POGOSYAN, Kh.P., otv. red.; MKHITARYAN, A.M., otv. red.; VARTANESOVA, A.A., red. izd-va; SARKISYAN, G.S., tekhn. red.

[Results of comprehensive research on the Sevan problem] Rezul'taty kompleksnykh issledovanii po Sevanskoi probleme. Erevan, Izd-vo AN Armianskoi SSR, 1961. Vol.1. [Meteorology and hydrology] Meteorologiia i gidrologiia. 1961. 457 p. (MIRA 14:9)

1. Akademiya nauk Armyanskoy SSR, Erivan. Institut energetiki i gidravliki.

(Sevan Lake region—Meteorology)
(Sevan Lake region—Hydrology)

10.1500

39592
S/263/62/000/011 012 022
1007 1207

AUTHOR: Mkhitaryan, A. M., Maksimov, V. S., Labinov, S. D. and Fridland, V. Ya

TITLE: Method for studying the boundary layer by means of an electric hot-wire anemometer

PERIODICAL: Referativnyy zhurnal, otdel'nyy vypusk. 32. Izmeritel'naya tekhnika, no. 11, 1962, 36, abstract 32.11.275. In collection "Novyye metody izmereniy i pribory dlya gidravlich. issled" M., AS USSR, 1961, 90-92

TEXT: The kievskiy politekhnicheskiy institut (Kiev Polytechnic Institute) designed a test stand for studying the turbulent boundary layer in order to find optimum methods for its control. The distribution of velocity in the jet cross-section and the turbulence spectra were investigated. Average velocities and fluctuations were measured by means of the ЭТАМ-3А (ETAM-3A) electric hot-wire anommeter designed by the VEI. Width of the nozzle wire was 19 micr. The average flow velocities were found from the current intensity of the measuring bridge, and the degree of turbulence, from the readings of a C-95 (S-95) electrostatic voltmeter connected to the amplifier output. Shape and frequency of fluctuations as well as their relative amplitude were determined by means of a ЭИ-7 (EI-7) cathode-ray oscilloscope and recorded on a МПО-2 (MPO-2) oscillograph. Calibration was done by a reference Prandtl-tube. A 500 c time marker was used for determining

Card 1/2

Method for studying the...

S/263/62/000/011/012/022
I007/I207

the frequency [Abstracter's note: of fluctuations]; the measuring nozzle was moved by means of a screw-coordinator provided with a vernier scale. Accuracy of nozzle setting was 0.005 mm and of mean velocity measurements, 0.5%. The intensity of fluctuations was determined with an accuracy of 5 to 10%. A movable element, fastened to the flume bottom and connected to piezoelectric weighing scales designed by the Institut mekhaniki AN USSR (Institute of Mechanics, AS, UkrSSR) was used for determining the stresses on the surface. The scales had the following design features: during measurement the crystal-bearing ring driven by a special gear induces in the crystal an alternating voltage. Due to this method, distortions of measurement results, caused by leakage of the charge from the crystal, can be avoided. The accuracy of scale readings is 1%. There are 3 references and 1 figure.

[Abstracter's note: Complete translation.]

Card 2/2

S/147/61/000/004/014/021
E195/E135

AUTHORS: Mkhitaryan, A.N., Maksimov, V.G., Fridland, V.Ya., and Labinov, S.D.

TITLE: An experimental investigation of flow in the initial sections of a semi-bounded turbulent jet

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, no.4, 1961, 111-119

TEXT: Most of the published experimental and theoretical work on submerged turbulent jets has been concerned with the main part of the jets, which is characterised by flow under the conditions of an enclosed boundary layer. The presence of developed turbulent inter-mixing makes it possible to assume, with an adequate degree of accuracy, a similarity of velocity diagrams expressed in dimensionless coordinates. A more complex problem is the study of the initial section of the jet, where the above assumption would result in considerable errors. The authors have carried out an experimental wind-tunnel study of the flow of semi-bounded, turbulent jet, flowing out of a right-angle

Card 1/3

nozzle into a prismatic trough. As a result of this investi... it has been established that, along a length of more than ten equivalent diameters (of the nozzle) and on 70% of the width of the trough, there exists a nucleus of constant velocities. In addition, the boundary layer forming on the bottom of the trough is equivalent to a boundary layer forming on a flat plate subjected to a flow of an infinite stream. Experiments carried out with the help of a hot wire anemometer showed that in the nucleus of the stream the degree of turbulence remained constant along the length and width of the trough. Finally, an empirical relationship has been obtained, giving the location of the upper limit of the nucleus of constant velocities in a semi-bounded jet:

$$y/h = e^{-x/h \cdot a} \qquad (5)$$

where: y is the flow coordinate of points of upper limit of the nucleus of constant velocities; h is the height of the nozzle; a is a coefficient depending on the amount of turbulence at the outlet from the nozzle, and equal in this case to + 0.0108.

Card 2/3

An experimental investigation of ... S/147/61/000/004/014/021
E195/E135

There are 8 figures.

ASSOCIATION: Kafedra gidravliki, Kiyevskiy politekhnicheskiy inst[illegible]
(Department of Hydraulics, Kiev Polytechnical Institute)

SUBMITTED: January 16, 1961

Card 3/3

10 1200 1327 2607 2807

27243
S/170/61/004/009/004/013
B104/B125

AUTHORS: Mkhitaryan, A. M., Maksimov, V. S., Frillant, V. Ya., Latinov, S. D.

TITLE. Method of investigating the boundary layer in an operating part of a new type

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 4, no. 9, 1961, 12-16

TEXT. The turbulent boundary layer of a body with a pressure gradient along its axis and a gas jet flowing about it has been studied. The experiments were performed because at present there is no complete theory available, which would permit an exact calculation of the disrupture of the boundary layer. First of all, an operating part was developed, which produces a jet with a long core of constant velocity. An attempt was made to obtain a constant velocity, a constant static pressure, and a constant turbulence of flow throughout the operating part. The authors determined the velocity distribution over the cross section of the jet and also the turbulence spectrum. The mean velocities and pressure pulsations were measured by an electrothermoanemometer of the type ЭТАМ-3А (ETAM-3A). Shape, frequency,

Card 1/3

27243
S/170/61/004/009/002/013
B104/B125

Method of investigating the

and amplitude of oscillations were visually determined by means of a cathode-ray oscilloscope and recorded on a film. First, the authors measured the parameters of a free, turbulent, rectangular jet. The core of constant velocity of such a jet was not longer than twice the diameter of the nozzle used. At a distance of 2-3 nozzle diameters, the authors observed an intermediate zone between the core of the jet with constant velocity and the main part of the jet. An analysis of the flow of a free jet shows that the cross section of constant velocity of the jet can only be enlarged by reducing the turbulence and energy loss in its boundary layer. For this purpose, it is recommended to bound the jet by a solid surface. With the aid of experimental data by other authors (D. N. Lyakhovskiy et al. Aerodinamika elementarnogo fakela, Sooobshcheniye TsKTI, 1956), and on the basis of the Prandtl equation, the following relation is obtained for the calculation of the tangential stress of the jet: $\tau_c = C\,0.125\,\rho u_0^2/2$. It is shown that the tangential stress arising with a jet flowing about a plate is one-fourth of that of a free jet. In addition, experimental results indicate that the loss in energy occurring in the boundary layer of a free jet [illegible] plate is many times smaller than in the boundary layer of a free [illegible]

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27243
S/170/61/004/009/002/013
B104/B125

Method of investigating the

using a prismatic jet guide that bounds the jet on three sides, it was possible to extend the jet core of constant velocity to a length of about 10 nozzle diameters. The width of the constant-velocity core amounted to 70% of the total width of the jet guide. There are 4 figures and 5 references: 3 Soviet and 2 non-Soviet.

ASSOCIATION: Politekhnicheskiy institut, g. Kiyev (Polytechnic Institute Kiyev)

SUBMITTED: May 15, 1961

Card 3/3

MAKAROVA, V.S.; MKHITARYAN, A.M.

Experiments with monomolecular films in the reduction of evaporation carried out on the shore of Lake Sevan. Izv. AN Arm. SSR. Ser. tekh. nauk 14 no.3:43-57 '61. (MIRA 14:8)
(Sevan Lake region--Evaporation) (Films (Chemistry))

S/124/63/000/003/022/065
D234/D308

AUTHORS: Mkhitaryan, A. M. and Pomin, M. M.

TITLE: Hydromechanical calculation of filtration through an earth dam with a screen and a spillway front with an inclined water arresting device

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 3, 1963, 123, abstract 3B764 (Visti in-tu hidrol. i hidrotekhn. AN URSR, 1961, v. 18 (25), 82-92 (Ukr.))

TEXT: The authors give a solution for a homogeneous earth dam as above, with no water in the downstream. It is assumed that the soil of the dam body and foundation is the same, the screen and the spillway front are waterproof, there is no drainage and no stream outlet into the downstream part and all flow behind the dam is due to filtration through its foundation. The stream is divided into three parts: upstream foundation (a half-strip with inclined side), the section above the spillway front (rectangle) and the bottom fragment (free stream on the inclined water arresting device li-

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mited by a normal equipotential line separating it from the second fragment, and by the bottom side of the screen), for each of which a rigorous hydromechanical solution is constructed. With the assumptions made in the fragment method it is easy to obtain a simple hydraulic solution whose accuracy may be not lower than that of the exceedingly complicated solution proposed by the authors. [Abstracter's note: Complete translation.]

KERIMOV, B.M.; MKHITARYAN, A.M.; PANKOV, L.S.

Analysis of the development of the sub-Kirmaki series in the Severnaya Skladka field of Artem Island considering the artificial methods. Azerb.neft.khoz. 40 no.12:38-40 D '61. (MIRA 15:8)
(Artem Island--Oil field flooding)

MKHITARYAN, A.M.

Breezes in the Lake Sevan Basin and some results of their calculation by actual temperature distribution on the basement surface. Izv.AN Arm.SSR.Ser.tekh.nauk 15 no.5:15-32 '62. (MIRA 15:12)

1. Institut vodnykh problem AN Armyanskoy SSR.
(Sevan, Lake--Winds)

MKHITARYAN, A.M.

Breezes in Lake Sevan basin and some results of calculating them on the basis of the acutal temperature distribution in the underlying surface. Izv.AN Arm.SSR.Ser.tekh.nauk 15 no.6:13-31 '62. (MIRA 16:2)

1. Institut vodnykh problem AN Armyanskoy SSR.
(Sevan Lake region—Winds) (Temperature)

S/022/62/015/006/003/006
D218/D308

AUTHOR: Mkhitaryan, A.M.

TITLE: On the problem of sea-breeze circulation

PERIODICAL: Akademiya nauk Armyanskoy SSR. Izvestiya, v. 15, no. 6, 1962, 61 - 74

TEXT: This paper is concerned with sea-breeze circulation due to temperature non-uniformity of the underlying surface and which exhibits a diurnal variation. An attempt is made to set up a model of this circulation within the framework of a linear theory. The analysis starts with the general equations of hydrothermal dynamics, i.e. the three equations of motion and the equations of continuity, state, and the inflow of heat and humidity. Differential equations for the problem are then established on the assumption that terms involving horizontal mixing can be neglected, and the breeze may be regarded as a small perturbation of the general motion due to local non-uniformity in the underlying surface. The final model takes the form of six linear

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S/022/62/015/006/003/006
D218/D308

On the problem of sea-breeze ...

partial differential equations involving six unknown functions: three velocity components, (u,v,w), pressure (p), departure of the temperature from the steady state value (ϑ), and humidity (q). The boundary conditions are :

(1) $z = z_0$, $u = v = w = 0$, $\vartheta = \vartheta_0 (x,y,t)$, $q = q_0 (x,y,t)$;

(2) when $z \longrightarrow \infty$, $u = v = p = \vartheta = q = 0$.

ϑ_0 may be taken from observations, q_0 is the humidity corresponding to saturated vapor pressure at ϑ_0 for points above water surfaces, or is obtained experimentally for other points. The solution is sought in the form of a Fourier series and the coefficients of this series are evaluated approximately for each of the above unknown functions. In the initial stages of the analysis the solution is obtained for a constant turbulent mixing coefficient. An outline is then given of how this restriction may be removed and, in particular, the case is considered where the above coefficient is a linear function of height. The paper is entirely theoretical; an analysis of the various results and an account of numerical calculations will be given in another paper.

Card 2/3

On the problem of sea-breeze ... S/022/62/015/006/003/006
D218/D308

ASSOCIATION: Instytut vodnykh problem AN Armyanskoy SSR (Institute of Water Research of the AS Armenian SSR)

SUBMITTED: July 14, 1962

Card 3/3

MKHITARYAN, A.M.; DAGESTANYAN, M.G.

Temperature of lakes. Izv. AN Arm. SSR. Ser. fiz.-mat. nauk 16 no.1:87-104 '63. (MIRA 16:3)

1. Institut vodnykh problem AN Armyanskoy SSR.
(Lakes--Temperature)

ANANYAN, A.K.; BEK-MARMARCHEV, B.I.; ZHAMAGORTSYAN, V.N.; MKHITARYAN, A.M.

Using Soviet-produced surface-active agents for reducing the evaporation from water surface in reservoirs. Izv.AN Arm.SSR. Ser.tekh.nauk 16 no.2/3:117-128 '63. (MIRA 16:9)
(Surface-active agents) (Evaporation)

MKHITARYAN, A.M.

Determination of the coefficient of turbulent exchange in reservoirs and inland bodies of water based on their water and heat balances. Izv. AN Arm. SSR. Ser. tekh. nauk 16 no.4[illegible] '63. (MIRA 17:3)

1. Institut [illegible] Armyanskoy SSR.

MKHITARYAN, A.M.

Heat transfer in lakes. Dokl. AN Arm. SSR 36 no.4:217-223 '63. (MIRA 16:11)

1. Institut vodnykh problem AN Armyanskoy SSR. Predstavleno akademikom AN Armyanskoy SSR A.G. Nazarovym.

MKHITARYAN, A.M.

Determining the evaporation from the surface of Lake Sevan by the heat balance method. Dokl. AN Arm. SSR 36 no.5:281-287 '63 (MIRA 17:7)

1. Institut vodnykh problem AN Armyanskoy SSR. Predstavlen akademikom AN Armyanskoy SSR I.V.Yeglazarovym.

LABINOV, S.D.; MAKSIMOV, V.S.; MKHITARYAN, A.M. (Kiev)

"Theoretical and experimental investigations of the boundary layer control".

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

L 21125-65 EWT(d)/EWT(l)/EWP(m)/EWT(m)/EWP(w)/EWG(v)/EWA(d)/EWP(v)/EWP(k)/FCS(k)/EWA(h) Pd-1/Pe-5/Pf-4/Peb AEWL/SSD(b)/AEDC(a)/BSD/SSD/ASD(f)-3/ASD(p)-3/AFETR/
ACCESSION NR: AP5002032 AFTC(a)/APGC(a) S/0170/64/000/012/0095/0105
EM/WW

AUTHOR: Mkhitaryan, A. M.; Ovsyannikov, M. P.

TITLE: Determining the linearized perturbation fluxes in hypersonic air flow over conical bodies without axial symmetry

SOURCE: Inzhenerno-fizicheskiy zhurnal, no. 12, 1964, 95-105

TOPIC TAGS: hypersonic flow, supersonic flow, shock wave, shock coefficient, inviscid flow, dissociated air, perturbation flux, conical flow, linearized characteristics method

ABSTRACT: The inviscid hypersonic flow of an ideal gas over thick and thin conical bodies without axial symmetry is considered. This study is a further development of similar studies by Ferri (JAS, no. 8, 1953) and Chapkis (JAS, no. 11, 1961), using the superposition of linear solutions on a nonlinear solution for flow around circular cone. However, th results obtained for flows over thin conical bodies differ from that of Chapkis. Equations that define the velocity components of the linearized perturbation fluxes are derived for thick and thin conical bodies, respectively. A generalized solu-

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L 21125-65
ACCESSION NR: AP5002032

tion is given for flows at high Mach numbers over conical bodies, with dissociation taken into account. Thence, the gas parameters behind a shock wave can be calculated by means of the numerical procedure used by Ferri, and boundary conditions are written as for the flow of an ideal gas. The results for ideal and dissociating gases are given in tabular form and compared. Pressure distributions are obtained from the relation $p_- = p_+ + \Delta p$, where $\Delta p = \rho_+ (V_+^2 - V_-^2)/2$. Variation of the velocity components of the perturbation flux with the summation index n and the parameter 4 (semi-apex angle) are given in graphical form for thin bodies in a perfect gas ($\gamma = 1.405$). Orig. art. has: 2 figures, 55 formulas and 2 tables.

ASSOCIATION: Institut grazhdanskogo vozdushnogo flota, Kiev (Institute of the Civil Air Fleet)

SUBMITTED: 09Dec63 ENCL: 00 SUB CODE: ME

NO REF SOV: 005 OTHER: 005 ATD PRESS: 3164

Card 2/2

L 16559-65 EWT(1)/FCC ESD(t)/ASD(f)-2 GW
ACCESSION NR: AP4049201 S/0022/64/017/005/0073/0085

AUTHORS: Mkhitaryan, A. M.; Dagestanyan, M. G.

TITLE: Effect of the shape of the shore line on breeze circulation

SOURCE: AN ArmSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, v. 17, no. 5, 1964, 73-85

TOPIC TAGS: atmospheric turbulence, wind

ABSTRACT: This is a continuation of earlier papers by one of the authors (Mkhitaryan, Izv. AN Arm. SSR, ser. tekhn. nauk, no. 5 and 6, 1962), where account was taken of the Coriolis acceleration and especially of the singularities of the temperature distribution of the underlying surface. A simple theoretical model is constructed for breeze circulation over a flat curvilinear shore. The temperature distribution over the underlying surface is assumed known. The general equations of hydrothermodynamics are used, with the simpli-

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L 16559-65
ACCESSION NR: AP4049201

fying assumptions that are customarily made in convection theory. Linearization of the breeze deviation yields a system of five partial differential equations for the three wind-velocity components, the deviation from standard temperature, and the relative pressure as functions of the coordinate and the time. The shore line is assumed to have an exponential symmetrical form (bay). It is shown that the shore curvature introduces a vertical velocity component. The diurnal wind rotation due to the Coriolis force is studied for the curvilinear shore, and it is shown that allowance for the Coriolis force leads to better agreement between the theoretical results and the observed data. Other factors brought about by the curvature of the shore are the appearance of a latitude dependence of the instant of occurrence of the breeze, and a distortion in the distribution of the vertical air currents. Orig. art. has: 8 figures and 56 formulas.

ASSOCIATION: Institut vodny*kh problem i gidrotekhniki MVKH ArmSSR

Card 2/3

L 16559-65

ACCESSION NR: AP4049201

(Institute of Water Problems and Hydrotechnics MVKh ArmSSR)

SUBMITTED: 01Apr64 ENCL: 00

SUB CODE: ES NR REF SOV: 008 OTHER: 001

Card 3/3

L 26117-65 EWT(1)/EWP(m)/EWA(d)/EWO(v)/FCS(k)/EWA(1) Pd-1/Pe-5 WW

31
17
B

ACCESSION NR: AP5005529 S/0147/65/000/001/0007/0014

AUTHOR: Mkhitaryan, A.M.; Ovsyannikov, M.P.

TITLE: On the determination of linearized perturbation flows in hypersonic flow over conical bodies without axial symmetry

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 1, 1965, 7-14

TOPIC TAGS: hypersonic flow, linearized flow, linearized flow solution, elliptical cone, conical flow, linearized characteristic method

ABSTRACT: This paper presents a study of hypersonic flow over thick conical bodies without axial symmetry and constitutes a development of similar studies by Ferri, Ness, Kaplita, and Chapkis, using a linearized procedure. The equations that define the velocity components of the linearized flow fields are written and boundary conditions on the body surface and at shock wave which must be satisfied are established. Certain simplifying assumptions are introduced in the analysis. Two linearized solutions are obtained corresponding to values of $n(n=1$ and $n > 2)$. It is shown that at free-stream Mach numbers, the velocity components u_n and v_n just behind the shock wave are of the same order for thick conical bodies and that u_n is one order less than v_n for slender conical bodies. The calculated values of the pressure coefficients c_p for thick elliptical cones, obtained by approximate form-

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L 26117-65

ACCESSION NR: AP5005529

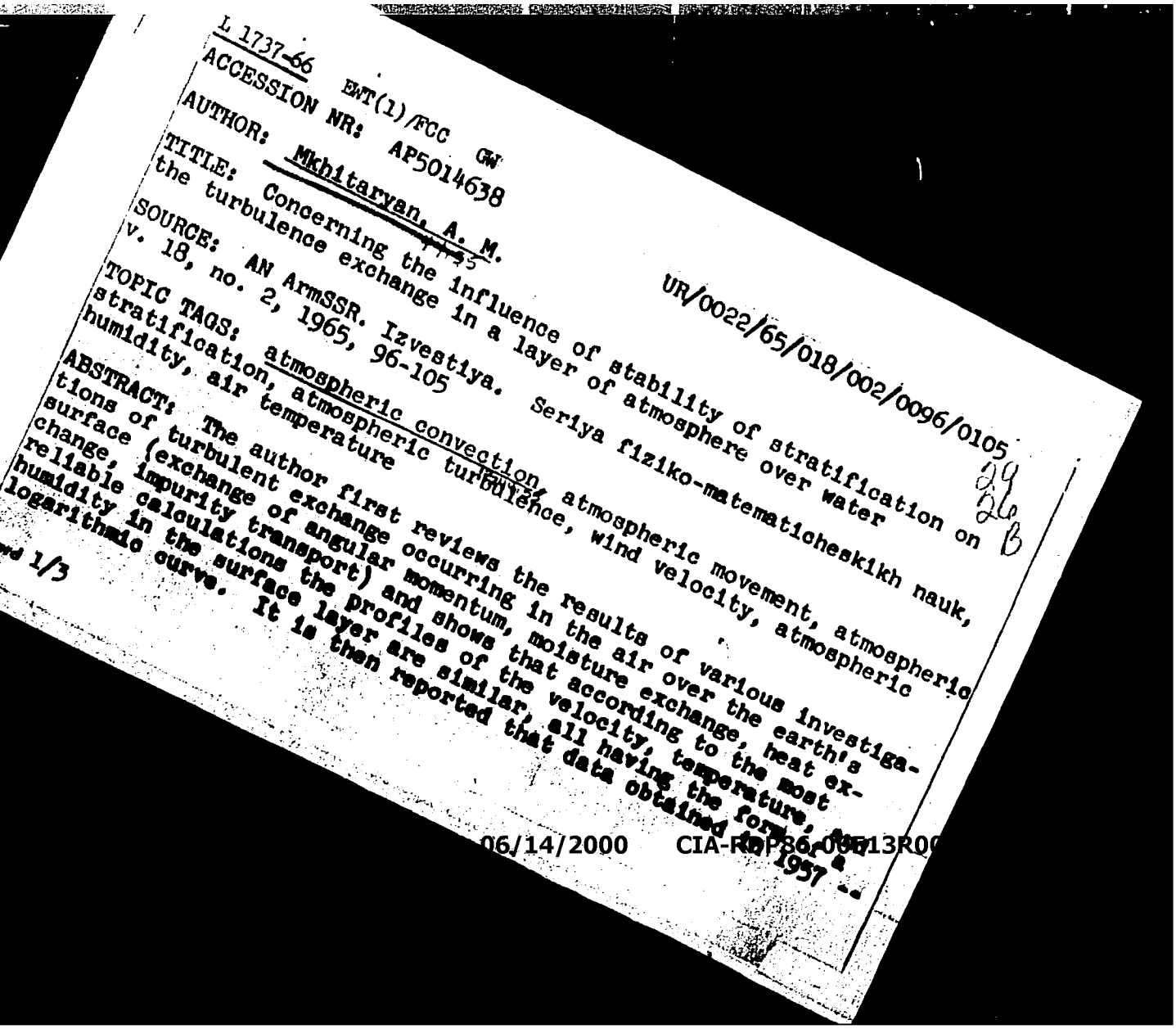
ulas of the asymptotic solution and by a step-by-step numerical procedure, are given in graphical form for the purpose of comparison. Orig. art. has: 2 figures and 42 formulas. [AB]

ASSOCIATION: none

SUBMITTED: 09Mar64 ENCL: 00 SUB CODE: ME

NO REF SOV: 001 OTHER: 000 ATD PRESS: 3186

Card 2/2



L 1737-66 EWT(1)/FCC GW UR/0022/65/018/002/0096/0105

ACCESSION NR: AP5014638

AUTHOR: Mkhitaryan, A. M.

TITLE: Concerning the influence of stability of stratification on the turbulence exchange in a layer of atmosphere over water

SOURCE: AN ArmSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, v. 18, no. 2, 1965, 96-105

TOPIC TAGS: atmospheric convection, atmospheric movement, atmospheric stratification, atmospheric turbulence, wind velocity, atmospheric humidity, air temperature

ABSTRACT: The author first reviews the results of various investigations of turbulent exchange in the air over the earth's surface (exchange of angular momentum, moisture exchange, heat exchange, impurity transport) and shows that according to the most reliable calculations the profiles of the velocity, temperature, humidity in the surface layer are similar, all having the form of a logarithmic curve. It is then reported that data obtained in 1957 ..

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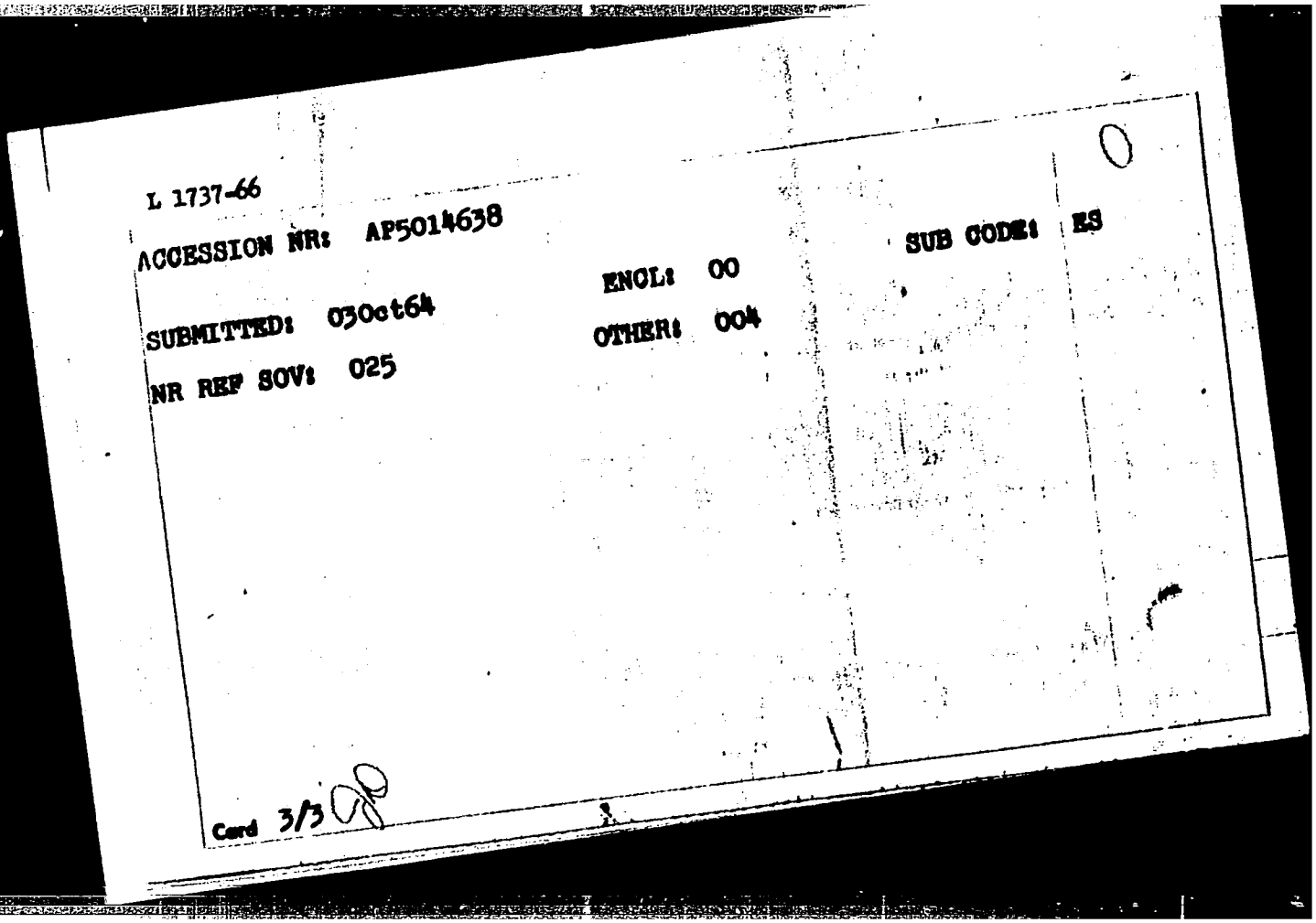
ACCESSION NR: AP5014638

1961 over Lake Sevan make it possible to check the theoretical relations under different conditions. These data were obtained by gradient observations during the wintertime, and used to plot the profiles of the wind velocity in a layer of 12 meters over the water. The experimental points are remarkably close to the theoretical curves based on a logarithmic law, in spite of the fact that the water-air temperature fluctuates within ± 5C, and sometimes even more. In the case of temperature differences exceeding 10C, the velocity profiles, plotted on a semilogarithmic scale, bend somewhat towards the ordinate axis, signifying that the additional development of turbulence due to thermal factors leads to a decrease in the vertical velocity gradient. Since this is the opposite of what takes care in the case of inversion, it is concluded that development of turbulence leads to equalization of the velocity profile of the wind. Orig. art. has: 2 figures and 27 formulas, and 1 table.

ASSOCIATION: Institut vodnykh problem i gidrotekhniki MVKh ArmSSR (Institute of Water Problems and Hydraulic Engineering MVKh, ArmSSR)

44,55

Card 2/3



L 1737-66

ACCESSION NR: AP5014638

SUB CODE: ES

SUBMITTED: 030ct64

ENCL: 00

OTHER: 004

NR REF SOV: 025

Card 3/3

MKRTTARYAN, A.M., LAGE.TANYAN, M.G.; [illegible]OFYAN, Z.A.; PETROSYAN, N.A.

Experimental study of the transformation of air flow over a mountain lake. Izv. AN Arm. SSR. Ser.fiz.-mat. nauk 18 no.4 [illegible] '65.
(MIRA 18:7)

1. Institut vodnykh problem i gidrotekhniki Ministerstva vodnogo khozyaystva Armyanskoy SSR.

MKHITARYAN, A.M.; PAKHCHANYAN, G.G.; LAZARYAN, A.G.

Efficiency of monolayer depressors of evaporation. Izv. AN Arm. SSR. Ser. fiz.-mat. nauk 18 no.6:50-70 '65. (MIRA 19:1

L 33408-66 EWP(m)/EWP(k)/EWT(1) WW
ACC NR: AP6015307 (A, N) SOURCE CODE: UR/0057/66/036/005/0860/0867

AUTHOR: Mkhitaryan, A. M.; Kas'yanov, V. A.

ORG: Kiev Institute of Civil Aviation (Kiyevskiy institut grazhdanskoy aviatsii)

TITLE: Laminar electrohydrodynamic flow in a plane exit cone with barodiffusion of space charge taken into account

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 5, 1966, 860-867

TOPIC TAGS: electrohydrodynamics, electrohydraulic effect, electric field, space charge, diffusion, dielectric material, nozzle flow

ABSTRACT: The author employs a method developed by S.M.Targ (Osnovnyye zadachi teorii laminarnykh techenyy, Gostekhizdat, 1951) to calculate the two-dimensional electrohydrodynamic flow in a plane exit cone. It is believed that the results may be of assistance in evaluating the possibilities of the electrohydrodynamic technique for influencing the flow of liquid and gaseous dielectrics. Among the simplifying assumptions employed in the calculations are the following: the vertex angle of the exit cone is small; the electrical Reynolds number is small; the azimuthal component of the electric current vanishes; the component of the radical electric current due to the space charge field is small compared with that due to the external radial electric field; and the plane dielectric walls of the exit cone are neither charged nor polarized. The flowing medium is assumed to carry a space charge. The electrohydro-

Card 1/2

L 33408-66
ACC NR: AP6015307

dynamic equations of motion are derived under these assumptions with barodiffusion taken into account. These equations are linearized by the technique of Targ (lor [illegible]) and approximate solutions of them are obtained. Formulas for the total pressure drop and the position at which the flow breaks from the wall of the exit cone are given in terms of the total flux and other parameters of the problem. Velocity profiles are presented graphically for two specific cases. Orig. art. has: 44 formulas and 3 figures.

SUB CODE: 20/ SUBM DATE: 14Jan65/ ORIG REF: 001/ OTH REF: 001

Card 2/2 JS

KHAZHAKYAN, L.V.; MKHITARYAN, A.V.; GRIGORYAN, G.I.; TATEVOSYAN, G.T.

Derivatives of indole. Report No.12: Structure of benzylidene harmine and some of its derivatives. Izv. AN Arm.SSR.Khim. nauki 16 no.2: 181-189 '63 (MIRA 17:8)

1. Institut tonkoy organicheskoy khimii AN ArmSSR.

MKHITARYAN, A.V.; KOGODOVSKAYA, A.A.; TERZYAN, A.G.; TATEVOSYAN, G.T.

Derivatives of indole. Report No.9: α,β -Dimethyltryptamine and its 5-methoxy derivatives. Izv.AN Arm. SSR. Khim.nauki 15 no.4:379-384 '62. (MIRA 15:11)

1. Institut tonkoy organicheskoy khimii AN Armyanskoy SSR.

(Indole)

SURMENYAN, G.A.; MKHITARYAN, K.G.

Formation of a coenosis of hybrid wheat plants under different conditions of cultivation. Izv. AN Arm. SSR. Biol. nauki 13 no. 7:61-70 Jl '60. (MIRA 13:10)
(WHEAT BREEDING)

MEKHITARYAN, Kh.T., AYRYAN, A.P.

Candidomycosis of the bladder. Urologiia 23 no.4:60-61 Jl-Ag '58 (MIRA 11:8)

1. Iz kliniki fakul'tetskoy khirurgii (zav. - prof. R.L. Paronyan) Yerevanskogo meditsinskogo instituta.

(BLADDER, dis.
moniliasis after antibiotic ther. (Rus))
(MONILIASIS, etiol. & pathogen.
antibiotic ther. causing bladder moniliasis (Rus))
(ANTIBIOTICS, inj.eff.
moniliasis of bladder (Rus))

MKHITARYAN, L.L.

USSR/Chemistry - Organic chemistry

Card 1/2 Pub. 22 - 20/47

Authors : Petrov, A. D., Hemb., Corresp. of Acad of Sc. USSR.; Ponomarenko, V. A.; Mkhitaryan, L. L.; and Snegova, A. D.

Title : [redacted] Synthesis and properties of monochloro derivatives of ethylsilane chlorides.

Periodical : Dok. AN SSSR 100/6, 1107-1110, Feb 21, 1955

Abstract : The synthesis of numerous hitherto unknown compounds from monochloro derivatives of ethylsilane chlorides is reported. The high yield of monochloro derivatives observed during the chlorination of ethylsilane chlorides with chlorine indicates the photochemical chlorine chlorination is no less suitable than the chlorination with sulfuryl chloride.

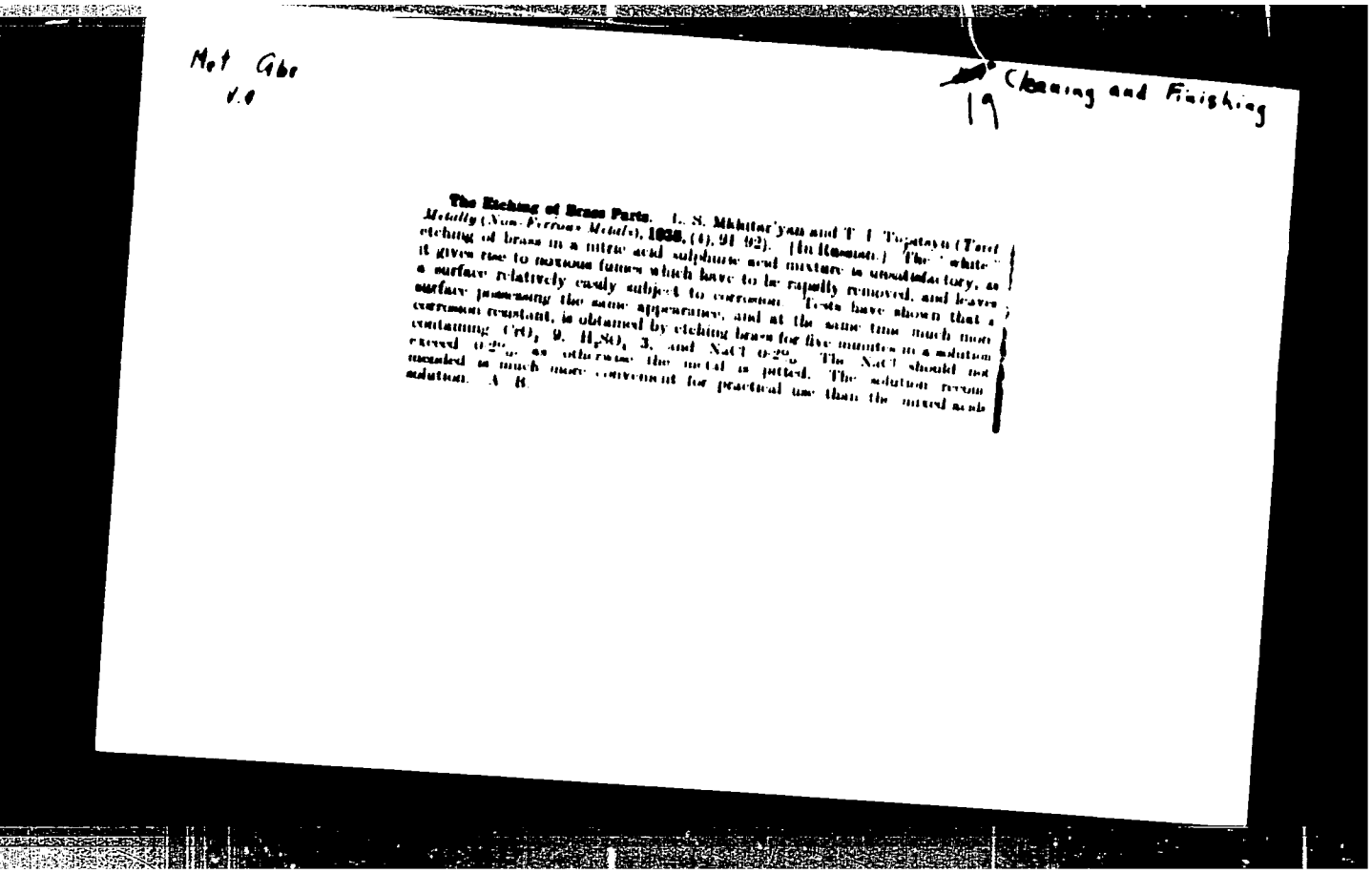
Institution : Academy of Sciences USSR, The N. D. Zelinskiy Institute of Organ. Chem.

Submitted : August 18, 1954

Periodical : Dok. AN SSSR 100/6, 1107-1110, Feb 21, 1955

Card 2/2 Pub. 22 - 20/47

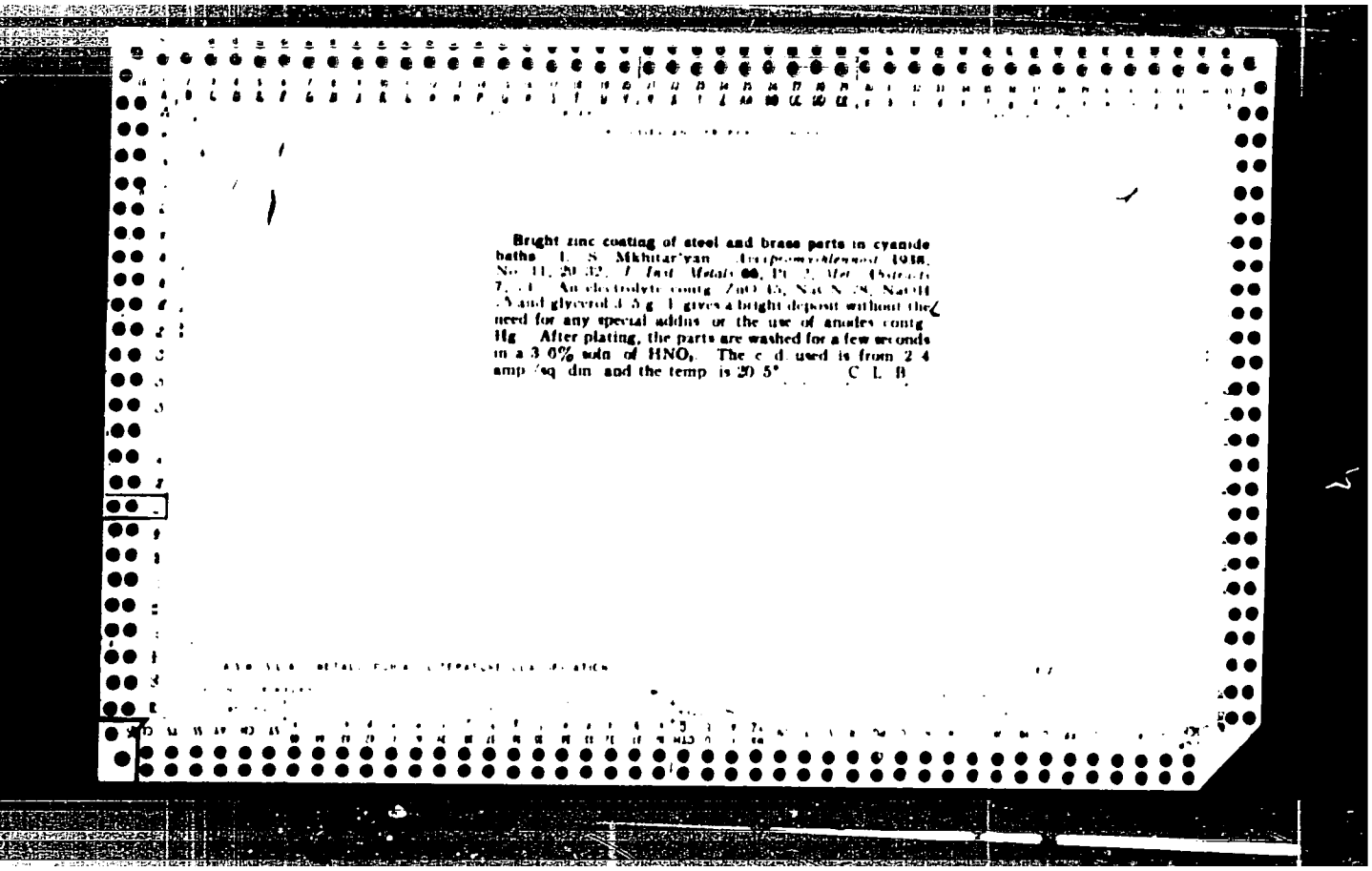
Abstract : The formation of small amounts of alpha-chloroethyldichlorosilane with highly reactive Si-H bond was observed during the chlorination of ethyldichlorosilane ($Cl_2HSiC_2H_5$). Ten references: 3 USSR, 5 USA, 1 English and 1 German (1937-1954). Table; graphs.



Met Gbr
V.0

19 Cleaning and Finishing

The Etching of Brass Parts. L. S. Mkhitar'yan and T. I. Tsatsyn (*Tsvet. Metally* (*Non-Ferrous Metals*), **1938**, (4), 91–92). [In Russian.] The "white" etching of brass in a nitric acid–sulphuric acid mixture is unsatisfactory, as it gives rise to noxious fumes which have to be rapidly removed, and leaves a surface relatively easily subject to corrosion. Tests have shown that a surface possessing the same appearance, and at the same time much more corrosion resistant, is obtained by etching brass for five minutes in a solution containing CrO_3 9, H_2SO_4 3, and NaCl 0·2%. The NaCl should not exceed 0·2% as otherwise the metal is pitted. The solution remains unaltered in much more convenient for practical use than the mixed acids solution. A. R.



Bright zinc coating of steel and brass parts in cyanide baths. I. S. Mkhitar'yan. *Avtogen. Delo* 1938, No. 11, 29-32; *J. Inst. Metals* **66**, Pt. 2, *Met. Abstracts* 7, 1. An electrolyte contg. ZnO 15, NaCN 38, NaOH 7.5 and glycerol 1.5 g. l. gives a bright deposit without the need for any special addns. or the use of anodes contg. Hg. After plating, the parts are washed for a few seconds in a 3.0% soln. of HNO_3. The c. d. used is from 2.4 amp./sq. din. and the temp. is 20.5°. C. L. B.

SOV 137-58-11-23085
Translation from: Referativnyy zhurnal. Metallurgiya 1958 Nr 11 p 179 (USSR)

AUTHORS: Tupitsyn, G. I., Mkhitar'yan, L. S.

TITLE: Investigation of Protective Properties of Metallic Coatings (Issledovaniye zashchitnykh svoystv metallicheskikh pokrytiy)

PERIODICAL: V sb.: Korroziya i zashchita metallov. Moscow Oborongiz 1957 pp 145-183

ABSTRACT: A study was made of the comparative characteristics of the corrosion behavior of 30KhGSA steel protected by various metallic coatings. In the atmosphere of an industrial area (urban Moscow) the protective properties of a Zn coating are considerably higher than those of a Cd coating; in a marine atmosphere (city of Batumi) and in a corrosion chamber filled with fresh water fog Zn and Cd coatings 5 μ thick provide protection for steel for 5 years; and upon full immersion in running fresh water or intermittent immersion in synthetic sea water Cd coatings 10 μ thick protect steel for 3 years. Chrome, nickel and tin-plated specimens corrode rapidly upon intermittent immersion in synthetic sea water and also in the atmosphere of the industrial area of Moscow; upon full immersion in tap water Ni and Cr coatings from

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SOV 137-58-11-23085

Investigation of Protective Properties of Metallic Coatings

5 to 50 μ thick provide protection of specimens for 3 years; in the Batumi atmosphere coatings of Ni, Cr, and Sn 20 μ thick showed good protective properties. Composite coatings (Ni-Cu-Cr, Cu-Ni-Cr, Cu-Cr) provided a good protection for steel during 3 years of full immersion in running tap water; with intermittent immersion coatings up to 35 μ thick corroded quickly, while composite coatings with a toal thickness of the layer greater than 20 μ provided protection in a fresh water fog chamber for 3 years; Cr coatings with an undercoat with a total thickness of 20 μ, provide protection for 4.5 years in the Batumi atmosphere; Ni coatings under these conditions protect steel but the Ni itself is rapidly attacked; the protective properties of composite coatings 35 μ thick in an industrial atmosphere are low; the best protection is provided by a Cr coating in a Ni-Cu-Cr combination.

I A

Card 2/2

KHITARYAN, L.S.; ANDREYEVA, T.M.; TUPITSYN, G.I.

Electrodeposition of metals on chromium. Biul.tekh.-ekon.inform. no.11:63-64 '60. (MIRA 13:11)
(Electroplating)

S/193/62/000/004/002/008
A004/A101

AUTHORS: Mkhitaryan, L. S., Andreyeva, T. M., Tupitsin, G. I.

TITLE: Accelerated method of silver plating of components

PERIODICAL: Byulleten' tekhniko-ekonomicheskoy informatsii, no. 4, 1962, 17-19

TEXT: The authors report on investigations carried out by a Soviet organization [Abstracter's note: No name given] to deposit a silver coating of 1.0 - 1.5 mm thickness on steel by the electrolytic method. The silver was deposited directly on the steel and on a nickel sublayer. The specimens were made of 30 ХГСА (30KhGSA) grade steel, and were pretreated in a solution containing 30 vol.% sulfuric acid (specific gravity 1.84), 30 vol.% ortnophosphoric acid (specific gravity 1.57) and 40 vol. % water. The specimens were pickled for 5 - 6 minutes at 20 - 30°C and an anode current density of 20 - 25 amp/dm^2. After pickling and flushing in cold running water the specimens were either directly silver-plated or a sublayer of nickel was applied from an electrolyte containing (gram/liter): nickel sulfate - 200, nickel chloride - 30, boric acid - 30, ammonium sulfate - 1.0, pH 3.5 - 4. After the nickel plating the specimens were subjected to preliminary silver plating in an electrolyte

Card 1/2

Accelerated method of silver plating of components S/193/62/000/004/002/008
A004/A101

containing (gram/liter): metallic silver - 0.5 - 2.0, potassium cyanide - 60 - 100, potassium carbonate - 30 - 50, at a current density of 15 - 20 amp/dm^2. To shorten the time of the final silver plating, which took some 50 hours, a technology and an electrolyte composition have been developed that made it possible to increase the current density, while the quality of the silver plating was not reduced. The electrolyte contained (gram/liter): metallic silver - 30 - 40, potassium cyanide - 120 - 160, potassium carbonate - 40 - 90, caustic potash - 1.2 - 2.0. The electrolyte temperature was 40 $\pm$ 5°C, the current density 5 - 10 amp/dm^2 and the current yield 90 - 95%. During the electrodeposition process the electrolyte was stirred continuously. A deposition of a silver coating of 1 - 1.5 mm thickness in this electrolyte did not take more than 6 hours. The free cyanogen-to-metallic silver ratio of this electrolyte should amount to approximately 1.6. In torsion tests the silver plating did not peel off. The adhesion strength of the silver layer was also proved by milling. The author gives a brief description of the silver plating of a small aluminum-alloy cylinder. There is 1 figure.

Card 2/2

MKHITARYAN, M.A.

Variability in the rust resistance of wheat varieties. Izv.AN Arm. SSR.Biol.i sel'khoz.nauki. 5 no.6:35-45 '52. (MLRA 9:8)

1. Institut fitopatologii i zoologii AN Armyanskoy SSR.
(Armenia--Wheat--Disease and pest resistance) (Uredineae)

MKHITARYAN, M.A.

Diseases of shelterbelts in the Armenian S.S.R. Izv.An Arm.SSR. Biol.i sel'khoz.nauki. 5 no.8:55-69 '52. (MLRA 9:8)
(Armenia--Trees--Diseases and pests)

MKHITARYAN, M.A.

Breeding rust resistant varieties of wheat. IZV.AN Arm.SSR.Biol.i sel'khoz.nauki 6 no.9:3-14 '53. (MLRA 9:8)

1. Sektor zashchity rasteniy AN Armyanskoy SSR.
(Armenia--Wheat--Disease and pest resistance)
(Uredineae)

MKHITARYAN, M. A.

"Ways of Developing Wheat Varieties Resistant to Rust," [illegible], No.1, 1965

Section for Plant Protection, AS ArmSSR, Yerevan

MKHITARYAN, M.A.

Developing rust-resistant varieties of wheat in Armenia. Izv. AN Arm. SSR. Biol. nauki 13 no.8:35-44 Ag '60. (MIRA 13:9)

1. Institut zemledeliya Ministerstva sel'skogo khozyaystva Armyanskoy SSR.

(ARMENIA--WHEAT RUSTS)

86160

S/193/60/[illegible]
A004/A001

187400 1087

AUTHORS: Mkhitaryan, M. S., Andreyeva, T. M., Tupitsyn, S. I.

TITLE: Electrodeposition of Metals on Chromium

PERIODICAL: Byulleten' tekhniko-ekonomicheskoy informatsii, 1960, No. 11, pp. 63-64

TEXT: When depositing a nickel layer of approximately 25[illegible] on a chromium plating a cracking of the chrome is not observed even at temperatures considered high for nickel and chromium. In order to obtain a strong bond between the chromium and nickel layers a special technology has been developed to prepare the chromium-plated surface. The chromium-plated parts are degreased in an ordinary alkali bath. After being washed in hot and cold running water the component is pickled in 50% hydrochloric acid and held until a uniform gassing can be observed over the whole surface. Then the components are nickel-plated in one of the electrolytes the composition of which is shown in the following table:

Table

A) electrolyte composition; B) component concentration in the electrolyte; 1) nickel-chloride, gram/liter; 2) nickel-sulfate, gram/liter; 3) hydrochloric

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86160
S/193/62/[illegible]/[illegible]
A06./A[illegible]

Electrodeposition of Metals on Chromium

acid, milliliter/liter (specific gravity 1.19); 4) sulfuric acid, milliliter/liter (specific gravity 1.84); 5) current density, a/dm²; 6) temperature, centrigrades; 7) electrolysis time.

Состав электролита	Концентрация компонентов в электролитах		
	1-й	2-й	3-й
1) Хлористый никель, *г/л*	220—250	200—240	—
2) Сернокислый никель, *г/л*	—	—	300—400
3) Соляная кислота, *мл/л* (уд. вес 1,19)	250—350	180—220	—
4) Серная кислота, *мл/л* (уд. вес 1,84)	—	—	5—15
5) Плотность тока, *а/дм²*	30—40	4—5	5—10
6) Температура, град.	18—40	18—35	65—75
7) Время электролиза	20—40 *сек*	2—3 *мин*	—

After a preliminary nickel-plating in the electrolytes 1 and 2, final nickel-plating takes place in the No. 3 electrolyte at a current density in the range of 5-8 a/dm^2 for one hour to a thickness of [illegible] μ. In some cases the preliminary nickel plating can be omitted. The nickel deposits obtained by the method

Card 2/3

8616

Electrodeposition of Metals & Chromium

des cribed are characterized by their high [illegible] and [illegible]
between the inner (chromium) and [illegible]
[illegible] coatings even at high temperatures
[illegible]

art 3/3

MKHITARYAN, N., inzh.

Cementing abrasive wheels with mandrels for grinding small holes.
Prom.Arm. 6 no.10:48 O '63.

KRESHKOV, A.P.; BYKOVA, L.M.; MKHITARYAN, M.A.

Potentiometric method of titrating acids with quaternary ammonium bases. Dokl.AN SSSR 132 no.5:1090-1092 Je '60. (MIRA 13:6)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I. Mendeleyeva. Predstavleno akademikom I.V.Tananayevym.
(Potentiometric analysis) (Acids)
(Ammonium compounds)

136-11-8/17

AUTHORS: Mkhitar'yan, P.K. and Pazukhin, V.A.

TITLE: Roasting Under Reducing Conditions of a Mixture of Aluminum and Sodium Sulphates with the Production of a Water-soluble Aluminate (Vosstanovitel'nyy obzhig smesi sul'fatov alyiminiya i natriya s polucheniyem rastvorimogo v vode alyuminata)

PERIODICAL: Tsvetnyye Metally, 1957, No.11, pp. 41 - 45 (USSR).

ABSTRACT: The authors point out that in many parts of the USSR, the greatly increased aluminium production planned will involve the treatment of crude aluminium-sodium sulphate mixtures. They suggest that one effective treatment would be roasting under reducing conditions and describe laboratory experiments in which anhydrous mixtures of the pure sulphates were heated with charcoal under various conditions. The influence on the degree of decomposition of the sulphates of temperature (800 - 1 100 °C), of the pressure of air and steam and of CO and steam during sintering, of prolonged heating of the sinter in a stream of moist air, of the presence of sulphur dioxide, of sulphur dioxide and air with ferruginous sinters, of the duration of the reducing sintering, of excess of alkali sulphate, and of rate of flow of moist CO. The experiments were made at 1 000 °C, the extent of decomposition being measured by the extent of transfer into solution. Experiments were also carried out on

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Roasting Under Reducing Conditions of a Mixture of Aluminum and Sodium Sulphates with the Production of a Water-soluble Aluminate

the reducing roasting at 1 000 °C of aluminium sulphate, hydroxide and oxide with sodium sulphate and coal. The behaviour of sulphate in the reducing roasting of sulphate mixtures is discussed by the authors. The general conclusion is that 87% recovery can be attained by using moist reducing gas, the solutions obtained containing very little sulphate and practically no sulphide ions. The by-products of such a process could be sulphur and a combustible gas suitable for fuel and the process is said to be applicable even to alkali-earth sulphides for reducing the corresponding oxides. There are 7 tables and 17 references, of which 11 are Russian and 6 English.

Card 2/2

1. Aluminum-Production 2. Aluminum sodium sulfate-Compounds-Reduction

MKHITAR'YAN P. K.

137-58-5-9268

Translation from Referativnyy zhurnal. Metallurgiya. 1958 Nr 5. p 70 (USSR)

AUTHORS Mkhitar'yan, P.K., Pazukhin V.A.

TITLE Reduction Roasting of a Mixture of Aluminum Sulfates and Sodium With a Resulting Water-soluble Aluminate (O vosstanovitel'nom obzhige smesi sul fatov alyuminiya i natriya s poluchemiyem rastvorimogo v vode alyuminata)

PERIODICAL Sb. nauchn. tr. Mosk. in-t tsvetn met i zolota i VNITO tsvetn. metallurgii 1957 Nr 26 pp 132-142

ABSTRACT Reduction roasting experiments were performed on Al and Na sulfates in order to find means of increasing the amount of Al_2O_3 which enters the aluminate solution. The following factors were studied the effect of temperature, air, N_2, and water vapors in the course of roasting, the effect of the length of time during which reduced sinter is being heated in a stream of moist air, the role of CO and moisture in the course of sintering of sulfates with coal; the effect of SO_2 on sinters (ferrous sinters as well as sinters without Fe), the influence of the duration of reduction roasting on the recovery of Al_2O_3, the effect of excess alkaline sulfates, the manner in which Al_2O_3 extraction is affected by the

Card 1/2

Reduction Roasting of a (cont.)

rate at which moist CO is supplied. Experiments on reduction roasting of $Al_2(SO_4)_3$, $Al(OH)_3$, and Al_2O_3 mixed with Na_2SO_4 and coal were performed and the behavior of sulfate mixtures subjected to reduction roasting was examined. A practically complete conversion of alumina into aluminate can be effected by means of joint reduction roasting of Al and Na sulfates in a moist, reducing, gaseous, medium. In the process, up to 87% of NaOH pass into solution. Aluminate solutions contain very few SO_4^{--} ions and practically no S^- ions. Optimal conditions are established for the roasting of sulfate mixtures, including ferrous ones (temperature of 1000°C, excess of 10 mol. % Na_2SO_4, 40 minutes roasting in a stream of moist CO, followed by 30 minutes in a stream of moist N_2). The authors assume that the process of roasting in moist CO-containing gases may be employed in order to obtain pure oxides from such stable sulfides as those of alkali earths.

N. P.

MKHITARYAN, P. K.: [illegible] -- "[illegible] of the Dumanyan deposit in the Armenian SSR". Yerevan, [illegible]. (Min [illegible] USSR, Yerevan State Inst), [illegible] (KL, [illegible], 1959, [illegible])

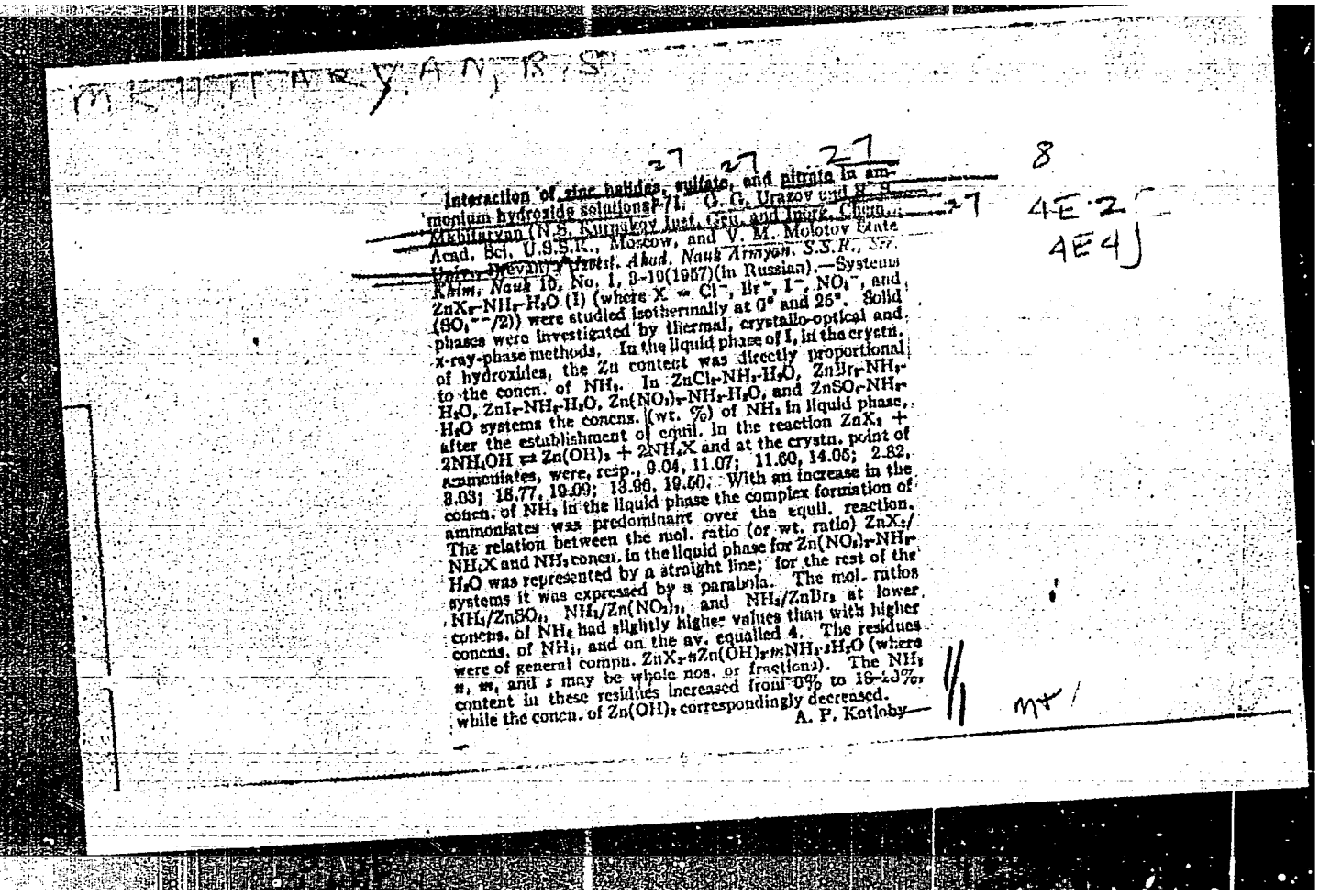
MKHITARYAN, R.S.

Distr: 4E4j/4E2c

Use of microhardness in the physicochemical analysis of salt systems. I. Study of the microhardness of solid solutions composed of the sulfates of potassium and ammonium. T. T. Kazandzhyan, V. U. Galstyan, and R. S. Mkhitaryan. *Nauch. Trudy Erevan. Univ.* 44, *Ser. Khim.*, No. 2, 95–102(1954); *Referat. Zhur., Fiz.* 1955, Abstr. No. 24037.—The soly. diagram of K_2SO_4 and $(NH_4)_2SO_4$ was obtained by the isothermal evapn. of satd. solns. The microhardness was measured and microhardness-compn. curves were set up. These curves have a max. at ~30% $(NH_4)_2SO_4$. On the basis of data on the microhardness of the dendrites from solid solns. $NiCl_2$-NH_4Cl and $CoCl_2$-NH_4Cl it was shown that this method can be used to study the phenomena of intercryst. liquation of solid solns. of salts and for the physicochem. analysis of such phases.

J. Rovtar Leach

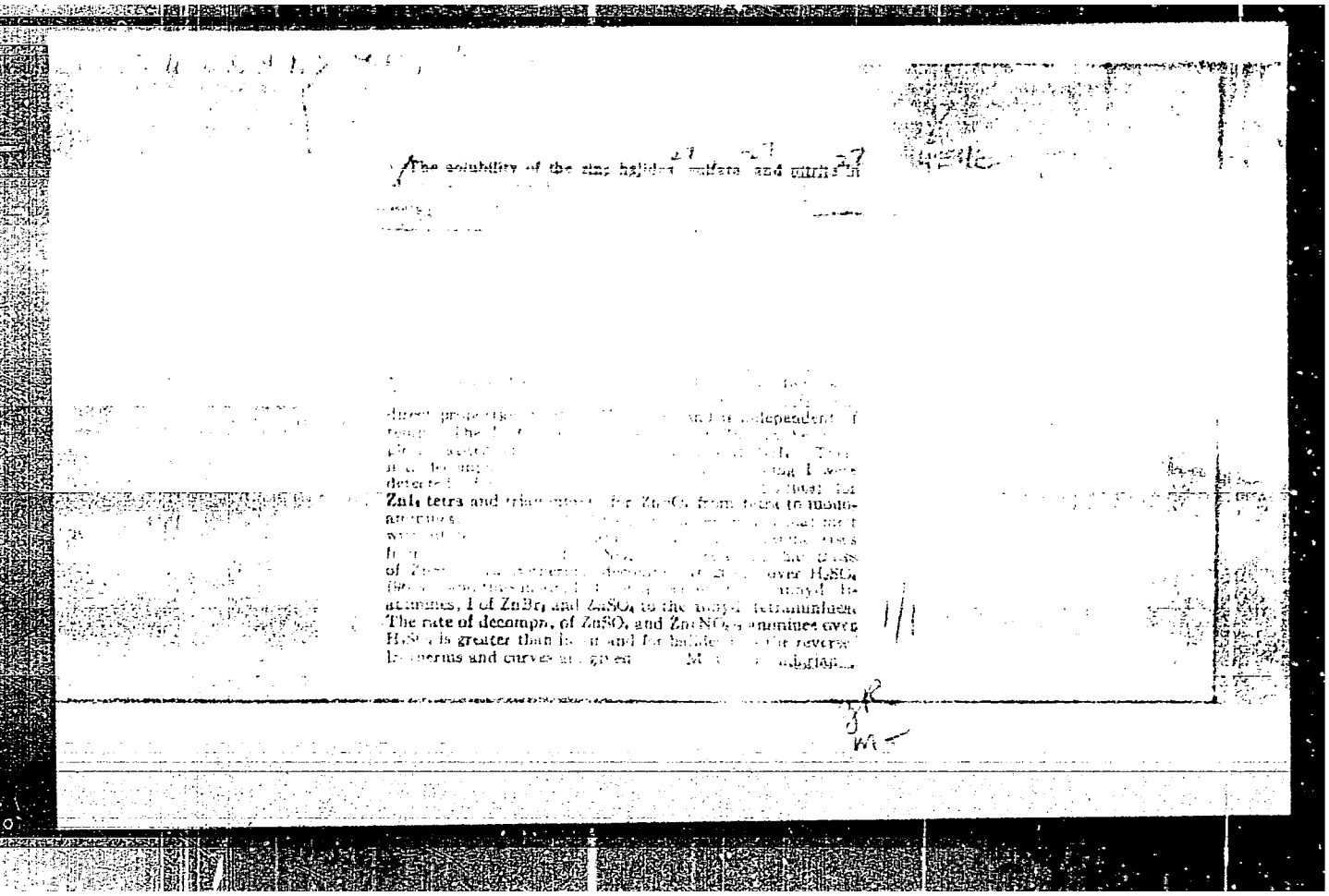
MKHITARYAN, R. S., Cand of Chem Sci -- (diss) "Study of the solubilty of nalide$_a$, sulfates, and nitrates of zinc in aqueous-ammonia solutions." Yerevan, 1957, 21 pp (Yerevan State Iniversity i, V. M. Molotov), 150 copies (KL, 30-57, 108)



SUMMARY

Interaction of zinc halides, sulfate, and nitrate in ammonium hydroxide solutions. V. G. G. Urazov and M. S. Mikhitaryan (N.S. Kurnakov Inst. Gen. and Inorg. Chem., Acad. Sci. U.S.S.R., Moscow, and V. M. Molotov State Univ., Yerevan). *Izvest. Akad. Nauk Armyan. S.S.R., Ser. Khim. Nauk* 10, No. 1, 3-10(1957)(in Russian).—Systems ZnX_2-NH_4-H_2O (I) (where X = Cl^-, Br^-, I^-, NO_3^-, and $(SO_4^{--}/2)$) were studied isothermally at 0° and 25°. Solid phases were investigated by thermal, crystallo-optical and x-ray-phase methods. In the liquid phase of I, in the crystn. of hydroxides, the Zn content was directly proportional to the concn. of NH_3. In $ZnCl_2$-NH_3-H_2O, $ZnBr_2$-NH_3-H_2O, ZnI_2-NH_3-H_2O, $Zn(NO_3)_2$-NH_3-H_2O, and $ZnSO_4$-NH_3-H_2O systems the concns. (wt. %) of NH_3 in liquid phase, after the establishment of equil. in the reaction ZnX_2 + $2NH_4OH \rightleftarrows Zn(OH)_2 + 2NH_4X$ and at the crystn. point of ammoniates, were, resp., 9.04, 11.07; 11.60, 14.05; 2.82, 3.03; 18.77, 19.09; 13.96, 19.60. With an increase in the concn. of NH_3 in the liquid phase the complex formation of ammoniates was predominant over the equil. reaction. The relation between the mol. ratio (or wt. ratio) ZnX_2/NH_4X and NH_3 concn. in the liquid phase for $Zn(NO_3)_2$-NH_3-H_2O was represented by a straight line; for the rest of the systems it was expressed by a parabola. The mol. ratios $NH_3/ZnSO_4$, $NH_3/Zn(NO_3)_2$, and $NH_3/ZnBr_2$ at lower concns. of NH_3 had slightly higher values than with higher concns. of NH_3, and on the av. equalled 4. The residues were of general compn. $ZnX_2 \cdot nZn(OH)_2 \cdot mNH_3 \cdot sH_2O$ (where n, m, and s may be whole nos. or fractions). The NH_3 content in these residues increased from 0% to 18-20%, while the concn. of $Zn(OH)_2$ correspondingly decreased.

A. P. Kotloby



The solubility of the zinc halides, sulfate and nitrate in

ZnI$_4$ tetra and

of Zn over H_2SO_4

ammines, I of $ZnBr_2$ and $ZnSO_4$ to the

The rate of decompn. of $ZnSO_4$ and $Zn(NO_3)_2$ ammines over H_2SO_4 is greater than

20-114 3-31/60

AUTHORS: Urazov, G. G., Member of the AN USSR, Kirakosyan, A. K., Mkhitaryan, R. S.

TITLE: An Investigation of the Interaction Between Ammonia and Zinc Chloride in Water Solutions (Izucheniye vzaimodeystviya ezhdu ammiakom i khloristym tsinkom v vodnoy srede

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 114, Nr 3, [illegible] (USSR)

ABSTRACT: An investigation of the interaction between ammonia and zinc chloride in water solutions during an entire phase of the concentration of the solution of the latter at different temperatures has never been carried out. Anhydrous hexammine zinc chloride has already been obtained earlier by blowing gaseous ammonia through anhydrous zinc chloride. The expansion capacity of the dissociation of hexammine zinc chloride and its decomposition products was determined as well. Monoaquo--pentammine zinc chloride was produced by cooling a saturated ammonia solution of zinc chloride. Tetrammine zinc chloride with different water content was obtained by cooling the ammonia solution of zinc chloride. The decomposition temperature was determined as well. Diammine zinc chloride, either

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20-114- 3-31/

An Investigation of the Interaction Between Ammonia and Zinc Chloride in Water Solutions

with a content of crystallized water or anhydrous, was produced by different methods: dissolution of zinc oxide in chloral ammonia solutions, blowing of ammonia gas through zinc chloride solution, thermal decomposition of higher ammonia compounds of zinc chloride, etc. The dissociation temperatures and the beginning of decomposition were determined. Monoammine zinc chloride is the final product resulting from thermal decomposition of higher ammonia compounds and can be distilled without disintegrating. There then follows an experimental part with description of methods of production. Discussion of results: The crystallization of basic salts containing ammonia is completed with a content of 9.04 % weight of ammonia and 18.92 % weight of zinc chloride in a fluid phase of equal weight. The zinc chloride content rises with increasing concentration of ammonia and is directly proportional to the content of the latter in the fluid phase. The crystallization of the basic ammonia salts of zinc chloride is the result of a partial rearrangement-reaction process between ammonia hydroxide and zinc chloride. With an increasing concentration of ammonia in the fluid phase the exchange between the two substances decreases according to

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An Investigation of the Interaction Between Ammonia and Zinc Chloride in Water Solutions

parabolic dependence. The solid phase of the crystallization of basic salts of zinc chloride are structures of varying composition. They all, without exception, contain ammonia. Their composition is $ZnCl_2 \cdot nZn(OH)_2 \cdot sNH_3 \cdot xH_2O$. The coefficients n, s and x are of different values, integer figures as well as fractions. The content of ammonia on the solid phase depends on its concentration in the fluid phase. The more of it contained in the fluid phase, the greater is its portion in the solid phase. The content of zinc hydroxide decreases accordingly. In spite of different chemical composition, these salts possess the same properties (thermal, crystalloptical, etc.) and similar Debaille diagrams. Agreement of some properties as well as of the crystal lattice with their isomorphous group substitution, is probable as well of OH and NH_3, possibly also of H_2O and NH_3. Furthermore, the crystallization and solubility as well as the temperature curve (fusion and destillation) of the substances treated is described. There are 4 figures and 11 references, 1 of which is Soviet.

Card 3/4

AUTHORS: Urazov, G. G. (Deceased), Kirakosyan, A. [illegible], [illegible], R. S.

TITLE: Investigations Concerning the Interaction Between Ammonia and Zinc Salts in an Aqueous Medium (Izucheniye vzaimodeystviya mezhdu ammiakom i solyami tsinka v vodnoy srede) I. The Solubility of Zinc Chloride in Aqueous Ammonia Solutions (I. Rastvorimost' khloristogo tsinka v vodno-ammiachnykh rastvorakh)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol.3, Nr 3, pp.464-474 (USSR)

ABSTRACT: The solubility of zinc chloride in aqueous ammonia solutions of all concentrations of ammonia in the liquid phase was investigated. The solid phases of the system $ZnCl_2$-NH_3-H_2O at an ammonia-content of 9,04 % at 25°C crystallize to basic salts of different composition. The composition of these basic salts can be expressed by the following general formula: $ZnCl_2 . n\ Zn(OH)_2 . s\ NH_3 + x\ H_2O$, in which the coefficients n, s and x denote different values in integer or fractional

Card 1/3

Investigations Concerning the Interaction Between Ammonia and Zinc Salts in an Aqueous Medium. I. The Solubility of Zinc Chloride in Aqueous Ammonia Solutions

numbers. The basic salts were investigated thermally, crystallographically and by X-ray analysis. The crystallization of the ammoniacal compounds in the system $ZnCl_2$-NH_3-H_2O was performed at temperatures of 0^o and 25^oC. In the system $ZnCl_2$-NH_4-H_2O at 0^oC two compounds of the following composition crystallize: $ZnCl_2$. 3,2 NH_3 . 0,5 H_2O and $ZnCl_2$. 3,75 NH_3 . 0,75 H_2O, and at 25^oC: $ZnCl_2$. 2,2 NH_3 . 0,5 H_2O and $ZnCl_2$. 5,35 NH_3 . 0,33 H_2O. The crystallization of $ZnCl_2$. 2,2 NH_3 . 0,5 H_2O at 0^oC and 25^oC begins at 10,96 % and ends at 24,46 % of ammonia in the aqueous phase. The crystallization of $ZnCl_2$. 0,7 NH_3 . 0,75 H_2O at 0^oC and $ZnCl_2$. 5,35 NH_3 . 0,33 H_2O at 25^oC begins at 24,64 % ammonium in the aqueous phase. The crystallization proceeds irregularly and is dependent on the addition of ammonium in the aqueous phase. At a higher concentration the crystallization slows down. The thermographic analysis showed that in basic salts two endothermic effects occur, at 110-125^{o}C dehydration occurs and at 220-225^{o}C the hydroxide form is converted into oxide. The thermographic analyses of $ZnCl_2$.2,2 NH_3.0,5 H_2O showed three endothermic effects: at 65^{o}C and at 125^{o}C -

Investigations Concerning the Interaction Between Ammonia and Zinc Salts in an Aqueous Medium. I. The Solubility of Zinc Chloride in Aqueous Ammonia Solutions

lead to diamine, and the third effect at 230-245°C is the melting temperature of the anhydrous diamine-zinc-chloride. The thermographic analyses of $ZnCl_2 \cdot 5{,}75\ NH_3 \cdot 0{,}75\ H_2O$ showed two endothermic effects; in the first one, at 70 - 100°C, water and ammonia volatilize under formation of diamine-zinc-chloride, in the second one, at 230 - 245°C, diamine-zinc-chloride melts. Those results show that the ammoniacal compounds of zinc-chloride which contain more than 2 mol ammonia are unstable compounds and very readily give off water and ammonia, even at room temperature. There are 9 figures, 3 tables, and 17 references, 1 of which is Slavic.

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

SUBMITTED: January 28, 1958

AVAILABLE: Library of Congress

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Mkhitaryan, R. S.

78-2-31/43

AUTHORS: Urazov, G. G. (Deceased), Kirakosyan, A. K., Mkhitaryan, R. S.

TITLE: Investigations Concerning the Interaction Between Ammonia and Zinc Salts in an Aqueous Medium (Izucheniye vzaimodeystviya mezhdu ammiakom i solyami tsinka v vodnoy srede)
II. The Solubility of Zinc Bromide in Aqueous Ammoniacal Solutions (II. Rastvorimost' bromistogo tsinka v vodnoammiachnykh rastvorakh)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 2, pp. 475-483 (USSR)

ABSTRACT: The solubility of zinc bromide in aqueous ammonia solutions was determined. It is shown that up to 11,6 % ammonia in the aqueous phase ammoniacal basic salts of zinc bromide of different composition crystallize. The interaction of ammonia and zinc bromide in an aqueous medium takes place in two phases: at a low concentration of ammonia, ammoniacal basic salts crystallize and at a higher concentration ammoniacates crystallize. The basic salts can be expressed by the following general formula:

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II. The Solubility of Zinc Bromide in Aqueous Ammoniacal Solutions

$ZnBr_2 \cdot n\ Zn(OH)_2 \cdot s\ NH_3 \cdot x\ H_2O$

where the coefficients n, s and x may have different values (n varies between 0,9 - 3,2, s between 1,5 - 2,0). The thermographic analyses of the basic salts showed that ammonia escapes at 112, 135 and 240-250°C. A complete escape of ammonia by thermal analysis does not occur. The residue after treatment at 250°C has the following composition:

$ZnBr_2 \cdot 1{,}6\ ZnO \cdot NH_3$.

The X-ray analyses of the basic salts indicate a crystalline structure. At 0°C $ZnBr_2 \cdot 4NH_3$ and $ZnBr_2 \cdot 5{,}25\ NH_3 \cdot 0{,}5\ H_2O$, crystallize from the system $ZnBr_2$-NH_3-H_2O, and at 25°C - $ZnBr_2 \cdot 5{,}5\ NH_3$. All ammoniacates are unstable compounds and decompose in air at room temperature. From the thermographic analysis of $ZnBr_2 \cdot 4NH_3$ two endothermic effects are to be

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Investigations Concerning the Interaction Between Ammonia and Zinc Salts in an Aqueous Medium. II. The Solubility of Zinc Bromide in Aqueous Ammoniacal Solutions 78-2-31/43

seen: 1. at 145-155° C- corresponds to the escape of 1 mol. ammonium, the residue has a composition of $ZnBr_2 \cdot 3NH_3$; 2. at 240-250°C - again 1 mol. ammonium escapes and $ZnBr_2 \cdot 2NH_3$ remains as residue. At a temperature higher than 250°C the decomposition of diamino-zinc-bromide occurs. The thermographic curves of $ZnBr_2 \cdot 25NH_3 \cdot 0,5H_2O$ and $ZnBr_2 \cdot 5,5NH_3$ are equal. These curves have four endothermic effects. The first one occurs at 47-50°C under the escape of ammonium and the formation of $ZnBr_2 \cdot 5NH_3$, the second effect at 80°C under the giving off of 1,5% ammonium and the formation of $ZnBr_2 \cdot 4NH_3$. The two other effects are in agreement with the thermographic decomposition of tetramine-zinc-bromide. On heating of the ammoniacates, even at a temperature higher than 500°C, no complete escape of ammonium is attained.

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Investigations Concerning the Interaction Between Ammonia and Zinc Salts in an Aqueous Medium. II. The Solubility of Zinc Bromide in Aqueous Ammoniacal Solutions 78-2-31/43

There are 8 figures, 4 tables, and 6 references, 1 of which is Slavic.

SUBMITTED: February 7, 1957

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Card 4/4

AUTHORS: Urazov, G. G.,(Deceased),Kirakosyan, A. K., 78-2-32/43
Mkhitaryan, R. S.

TITLE: Investigations on the Interaction between Zinc Salts and Ammonia in an Aqueous Medium (Izucheniye vzaimodeystviya mezhdu solyami tsinka i ammiakom v vodnoy srede)
III. The Solubility of Zinc Iodide in Aqueous Ammoniacal Solutions (III. Rastvorimost' yodistogo tsinka v vodno-ammiachnykh rastvorakh)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1956, Vol. 3, Nr 2, pp.464-470 (USSR)

ABSTRACT: The solubility of zinc iodide in aqueous ammoniacal solutions at 0° and 25°C was determined. The crystallization of basic salts in the system ZnJ_2-NH_3-H_2O terminates at 2,82% NH_3.

The ammoniacal basic salts of zinc iodide have the following general formula: $ZnJ_2 . nZn(OH)_2 . s\ NH_3 . x\ H_2O$, where the coefficients n, s and x may have different values. At 0° in the system ZnJ_2-NH_3-H_2O the following ammoniacates

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Investigations on the Interaction Between Zinc Salts and Ammonia in an Aqueous Medium
III. The Solubility of Zinc Iodide in Aqueous Ammoniacal Solutions 78-2-32/43

crystallize: $ZnJ_2 \cdot 4\ NH_3 \cdot H_2O$ and $ZnJ_2 \cdot 3\ NH_3 \cdot H_2O$, and at 25°C: $ZnJ_2 \cdot 4\ NH_3 \cdot H_2O$ and $ZnJ_2 \cdot 5\ NH_3 \cdot 0{,}5\ H_2O$.

In the thermal analysis of the ammoniacal basic salts dehydration occurs at 100° and 135°C and at 205°C a conversion of zinc hydroxide to zinc oxide and a partial escape of NH_3 is to be observed. In the thermographic analysis of the ammoniacates $ZnJ_2 \cdot 3\ NH_3 \cdot H_2O$ three endothermic effects occur: 1) at 35 - 50°C with giving off water; 2) at 100 - 105°C with giving off 1 mol. ammonium, $ZnJ_2 \cdot 2NH_3 \cdot H_2O$ remaining as a residue; 3) at 195 - 215°C under the formation of annydrous triamine-zinc-iodide $ZnJ_2 \cdot 3NH_3$.

In the decomposition of $ZnJ_2 \cdot 4\ NH_3 \cdot H_2O$ two endothermic effects occur: 1) at 100 - 110°C with giving off coarse moisture; 2) at 195 - 215°C with giving off crystal water and 1 mol. ammonium and the formation of $ZnJ_2 \cdot 3NH_3$. On further heating the triamine decomposes.

The ammoniacates of zinc iodide are well crystallizable bodies and are difficult to dissolve in concentrated ammoniacal solutions. There are 6 figures, 3 tables, and

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Investigations on th. Interaction Between Zinc Salts and Ammonia in an Aqueous Mediu. III. The Solubility of Zinc Iodide in Aqueous Ammoniacal Solutions 78-2-32/43

7 references, 1 of which is Slavic.

SUBMITTED: February 7, 1957

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Card 3/3

AUTHORS: Urazov, G. G.,(Deceased), Kirakosyan, A. K., Mkhitaryan, R. S. 78-2-33/43

TITLE: Investigations Concerning the Interaction Between Zinc Salts and Ammonia in an Aqueous Medium (Izucheniye vzaimodeystviya mezhdu solyami tsinka i ammiakom v vodnoy srede) IV. The Solubility of Zinc Nitrate in Aqueous Ammoniacal Solutions (IV. Rastvorimost' azotnokislogo tsinka v vodnoammiachnykh rastvorakh)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 2, pp. 491-497 (USSR)

ABSTRACT: The authors investigated the reaction between zinc nitrate and NH_3 in an aqueous medium by isothermal solubility at temperatures of 0° and 25°C. The formation of the basic zinc-nitrate salt at 25°C is terminated at a concentration of 18,77 % NH_3, 50,14 $Zn(NO_3)_2$ and $NH_4(NO_3)$. The general formula for the basic zinc-nitrate salt is as follows: $Zn(NO_3)_2 \cdot nZn(OH)_2 \cdot sNH_3 \cdot x\ H_2O$, where n, s and x have different values. The ammoniacal basic salts of zinc

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Investigations Concernin, the Interaction Between Zinc Salts and Ammonia in an Aqueous Medium
IV. The Solubility of Zinc Nitrate in Aqueous Ammoniacal Solutions

nitrate are highly disperse and by X-ray analysis the same crystal-structure was found for all compounds. In the system $Zn(NO_3)_2$-NH_3-H_2O at 0°C $Zn(NO_3)_2 \cdot 4\ NH_3 \cdot 0,5\ H_2O$ crystallizes and at 25°C $Zn(NO_3)_2 \cdot 4\ NH_3 \cdot 0,25\ H_2O$. All ammoniacates are resistant to atmospheric influence. The thermographic analyses of tetramine-zinc-nitrate with 0,5 and 0,25 mol H_2O are equal. In the thermal decomposition three endothermic effects and one exothermic effect occur. At 28 - 30°C the compounds lose the coarse moisture, at 130°C the crystal water completely escapes and at 200 - 210°C the melting of anhydrous tetramine-zinc-nitrate occurs. At 205-375°C with an exothermal reaction a spontaneous decomposition of the ammoniacates under formation of ZnO takes place. There are 8 figures, 3 tables, and 7 references, 3 of which are Slavic.

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Card 2/2

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MKHITARYAN, Suren Artemovich; ROSTOVSKIY, S.N., red.; KUHUZOV, V.I., red.; SHADRINA, N.D., tekhn.red.

[Labor and trade-union movement in Vietnam] Rabochee i profsoiuznoe dvizhenie vo V'etname. Pod red. S.N.Rostovskogo. Moskva, Izd-vo VTsSPS Profizdat, 1960. 158 p. (MIRA 13:6)
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Calculating peak output and capacity of reservoirs used for daily regulation of derivation hydroelectric power stations. Izv. AN Arm.SSR. Ser.tekhn.nauk 11 no.5:23-32 '58. (MIRA 11:11)

1. Vodno-energeticheskiy institut AN ArmSSR.
(Hydroelectric power stations)

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1. Institut energetiki i gidravliki AN Armyanskoy SSR.
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[Results of the combined studies of the Sevan problem.]Rezul'taty kompleksnykh issledovanii po Sevanskoi probleme. Erevan, Izd-vo Akad. nauk Armianskoi SSR. Vol.3.[Water resources and power engineering]Vodnoe khoziaistvo i energetika. 1962. 330 p. (MIRA 15:11)

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(Sevan Lake region--Water resources development)
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MASUMYAN, V.Ya.; MKHITARYAN, Sh.A.

Fluids for hydraulic fracturing of oil sands. Azerb.neft.khoz. 35 no.6:18-20 Je '56. (MLRA 9:10)

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Effect of active additives on the surface-active properties of azolat-B. Azerb.neft.khoz. 41 no.5:35-38 My '62.
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YERMAKOV, V.S.; SPIRIN, S.A.; CHIZHOV, D.G.; UGORETS, I.I.; LAVRENENKO, K.D.; SMIRNOV, G.V.; CHUPRAKOV, N.M.; MKHITARYAN, S.G.; ASMOLOV, G.L.; KOTILEVSKIY, A.M.; MOLOKANOV, S.I.; SYROMYATNIKOV, I.A.; FAYERMAN, S.Ts.; SOKOLOV, B.M.; KOMISSAROV, Yu.P.; MALYUTIN, I.P.; POBEGAYLO, K.M.; MORYAKOV, A.V.; MELAMED, M.F.; KUMSIASHVILI, P.G.; GAMKAVAYA, L.A.; LIVSHITS, E.M.; NEKRASOV, A.M.

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(Safro, Moisei Vul'fovich, ?-1953)

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(Komissarov, IUrii Prokhorovich, 1910-1954) (MLRA 7:6)

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MKHITARYAN, Suren Grigor'yevich; VORONIN, K.P., tekhnicheskiy redaktor

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ACCESSION NR: AP5017615 UR/2582/65/000/014/0267/0287

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AUTHOR: Grigoryan, V. M. (Yerevan); Gyul'misaryan, S. A. (Yerevan); Dzhanpoladyan, T. K. (Yerevan); Yedigaryan, A. P. (Yerevan); Mailyan, A. M. (Yerevan); Mkhitaryan, S. G. (Yerevan); Papyan, B. K. (Yerevan); Pogosova, S. S. (Yerevan); Fel'dman, Ye. D. (Yerevan)

TITLE: An algorithm for Armenian-Russian machine translation. III (Grammatical rules and the order of their application)

16

SOURCE: Problemy kibernetiki, no. 14, 1965, 267-287

TOPIC TAGS: translation algorithm, machine translation, syntactic analysis, syntactic synthesis

ABSTRACT: This is the third part of a comprehensive description of an algorithm for Armenian-Russian machine translation (for the first two parts see Problemy kibernetiki, no. 14, 1965, 221-244 and 245-266). The translation process follows four separate steps: morphological analysis, syntactic analysis, syntactic synthesis, and morphological synthesis. In this part, the authors present a complete description of all the grammatical rules used for the establishment of the syntactic analysis and the syntactic synthesis, and discuss the order in which

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ACCESSION NR: AP5017615

these rules must be applied. "The authors thank M. I. Belotskiy, R. A. Rasmadzhyan, E. P. Gabriyelyan, T. V. Karayetayan, and particularly T. M. Yer-Hikselyan for their substantial help during the work." Orig. art. has: 4 formulas and 2 tables.

ASSOCIATION: None

SUBMITTED: 23Mar64 ENCL: 00 SUB CODE: DP

NO REF SOV: 002 OTHER: 001

Card 2/2

MKHITARYAN, S.L.; BEYLERYAN, N.M.; [illegible]

Study of per[illegible]-amine systems as polymerization initiators.
Izv. AN Arm.SSR. Khim. nauki [illegible] no.6:537-[illegible] '63 (MIRA [illegible])

[illegible] Yerevanskiy gosudarstvennyy universitet, problemnaya laboratoriya [illegible].

SULEYMANOVA, F.G.; KHIGER, V.F.; MKHITARYAN, Sh.A.; ZENEVICH, M.I.

Thermal stability of oils as an indication of their industrial properties. Sbor. nauch.-tekh. inform. Azerb. inst. nauch.-tekh. inform. Ser. Nefteper. i khim. prom. no.2:38-42 '62.
(MIRA 18:9)