>Chemical News</u> (Poland)
No. 7-8, July-August 1955

BARANOWSKI, BOGDAN

600

Thermal diffusion in the liquid phase. Bogdan Baranowski and Jadwiga Demichowicz (Univ. Kraków, Poland). *Wiadomości Chem.* 9, 379-403(1955).—A review with 129 references. A. Kreglewski

2

BARANOWSKI, B.: ZYGADLO, J.: SARNOWSKI, M.

Inbestigation of vapor pressure in three-component aqueous
solutions. III. Interpretation. p. 425.

PRZEMYSL CHEMICZNY
Warszawa
Vol. 11, no. 8, Aug. 1955

SOURCE: Monthly List of East European Accessions (EEAL), LC, Vol. 5, no. 2,
Feb. 1956

BARANOWSKI, B.

Category : POLAND/Atomic and Molecular Physics - Liquids D-8

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 947

Author : Baranowski, B.
Title : Thermodynamic Theory of Separation of Components in Binary Liquid Alloys in an Electric Field

Orig Pub : Roczn. shem., 1955, 29, No 1, 129-131

Abstract : Report on preliminary results of the use of the thermodynamics of irreversible prepesses to the problem of separating metallic components in binary liquid alloys in an electric field, obtained on the basis of Drakin's work. (Referat. Zhurnal Kimiya, 1954, 47871).

Card : 1/1

Baranowski, Bogdan

4000

Thermodynamic forces and diffusion currents in a binary electrolyte solution. Bogdan Baranowski (Jagellonian Univ., Krakow, Poland). Roczniki Chem. 27, 586-93 (1953)(English summary).—A system of thermodynamic forces and diffusion currents was applied to some irreversible electrochem. processes. A new transfer quantity, the so-called "transfer mass," was introduced. The forces and diffusion currents introduced led in a simple way to the diffusion potential and Hittorf's effect. Ohm's law for nonhomogeneously concd. binary electrolyte solns. was modified.

P. Dreyfuss

[illegible], D.

[illegible], A. Determination of [illegible] coefficients of [illegible] in $CuSO_4$ solutions by the electrochemical diffusion method. p. 6[illegible].
[illegible], Vol. [illegible], no. [illegible], 19[illegible].

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. [illegible], no. [illegible], Oct. 19[illegible],
Uncl.

BARANOWSKI, B.

Seith-Wever effect interpreted from the point of view of thermodynamics of irreversible processes. B. Baranowski. *Bull. acad. polon. sci.*, *Classe III* 4, 465-8(1956)(in English); cf. S. and W., *C.A.* 48, 5600h.—The S.-W. effect is interpreted with the aid of thermodynamics of irreversible processes. An equation is given that relates the partial transport no. of the given component to its partial diffusion coeff. The possibility of both metal ions moving in electrolytic transfer toward either the cathode or anode is explained by considering the effect on the direction of transference of the charge of metal ions as well as of the interaction between the flow of electrons and of metal ions. B. Barkin

1

RM

BARANOWSKI, B.

Thermodynamics of irreversible processes. p. 615.
(WIADOMOSCI CHEMICZNE. Vol. 10, no. 12, Dec. 1956, Poland)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 6, June 1957, Uncl.

BARANOWSKI, Bogdan

4

Viscometric and refractometric study of the ternary system water-urea-calcium chloride. Bogdan Baranowski, Stefan Korczak, Maciej Sarnowski, and Jerzy Stoczyński (Jagellonian Univ., Kraków). *Roczniki Chem.* 30, 337-9 (1956).—An explanation was sought of the increase of water vapor pressure of some binary electrolytic solns. on addn. of solid urea. Measurements at 20° of series of solns. with molar urea to $CaCl_2$ ratios of 0-4 to one, show irregularities of η and kinematic viscosity at compns. corresponding to 1:1, 2:1, 3:1, and 4:1, and indicate the existence of $CaCl_2 \cdot YCO(NH_2)_2$ ($Y = 1,2,3,4$) entities in soln. $CaCl_2 \cdot 4CO(NH_2)_2$ and a new compd. $CaCl_2 \cdot 2CO(NH_2)_2$ were obtained in the solid state. The results support the theory that the "anti-Raoult" effect of urea is based on selective solvation of ions by mols. of urea and water. Ludwig Luft

Chair Theoretical Chem, Jagiellonian Univ Krakow
v Inst. Chemical Synthesis, Tarnow Section

Baranowski, B.

Consequences of I. A. Oding's thermal diffusion theory. B. Baranowski (Jagello Univ., Krakow, Poland). *Zhur. Fiz. Khim.* 30, 696-7(1956).—Oding's explanation (*C.A.* 47, 2008*f*) of concentrational (isothermal) thermal diffusion, or the diffusion in metals caused by stress gradients, is considered capable of giving acceptable results only occasionally. W. M. Sternberg

LFH

BARANOWSKI, BOGDAN

POLAND/Atomic and Molecular Physics - Liquids D-8

Abs Jour : Ref Zhur - Fizika, No 11, 1958, No 25076

Author : Baranowski Bogdan
Inst : Not Given
Title : Migration of Components of Liquid Metallic Alloys in Electric Field From the Point of View of Thermodynamics of Irreversible Processes.

Orig Pub : Roczn. chem. 1956, 30, No 3, 841-853

Abstract : With the aid of the theory of thermodynamics of irreversible processes, the author describes the migration of components of liquid metallic alloys under the influence of an external electric field. An isothermal liquid alloy is considered in which no chemical reaction takes place. It is assumed that each element of the system retains its value. The case of a two-component alloy is examined in detail. Formulas are derived for the maximum separation of the components of a two-component alloy in an electric field and for the diffusion potential.

Card : 1/1

[illegible]

~~Bcc~~ BARANOWSKI, B

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3

Thermodynamics of irreversible processes as applied to diffusion processes. Bogdan Baranowski. *Prace Konf. Elektrochem., Warsaw,* ~~1955, 795-818(Pub.~~ 1957)(German summary).—The phenomenological equations in diffusion processes and the steady state in the thermodiffusion process in electrolyte solns. are reviewed. In the latter steady state the thermodiffusion potential and the thermodiffusion splitting in soln. of binary electrolyte are discussed. "Heat transfer" plays a fundamental role in the thermoelectrochemistry. This "heat transfer" is defined as the amt. of heat that is transferred with a unit mass of the given component in the process of isothermal diffusion. This "heat transfer" is included in the equation of the Soret coeff. and in the equation of the thermopotential as well. 40 references. F. J. Hendel

BARANOWSKI, B.

Distr: 4E2c

5

1

Phenomena of diffusion and wandering in electric field in liquid metallic alloys from the thermodynamic point of view. Bogdan Baranowski. *Prace Konf. Elektrochem.,* Warsaw, 1955, 851-79(Pub. 1957)(German summary).—Theoretical considerations of electrothermodiffusion (cf. preceding abstract) show the relation between enrichment of the liquid metallic alloy with a given component and both amperage of the elec. current and time. Sepn. of the metallic components in the elec. field and the diffusion potential are very closely interconnected. However, sepn. of the metallic components in a liquid alloy by this method would be uneconomical. Only small samples of a valuable material could be economically purified by this method of removing detrimental impurities. The following equations are derived: (1) phenomenologic equation for a system with several components and (2) phenomenologic equation for dild. alloys with 2 components. The way is shown to calc. (*a*) the max. sepn. of the components in the elec. field, (*b*) diffusion potential, and (*c*) elec. cond. in the state of max. sepn. of the components. The thermodynamic theory was discussed previously (*C.A.* 49, 11370*d*, 14441*g*). 38 references. F. L. Hendel

[illegible]

POLAND / Physical Chemistry. Solutions. Theory of Acids and Bases. B

Abs Jour: Ref Zhur-Khimiya, 1958, No 20, 66938.

Author : Stroka A., Baranowski B., Sarnowski M.
Inst : Not given.
Title : Ebulimentrical Studies of Concentrated Solutions of H_2O-Ca $(NO_3)_2$-KNO_3.

Orig Pub: Roczn. chem., 1957, No 3, 1025-1028.

Abstract: The dependence of boiling points (B.P.) on the quantity of introduced dry KNO_3(II) in the 50.0, 59.9, and 69.4% aqueous solutions of $Ca(NO_3)_2$(I) was investigated. The ratio of molar concentrations of II and I (a) in the investigated solutions

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POLAND / Physical Chemistry. Solutions. Theory of Acids and Bases. B

Abs Jour: Ref Zhur-Khimiya, 1958, No 20, 66938.

Abstract: was varied from 0 to 2. Introduction of II into the 50 and 59.9% solutions of I was accompanied by an increase in B.P. With a <1, B.P. of the 59.9% solution of I was found lwer than B.P. of the 50% solution of I. With a >1 an opposite effect was noticed. Introduction of II into the 69.4% solution of I caused lowering of the B.P. A minimum is observed at a = 0.5. Further increase in the concentration of II causes gradual increase in the B.P. of the solution. When a = 1, B.P. of the solution is found to be slightly higher than when a = 0. The authors assume that the deviations from the Raoult's law of a given solution serve as criteria for the formation of $Ca(NO_3)_2 \cdot KNO_3 \cdot 3H_2O$ complex (III) in this solution (Ref.

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POLAND / Physical Chemistry. Solutions. Theory of Acids and Bases. B

Abs Jour: Ref Zhur-Khimiya, 1958, No 20, 66938.

Abstract: Zhur-Khimiya 1956, 3405). The relationship of B.P. of the first two solutions and of concentration of II is also explained by the formation of III.

Card 3/3

BARANOWSKIJ B.

7

5

Thermodiffusion in multicomponent liquid mixtures. B. Baranowski and A. Zieliński (Polish Acad. Sci., Warsaw). Bull. acad. polon. sci., Classe III, 5, 65-9(1957)(in English). —On the basis of Onsager's thermodynamics of irreversible phenomena (cf. Alexander, *C.A.* 49, 16885c) a general formula is developed for the Soret coeffs. of components of any mixt., contg., or not contg., ions. It includes all hitherto considered particular cases (cf. de Groot, *C.A.* 36, 3833a; Alexander, *C.A.* 49, 30f; Haase, *C.A.* 48, 3111f; Karger, *C.A.* 50, 653c). Both de Groot's and Haase's treatments appear to be limited to dil. solns, because it was necessary to introduce this assumption in order to obtain their equations. The equation is discussed for a particular case of ternary dil. systems not contg. ions. It predicts whether addn. of a 3rd liquid will improve or not

MT

BARANOWSKI, B.

3

Extension of the phenomenological theory of the electrothermodiffusion method. B. Baranowski and J. Demichowicz-Pigoniowa (Polish Acad. Sci., Warsaw). *Bull. acad. polon. sci.* Classe III, 5, 83-7(1957)(in English).—The modification of the usual thermogravitational method is reconsidered (cf. *C.A.* 49, 9344i). The previous theory (*C.A.* 49, 9345a) is extended so as to take account of the dependence of elec. cond. on electrolyte concn. The Soret coeffs. can be calcd. more accurately. J. Stecki

BARANOWSKI, B.

POLAND/Physical Chemistry - Electrochemistry.

B-12

Abs Jour: Referat. Zhurnal Khimiya, No 3, 1958, 7313.

Author : B. Baranowski, Z. Szklarska-Smialowska, M. Smialowski.
Inst : Academy of Sciences of Poland.
Title : Diffusion Constant of Hydrogen in Iron Cathodes.

Orig Pub: Bull. Acad. polon. sci., 1957, Cl. 3, 5, No 2, 191-196, XVII.

Abstract: The diffusion constant in iron at 20° was determined from the liberation rate (LR) of H_2 from Fe wire, which had been preliminarily saturated with hydrogen by cathode polarization in 1 n. $H_2SO_4 + As_2O_3$. LR was determined volumetrically, Fe being immersed in water. Two stages of H_2 desorption from Fe with $D_I = 5.0 \cdot 10^{-7}$ and $D_{II} = 0.6 \cdot 10^{-8}$ sq.cm per sec were revealed. D_I and D_{II} computed from the time necessary for the maximum stationary elongation of the Fe wire at the cathod polarization in 1 n. $H_2SO_4 + As_2O_3$ (RZh-Khim, 1955, 31330) are magnitudes of

Card : 1/2

BARANOWSKI, B.

B-11

POLAND / Physical Chemistry. Solutions, Theory of Acids
and Bases.

Abs Jour : Ref Zhur - Khim., No 10, 1958, No 31837

Author : B. Baranowski, A. Fulinski
Inst : Academy of Sciences of Poland
Title : Electrogravitational Separation of Binary Solutions of Electrolytes at a Small Distance Between the Electrodes.

Orig Pub : Bull. Acad. polon. sci., 1957, cl. 3, 5, No 8, 821-825.

Abstract : A theory of electrogravitational separation (Murphy G.W., J. Electrochem. Soc., 1950, 97, 405) of binary solutions of electrolytes is proposed. Expressions of the course of the electrolytes is proposed. Expressions of the course of the electric potential, the concentration and the convection current in the space between the electrodes, as well as of the relations between the concentrations in the top and bottom reserve vessels depending on the macroparameters

Card 1/2

POLAND/Physical Chemistry - Solutions. Theory of Acids and Bases. B.

Abs Jour : Ref Zhur - Khimiya, No 9, 1958, 28033

Author : Baranowski, B. and Sarnowski, M.

Inst :

Title : A Semi-Empirical Treatment of the Properties of Nonideal Three-Component Solutions Containing an Electrolyte and a Nonvolatile Nonelectrolyte.

Orig Pub : Przemysl Chem, 13, No 5, 270-272 (1957) (in Polish with summaries in English and Russian)

Abstract : Using the adsorption-based conception of the solvation process, the authors have introduced an equation relating the amount of solvent (Δm) to the concentrations of the components of the solution and to three empirical parameters. One of the parameters depends on the temperature, the time of the isobaric experiment, etc.; the second parameter characterizes the effective number of

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Inst. Chemical Synthesis
Tarnow, Poland

BARANOWSKI, B.

POLAND/Inorganic Chemistry - Complex Compounds. C.

Abs Jour : Ref Zhur - Khimiya, No 10, 1958, 31974

Author : A. Baranski, B. Baranowski, M. Sarnowski

Inst : -

Title : On the Formation of Complex Compounds of Calcium Chloride with Urea in Aqueous Solutions.

Orig Pub : Przem. chem., 1957, 13, No 9, 505-506

Abstract : The presence of complex compounds in the system H_2O - $CaCl_2$ - $CO(NH_2)_2$ was established by studying it by the viscosimetric method. A lesser capacity of producing the $CO(NH_2)_2.2CaCl_2$, $CO(NH_2)_2.CaCl_2$, $3CO(NH_2)_2.2CaCl_2$, $2CO(NH_2)_2.CaCl_2$, $5CO(NH_2)_2.2CaCl_2$, $3CO(NH_2)_2$ and $4CO(NH_2)_2.CaCl_2$. complexes is observed at higher temperatures.

Ind. Chem. Synthesis, Sarnow

Card 1/1

POLAND / Physical Chemistry. Solutions. Acid and Base Theory. B

Abs Jour: Ref Zhur-Khimiya, No 17, 1958, 56845.

Author : Baranowski Bogdan, Baranski A., Fulinski Andrzej.
Inst : Not given.
Title : Heat Transfer of Hydrochloric Acid, Sodium Chloride and Potassium Chloride in Aqua Solutions.

Orig Pub: Roczn. chem., 1957, 31, No 1, 229 - 240.

Abstract: The Soret coefficient (SC) in aqua solutions of HCl, KS1 and NaCl in a concentration range of 1 - 0.05 n., correct to ≤ 10 percent, was determined by the electric thermo-diffusion method. The SC versus initial solution concentrations are presented on graphs. The SC values are practically constant at concentrations of 1 - 0.3 n.,

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Univ Krakow, Poland

BARANOWSKI, B

BARANOWSKI, B.

Comment on the article "Suggestion Concerning Classification and Definition of Systems of Chemical Thermodynamics" by Tomassi; also, remarks by W. Tomassi.

p. 361 (Roczniki Chemii) Vol. 31, no. 1, 1957, Warszawa, Poland

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC, VOL. 7, NO. 1, JAN. 1958

BARANOWSKI, BOGDAN

POLAND/Atomic and Molecular Physics - Liquids D-8

Abs Jour : Ref Zhur - Fizika, No 11, 1958, No 25050

Author : Baranowski Bogdan, Demichowicz-Pigoniowa Jadwiga
Inst : Not Given
Title : Extension of the Phenomenological Theory of Electrothermodiffusion.

Orig Pub : Roczn. chem., 1957, 31, No 3, 927-935

Abstract : A phenomenological theory of the electrothermodiffusion method has been developed with allowance for the influence of thermodiffusion separation on the establishment of the temperature gradient in a capillary. A new approximation is given for the value of the mass transfer between spare reservoirs. The results of the theory are used to calculate the Sauret coefficients of aqueous solutions of $CuSO_4$

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6

Study of selective solvation by sound velocity and compressibility measurements. B. Baranowski, H. P. Jacob, and M. Sarnowski (Inst. chem. synth., Tarnow, Poland). *Naturwissenschaften* 44, 80-1 (1957).—Previously it was shown that the vapor pressure of aq. concd. salt solns. above a certain min. concn. increases on addn. of urea and reaches a max. (*C.A.* 50, 6878*a*). Curves are shown of the sound velocity (v) and compressibility (s, calcd. from v and d.) of $CaCl_2$ solns., measured at 25°, 2.4 Mc. frequency, concns. 20, 35, and 40% by wt., with addn. of urea up to a (urea: $CaCl_2$) mole ratio of 7. For the 20% soln. addn. of urea gives a rise in v, 4% at 6 mole ratio. For the 35 and 40% soln. addn. of urea causes v to drop 1 and 2%, resp. (min.) at mole ratio about 5. The min. has a tendency to shift to higher mole ratios at higher $CaCl_2$ concns. The compressibility has the opposite effect. The max. of compressibility probably indicate satn. effect of the solvation shell in which urea enters and may displace H_2O. B. J. C. van der

BARANOWSKI, B

POLAND / Physical Chemistry. Solutions. Theory of Acids and Bases. B

Abs Jour: Ref Zhur-Khimiya, 1958, No 20, 66930

Author : Baranowski B., Sarnowski M.
Inst : Not given.
Title : Application of Theory of the Debye's Salt Effects.

Orig Pub: Roczn. Chem., 1958, No 1, 135-138.

Abstract: Use of a specific expression for the osmotic pressure of electrolytes and non-electrolytes (Ref. Zhur-Khimiya, 1957, 3890) is proposed for solutions that do not follow Raoult's law (Ref. Zhur-Khimiya, 1956, 50331, 77533). Use of the corrected expressions of the non-electrolyte concentration permits

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BARANOWSKI, B.

POLAND/Physical Chemistry - Solutions. Theory of Acids and Bases. B-11

Abs Jour: Referat Zhur - Khim, No. 9, 1959, 30610

Author : Baranowski, B., Fulinski, A.

Inst : Not given

Title : The Electrothermodiffusion Method in Plane Coordinates

Orig Pub: Roczniki Chem, 1958, No 3, 595-609

Abstract: The method of irreversible thermodynamics has been applied to the investigation of steady-state electrothermodiffusion convective processes (ECP) in two dimensions under conditions of laminar flow. Phenomenological equations have been derived for the velocity distribution in the convective flow between two plates and

Card 1/3

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B-12

Country : Poland
Category : Electrochemistry

18656

Abs. Jour. : Ref Zhur-Khimiya, No 6, 1959

Author : Baranowski, B.; Szklarska-Smialowska, Z.; *
Institut. : Polish Academy of Sciences
Title : Kinetics of Hydrogen Desorption from Nickel at 20°.

Orig. Pub. : Bull. Acad. polon. sci. Ser. sci. chim., geol. et geogr., 1958, 6, No 3, 179-186, XIV

Abstract : A determination was made of the maximum amount of electrolytic hydrogen (I) V_H, absorbed by a Ni wire (diameter d 0.015-0.2 cm) on cathodic polarization at i = = 0.1 a/cm^2, in 1 N H_2SO_4 + 0.05 g/liter As_2O_3, within 2-5 hours, and on the basis of kinetics of desorption of I, dv/dt, at room temperature, an attempt was made to calculate the coefficient of diffusion D, of I in Ni. It was found that V_H drops sharply with increase of d. On the curve of log(dv/dt) as a function of time t, were found two rectilinear portions of large angle of inclination at low values of t; according to the law of Fick they correspond to two

Card: 1/2

* and Smialowski, M.

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B-11

COUNTRY : Poland
CATEGORY : Physical Chemistry--Solutions. Theory of acids and bases.
ABS. JOUR. : RZKhim., No. 21 1959, No. 74327

AUTHOR : Baranowski, B. and Fulinski, A.
INST. : Polish Academy of Sciences, Inst of Physical Chemistry
TITLE : Influence of Thermodiffusion on Electrical Conductivity of a Polythermic Solution of Binary Electrolytes
ORIG. PUB. : Bull Acad Polon Sci, Ser Sci Chim Geol et Geograph, 6, No 10, 625-631 (1958)
ABSTRACT : The methods of the thermodynamics of irreversible processes (RZhKhim, 1958, No 18, 57608) were used in deriving equations for the current density (i) and electrical conductivity (χ) of an ideal solution of a binary electrolyte in the initial stage and in the steady state of thermodiffusion. In the latter case i and χ depend on the external field gradient, the temperature gradient, and the concentration gradient. The equations obtained can be applied to the conductometric determination of thermodiffusion coefficients.

B. Kaplan

CARD: 1/1

POLAND / Physical Chemistry. Electrochemistry. B-12

Abs Jour : Ref Zhur - Khimiya, No 3, 1959, No. 7638

Author : Baranowski, Bogdan; Fulinski, Andrzej
Inst : Not given
Title : Theory of Electrogravitational Separation of Solutions of Binary Electrolytes

Orig Pub : Roczn. chem., 1958, 32, No 2, 303-313

Abstract : A theoretical analysis of the process of electrogravitational separation of solutions of binary electrolytes in the case of two parallel, plane, reversible electrodes, disposed vertically at a short distance from each other. Above and below the electrodes are located reservoirs containing the solution. On resorting to certain simplifying assumptions, equations are derived for the distribution of concentration, the concentration gradient and potential within the space between the electrodes, and also

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POLAND / Physical Chemistry. Electrochemistry. B-12

Abs Jour : Ref Zhur - Khimiya, No 3, 1959, No. 7638

for the ratio of concentrations in the reservoirs depending upon the ratio of steady-state current flowing through the system to the limit current. -- Yu. Pleskov

Card 2/2

The electrothermodiffusional method in a flat set-up. Bogdan Baranowski and Andrzej Fuliński (Polish Acad. Sci., Warsaw). *Roczniki Chem.* 32, 595–609(1958)(English summary).—The elec. thermodiffusional method applied heretofore in a cylindrical system for detns. of Soret coeff. (*C.A.* 52, 6897*g*) is proposed for a flat set-up, useful for practical applications. The soln. to be sepd. should be placed between 2 parallel, flat walls, consisting of thin sheets of an insulator, with electrodes at the upper and lower ends of the walls. A general phenomenological theory is worked out for such system. The temp. gradient is given by: $dt/d\xi = -(\lambda M x_0/2bhk) - [(\sin A\xi)/\sin A]$. The max. temp. difference is given by: $\Delta t = \lambda M x_0(1 - \cos A)/(2bhkA \sin A)$. The convection velocity is expressed as: $v = B[\cos A\xi - \cos A + {}^1/_2(\cos A - (\sin A/A))(1 - \xi^2)]$, where $A^2 = \lambda U^2 \kappa x_0^2/h^2 k$ and $B = \lambda M g \beta \rho x_0^4/2\eta h b k \sin A$. The general flow equation is solved for initial and boundary conditions with the use of function G defined as $(\partial n/\partial y)G(x,y) = J_x = -(D/x_0)(\partial n/\partial \xi) + (D'2\Delta t\xi n/x_0)$. In the equations, x, y, z are the geometrical coordinates, $2x_0$ is distance between the walls, h and b are the height and breadth of the walls, V is reservoir vol., t is temp., k is thermal cond. of the liquid, λ is elec. equiv. of heat, U is effective voltage applied to the working vol., κ is specific cond., M is current power, η is viscosity coeff., g is gravitation, ρ is d., n is concn., τ is time, J is flux vector, m is the mass passing per unit time, D and D' are coeffs. of thermal and ordinary diffusion, $\xi = x/x_0$, and $c = (1/\kappa)(d\kappa/dt)$. These equations can be simplified by neglecting the dependence of elec. cond. on temp. The changes of concn. in the reservoirs, expressed for the case $c = 0$, only, are given by: $n_d/n_g = [1 + \tanh \alpha(1 - e^{-\gamma\tau \coth\alpha})]/[1 - \tanh\alpha(1 - e^{-\gamma\tau\coth\alpha})]$, where n_g and n_d are the concns. in the upper and lower container, resp., and $\alpha = 165903kD'\eta/1230x_0^4\beta g\rho$ and $\gamma = 8bx_0^2D'(\Delta t)^2\beta g\rho/1575VD\eta$. The results obtained were compared with those of the thermogravitational method, showing a much better sepn. by the elec. thermodiffusional method.

A. Kreglewski

BARANOWSKI, B.

SCIENCE

PERIODCIAL: ROCZNIKI CHEMII, Vol. 32, No. 4, 1958

BARANOWSKI, B. Stationary electrolysis in systems without convection.
I. Thermodynamic theory p. 863

Monthly List of East Europ an Accessions (EEAI) LC Vol. 8, No.4
April 1959, Unclass

Bogdan Baranowski

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Stationary electrolysis in systems without convection. I. Thermody~~namical theory~~. Bogdan Baranowski and Andrzej Fuliński (Polish Acad. ~~Sci., Warsaw). Roczniki~~ *Chem.* 32, 871-85(1958)(English summary).—The stationary state was considered from the point of view of thermodynamics of irreversible processes for a liquid soln. of N components (ions and uncharged mols.) placed between parallel electrodes reversible to one ion. An external potential was applied to these electrodes, making natural convection impossible and leading to concn. gradients. Equations obtained are of fundamental importance for the theory of elec.-gravitational sepn. (*C.A.* 52, 10583*c*), for they give the initial equations for detg. the course of changes of concn. and of the limiting c. d. Some special cases, as dil. and ideal solns., are discussed. The equation for c.d. in a binary ideal soln. is analogous to that derived by Murphy (*C.A.* 48, 1860*f*). The theory postulates the possibility of sepn. of neutral components, which follows from purely thermodynamic or kinetic reasons. A. Kręglewski

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BARANOWSKI, B.

The rate-determining step in desorption of gases from solid specimens. Bul.Ac.Pol.chim. 7 no.12:887-890 '59. (EEAI 9:5)

1. Institute of Physical Chemistry, Polish Academy of Sciences.
(Gases) (Desorption) (Solids)

BARANOWSKI, B.

Distr: 4E2c(m)

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Corrosion kinetics of iron in ammonium nitrate solution. B. Baranowski, T. Ostrowska, and M. Śmiałowski (Inst. Chem. Fizycznej P.A.N., Warsaw). *Bull. acad. polon. sci., Sér. sci. Chim., géol. et géograph.* 7, 811–16(1959)(in English).—Fe contg. C 0.06, Mn 0.35, P 0.016, S 0.027, Cr 0.05, Ni 0.08, Cu 0.17, and Al 0.02%, was kept in 0-12N NH_4NO_3 in Ar atm., and the amt. dissolved detd. as 2,2'-bipyridine. A 2-3-fold increase in dissoln. rate was caused by stirring. No insol. deposits on the metal surface were formed. Expts. with addns. of $(NH_4)_2SO_4$ and (or) $NaNO_3$ suggested that the rate-controlling step involved NH_4 ion. The process is not diffusion-controlled. J. Steckl

BARANOWSKI, B.

Desorption kinetics of cathodic hydrogen from thin nickel layers.
Bul.Ac.Pol.chim. 7 no.12:891-896 '59. (EEAI 9:5)

1. Institute of Physical Chemistry, Polish Academy of Sciences.
(Desorption) (Cathodes) (Hydrogen) (Nickel)

BARANOWSKI, B.

The dependence of the cathodic hydrogen content in thin nickel layers on the current density and saturation temperature. Bul.Ac.Pol.chim. 7 no.12:897-905 '59. (EEAI 9:5)

1. Institute of Physical Chemistry, Polish Academy of Sciences.
(Cathodes) (Hydrogen) (Nickel)

BARANOWSKI, B.

The kinetics of saturation of electrolytic nickel layers with cathodic hydrogen. Bul.Ac.Pol.chim. 7 no.12:907-910 '59.

(EEAI 9:5)

1. Institute of Physical Chemistry, Polish Academy of Sciences.
(Nickel) (Cathodes) (Hydrogen)

BARANOWSKI, B.; FULINSKI, A.

Mass and energy transfer in a polythermic many-component two-phase system. Bul.Ac.Pol.chim. 7 no.12:911-916 '59. (EEAI 9:5)

1. Institute of Physical Chemistry, Polish Academy of Sciences.
(Systems (Chemistry))

BARANOWSKI, B

reports to be presented at the 2nd Intl Congress on Catalysis, Paris, France, 4-9 Jul '60.

Poland

BARANOWSKI, B., SMIALOWSKI, M., and SZKLARSKA-SMIALOWSKA, Z. - "Properties of nickel layers electrolytically hydrogenated in the presence of poisons" (Section II)

BIELANSKI, A., DEREN, J., HABER, J., and SLOCZYNSKI, J. - "Electronic processes accompanying the catalytic dehydrogenation of alcohols on semiconducting oxide catalysts" (Section II)

BRETSZNAJDER, S. - "On the process of catalytic reaction of sulfur dioxide with acids in iron sulfate solution" (Section III)

KRAUSE, A. - "On trace catalysis" (Section II)

LIPKA, B., TRESZCZANOWICZ, E., and [illegible], B. - "The gaseous phase transformation of a mixture of 3-picoline and 4-picoline in the presence of ammonia and air in a mixture of corresponding nitriles" (Section III)

MALINOWSKI, S., and [illegible], T. - "Hydrogen transfer in gaseous phase between alcohols and compounds containing carbonyl groups" (Section I)

OTWINOWSKA, H., TRESZCZANOWICZ, E., and CIBOROWSKI, St. - "Studies on electric conductivity and catalytic activity of promoted zinc oxide during isopropanol dehydrogenation" (Section III)

SZNAJDER, J. - "Study of selectivity and activity of copper catalyzers in dehydrogenation reaction" (Section III)

SWINARSKI, A., and SIEDLEWSKI, J. - "Influence of dimensions of pores on the catalytic power of active carbon in the oxidation of sulfur hydrogen by oxygen" (Section II)

BARANOWSKI, Bogdan; FULINSKI, Andrzej

Electrogravitational enrichment of water solutions of cupric sulfate at a small distance between electrodes. Rocz chemii 34 no.2:587-600 '60. (EEAI 10:1)

1. Instytut Chemii Fizycznej Polskiej Akademii Nauk, Warszawa.
(Copper sulfate) (Water) (Solutions)

BARANOWSKI, B.

Irreversible processes within the surface-phase treated thermodynamically. Bul chim PAN 9 no.3:159-162 '61.

1. Institute of Physical Chemistry, Polish Academy of Sciences. Presented by M. Smialowski.

(Surphase chemistry) (Thermodynamics)

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AUTHOR: Baranowski, Bohdan, Doctor, Docent

TITLE: The thermodynamics of irreversible processes in physical chemistry

PERIODICAL: Wiadomości chemiczne, no. 9, 1961, 553-564

TEXT: This article was originally a lecture delivered at a meeting of the theoretical group of the Instytut chemii fizycznej PAN (Physical Chemistry Institute, PAS, Warsaw) on May 28, 1960. A short description is given of the derivation and extension of known phenomenological equations concerning irreversible effects from the thermodynamics of irreversible processes. The author discusses the problems of 1) derivation of these laws on a macroscopic scale; 2) determining their ranges of validity; 3) their mutual relationship and 4) their connection with classical thermodynamics. It is shown that equilibrium thermodynamics can give little or no information on these subjects. The relationship of the is then discussed in the light

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the connecting factor. Entropy is regarded as a scalar quantity having positive sources, and its change with time, in any given element of volume, is given by

$$\frac{\partial s}{\partial t} = - \mathrm{div}.\mathfrak{J}_s + \sigma \qquad (1)$$

where s is the entropy of the volume element, t is the time, $\mathfrak{J}_s$ the entropy flow and σ a so-called "entropy source" which originates from all irreversible processes occurring in the system under consideration. σ is also closely connected with classical thermodynamics through the Gibbs equation relating entropy to other internal and external properties of the system. It is shown (non-mathematically) that σ can always be expressed as a sum of the products of various macroscopic, time dependent processes (flows), $\mathfrak{J}$, and property, (e.g. concentration) gradients which may be regarded as "thermodynamic forces" $\mathfrak{X}$. In general, therefore, $\sigma = \sum_i \mathfrak{J}_i \mathfrak{X}_i$ (4)

Eq. (4) may be written as a family of "phenomenological equations" which describe the course of irreversible processes by introducing a set of coefficients, L, such that

$$J_i = \sum_k L_{ik} X_k \qquad (5)$$

Analysis of Eq. (5) provides the full phenomenological theory of irreversible processes. The laws of Fick, Ohm, Fourier and Newton quoted above represent special cases of this equation and may, therefore, be derived from the consideration of the entropy source. Thus, e.g., Fick's law, stating that transfer of a certain constituent equals the product of a diffusion coefficient and a concentration gradient, may be written as

$$J = D \times \text{gradient } c \qquad (6)$$

The range of validity of Fick's law depends on the ideal state of the system which may be determined from classical thermodynamics by introducing activity coefficients and on the effects of other components taking part in the transfer. Traditional forms of phenomenological equations are only approximate since the mutual interactions of components and their activity coefficients are not known precisely, and the laws apply only where the departures from equilibria are not pronounced. The role of the thermodynamics of irreversible processes does not solely consist of the derivation of all known laws describing irreversible effects, but also of elucidating problems which cannot be solved by the application of the simple laws. This is illustrated by considering 1) the isothermal transference of metals

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in a constant electric field towards the anode, and 2) the problem of isothermal self-diffusion and electrical conductivity in simple salts, such as liquid or solid NaCl. Thermodynamics of irreversible processes may also solve theoretical problems and suggest methods of experimental confirmation of the results. This is exemplified by the discussion of phase transfer in an isothermal 2 phase system, leading to a more correct value of the partition coefficient. Many applications for the method exist in the fields of, for example, electrochemistry, chemical kinetics, relaxation processes and catalysis. Thermodynamics of irreversible processes should thus fulfill a function analogous to that of thermodynamics dealing with reversible effects, by providing a common theoretical origin to experimental laws and yielding the maximum information about an examined system with the minimum of effort. There are 7 references: 5 Soviet-bloc and 2 non-Soviet-bloc. The reference to the English-language publication reads as follows: A.Z. Borucka, J.O.M. Bockris, J.A. Kitchener, J. Chem. Phys. 1956, 24, 1282.

ASSOCIATION: Instytut chemii fizycznej, PAN Warszawa (Physical Chemistry Institute, PAS, Warsaw)

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BARANOWSKI, B.; CUKROWSKI, A. S.

The general equation of marker velocity in transfer processes. Bul chim PAN 9 no.4:253-256 '61.

1. Institute of Physical Chemistry, Polish Academy of Sciences. Presented by M. Smialowski.

(Equations) (Temperature) (Isobars)
(Chemical reaction, Rate of)

BARANOWSKI, Bogdan; FULINSKI, Andrzej

Thermodynamics of irreversible processes of two-phase systems. I. Isothermal manycomponent systems without chemical reactions. Rocz chemii 35 no.4:1103-1116 '61.

1. Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw.