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PROCESSES AND PROPERTIES INDEX

6

Hydroxylamine and hydrazine compounds of Pt and Pd. IV. Bromides of hydroxylamine compounds of Pt. V. I. Goremykin and K. A. Gladyshevskaya. *J. Gen. Chem.* (U. S. S. R.) 13, 768-79(1943)(English summary); cf. preceding abstr.—Double decompn. between compds. of the type $[Pt(NH_3)_2X_2]$ and KBr was investigated and optimum conditions were detd. for cleavage of *cis*-$[Pt(NH_2OH)_4]X_2$ by HBr to give high yields of $[Pt(NH_2OH)_2X_2]$. This reaction with concd. HBr gave, besides the normal products, the H_2NOH complexes of Pt (IV). Thiourea (T) was successfully used for detn. of structures of the NH_2OH-Pt complexes. Reactions with pyridine (Py) and 2-aminopyridine (NH_2Py) and $[Pt(NH_2OH)_2Br_2]$ were studied. The following trans compds. were isolated: $[Pt(NH_2OH)_4]Br_2$, $[Pt(NH_2OH)_2Br]\cdot 2H_2O$, $[Pt(NH_2OH)_2T_2]Br_2$, $[Pt(NH_2OH)_2Py_2]Br_2$, $[Pt(NH_2OH)_3(NH_2Py)]Br_2$, $[Pt(NH_2OH)(NH_2)Br_2]$, $[Pt(NH_2OH)(NH_2)T_2]Br_2$, $[Pt(NH_2OH)(NH_2)Py_2]Br_2$, $[Pt(NH_2OH)(NH_2)(NH_2Py)_2]Br_2$, $[Pt(NH_2OH)PyBr_3]$, $[Pt(NH_2OH)PyT_2]Br_2$, $[Pt(NH_2OH)Py_2]Br_2$, $[Pt(NH_2OH)Py(NH_2Py)_2]Br_2$, and $[Pt(NH_2)PyT_2]Br_2$. **VI. Chlorides and bromides of hydrazine compounds of Pt and Pd.** V. I. Goremykin. *Ibid.* 14, 13-30(1944)(English summary).—The introduction of solns. or solid forms of K_2PtCl_4 or K_2PdCl_4 into satd. or dil. solns. of N_2H_4, HCl or N_2H_4 HBr leads to the formation of complex N_2H_4 compds. of Pt or Pd; the salts are not reduced to the metals. The order of addn. of the reagents is important in relation to the compn. of the final products; N_2H_4 is capable of taking one or two coördinate positions in Pt and Pd compds. The following compds., all of which were assigned the cis configuration, have been prepd. for the first time: $[PtCl_2(N_2H_4)_2]Cl_2\cdot 2H_2O$, $[PtCl_2(N_2H_4)_2]$, $[PtCl_2(N_2H_4)N_2H_5]Cl$, $[PtCl_2(N_2H_4)_2]$, $[PtCl_2(N_2H_4)]$, $[PtBr_2(N_2H_4)N_2H_5]Br\cdot 2H_2O$, $[PtBr_2(N_2H_4)N_2H_5]Br\cdot H_2O$, $[PtBr_2(N_2H_4)_2]$, $[PtBr_2(N_2H_4)]$, $[PtCl_2(N_2H_4)_2]Cl_2\cdot 2H_2O$, $[PdCl_2(N_2H_4)_2]Cl$, $[PdCl_2(N_2H_4)_2]\cdot H_2O$, $[PdCl_2(N_2H_4)_2]$, $[PdCl_2(N_2H_4)N_2H_5]Cl$, $[PdBr_2(N_2H_4)_2]Br_2\cdot 4H_2O$, $[PdBr_2(N_2H_4)_2]\cdot H_2O$ and $[PdBr_2(N_2H_4)]$. G. M. K.

Nov. 11-12

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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91-8 Reactions

Br. Abs.

Complex hydroxylamine and hydrazine compounds of platinum and palladium. VIII. Oxidation of hydroxylamine compounds of bivalent platinum by chlorine and bromine. V. I. Goremikin (*Bull. Acad. Sci. U.R.S.S., Cl. Sci. Chim.*, 1944, 185—191).—Oxidation by Br-H_2O of *trans*-[Pt NH_2OH NH_3 Br_2], *trans*-[Pt NH_2OH NH_3 $(C_5H_5N)_2$] Cl_2, *trans*-[Pt NH_2OH C_5H_5N $(NH_3)_2$] Cl_2, and *trans*-[Pt NH_2OH NO_2 C_5H_5N $(NH_3)_2$] $PtCl_2$ yielded $(NH_3)_2$ $PtBr_2$ H_2O, $Pt(C_5H_5N)_2Br_2$, $Pt(NH_3)_2Br_2$, and Pt NH_2 C_5H_5N Br_2, respectively. Oxidation of *trans*-[Pt NH_2OH C_5H_5N $(NH_3)_2$] Cl_2 with Cl_2 yielded $Pt(NH_3)_2Cl_2$. All oxidations were carried out cold or with only slight warming. The mechanism of oxidation is discussed and it is suggested, from the prior oxidation of NH_2OH, that intermediate compounds exist comprising radicals of the type NH_2OHX_2, where X is Cl, Br, OCl, or OBr. V. B.

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GOREMYKIN, V. I.

"Hydrozylamine and Hydrazine Compounds of Platinum and Palladium. VI. Chlorides and Bromides of Hydrazine Compounds of Platinum and Palladium." Goremykin, V. I. (p. 13)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1944, Volume 14, no. 1-2.

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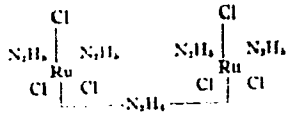
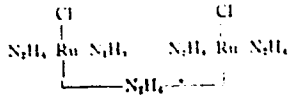
"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

Chlorides of hydrazine compounds of ruthenium. V. I. Goremykin and T. D. Avtokratova. *Bull. acad. sci. U.R.S.S., Chimie sci. chim.* 1947, 427-34(in Russian).—Howe's (*J. Am. Chem. Soc.* 23, 775(1901); *C.A.* 21, 2441) salt, $K_2[Ru^{III}(H_2O)Cl_5]$ (I), or $2K_3[RuCl_6].3H_2O$, 0.5 g., when finely ground and added by portions to 100 ml. satd. $N_2H_4.HCl$, ppts., with a yield of 65-70%, red octahedral crystals, decomp. 40°-50° (with explosion), n 1.77, magnetic moment μ = 2.55 Bohr magnetons, which analyze to $[Ru_2(N_2H_4)_4N_2H_4Cl_5]Cl_4.HCl$ (II). The proposed structure of the cation is:



With $AgNO_3$ it forms a ppt.; concd. H_2SO_4 ppts. the sulfate; K_2PtCl_4 forms a black amorphous ppt.; CaH_2 first evolves H_2 with the outer HCl, than with the inner HCl. On heating in HCl soln., II loses 5 HCl, going over into $[Ru_2(N_2H_4)_4Cl_5]Cl_4$ (III), yellow octahedral crystals. III is also obtained, in a 50-55% yield, by heating I, 1 g., with 20 ml. satd. $N_2H_4.HCl$. When first crystd. from aq. soln., III is hydrated with 1 H_2O; when recrystd. from boiling 1.5% HCl, it is anhydrous. The soly. of hydrated III is 0.3 g./100 ml. at 25°; n 1.72, n_D 1.084; detn. of elec. cond. indicates 4 Cl^-; μ = 3.15 Bohr magnetons, is consistent with the structure of the cation:



with each of the four N_2H_4 occupying two corners of the octahedron, and one forming a bridge. III is not decompd. by HCl, dil. or concd. Concd. H_2SO_4 substitutes the outer Cl. Long heating with concd. HNO_3 gives a purple-black soln. pptg. fine crystals, not further investigated. Concd. NH_4OH gives an intense red color. Hot $AgNO_3$ ppts. 2.6 atoms Cl per atom Ru; cold $AgNO_3$, 2.4 Cl. Gradual addn. of 1.5-2% K_2PtCl_4 (in 1½-fold excess) to a satd. soln. of III, ppts. in a 70% yield, yellow-orange crystals analyzing $[Ru_2(N_2H_4)_4Cl_5][PtCl_4]_2$ (IV), becoming dark-yellow on drying at 110°, μ = 2.55. Grinding of III with concd. H_2SO_4 gives, after a few days, the sulfate $[Ru_2(N_2H_4)_4Cl_5](HSO_4)_4$ (V), coarse yellow ring-shaped crystals, readily sol. in H_2O, μ = 2.95. Recrystn. of V from dil. H_2SO_4 gives another sulfate, assumed to be $[Ru_2(N_2H_4)_4Cl](HSO_4)_4.3H_2SO_4.3H_2O$ by analogy with the Ir compds., consistent with the detn. of Ru. The above structures are based on the values of μ, consistent with 2 unpaired electrons in the complex. N. Thon

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GOREMYKIN, V. I. PA 15T17

USSR/Chemistry - Platinum May/Jun 1947
Chemistry - Palladium

"Hydroxylaminic and Hydrazinic Complex Compounds of Platinum and Palladium: IX, Asymmetric Tetra-substituted Hydroxylaminic Platotetramine and Alpha-aminic Platinum Compounds," V. I. Goremykin, 6 pp

"Izv Ak Nauk Otd Khim Nauk" No 3

Initial preparation of tetrasubstituted asymmetric platotetramine, and establishment of the unequal stability of the bonds between the natural substituents and platinum.

15T17

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GOREMYKIN, Vasiliy Ivanovich

"Hydrazine Complexes of Ru," 4th All-Union Cong. of Chem. of Complex Compounds, (Mbr., Acad. Sci., 1941,)Order of Labor Red Banner, Apr. 1948

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GOREMYKIN, V. I. and AVTOKRATOVA, T. D.

"Structure of Ruthenium Red Salt," Iz. sekt. plat. i blag. met., No.25, 1950

"Tetrapyridine Compound of Ruthenium," ibid.

"Study of the Interaction of Complex Chlorides of Ruthenium with Hydrochlorid Acid of Hydrazine," ibid.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GOREMYKIN, V.I.

GRINBERG, A.A. (Leningrad); BABAYEVA, A.V. (Moscow); YATSIMIRSKIY, K.B. (Ivanovo); GOREMYKIN, V.I. (Moscow); BOLIY, G.B. (Moscow); FIALKOV, Ya.A. (Kiyev); YAKSHIN, M.M. (Moscow); KEDROV, B.M. (Moscow); GEL'MAN, A.D. (Moscow); FEDOROV, I.A. (Moscow); MAKSIMYUK, Ye.A. (Leningrad); VOL'KENSHTEYN, M.V. (Leningrad); ZHDANOV, G.S. (Moscow); PTITSYN, B.V. (Leningrad); ABLOV, A.V. (Kishinev); VOLSHTEYN, L.M. (Dnepropetrovsk); TROITSKAYA, A.D. (Kazan'); KLOCHKO, M.A. (Moscow); BABAYEVA, A.V.; TRONEV, V.G. (Moscow); RUBINSHTEYN, A.M. (Moscow) CHERNYAYEV, I.I.; GRINBERG, A.A.; TANANAYEV, I.V.

Explanation of the transeffect. Izv.Sekt.plat.i blag.met. no.28: 56-126 '54. (MLRA 7:9)

(Compounds, Complex) (Platinum)

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GOREMYKIN, V.I.; KIRYUSHKIN, D.M.; MALININA, S.I.; PKHAKADZE, Ye.A.; PURSOVA, K.N.

Independent work of eight grade students in the first topic of their chemistry course. Khim. v shkole 15 no.5:21-30 S-O '60. (MIRA 13:10)

(Chemistry—Study and teaching)

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GOREMYKIN, V.I. (Volgograd)

Heuristic talk in chemistry classes. Khim. v shkole 18 no.1:28-33 Ja-F '63. (MIRA 16:4)

(Chemistry—Study and teaching)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

1. GOREMYKIN, V. I. Prof.

2. USSR (600)

4. Chemical Structure

7. Regularity of trans-formation (conference in the N. S. Kurnakov Institute of General and Inorganic Chemistry). Vest. AN SSSR 22, no. 8, 1952

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

1. GORENTKIN, V. I.

2. USSR (600)

4. Chemical Structure

7. Discussion meeting on the regularity of I. . Cherniaev's trans-effect, Zhur. fiz. khim., 26, No. 9, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

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SOKOLOVSKIY, V.I., Prof.

Chemistry, Physical and Theoretical

Regularity of trans-forms in the chemistry of complex compounds. Izvestia AN, no. 9, 1952.

9. Monthly List of Russian Accessions, Library of Congress, December 1952 ~~1953~~. Unclassified.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GOREMYKIN, V.I.

Stalingrad conference of chemistry teachers. Khim.v shkole no.4:79-80 Jl-Ag '53. (MLRA 6:8)
(Stalingrad--Chemistry--Study and teaching) (Study and teaching--Chemistry--Stalingrad)

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GOREMYKIN, V.I. (g. Stalingrad).

Adjusting the vacuum cleaner "Ural PR-1" as a blower for a welding blowpipe. Khim.v shkole 12 no.4:42 Jl-Ag '57. (MLRA 10:8)
(Welding)

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GOREMYKIN, V.I. (Stalingrad).

Connection between teaching chemistry and industrial experience. Khim. v shkole 13 no.3:56-63 My-Je '58. (MIRA 11:5)
(Chemistry--Study and teaching)

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GOREMYKINA, N.I.

Bases for the establishment of waste and loss norms in the industrial processing of fish. Trudy Azcherniro no.21:29-31 '63. (MIRA 17:8)

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

AUTHOR: Gendlin, A. O.; Goremykina, T. A.; and Ovod, M. YE.

TITLE: Factory Innovators (Zavodskiye ratsionalizatory)

PERIODICAL: Steklo i Keramika, 1957, Vol. 14, No. 1, pp. 28-29 (U.S.S.R.)

ABSTRACT: The authors consider the important role played by the factory innovators in fulfilling the production quota for 1956 at the Ulan-Udensk Glass Factory (Ulan-Udenskiy stekol'nyy zavod). They mention that for 11 months of 1956, some 80 innovations were introduced which resulted in savings of 142 thousand rubles. At present, there are over 100 innovators at this plant. Among the better-known ones are: M. T. Sedykh, F. V. Zhukov, A. P. Ptitsyn, A. I. Morozov, and M. A. Sakharovskiy. A special commission elected by and from the active members of the innovators group, aids in supervising their work and developing creative initiative. In addition, the commission (in cooperation with the factory Bureau for Promotion of Rationalization and Invention) publishes a widely circulated newspaper, "The Rationalizer". A general review of methods on submitting and introducing

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inventions at the above-mentioned plant (conducted in September and October, 1956) revealed that, out of the total of 59 inventions submitted for that period, 18 were accepted. These inventions are by no means kept secret by the plant, but are published in the journal for exchange of experiments and disseminated to other plants. This procedure is followed throughout the plants involved.

There are no references cited.

ASSOCIATION: Ulan-Udensk Glass Factory (Ulan-Udenskiy stekol'nyy zavod)

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SUBMITTED:

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Card 2/2

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GOREMYKINA, V.V.; VAKALOV, I.A.; SHAKHPARONOV, M.I.

Dielectric constant and molecular structure of pyridine-chloroform solutions. Vest. Mosk. un. Ser. 2:Khim. 19 no.1: 33-34 Ja-F '64. (MIRA 17:6)

1. Kafedra fizicheskoy khimii Moskovskogo universiteta.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBERG, YA. KH., CAND AGR SCI, "DENSITY OF STAND AND the REGIME OF IRRIGATION OF ~~THE~~ COTTON ~~PLANT~~ ON the IRRIGATED SIEROZEMS OF THE VALLEY ~~ALONG~~ at THE MIDDLE COURSE OF THE ZERAVSHAN RIVER." TASHKENT, 1961. (MIN OF HIGHER AND SEC SPEC ED UzSSR, TASHKENT AGR INST). (KL, 3-61, 224).

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GOPKO, V.F.; GORENBEYN, A.Ye.

For a cooperation between the textile and clothing industry of Transcaucasia. Tekst. prom. 25 no.10:8-9 O '65. (MIRA 18:10)

1. Zamestitel' predsedatelya Planovoy Komissii Zakavkazskogo ekonomicheskogo rayona (for Gopko). 2. Vedushchiy inzh. Tbilisskogo nauchno-issledovatel'skogo instituta tekstil'noy promyshlennosti (for Gorenbeyn).

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

S/004/62/000/002/003/004
D228/D301

AUTHOR: Gorenbeyn, V.

TITLE: Synthetic granite

PERIODICAL: Znaniye - sila, no. 2, 1962, 50

TEXT: After a summary of the mode of formation and the physico-chemical properties of natural granite, a brief description is given of preparing artificial granite. Sand-cement mixtures are ground and stirred with an electric depth vibrator for 15 minutes, yielding a sandy concrete which acquires a strength of 500 kg/cm^2 after 7 days and becomes stronger than granite after 6 months. Wear properties are almost identical to those of the natural rock. Uses for this material are suggested.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

AUTHOR: Gorenbeyn, V. Ya. Engineer 97-10-11/14

TITLE: The Abrasion of Concrete Facing Slabs Under Water). (Issledovaniye oblitsovochnykh gidrotekhnicheskikh betonov na iznos).

PERIODICAL: Beton i Zhelezobeton, 1957, Nr.10. pp.413-415. (USSR).

ABSTRACT: The problem of abrasion of the concrete face in connection with flowing water, is dealt with in TNISGEI (1955) by the Candidate of Technical Science, G. L. Zodelav. Investigations carried out by this scientist show that the wear properties of the concrete do not depend entirely on the mark of the concrete, but also on the hardness of the aggregate, its gradation, the proportion of cement and aggregate and of cement/water ratio. The apparatus used was constructed by G. L. Zodelav. The test cubes were subject to flowing water which carried quartz sand. Values obtained express loss of weight in kg/1m^2 of the tested surface per hour. Table 1 gives various mixes of concrete subject to these tests. Table 2 gives abrasion values in relation to the strength of the concrete mixes. Table 3 shows the increase in wear in relation to the increased content of the matrix in the concrete mix. Table 4 gives values of abrasion

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of concrete mixes prepared with various aggregates. Table 5 gives coefficients of the wear of concrete in relation to the gradation of the coarse aggregate. Fig.1 illustrates the surface of various concrete cubes subject to abrasion tests. Fig.2 shows a graph of the relationship between the degree of wear and gradation of the coarse aggregate. Finally, Table 6 shows that wear resistance decreases with an increase in the water/cement ratio. It is concluded from the above that the resistance to abrasion of concrete surfaces, subject to wear by solid particles carried by the water, depends on the quantity of matrix in the concrete. Concrete aggregate of 700 - 800 kg/cm^2 crushing strengths is recommended where abrasion may occur. In addition this aggregate should have a low value of water absorbtion. A lowering of the sand content increases wear resistance. There are 6 Tables, 1 Graph and 1 Photograph.

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Card 2/2 1. Concrete-Erosion 2. Concrete-Preparation

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GORENBEYN, V. Ya.

Cand Tech Sci - (diss) "Study of the problem of wear-resistance of tunnel jackets and measures for increasing the resistance of jacket concrete to attrition." Tbilisi, 1961. 22 pp with diagrams; (State Committee of Higher and Secondary Specialist Education of the Council of Ministers Georgian SSR, Geor Order of Labor Red Banner Polytechnic Inst imeni V. I. Lenin); 200 copies; price not given; (KL, 10-61 sup, 213)

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

PROCESSES AND PROPERTIES INDEX

Electrochemical study of the system: aluminum bromide-cuprous bromide in ethyl bromide. V. A. Plotnikov and E. Ya. Gorenbein. *J. Gen. Chem.* (U. S. S. R.) 4, 1042-6(1934); *Cf. C. A.* 28, 1931[1], 2625[4]. Max. sp. cond. k of the system $AlBr_3$ CuBr in EtBr at 18° was found to be 8.2×10^{-3}, and in C_6H_6, 4.96×10^{-3} ohm^{-1}. It was found that k increases rapidly with temp. but decreases with increase of EtBr or C_6H_6, *i. e.*, with diln. Decompn. voltage of CuBr from a soln. contg. 0.3672 g. CuBr, 1.0658 g. $AlBr_3$ and 4.5920 g. EtBr was 1.13.

S. L. Madorsky

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Electrochemistry of ternary systems in solvents with low dielectric constants. E. Ya. Gorenbein. *Univ. état Kiev, Bull. sci., Rec. chim.* 1, No. 4, 101-28 in German 128 (9)(1935). The sp. cond. of systems LiBr-$AlBr_3$, RbBr-$AlBr_3$, CuBr-$AlBr_3$ and AgBr-$AlBr_3$ in benzene, toluene and ethylene bromide increases with addn. of bromides of the metals of the first group of the periodic table. The max. sp. conds. for these systems and for KBr-$AlBr_3$ in the solvents enumerated are given. Electrolysis of the systems alkali bromides-$AlBr_3$ produces metallic Al at the cathode; however, if the electrolysis is carried out in $PhNO_2$, the alkali is deposited. It is argued that the elec.-cond. depends upon the solute and the solvent, the 2 substances forming a conducting pair; the soly. of electrolytes is connected with polymerization and complex formation. J. G. Tolpin

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(A) Compounds of aluminium bromide with lithium, copper, and silver bromide. (B) Electrochemical study of the systems $AlBr_3$–$SbBr_3$ in toluene, (C) $AlBr_3$–$BiBr_3$ in benzene, (D) aluminium bromide–silver and copper halides–organic solvents (ethyl bromide, ethylene dibromide, benzene). V. A. PLOTNIKOV (Mem. Inst. Chem. Ukrain. Acad. Sci., 1935, 2, 3—9, 227—233, 235—244; 1936, 3, 89—109).—(A) [with E. J. GORENBEIN]. Conductivity in the systems $AlBr_3$–EtBr–LiBr, –CuBr, and –AgBr is ascribed to the compounds $LiBr,AlBr_3$, m.p. 182°, $CuBr,AlBr_3$, m.p. 241°, and $2AgBr,3AlBr_3$, m.p. 180—185°. Stability of the compounds towards H_2O falls in the order given.

(B) [with V. A. KIRETZ and P. A. RADOMEZ]. Max. sp. conductivity κ is found for mixtures in which Sb : Al = 1 : 2, suggesting the compound $SbBr_3,2AlBr_3$. The decomp. potential (18°) is 0·9 volt, Sb being deposited at the cathode.

(C) [with V. A. KIRETZ and L. A. KOBOL]. The κ–composition curve has a max. corresponding with the compound $2BiBr_3,2AlBr_3$. Electrolysis with a Bi anode leads to deposition of Bi in accordance with Faraday's law (decomp. potential 0·0 volt).

(D) [with E. J. GORENBEIN]. The value of κ rises in the systems $AlBr_3$–MX–EtBr, $-C_2H_4Br_2$, or $-C_6H_6$ (M = Cu, Ag; X = Cl, Br, I) with increasing [MX]; no obvious connexion exists between dipole moment of solvent and κ. Cu or Ag is deposited in theoretical yield at the cathode. Decomp. potentials are recorded. R. T

4 A

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Specific conductivities of solutions of the bromides of lithium, rubidium and silver in ethyl chloride solutions of aluminum bromide. V. A. Plotnikov and E. Ya. Gorenbein. *J. Gen. Chem.* (U. S. S. R.) 5, 1434-40(1935), cf. C. A. 30, 977[7]. The sp. conds. of binary systems of metal bromides in solns. of EtBr were measured at 18°. In the system LiBr-$AlBr_3$, the mol. ratio $AlBr_3$/EtBr was kept const. at 0.289, while the ratio LiBr/$AlBr_3$ was varied between 0.017 and 0.905. In the system AgBr-$AlBr_3$ the ratio $AlBr_3$/EtBr was kept const. at 0.106, 0.223-0.234 and 0.35-0.37, while the mol. ratio AgBr/$AlBr_3$ varied between the limits 0.063-0.954, 0.017-0.987 and 0.102-0.886. In the system RbBr-$AlBr_3$, concn. of $AlBr_3$ was varied between 33.29 and 37.57% by wt. while the concn. of RbBr was varied between 0.027 and 0.90[illegible] wt. %. Max. sp. cond. (in reciprocal ohms × 10^3) for LiBr-$AlBr_3$ was 12.78, for the ratio LiBr/$AlBr_3$ = 0.839; for AgBr-$AlBr_3$, the maxima were 8.87, 16.59 and 17.97, corresponding to mol. ratios $AlBr_3$/EtBr = 0.106, 0.223-0.234, 0.35-0.37 and mol. ratios AgBr/$AlBr_3$ = 0.954, 0.[illegible]87 and 0.866, resp.; for RbBr-$AlBr_3$, max. cond. was 2[illegible]7, corresponding to concn. of RbBr = 0.861% by wt. On the basis of this and previous work it is concluded that the cond. of an EtBr soln. of $AlBr_3$ increases with increase of concn. of a bromide of a metal in the 1st group in the periodic system and decreases with diln. The conds. of the triple systems decrease in the order: bromides of Ag, Li, Cu, K and Rb (the other 2 bromides in each case being $AlBr_3$ and EtBr). In the systems LiBr-$AlBr_3$ and RbBr-$AlBr_3$ in EtBr, Al deposits at the cathode. In AgBr-$AlBr_3$ in EtBr, Ag deposits at the cathode. Decompn. voltages for LiBr, RbBr and AgBr were found to be 2, 1.66 and 1.3 v., resp. S. L. M.

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1ST AND 2ND ORDERS

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Electro-chemical study of group II and V bromides in solutions of aluminium bromide in ethyl bromide. E. J. GORENBEIN (Bull. Sci. Univ. Kiev, 1936, 2, 115—126).—Ca, Sr, and Ba bromides are only very slightly sol. in $EtBr-AlBr_3$ mixtures, the conductivity (κ) of which is scarcely affected by their presence. Solubility and κ rise in the series $ZnBr_2 < CdBr_2 < HgBr_2$; $BiBr_3 < SbBr_3 < AsBr_3$. Electrolysis results in deposition of Hg, Cd, Sb, or Bi at the cathode.

R. T.

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Electrochemical study of alkali halides in benzene and nitrobenzene solutions of aluminium bromide and chloride. V. A. Plotnikov and E. J. Gorenbein (Mem. Inst. Chem. Ukrain. Acad. Sci., 1936, 3, 471—487).—The sp. conductivity κ of solutions of $AlBr_3$ or $AlCl_3$ in C_6H_6 or $PhNO_2$ rises with dilution and with increasing [MX] (M = K, Rb, Li; X = Cl, Br) and falls with increasing [AlX_3]. The val. of κ in C_6H_6 is > in $PhNO_2$. Electrolysis in $PhNO_2$ results in deposition of M, and in C_6H_6 of Al, at the cathode. The decomp. potentials in solutions containing both chlorides and bromides approximate to those for the bromides in both solvents.

R. T.

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with λ for AgI; a similar relation holds for solutions of Cu salts.

J. J. B.

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PROCESSES AND PROPERTIES INDEX

Electrochemical investigation of the ternary system: aluminium bromide silver and copper halides in ethyl bromide, ethylene dibromide, and benzene. V. A. PLOTNIKOV and E. J. GORENSTEIN (Acta Physicochim. U.R.S.S., 1936, 4, 775—790).—The electrical conductivity of the systems $AgX-AlBr_3$ and $CuX-AlBr_3$ (X = Cl, Br, I) in EtBr, $C_2H_4Br_2$, and C_6H_6 has been determined. The sp. conductivity increases with the concn. of halide at first rapidly, and then more slowly, attaining vals. of 10^{-3} in conc. solutions. The conductivity in C_6H_6 is > that in $C_2H_4Br_2$ for solutions of the same mol. concn., although the dielectric const. (ε) of C_6H_6 is < that of $C_2H_4Br_2$. Similarly the conductivity in EtBr is only twice as great as that in C_6H_6 although ε of EtBr is four times that of C_6H_6, and the dipole moment (μ) of EtBr is considerable. It is concluded that the chemical and electrochemical activity of a solvent is not completely characterised by μ, and that ε is not the principal const. on which the electrical conductivity of a solution depends. Electrolysis of the above solutions gave Ag and Cu^I at the cathode, and Br at the anode, the best deposit being obtained when X = Cl. The decomp. potentials of the Cu^I and Ag halides in the above solutions were determined. A. J. M.

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A-1

Kinetics of complex formation in non-aqueous solutions, in connexion with conductivity. I. E. J. Gorbenko (J. Gen. Chem. Russ., 1936, 6, 1230—1233).—The increase in the sp. conductivity of the system $AlBr_3$-$HgBr_2$-EtBr with time is said to be due to the reactions $2AlBr_3 + HgBr_2 \rightarrow 2AlBr_3,HgBr_2\ (+EtBr) \rightarrow 2AlBr_3,HgBr_2,EtBr \rightarrow [2AlBr_3,HgBr,EtBr]' + Br'$. R. T.

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Electrochemical investigation of arsenic and bismuth bromides in a nitrobenzene solution of aluminum bromide; and of thallium bromide in an ethyl bromide solution of aluminum bromide. V. A. Plotnikov and K. Ya. Gorenstein. *Mem. Inst. Chem., Acad. Sci. Ukrain. S.S.R.* 4, No. 3, 249-58(in German 258-9)(1937). Elec. cond. of the following systems was investigated: $AsBr_3$-$AlBr_3$ in $PhNO_2$ (I), $BiBr_3$-$AlBr_3$ in $PhNO_2$ (II) and Tl-$AlBr_3$ in EtBr (III). Mol. ratios of $AlBr_3/PhNO_2$ were from 0.07-0.08 to 0.23-0.24, and $AlBr_3$/EtBr was 0.23-0.38. Sp. cond. falls with an increase in concn. of As and Bi bromides in $PhNO_2$ and it rises by increasing the concn. of TlBr in EtBr. Cond. was measured at 18° by the usual Kohlrausch-Ostwald method. For electrolysis the following solns. were used: (1) $AsBr_3$ 39.87, $AlBr_3$ 18.93 and $PhNO_2$ 41.20%; (2) $BiBr_3$ 0.17, $AlBr_3$ 13.36 and $PhNO_2$ 80.47%; (3) TlBr 3.2, $AlBr_3$ 34.9 and EtBr 61.9%. Pt electrodes 4-8 ma./sq. cm. and 4 v. The metals As, Bi and Tl sepd. out on the cathode. The decompn. potentials were 0.39 v. for I, 0.5 v. for II and 1.57 v. for III. B. Z. K.

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CA

4

Electrochemical investigation of alkali metal halides in benzene and nitrobenzene solutions of aluminum bromide. V. A. Plotnikov and E. Ya. Gurevich. *J. Gen. Chem.* (U. S. S. R.) 7, 372-80(1937). Elec. conductivities were det'd at 18° of LiBr, KCl, KBr, RbCl and RbBr, resp., with $AlBr_3$ in $PhNO_2$ and of RbCl and RbBr with $AlBr_3$ in C_6H_6. Decomp. voltages for KCl, KBr, RbBr and RbCl in $PhNO_2$ soln. of $AlBr_3$ were 1.00, 4.52, 4.68 and 2.62, resp.; for RbCl and RbBr in C_6H_6 soln of $AlBr_3$, 1.98 and 1.94, resp. In electrolyzing alkali halides mixed with $AlBr_3$ in $PhNO_2$ soln., the alkali deposits at the cathode. In C_6H_6 soln., Al deposits at the cathode. In most cases there is a linear relationship between sp. cond. and concn. of the alkali halides in soln. S. L. M.

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Cryoscopic investigation of the halide salts of copper and silver in benzene and ethylene bromide solutions of aluminum bromide. E. Ya. Gorenbein and I. M. Slavatskaya. *Mem. Inst. Chem., Acad. Sci. Ukrain. S. S. R.* 5, 23-35(in Russian 35-7, in English 37-8)(1939).—The systems $AgCl-AlBr_3$, $AgBr-AlBr_3$ and $AgI-AlBr_3$ in ethylene bromide have almost the same cond. but in benzene they differ according to the anion of the added salt. By adding halide compds. of Cu and Ag to benzene or ethylene bromide solns. of $AlBr_3$ the depression of the soln. is decreased. This is due to the increased assocn. of complexes.

B. Z. Kamich

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BC

a-1

Kinetics of complex formation in non-aqueous solutions in connexion with electrical conductivity. II. E. J. Gorenbein (Mem. Inst. Chem. Ukrain. Acad. Sci., 1938, 5, 451—456).—The conductivity of a solution of $SbBr_3,AlBr_3$ complex in C_6H_6 changes considerably with time. This is attributed to reaction between the complex and C_6H_6 to form the further complex $SbCl_3,AlCl_3,C_6H_6$. This reaction is unimol. with a mean velocity coeff. $52{\cdot}4 \times 10^{-4}$.

J. W. S.

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2-1

Electrochemical study of antimony trichloride in chlorobenzene and nitrobenzene solutions of aluminium bromide. E. J. GOBENBEIN (J. Gen. Chem. Russ., 1938, 8, 233—240).—Sp. conductivity κ rises in the system $SbCl_3$–$AlBr_3$–PhCl with increasing concn. of the complex $SbBr_3$,$AlBr_3$ (I). In $PhNO_2$ κ is max. when the concn. of (I) is 32%. Mol. conductivity in PhCl falls, and in $PhNO_2$ rises, with increasing dilution. Sb is deposited at the cathode, at a decomp. potential of 1·02 v. (in PhCl). The reaction $AlBr_3 + SbCl_3 \rightleftharpoons AlCl_3 + SbBr_3$ is established. R. T.

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A. 1

Cryoscopic study of copper and silver halides in benzene and ethylene dibromide solutions of aluminium bromide. E. J. Gokhshtein and I. M. Slavutskaja (J. Gen. Chem. Russ., 1933, 8, 1169—1178).—The mol. depression of f.p. of C_6H_6 and $C_2H_4Br_2$ solutions of $AlBr_3$ following addition of MX (M = Ag, Cu^I) falls with increasing concn. of the latter, whilst at the same time mol. conductivity rises. These results confirm formation of the compounds $MX,AlBr_3$ (X = Cl, Br, I) and $MX,2AlBr_3$ (X = Cl, Br), which become increasingly associated with rising concn.; the conductivity of the systems is $\propto$ concn. of associated complex. Association of the complexes in C_6H_6 is > in $C_2H_4Br_2$, and of Ag > Cu^I complexes. R. T.

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2

Electric conductivity and equilibrium constants of some complex compounds of aluminum bromide in benzene. R. Va. Gerenbein. *J. Gen. Chem.* (U. S. S. R.) 9, 2041-7(1939).—The sp. cond. of $NaBr.Al_2Br_6$, $KBr.Al_2Br_6$ and $CuBr.Al_2Br_6$ in C_6H_6 increased but slightly with an increase of concn. to 20–25% (by wt.); further increase of the concn. caused a linear increase of the sp. cond. The mol. cond. decreased with the dilu. The cond. of complexes of $AlBr_3$ in C_6H_6 followed the series $KBr.Al_2Br_6$ > $NaBr.Al_2Br_6$ > $LiBr.Al_2Br_6$ and $AgBr.Al_2Br_6$ > $CuBr.Al_2Br_6$. The equil. consts. between more or less assocd. complexes were calcd. by the equation $K = 1/(\chi v^n)$, for concns. above 25%, where χ is the sp. cond., v is the vol. of soln. in cc. and n is a const. equal 2. The observed deviation of the consts. in the solns. of concns. below 25%, from those above 25% concn. was explained by the establishment of new equil. between less assocd. complexes and simple ordinary complexes. The exptl. data are tabulated and plotted.

A. A. Podgorny

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GORENBEYN, Ye. Ya.

"The Kinetics of Complex-Formation in Non-Aqueous Solutions in Connection with Electro-Conductivity." Part II, Zhur. Obshch. Khim., 9, No. 15, 1939. Institute of Chemistry, Academy of Sciences Ukrainian SSR. Received 25 January 1939.

Report U-1614, 3 Jan 1952.

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Physico-chemical investigation of solutions of aluminium bromide and its complex compounds in several organic solvents. E. J. Gorenbein (*Ber. Inst. Chem. Akad. Wiss. Ukrain.*, 1940, 7, 213—281).—Density, η, and electrical conductivity (κ) are measured for $AlBr_3$ in EtBr and for $SbBr_3.AlBr_3$ in EtBr, C_6H_6, and PhMe. All the κ composition curves show max. In the $AlBr_3$–EtBr system they are at 62 wt.-% of $AlBr_3$; the max. κ vals. are 26, 30, and 34 × 10^{-4} ohm^{-1} $cm.^{-1}$ at 0°, 10°, and 20°. In the system $SbBr_3$–$AlBr_3$ in EtBr the max. κ are 14 and 16 × 10^{-4} at 0° and 10°, and both at 62 wt.-% of $SbBr_3.AlBr_3$. In the system $SbBr_3$–$AlBr_3$ in C_6H_6 it is at 71% of $SbBr_3.AlBr_3$ at 10° (κ = 6·5) and at 77% at 40° (κ = 16·5). In the system $SbBr_3$–$AlBr_3$ in PhMe it is at 66% at 0° (κ = 7) and at 68% at 40° (κ = 18 × 10^{-4}). η increases with the wt.-% of salt slowly up to 40—50% and then very rapidly. d increases steadily with the salt concn. The mol. conductivity μ passes through a max. in all these systems but the max. disappears when it is corr. for η; the corr. μ decreases when the dilution increases (the highest dilution investigated was about 8 l. per mol.); it is almost independent of temp. A steady rise of μ with concn. appears to be the normal behaviour; it is observed also in some aq. solutions (*e.g.*, $AgNO_3$). An interpretation of this fact is given based on the idea that the state of a dissolved substance tends to become identical with that of its melt when its concn. increases. J. J. B.

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2

The effect of nonpolar compounds on the electrical conductivity of some aluminum halides in nitrobenzene and ethyl bromide. E. Ya. Gorenbein and I. M. Slavutskaya. *J. Gen. Chem.* (U.S.S.R.) 10, 1144-50(1940).—Addn. of $SnBr_4$, $SnCl_4$ and CCl_4 to solns. of $AlBr_3$ and $AlCl_3$ in $PhNO_2$ and $EtBr$ lowers the sp. cond. of the solns. These compds. do not form complexes with the Al salts and probably decomp. the complexes already existing between the Al halides and the solvent. They also increase the viscosity of the soln. H. M. Leicester

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CA

2

Physiochemical investigations of the $SbBr_3.AlBr_3$ complex in nitrobenzene solution. Isotherms of electrical conductivity, viscosity and specific gravity. E. Va. Gorenbein. *J. Gen. Chem.* (U. S. S. R.) 11, 925-33 (1941).—Exptl. data are given for solns. contg. from 0 to 0.347 moles $SbBr_3.AlBr_3$ per mole of nitrobenzene and for the temps. 10, 20, 30, 40 and 50°. With increasing concn. the isotherms for sp. elec. cond. pass through a max.; with increasing temp. this max. shifts toward higher concns. The mol. elec. cond. of $SbBr_3.AlBr_3$ in nitrobenzene is normal but abnormal with a min. in relation to the viscosity of the system. This viscosity increases strongly with increasing concn., but more slowly at higher temps. The results indicate that in the dissolved state the components tend to behave as if they were in their own liquid states. The sp. gr. increases from 1.204 and 1.175 at 20° and 50°, resp., for a 0% to 2.099 and 2.041 for a 63.9% soln. At higher temps. the elec. cond. of dil. solns. falls, that of concd. solns. increases; this indicates a dissocn. of the current-conducting complex. Such systems cannot be regarded as truly binary; the mol. elec. cond. becomes a complicated function of the viscosity.

F. H. Rathmann

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Physico-chemical study of the system $CuBr,Al_2Br_6$–toluene (isotherms of electrical conductivity, viscosity, and specific gravity). E. J. Goremlein and G. A. Ridler (*J. Gen. Chem. Russ.*, 1941, 11, 1069–1075).—Viscosities, electrical conductivities, and sp. gr. of solutions of $CuBr,Al_2Br_6$ (I) are measured for concn. 0–65% of (I) at 0°, 10°, 20°, 30°, and 40°. Isotherms of sp. and mol. conductivity pass through a max. with rising concn. of (I), but when corr. for viscosity, the mol. conductivity falls continuously with increasing dilution. This is ascribed to progressive decomp. of associated complexes to simpler compounds, which are less strongly dissociated, and the behaviour of the system confirms the view (cf. A., 1941, I, 251) that a dissolved substance tends to assume the state which it has in a melt. The isotherms of sp. gr. show two inflexions corresponding to the compositions $CuBr,Al_2Br_6,18PhMe$ and $CuBr,Al_2Br_6,7PhMe$. G. W.

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Physico-chemical study of concentrated solutions. System $SbBr_3$-$AlBr_3$-C_6H_5Br. K. J. Gorenbein (*J. Phys. Chem. Russ.*, 1946, 18, 518–520).—Viscosity η and sp. conductivity κ of solutions of $SbBr_3$-$AlBr_3$ (up to 72%) in C_6H_5Br between 10° and 50° have been measured. Both κ and the mol. conductivity as functions of the concn. pass through a max., but the product $\eta\kappa$ increases with [$SbBr_3$-$AlBr_3$] smoothly and is independent of temp. The mol. conductivity corr. for η decreases on dilution since dilution causes decomp. of conducting complexes. J. J. B.

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2

A physicochemical study of concentrated solutions (conductivity, viscosity, and density of the systems $SbBr_3$-$AlBr_3$, $ZnBr_2$-$AlBr_3$, and KBr-$AlBr_3$ in the molten state). E. Ya. Gorenbein. *J. Gen. Chem.* (U.S.S.R.) 15, 729-44 (1945); cf. C.A. 39, 2087[8].—In the system $SbBr_3$-$AlBr_3$, the viscosity passes through a max. as the $SbBr_3$ concn. increases. Rise in temp. decreases the viscosity. Mol. cond. shows 2 maxima and a min. Correction for viscosity gives a curve with only one max., corresponding to the complex $SbBr_3.AlBr_3$. Detn. of d. also shows the existence of this complex. Similarly, in the system $ZnBr_2$-$AlBr_3$ there is a max. in the cond. curve which is suppressed when the viscosity correction is applied. The complex $ZnBr_2.Al_2Br_6$ exists in this system. In the system KBr-$AlBr_3$, the complex $KBr.Al_2Br_6$ occurs. In all cases, the highest corrected cond. occurs when the pure complex exists, and variations, including the fall in cond. with dilu., are due to diseocn. of the complexes. The effect of dilu. can be calcd. This evidence supports the view that with increase in concn., every dissolved substance tends to pass into a state peculiar to it in the molten state.

H. M. Leicester

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GORENBEYN, E. Ya.

PA 18T85

USSR/Chemistry - Electrochemistry
Chemistry - Electrolytes

Jun 1946

"The Molecular State of Electrolytes in Concentrated Solutions," E. Ya. Gorenbeyn, 6 pp

"Zhur Fiz Khim" Vol XX, No 6

Experiments were carried out with solutions of KBr, Al_2Br_6, $AgBr.Al_2Br_6$, $AgCl.Al_2Br_6$ in benzene. Contains tables for results gained with each solution. It was shown that the association of electrolytes has a place in solvents with low dielectric constants as well as in solvents with high dielectric constants.

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GORENBEIN, E.IA.

**TT.286 [Research in the region of concentrated solutions] Issledovanie v oblasti kontsentrirovannykh rastvorov.
Zhurnal Fizicheskoi Khimii, 20(8):881-894, 1946.

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

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PROCESSES AND PROPERTIES INDEX

Physicochemical investigations of concentrated solutions. VIII. Systems $HgBr_2$-$AlBr_3$ and NH_4Br-$AlBr_3$ in fused condition (electroconductivity, viscosity, and specific gravity). E. Ya. Gorenbein. *J. Gen. Chem.* (U.S.S.R.) 17, 873-86(1947)(in Russian); cf. *C.A.* 36, 6883[1]; 37, 3657[1]; 40, 6963[2].—The two systems were measured at 110, 120, 130, 140, and 150° over a concn. range from pure $AlBr_3$ to 66.67 mole % $AlBr_3$, the latter corresponding to the compds. $HgBr_2.Al_2Br_3$ and $NH_4Br.Al_2Br_3$, resp. In the system $HgBr_2$-$AlBr_3$, the curve of viscosity η vs. concn. of $HgBr_2$ is convex towards the concn. axis, e.g., η at 110° changes from 2.1680 for $AlBr_3$ to 25.1977 centipoises for 33.33 mole % $HgBr_2$. The η decreases with increasing temp., the corresponding values at 140° being 1.6100 and 10.8864. The curves of specific elec. cond. κ vs. concn. are slightly S-shaped, and at the lower temps. they appear to be approaching a max. at a compn. corresponding to the compd. $HgBr_2.Al_2Br_3$. The molar cond.-diln. curves do exhibit a max. at 110° at a compn. corresponding to this compd. The max. disappears if κ is cor. for η of the soln. The sp. gr.-concn. curve is slightly convex towards the concn. axis, with no max. or min. At 140°, the sp. gr. of $AlBr_3$ is 2.555, and that of a soln. contg. 33.33 mole % $HgBr_2$ is 3.804, whereas the corresponding values at 110° are 2.624 and 3.677 (referred to water at 4°). In the system NH_4Br-$AlBr_3$, the η-concn. curves are S-shaped and show a max. corresponding to the compd. $NH_4Br.Al_2Br_3$. E.g., at 150°, η of $AlBr_3$ is 1.4531, and that of 33.33 mole % NH_4Br is 8.3383 centipoises. At 120°, the corresponding values are 1.9462 and 14.4835. The curves of κ vs. concn. of NH_4Br are very slightly concave towards the concn. axis, with no max. present. The molar cond.-diln. curves are straight lines, both before and after correction for η of the solns. The sp. gr.-concn. curve is concave towards the concn. axis, with a max. at 29.1 mole % NH_4Br. At 150° the sp. gr. of $AlBr_3$ is 2.532, the max. is 2.659, and the sp. gr. of a soln. contg. 33.33 mole % NH_4Br (corresponding to the compd. $NH_4Br.Al_2Br_3$) is 2.647. At 110°, the corresponding values are 2.599, 2.703, and 2.687. The data are interpreted as indicating the existence of the compds. $HgBr_2.Al_2Br_3$ and $NH_4Br.Al_2Br_3$. A. J. M.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

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2

Electric conductivity and viscosity of nonaqueous solutions. E. Ya. Gorenbein. *J. Phys. Chem.* (U.S.S.R.) 21, 141-5 (1947)(In Russian); cf. preceding abstr.—Reply to Pospekhov. J. J. Bikerman

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEIN, B. Ia.

Gorenbein, B. Ia., Physico-chemical investigations of complex compounds of aluminum bromide in a molten state I. p. 1425.

The viscosity, electroconductivity and specific gravity are investigated of complexes KCl · Al_2Br_6, NaBr · Al_2Br_6, NH_4Br · Al_2Br_6, $ZnBr_2$ · Al_2Br_6 and SbBr · $AlBr_3$ in a molten state at various temperatures. It is proven that the product for these complexes drops with increase of temperature.

Lab. of Anhydrous Solutions of the Academy of Sciences of the Ukr.S.S.R. Kiev. May 2, 1947

SO: Journal of General Chemistry (USSR) 18, (80) No. 8 (1948)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, Ye. YA. PA 30/49T4

USSR/Chemistry - Systems Sep 48
Chemistry - Potassium Chloride

"Physicochemical Research in Concentrated Solutions: IX, System KCl . Al_2Br_6 - $C_6H_5NO_2$," Ye. Ya. Gorenbeyn, Yu. A. Burshteyn, 8½ pp

"Zhur Obshch Khimii" Vol XVIII, No 9

Investigates viscosity and specific gravities of system KCl . Al_2Br_6 - $C_6H_5NO_2$ at temperatures of 20, 30, 40, 50, 60, 70, 80, and 90°, and the electrical conductivity at a temperature of 20° in the concentration range 0.86 to 70.2% KCl.Al_2Br_6. Submitted 28 Jun 47.

30/49T4

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, M.Ya.; KRISS, E.E.

Physicochemical studies of solutions of some alkali acetates in acetic acid as the solvent. Ukrain.Khim.Zhur. 15, 390-402 '49. (MLRA 5:6)
(CA 47 no.16:7865 '53)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

RODIONOVA, K.F.; KORCHAGINA, Yu.I.; KARPOV, P.A.; GORENBEYN, I.A.; PENINA, [illegible]

Geochemical characteristics of Upper Devonian sediments in some areas of Volgograd Province. Trudy VNIGNI no.33:72-116 '62.
(MIRA 18:12)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

CA

Physicochemical studies of concentrated solutions. X. Fused systems sodium bromide-aluminum bromide and potassium bromide-aluminum bromide. B. Ya. Gorenbein and E. E. Kriss. *Zhur. Obshchei Khim.* (J. Gen. Chem.) 19, 1978-86(1949); cf. *C.A.* 43, 6898i.—Cond., viscosity, vol., and d. detns. were made 110-170° within concn. ranges 11.15-16.17 wt. % for the NaBr-AlBr$_3$ system, and 12.00-18.235% for the KBr-AlBr$_3$ system. Within these ranges the fusions may be considered to consist, resp., of the electrolyte complexes NaBr.Al$_2$Br$_6$ and KBr.Al$_2$Br$_6$ and the nonelectrolyte AlBr$_3$. A viscosity correction factor was applied to the measured molar cond.: $\mu_1 = \mu\eta_0/\eta$, where η_0 is the viscosity of the melt, η the viscosity of pure AlBr$_3$, μ is the molar cond., and μ_1 is the corrected molar cond. An empirical formula relating changes in the corrected values of the molar cond. with changes in vol. was found applicable. $\mu_1 = \mu_0 - k[(v - v_0)/(vv_0)]$, where μ_0 is the corrected molar cond. for the individual constituents in their molten state; v_0 the corresponding gram mol. vol. in liters, v the vol. of the melt in liters, and k a const. In the NaBr-AlBr$_3$ system μ_1 is noticeably higher than that in the KBr-AlBr$_3$ system over the entire range of concn. and corresponding vol.; μ_1 ranges in value from 78.6 to 102.3, corresponding to NaBr concns. ranging from 11.15 to 16.17 wt. %. In the KBr-AlBr$_3$ system μ_1 ranges in value from 64.5 to 81.2.

A. Leviton

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, YE. YA.

3

Chemical Abst.
Vol. 48
Apr. 10, 1954
Inorganic Chemistry

Investigation of complex formation in ternary systems by physicochemical methods of analysis. R. Ya. Gorenbein and E. I. Smolentsev. *Ukrain. Khim. Zhur.* 16, No. 5, 518-25(1950)(in Russian).—The viscosity, sp. cond., and d. of the systems $SbBr_3$-$AlBr_3$-$C_2H_4Br_2$ (I) and $SbBr_3$-$AlBr_3$-C_2H_4 (II) at 20, 25, and 30° over the entire compn. range $SbBr_3$:$AlBr_3$ are given as graphs. In I the cond. and viscosity show marked max. at Sb:Al = 1 at const. ratio $AlBr_3$:$C_2H_4Br_2$; the d. increases monotonically. In II the viscosity increases monotonically up to Sb:Al = 1; the cond. shows a max. at 0.9. It is concluded that the electrolyte in the systems is a complex of compn. $SbBr_3$-$AlBr_3$.

Henry C. Thomas

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEIN, E. YA

Chemical Abstracts
Vol. 48 No. 5
Mar. 10, 1954
General and Physical Chemistry

(2)

Physicochemical investigation of complex formation in ternary systems. E. Ya. Gorenbein and P. I. Smolentsev. *Ukrain. Khim. Zhur.* 16, 682-91(1950)(in Russian); cf. *C.A.* 35, 3509[1].—The sp. elec. cond., sp. gr., and viscosity of the ternary system $SbBr_3$-$AlBr_3$-EtBr at 20, 25, and 30° were detd. in order to verify the assumption that max. in the sp. elec. cond. *vs.* concn. curves prove complex formation and that the corresponding concn. is the compn. Two methods of changing the concn. were used: The previously used method I in which the mole ratio of $AlBr_3$/EtBr was kept const. while the concn. of $SbBr_3$ was increased, and method II in which the mole sum of $SbBr_3$ and $AlBr_3$ was kept const., at 0.4 moles, per mole of EtBr. The data obtained in method I were plotted against the ratio of $SbBr_3$/$AlBr_3$, whereas those of method II were plotted against the % $SbBr_3$ calcd. on the basis that the sum of $SbBr_3$ and $AlBr_3$ is 100%. The sp. elec. cond. κ in method I rises slowly, passes through a flat max, and slowly declines as the concn. of $SbBr_3$ increases. The point on the concn. curve corresponding to the max. does not yield a stoichiometric relation. When κ is cor. for the viscosity η (*C.A.* 44, 5200*c*, and 46, 2380*c*) the max. disappears. In method II the curve κ vs. % $SbBr_3$ rises continuously as the % $SbBr_3$ decreases. The η correction does not modify the curve. It is concluded that neither complex formation nor the compn., if formed, can be established by only one method of investigation. I. Bencowitz

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEIN, E. YA.

"Comments on D. A. Pospekhov's paper: "Connection between electric conductivity of some binary salt melts." (p. 216)

SO: Journal of General Chemistry, (Zhurnal Obshchei Khimii), 1950, Vol. 20, No. 2.

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

CA

2

Decomposition potentials of complex compounds of aluminum bromide in the fused state. E. Ya. Gorenbein and M. A. Abramova (Acad. Sci. Ukr. S.S.R., Kiev) *Zhur. Obshchei Khim.* (*J. Gen. Chem.*) 20, 749-54(1950)

The following decompn. potentials E were detd. in fused salts of the stated stoichiometric compn.: $ZnBr_2.Al_2Br_6$ (140°) 1.04, (210°) 1.46 v.; $PbBr_2.Al_2Br_6$ (300°) 1.06; $TlBr.Al_2Br_6$ (165°) 1.6; $SbBr_3.AlBr_3$, undercooled below the m. temp. of 82.5° (60°) 0.98, (80°) 0.90, (130°) 0.88 v. These values are quite close to those detd. by Izgarkov (C.A. 19, 3057) at compns. in excess of the stoichiometric formula. On the other hand, there is a considerable divergence between E of $PbBr_2.Al_2Br_6$ (300°) 1.06 v., and the value of E = 1.48 v. at 105° in soln. in fused $KBr + 3AlBr_3$. Complexes of Al_2Br_6 with alkali metal halides show two decompn. potentials, the lower corresponding to deposition of Al, the higher (at higher c.d.) to deposition of the alkali metal. The values of E are: $LiCl.Al_2Br_6$ (120°) 1.00 and 3.1 v.; $LiCl.AlBr_3$ (200°) 1.30 and 3.2; $NaBr.Al_2Br_6$ (100°) 1.55 and 3.7-3.9; $NaBr.AlBr_3$ (230°) 1.80 and 3.7-4.8; $KBr.Al_2Br_6$ (200°) 1.52; $KBr.AlBr_3$ (250°) 1.70 and 4.2; $KCl.Al_2Br_6$ (130°) 1.00 and 4.0; $KCl.AlBr_3$ (230°) 2.0 and 4.6 v. Complexes with 1 mol. $AlBr_3$ have a somewhat lower 1st E than the same complexes with 2 mols. $AlBr_3$. In soln. in org. solvents, the same complexes have, as a rule, higher E than in the fused state, possibly on account of the heats of formation of higher mol. compds. between the complex and the solvent. N. Thon

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

1. GORENBEYN, YE. YA.; SMOLENTSEV, I. I.

2. USSR (600)

4. Systems (Chemistry)

7. Study of complex formation in solutions of ternary systems by methods of physicochemical analysis. Part 2, Ukr. khim. zhur., 16, No. 6, 1951.

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

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, Ye.Ya.; SMOLENTSEV, P.I.

Study of complexing in solutions of ternary systems by means of physico-chemical analysis. Ukr.khim.zhur.17 no.1:149-155 '51. (MLRA 9:9)

1. Institut obshchey i neorganicheskoy khimii Akademii nauk Ukrainskoy SSR.
(Bromides) (Compounds, Complex)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, YE. YA.

Concentration cells in solvents with low dielectric constant. E. Ya. Gorenbein and M. L. Kaplan. *Ukrain. Khim. Zhur.* 17, 010-22(1951); cf. *C.A.* 43, 6598i.—The e.m.f.s. of the concn. cells Sb|($SbBr_3$-$AlBr_3$ + EtBr)||($SbBr_3$-$AlBr_3$ + EtBr)|Sb (I), Sb|($SbBr_3$-$AlBr_3$ + benzene)||($SbBr_3$-$AlBr_3$ + benzene)|Sb (II), and Pt|(PBr_3 + Br_2)||(PBr_3 + Br_2)|Pt (III) were measured at various concns. and temps. by means of an illustrated app. consisting of 2 electrode-contg. vessels connected by a capillary. In I and II the cell having the greater dielec. const. had the higher e.m.f., other things being equal. The assocn. of the electrolytes at higher concns., the anomalous mol. cond., and the greater difference between calcd. and observed values of e.m.f. were discussed. The absence of polarization in III and the inversion of sign of the e.m.f. of III, resp., to that of I and II were ascribed to the formation of Br electrodes. J. W. Lowenberg, Jr.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

USSR/Chemistry - Antimony Compounds
Aluminum Compounds

Aug 51

"Physicochemical Investigation of Concentrated Solutions. XI. The System $SbBr_3 \cdot AlBr_3$-CBr_4," Ya. Ya. Gorenbeyn, Ye. Ye. Kriss, Lab of Nonao Solns, IONKh, Inst of General and Inorganic Chemistry [?], Acad Sci Ukrainian SSR

188T9

"Zhur Obshch Khim" Vol XXI, No 8, pp 1387-1392

Study of elec cond, viscosity, sp gr of system $SbBr_3 \cdot AlBr_3$-CBr_4 at 85, 90, 95, 100°C for concns of 50-100% $SbBr_3 \cdot AlBr_4$ showed that max of elec cond occurs due to increase of viscosity with increase of concn of $SbBr_3 \cdot AlBr_4$. Proposed eq for dependence of the

188T9

USSR/Chemistry - Antimony Compounds
(Contd)

Aug 51

product of mol elec cond and viscosity on concn. Highest cor mol elec cond corresponds to cor elec cond of individual electrolyte.

188T9

GORENBEYN, Ye. Ya.

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

USSR/Chemistry - Electrical Conductivity; Jul 51
Arsenic Bromide as a Solvent

"Investigation of Concentrated Solutions of $SbBr_3 \cdot AlBr_3$ in Arsenic Bromide as the Solvent," Ye. Ya. Gorenbeyn, Ye. Ye. Kriss, Acad Sci Ukrainian SSR, Kiev

"Zhur Fiz Khim" Vol XXV, No 7, pp 791-797

Investigated elec cond, viscosity, sp gr of system contg electrolyte $SbBr_3 \cdot AlBr_3$ (in liquid form a conductor) and solvent $AsBr_3$ (dielec). From elec cond at different temps from 60 to 120°C and viscosity at different temps from 80 to 120°C found that (a) elec cond increases with higher concn

206T20

USSR/Chemistry - Electrical Conductivity (Contd) Jul 51

and viscosity to max, then at high concns decreases with increase of concn; (b) highest corrected elec cond of system corresponds to that for individual electrolyte. $SbBr_3 \cdot AlBr_3$ complex forms no compd with $AsBr_3$. Formulated dependence of anomalous mol elec cond on diln.

206T20

GORENBEYN, YE. YA.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

USSR/Chemistry - Tin Tetrabromide as a Solvent — Oct 51

"Investigations of Concentrated Electrolyte Solutions in Tin Tetrabromide as Solvent. System $SbBr_3.AlBr_3-SnBr_4$," Ye. Ya. Gorenbeyn, Inst of Gen and Inorg Chem, Acad Sci Ukrainian SSR, Kiev

"Zhur Fiz Khim" Vol XXV, No 10, pp 1160-1168

Investigated viscosity, elec cond, sp gr of above system at temps 85, 90, 95, 100° C at different concns. $SbBr_3.AlBr_3$ complex formed no chem compd with $SnBr_4$. Compared dependence of product of

194T11

USSR/Chemistry - Tin Tetrabromide as a Solvent (Contd) — Oct 51

mol elec cond times viscosity for 3 systems $SbBr_3.AlBr_3-SnBr_4$, $SbBr_3.AlBr_3-CBr_4$, $SbBr_3.AlBr_3-AsBr_3$. Found that greatest corrected elec cond corresponds to that of individual electrolyte. Derived eq expressing dependence of corrected mol elec cond on diln.

194T11

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, Ye. Ya.

USSR/Chemistry - Electrolytes Mar 52

"Investigation of Concentrated Solutions of Electrolytes in Arsenic Tribromide as a Solvent. System $ZnBr_2.Al_2Br_6$ - $AsBr_3$," Ye. Ya. Gorenbeyn, Ye. Ye. Kriss, Kiev Vet inst

"Zhur Fiz Khim" Vol XXVI, No 3, pp 346-351

Investigated the elec cond, viscosity, and sp wts in the system $ZnBr_2.Al_2Br_6$ - $AsBr_3$ at temps of 100, 110, 120, 130, and 140° within the concn range 32-100% electrolyte. Established some general relationships on the basis of the data obtained.

213T29

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, Ye. Ya. and SMOLENTSEV P. I.

Study of Complex-Formation in Solutions of Ternary Systems by Methods of Physico-Chemical Analysis. IV. The System CH_3CONH_2-Br_2-$C_6H_5NO_2$, page 809, Sbornik statey po obshchey khimii (Collection of Papers on General Chemistry), Vol II, Moscow-Leningrad, 1953, pages 1680-1686.

Kiev Veterinary Inst

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, YE.YA.

Chemical Abst.
Vol. 48 No. 6
Mar. 25, 1954
General and Physical Chemistry

Cryoscopic investigation of complex formation in solutions of ternary systems. II. The system aluminum bromide-ethyl ether-benzene. E. Ya. Gorenbein, V. I. Pivnutel, and I. A. Gerasun. *Zhur. Obshchei Khim.* 23, 544-7(1953); cf. *C.A.* 42, 7151f.—The f.p. depression was measured for 2 isomolar concn. series (0.05 and 0.15 mols. of $AlBr_3$ plus $(C_2H_5)_2O$ per mol. of benzene as solvent). In each series, the min. depression occurred at the equimolar point; this indicated the formation of $AlBr_3.(C_2H_5)_2O$. Assocn. was evidenced by mol. wts. at the min. of 481.3 (0.05 series) and 602.5 (0.15 series). Elec. cond. is a function of assocn. The complex is readily prepd. by extn. after formation in benzene; the reaction is exothermic. R. D. Misch.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, YE. YA.

USSR.

Cryoscopic investigation of complex formation in solutions of ternary systems. II. The system aluminum bromide-ethyl ether-benzene. E. Ya. Gorenbein, V. L. Plyantel, and L. A. Gerasin. J. Gen. Chem. U.S.S.R. 23, 563-8(1953)(Engl. translation).—See C.A. 48, 3110b. H. L. H.

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, Ye. Ya.

Study of complex formation in solutions of ternary systems by the methods of physical-chemical analysis. V. The system $SbBr_3$-$AlBr_3$-C_6H_5Cl. E. Ya. Gorenbein (Kiev. Vet. Inst.). *Zhur. Obshchei Khim.* 23, 1173-8 (1953); cf. *C.A.* 48, 31100.—The viscosity, elec. cond., and sp. gr. of the system $SbBr_3$-$AlBr_3$-C_6H_5Cl was studied over a complete range of concns. of $SbBr_3$ and $AlBr_3$ at 2 isomolar concns. and at different temps. The ternary system was found to be conducting, although the binary systems $SbBr_3$-PhCl and $AlBr_3$-PhCl are not conducting. The cond. is attributed to the presence of the compd. $SbBr_3.AlBr_3$. The viscosity of the system increases directly with concn. and inversely with temp. J. R. I.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, Ye. Ya.

Concentration cells of bromine solutions. E. Ya. Gorenbein and M. L. Kaplan (Vet. Inst., Kiev). *Zhur. Fiz. Khim.* 27, 1816-23(1953); cf. *Ukrain Khim. Zhur.* 16, 107(1950).—Pt electrodes immersed in mixts. of Br with x% PBr_3, PCl_3, or $POCl_3$ are pot. to identical electrodes in Br + y% PBr_3, PCl_3, or $POCl_3$, if y > x. This is so because Pt acts as a Br electrode. The e.m.fs. are, e.g., 0.018 v. for Pt|Br + 31% PBr_3||Br + 9% PBr_3|Pt and 0.044 v. for Pt|Br + 30% PCl_3||Br + 9% PCl_3|Pt. They depend little on temp. (20-40°) and are smaller than calcd. under the assumption that, e.g., [PBr_3]Br is the active electrolyte.

J. J. Biberman

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, Ye. Ye.

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, E. YA.

USSR/Chemistry - Cryoscopy

Card 1/1 : Pub. 151 - 6/42

Authors : Gorenbeyn, E. Ya.

Title : Cryoscopic investigation of complex formations in solutions of ternary systems. Part 3.- $SbBr_3$-$AlBr_3$-$C_2H_4Br_2$ and $AlBr_3$-$(C_2H_5)_2O$-$C_2H_4Br_2$ systems

Periodical : Zhur. ob. khim. 24/9, 1507-1512, Sep 1954

Abstract : The reaction of $AlBr_3$ with $SbBr_3$ and $AlBr_3$ with $(C_2H_5)_2O$ in ethylene bromide as a solvent and the electrical conductivity over the entire concentration range, were investigated by means of cryoscopic methods. The $SbBr_3 \cdot AlBr_3$ complex was found to be the electrolyte in the $SbBr_3$ - $AlBr_3$ - $C_2H_4Br_2$ system. The instability constant of this compound was computed on the basis of cryoscopic data. The compounds formed in the $AlBr_3$ - $(C_2H_5)_2$ - $C_2H_4Br_2$ system, are described. Fourteen references: 13-USSR and 1-German (1915-1953). Tables; graphs.

Institution : Veterinary Institute, Kiev

Submitted : December 15, 1953

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, E. YA.

USSR/Chemistry - Molecular compounds

Card 1/1 Pub. 151 - 3/27

Authors : Gorenbeyn, E. Ya.

Title : Molecular compounds of aluminum bromide with nitrobenzene in ethylene bromide as solvent

Periodical : Zhur. ob. khim. 24/10, 1710-1717, Oct 1954

Abstract : The viscosity, electrical conductivity and specific weights of $AlBr_3 - C_6H_5NO_2 - C_2H_4Br_2$ systems was investigated at low molecular concentrations and 20, 25 and 30° temperatures. Analysis of the data obtained shows that aluminum bromide combined with nitrobenzene form three complex compounds, the physico-chemical properties of which are described. The method employed in the study of the reaction between two components in a third one during the indifference of the latter to the other two, is explained. Eighteen references: 15-USSR; 1-USA and 2-German (1902-1953). Tables; graphs.

Institution : The Veterinary Institute, Kiev

Submitted : May 23, 1954

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, YE. YA.

USSR/Physical Chemistry - Thermodynamics, Thermochemistry, Equilibria, Physical-Chemical Analysis, Phase Transitions. B-8

Abs Jour : Referat Zhur - Khimiya, No 1, 1958, 419

Author : Ye.Ya. Gorenbeyn.

Inst : -

Title : Study of Complex Formation in Solutions of Ternary Systems by Methods of Physical-Chemical Analysis. VI. System $AlBr_3$ - $C_6H_5NO_2$ - C_2H_5Br.

Orig Pub : Zh. neorgan. khimii, 1956, 1, No 8, 1877-1882

Abstract : The viscosity, electrical conductivity and specific weights of the system $AlBr_3$ - $C_6H_5NO_2$ - C_2H_5Br were studied at the isomolar concentration of $AlBr_3$ and $C_6H_5NO_2$ equal to 0.15 moles per mole of C_2H_5Br and at temperatures of 15, 20 and 25°. $AlBr_3$ produces complex compounds $AlBr_3 \cdot 2C_6H_5NO_2$,

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

USSR/Physical Chemistry - Thermodynamics, Thermochemistry, Equilibria, Physical-Chemical Analysis, Phase Transitions. B-8

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 419

$AlBr_3 \cdot C_6H_5NO_2$ and $2AlBr_3 \cdot C_6H_5NO_2$ with $C_6H_5NO_2$ in C_2H_5Br.

It is shown that should 2 components of the system produce 2 or more electrolytes, the compound, which conducts the current better in the medium in question, would be revealed by viscosity.

See part V in RZhKhim, 1954, 16049.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, YE. YA. GORENBEYN, YE. YA.

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEIN, E. YA.

USSR/Physical Chemistry. Electrochemistry. B-12

Abs Jour : Ref Zhur - Khimiya, No 7, 1957, 22488.

Author : E. Ya. Gorenbein.
Inst : Not given
Title : Reasons for metals displacement in voltage series in solvents with a small dielectric constant.

Orig Pub : Zh. obshch. khimii, 1956, 26, No 8, 2107-2114.

Abstract : Existing notions about the reasons of metal displacements in voltage series are examined. Connection between electrolyte association phenomena and the increase of its electrolyte concentration is shown; also of decrease of molar electric conductivity, adjusted to viscosity, with dilution and with displacement of metals in voltage series. An interpretation of reasons of metals displacement in voltage series is given.

Card 1/1 -165-

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, YE YA

The effect of the alkali metal cations in the complex compounds of aluminum bromide on the molecular state of these complexes in solvents with a small dielectric constant. R. Va. Gorenbein (Vet. Inst., Kiev). Zhur. Obshchei Khim. 16, 2680-8(1956).—A cryoscopic study was made for the following compds. in C_6H_6: $KCl \cdot Al_2Br_6$, $NaCl \cdot Al_2Br_6$, $LiCl \cdot Al_2Br_6$, $KI \cdot Al_2Br_6$, $NaI \cdot Al_2Br_6$, and [illegible]. The degree of assocn. of the electrolytes has a [illegible] tion to the concn. of the components. [illegible]

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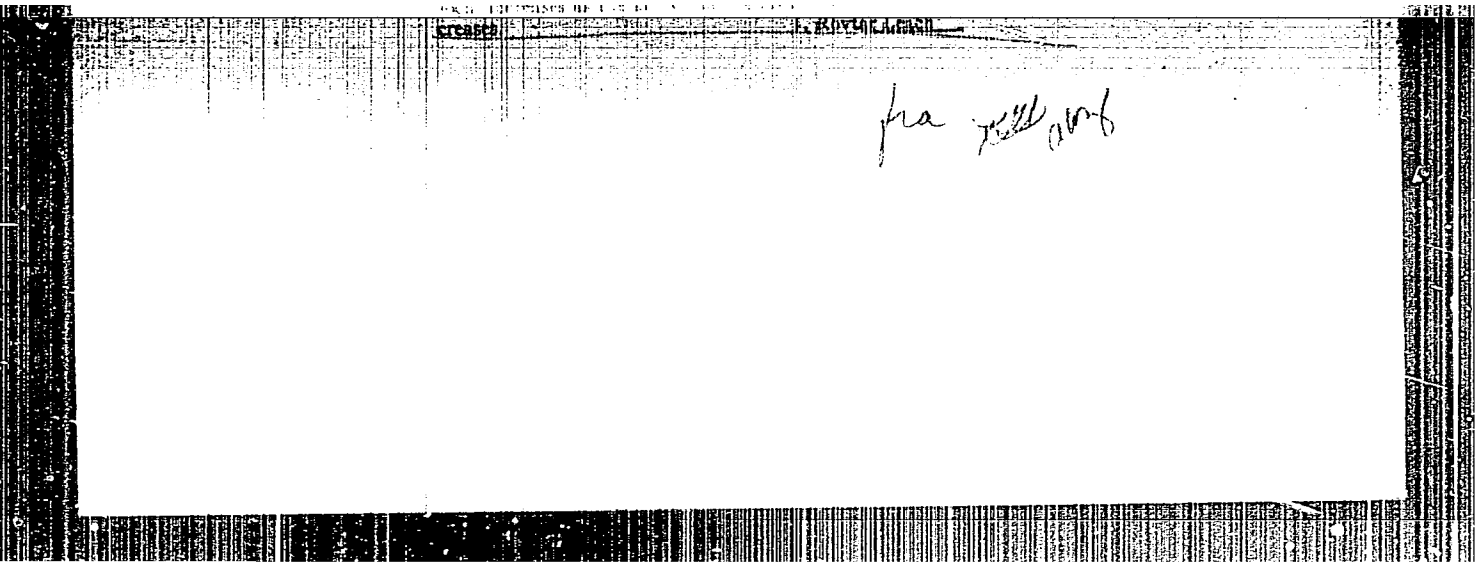

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GOFRENBEYN, YE.YA.

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

Abs Jour : Referat Zhur - Khimiya, No 1, 1958, 531

Author : Ye.Ya. Gofrenbeyn.
Inst : -
Title : Influence of Cation and Anion Nature on Molecular State of Electrolytes in Solvents of Little Dielectric Constant (DC).

Orig Pub : Zh. neorgan. khimii, 1957, 2, No 5, 1025-1034

Abstract : The molecular weight of some complex compounds of $AlBr_3$ with halides of various metals was determined by the cryoscopical method in benzene and ethylene bromide, which are solvents of a little dielectric constant (DC). The quoted data show that together with the rise of the electrolyte concentration, the association degree increases linearly starting from the region of relatively little concentrations, same as it takes place in highly concentrated solutions in solvents of a great DC. The association of the electrolyte rises also, if the cation or anion

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

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

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 531

(halogen ion) of a smaller atom weight was replaced in the salt with a cation or anion of a greater atom weight of the same group of the periodical system of elements of D.I. Mendeleyev. The rise of the orderliness degree is connected with the rise of the polarizability of ions, which varies in the same sequence and aids the formation of structural groups in the solution corresponding to the laws of construction of ion lattices. Such an influence of the ion nature on the association degree of the electrolyte in the solution allows to explain the causes of a frequent transfer of matals at many voltages in solvents of a little DC. The magnitudes of electrode potentials depend on the concentration of ions, which determine the potentials, and this concentration is dependent on the degree of the orderliness of the electrolyte.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

442

AUTHORS: Gorenbeyn, YE. YA., and Pivnutel', V. L.

TITLE: Study of Complex Formation in Solutions of Ternary Systems by Physico-Chemical Analysis Methods. Part 7. The $AlBr_3$ - $(C_2H_5)_2O$ - C_6H_6 System (Issledovaniye kompleksoobrazovaniya v rastvorakh troynykh sistem metodami fiziko-khimicheskogo analiza. VII. Sistema $AlBr_3$ - $(C_2H_5)_2O$ - C_6H_6).

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, No. 1, pp. 20-22 (U.S.S.R.)

ABSTRACT: The electrical conductivity, viscosity and density of the $AlBr_3$-$(C_2H_5)_2O$-C_6H_6 system corresponding in molar ratio of 0.15 to benzene (used as the solvent) were investigated at 15, 20 and 25°. The measurement of electrical conductivity involved certain difficulties due to the reaction of the ether with the bromine. In cases where the AlBr contained Br traces, electrical conductivity increased sharply. The relation between viscosity, specific electrical conductivity and concentration of $AlBr_3$ components is presented in Fig. 1; the points shown on the axes of the ordinates pertain to the characteristics of binary systems. As is evident from the curves on this diagram, the increase in $AlBr_3$ concentration is followed by a sudden increase in specific electrical

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conductivity forming a maximum near the 50 mol/%, then comes a sharp drop which passes the minimum and a rapid rise and the formation of a second maximum. The first maximum corresponds approximately to the composition of the compound, whereas the minimum gives no proof of the existence of a compound of different composition in this solution.

Relation between the density of solutions and concentration of $AlBr_3$ and $(C_2H_5)_2O$ components is presented in Fig. 2. The break in the lines corresponds to the equimolecular composition of the given compound. According to density and cryoscopic study data and judging by the first maximum of the conductivity curve, aluminum bromide and ethyl ether form a compound of the $AlBr_3 \cdot (C_2H_5)_2O$ composition, and an $AlBr_6 \cdot (C_2H_5)_2O$ compound according to the viscosity and second conductivity maximum data. On the basis of results obtained, it was concluded that $AlBr_3$ with ether forms not one complex compound, but two, the structures of which were described in another report. The authors quote a rule which states: if two substances, which are not electrolytes, form two or more compounds, then the viscosity curves will

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reflect only the compound which possesses greater electrical conductivity.

Two tables and 2 graphs. There are 7 Slavic references.

ASSOCIATION: The Kiev Veterinary Institute and Institute of Physiology at the Academy of Sciences of the Ukrainian SSR (KIYEVSKIY VETERINARNYY Institut i Institut Fiziologii Akademii Nauk Ukrainskoy SSR).

PRESENTED BY:

SUBMITTED: February 14, 1956

AVAILABLE:

Card 3/3

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, E. Ya.

7

Study of complex formation in solutions of ternary and tems by methods of physicochemical [illegible] Systems AlBr, Et_2O-PhCl, AlBr, [illegible] Et_2O-EtBr [illegible] [illegible] cf. C.A. 1, 1303[illegible] [illegible] examd. in PhCl, PhBr, and EtBr as solvents at [illegible] In PhCl and PhBr the complexes [illegible] [illegible]

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

AUTHORS: Gorenbeyn, Ye. Ya., Danilova, V. N. 79-28-5-63/69

TITLE: Investigation of Complex-Formation in Solutions of Ternary Systems by Methods of Physicochemical Analysis (Issledovaniye kompleksoobrazovaniya v rastvorakh troynykh sistem metodami fiziko-khimicheskogo analiza). IX. The Systems $AlBr_3 \cdot (iso\text{-}C_5H_{11})_2O \cdot C_6H_5Br$ and $AlBr_3 \cdot (iso\text{-}C_5H_{11})_2O \cdot C_6H_5Cl$ (Sistemy $AlBr_3 \cdot (iso\text{-}C_5H_{11})_2O \cdot C_6H_5Br$ i $AlBr_3 \cdot (iso\text{-}C_5H_{11})_2O \cdot C_6H_5Cl$)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 5, pp. 1387-1390 (USSR)

ABSTRACT: In earlier investigations by the authors it was shown that aluminum bromide with ethyl ether in ethylenebromide, benzene, bromine and chlorobenzene forms two compounds, $AlBr_3 \cdot (C_2H_5)_2O$ and $Al_2Br_6 \cdot (C_2H_5)_2O$ (References 1-3). These compounds are good electrolytes for solutions with low dielectric constant. The interesting question was whether aluminum bromide forms a molecular compound

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Investigation of Complex-Formation in Solutions of Ternary Systems by Methods of Physicochemical Analysis 79-38-5-67/69

of the same composition with other ethers, and how much the nature of the solvent influences the process of complex formation. At the same time there was the second problem of the investigation of the rule (Reference 4) that when two non-electrolytes form two or more electrolytes, the investigation of viscosity, as method of physicochemical analysis, shows that compound which best conducts the current in the given medium. In the present report the results of the investigation concerning the compression of isoamylether with aluminum bromide in bromo- and chlorobenzene are mentioned. The viscosity and the conductivity of the above-mentioned systems was investigated at 15, 20 and 25°. It was thus found that on certain experimental conditions aluminum bromide with isoamylether in bromobenzene forms two compounds: $AlBr_3 \cdot (C_5H_{11})_2O$ and $Al_2Br_6 \cdot (C_5H_{11})_2O$, however, only one in chlorobenzene: $Al_2Br_6 \cdot (C_5H_{11})_2O$.

There are 2 figures, 2 tables and 10 references, 9 of which are Soviet.

Card 2/3

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

Investigation of Complex-Formation in Solutions of Ternary Systems by Methods of Physicochemical Analysis 79-28-5-63/69

ASSOCIATION: Kiyevskiy veterinarnyy institut (Kiyev Veterinary Institute)

SUBMITTED: November 6, 1956

Card 3/3

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

5(2), 5(3) SOV/78-4-7-30/44

AUTHOR: Gorenbeyn, Ye. Ya.

TITLE: An Investigation of the Complex Formation in Systems of Aluminum Bromide and Some Organic Substances by Means of the Method of Kryoscopy (Issledovaniye kompleksoobrazovaniya v sistemakh iz bromistogo alyuminiya i nekotorykh organicheskikh veshchestv metodom krioskopii)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 7, pp 1643-1648 (USSR)

ABSTRACT: In the method of isomolar series suggested by I. Ostromyslenskiy (Ref 1) it was shown that in such cases in which the solvent forms no compound with a component of the system, the composition of the compounds formed in the solution may be determined quite exactly. This method is varied in such a manner that one of the components forms molecular compounds with the solvent. If various solvents, which form compounds with $AlBr_3$, are selected, conclusions may be drawn as to their relative stability. The decrease of melting points and the electric conductivity of the following systems were investigated: 1) $AlBr_3$ - CH_3NO_2 -

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SOV/78-4-7-30/44

An Investigation of the Complex Formation in Systems of Aluminum Bromide and Some Organic Substances by Means of the Method of Kryoscopy

$C_6H_5NO_2$ (Table 1, Fig 1); 2) $AlBr_3$ - $(C_2H_5)_2O$ - $C_6H_5NO_2$ (Table 2, Fig 2); 3) $AlBr_3$ - C_5H_5N - $C_6H_5NO_2$ (Table 3, Fig 3); 4) $AlBr_3$ - C_2H_5Br - $C_6H_5NO_2$ (Table 4, Fig 4) and 5) $AlBr_3$ - $C_6H_5NO_2$ - $C_2H_4Br_2$ (Table 5, Fig 5). Experimental data prove that the occurrence of current-conducting solutions of $AlBr_3$ in substances which are no electrolytes is caused by the formation of complex compounds. The kryoscopic diagrams show the formation of the compounds $AlBr_3 \cdot CH_3NO_2$ in the system 1, $AlBr_3 \cdot (C_2H_5)_2O$ in system 2, $AlBr_3 \cdot 2C_5H_5N$ in system 3, and $AlBr_3 \cdot C_6H_5NO_2$ in the systems 4 and 5. Whereas in the systems 1-3 the compounds mentioned are more stable than the compound of aluminum bromide with nitrobenzene, the latter is in both systems more stable than $AlBr_3 \cdot C_2H_5Br$ and $AlBr_3 \cdot C_2H_4Br_2$, and is not displaced by ethyl bromide and ethylene bromide. There are 5 figures, 5 tables, and 19 references, 17 of which are Soviet.

ASSOCIATION: Ukrainskaya akademiya sel'skokhozyaystvennykh nauk (Ukrainian

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

SOV/78-4-7-30/44

An Investigation of the Complex Formation in Systems of Aluminum Bromide and Some Organic Substances by Means of the Method of Kryoscopy

Academy for Agricultural Sciences)

SUBMITTED: April 14, 1958

Card 3/3

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

AUTHOR: Ye. Ya. Gorenbeyn SOV/79-29-2-67/71

TITLE: In the Order of Discussion (V poryadke diskussii)
On the Problem of the Causes of Metal Displacement in the Series of Tensions in Unhydrous Media (K voprosu o prichinakh peremeshcheniya metallov v ryadu napryazheniy v nevodnykh sredakh)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 2, pp 685-689 (USSR)

ABSTRACT: The paper written by Delimarskiy, Yu. K., published in the periodical Zhurnal obshchey khimii, Vol 28 (1958) criticized the author's conceptions concerning the causes of metal displacement in the series of tensions, based upon the modern conception of the structure of liquid state. As is known, the modern theory of liquid state is based upon the fact that near the melting point a certain arrangement is visible in the liquid, reminding of that of the solid body. In this connection some research workers stick to the so-called "quasicrystalline" hypothesis, others to the one called "microcrystalline" according to Steward, G. V. Further investigations of the liquid state showed that the above arrangement may be observed in solutions as well. Opponents of this conception are most unlikely to be found today. The problem is only that of defining and fully

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SOV/79-29-2-67/7

In the Order of Discussion. On the Problem of the Causes of Metal Displacement in the Series of Tensions in Unhydrous Media

clarifying the real picture. The author contradicts his critic for being reproached of entertaining different ideas and declares that the concepts criticized had only served the purpose of explaining certain facts that were observed in solutions of electrolyte in the solvents with a low dielectric constant, and in high-concentrated solutions of electrolytes in the solvents with a high dielectric constant. The essence of the author's concepts is the following: Investigations of the molecular state of electrolytes in the solvents having a low dielectric constant show that the molecular weight of these electrolytes is always higher than in the case of chemical formulas, in which connection also the apparent molecular weight, i.e. the association degree, rises with growing concentration (Refs 1,2) The molar electric conductivity grows on a parallel line (Refs 2,3). These phenomena are interpreted by the author on the basis of the modern theory of the liquid state structure. The author proceeds from the fact that in solvents having a low dielectric constant according to Coulomb's law $F = \frac{e^2}{Dr^2}$, the attraction between ions

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SOV/79-29-2-67/71

In the Order of Discussion. On the Problem of the Causes of Metal Displacement in the Series of Tensions in Unhydrous Media

rises considerably, as compared to aqueous solutions under otherwise equal conditions. Having finished his detailed exposition, the author asks his critic to show exactly where his concepts are in contradiction with the modern theory of the structure of liquids. There are 1 figure and 25 references, 24 of which are Soviet.

ASSOCIATION: Ukrainskaya akademiya sel'skokhozyaystvennykh nauk (Ukrainian Academy of Agricultural Sciences)

SUBMITTED: June 23, 1958

Card 3/3

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, Ye.Ya.; PROSYANIK, N.S.

Study of the interaction between potassium thiocyanate, ammonium thiocyanate, sodium iodide and water in acetone as the solvent, using the electric conductivity method. Zhur. neorg. khim. 5 no. 12:2847-2848 D '60. (MIRA 13:12)
(Potassium thiocyanate) (Ammonuim thiocyanate)
(Sodium iodine)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, Ye.Ya.; PONOMARENKO, A.G.

Complexing in the system $AlBr_3$ - C_5H_5N - $C_6H_5NO_2$. Zhur.neorg.khim. 6 no.8:1926-1929 Ag '61. (MIRA 14:8)

1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk i Kiyevskiy politekhnicheskiy institut.
(Aluminum bromide) (Pyridine) (Nitrobenzene)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000616210005-0

GORENBEYN, Ye.Ya.

Effect of the dielectric constant of the solvent on the viscosity of electrolyte solutions. Part 1: Systems N $(C_2H_5)_4$Br - CH_3COOH and N (C_2H_5) Br - $CHCl_3$. Ukr. khim. zhur. 27 no.4:466-469 '61. (MIRA 14:7)

1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk.
(Systems (Chemistry)) (Electrolyte solutions)

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