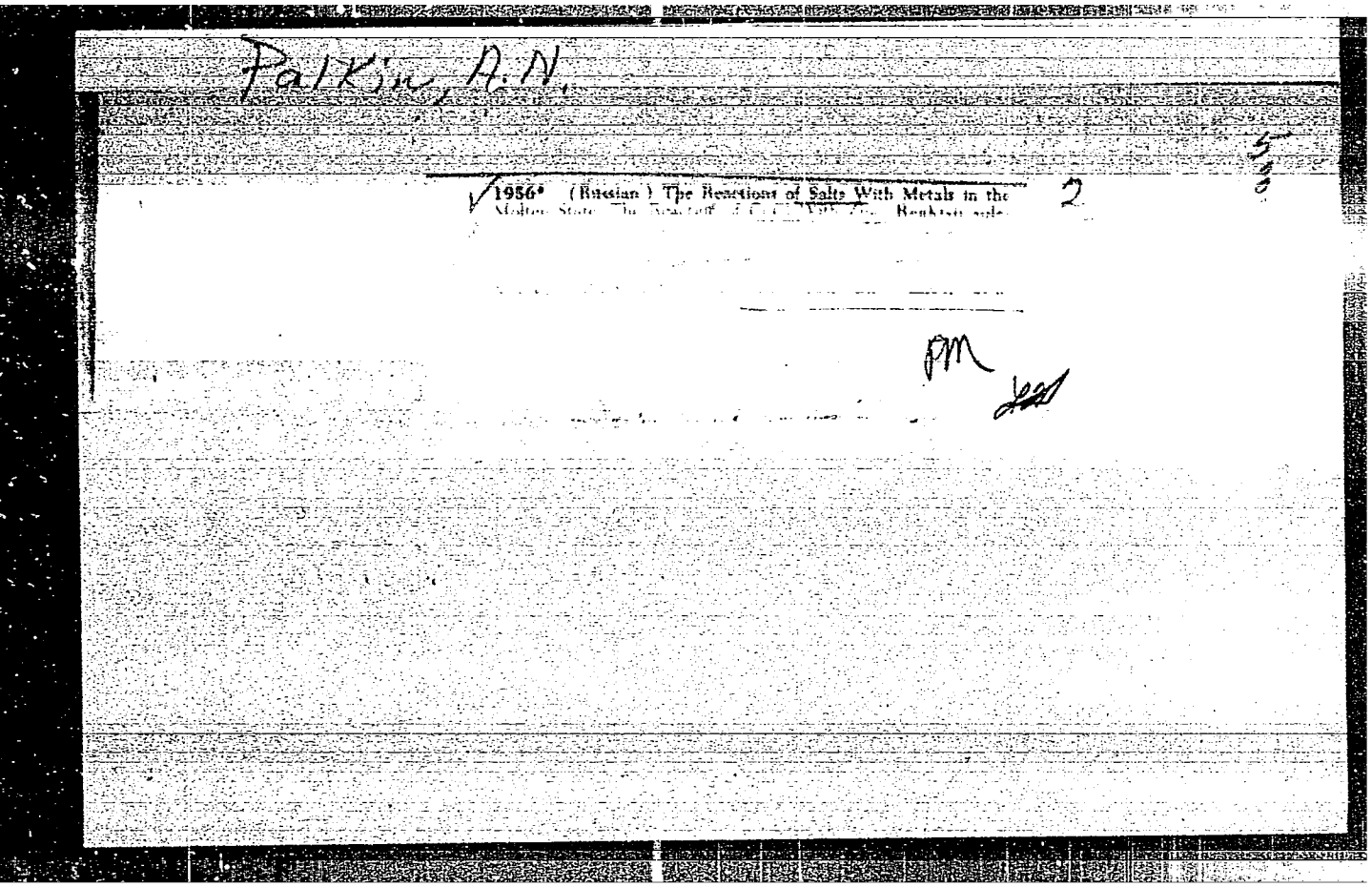
PAIKIN, A.K., inzh.-ekonomist

Insuring the safety of the cargo is a most important problem for river transportation employees. Rech.transp. 18 no.7:17-19 Jl '59. (MIRA 12:11)

(Inland water transportation) (Cargo handling)

PALKIN, Anatoliy Kuz'mich; MULUKAYEV, R.S., red.; D'YAKOVSKAYA, G.V., tekhn.red.

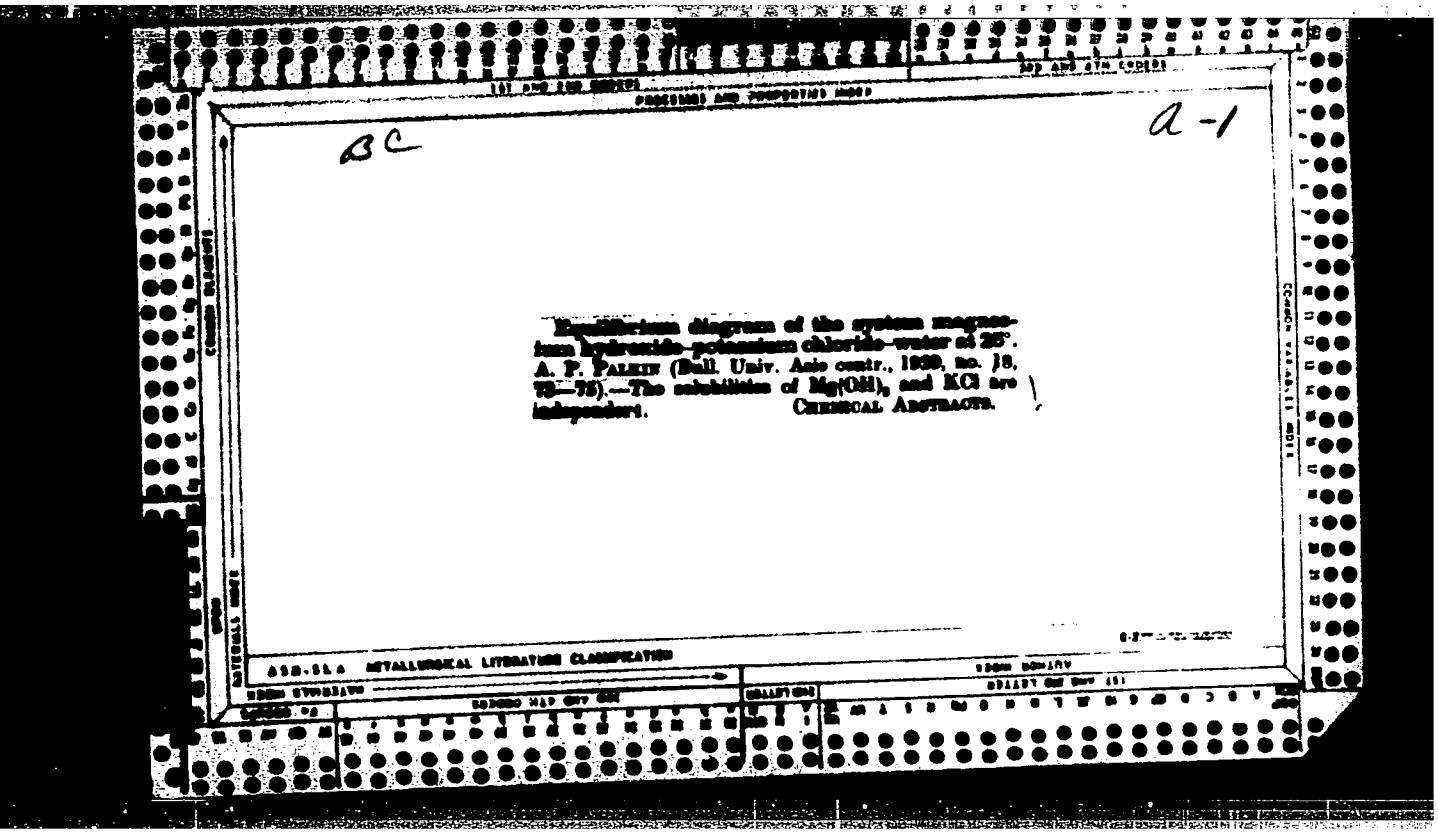
[River transportation in the Russian Federation during the seven-year period] Rechnoi transport Rossiiskoi Federatsii v semiletii. Moskva, Ob-vo po rasprostraneniiu polit.i nauchn. znanii RSFSR, 1959. 36 p. (MIRA 13:4)
(Inland water transportation)



Parkin, A. N.

1956* (Russian) The Reactions of Salts With Metals in the

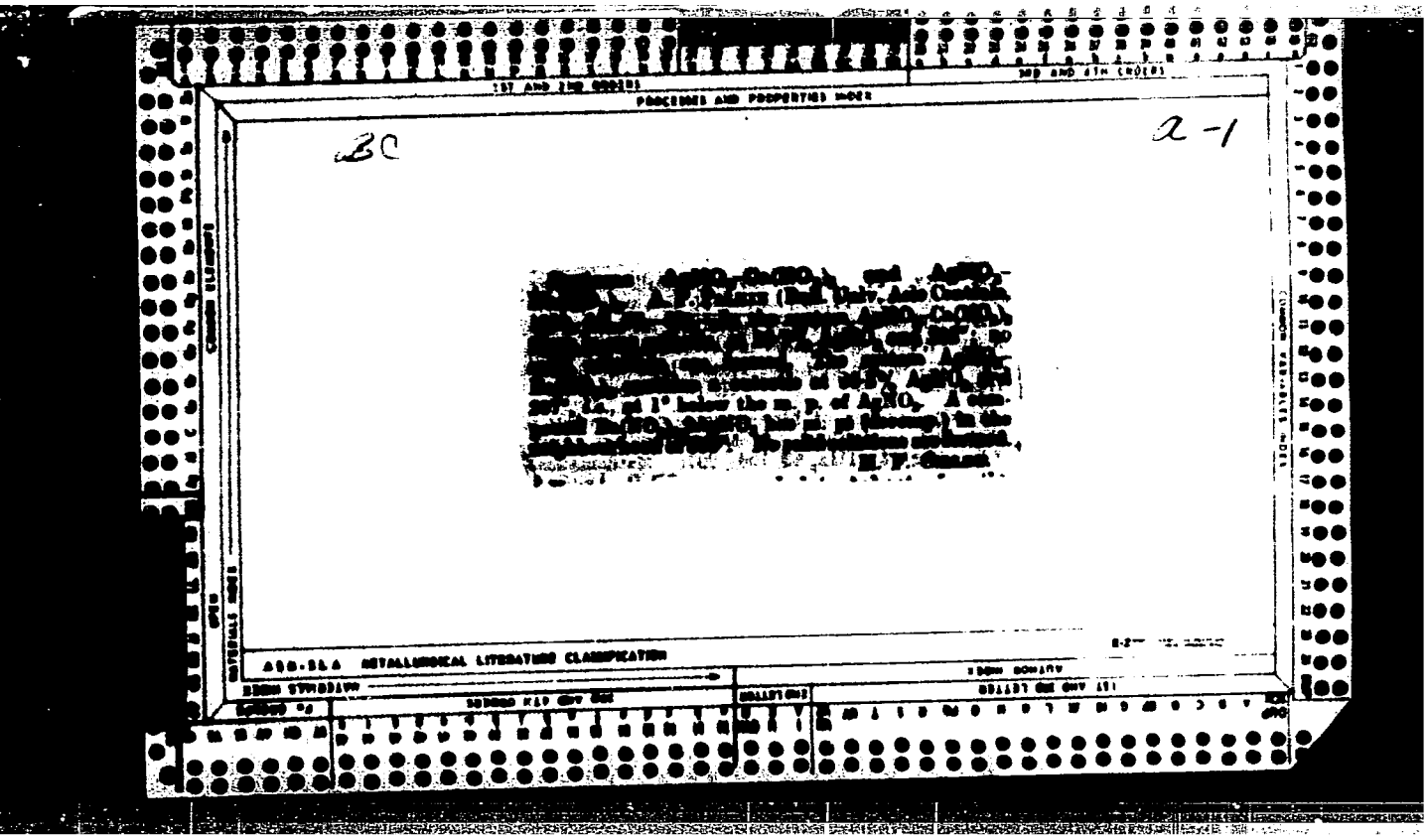
2

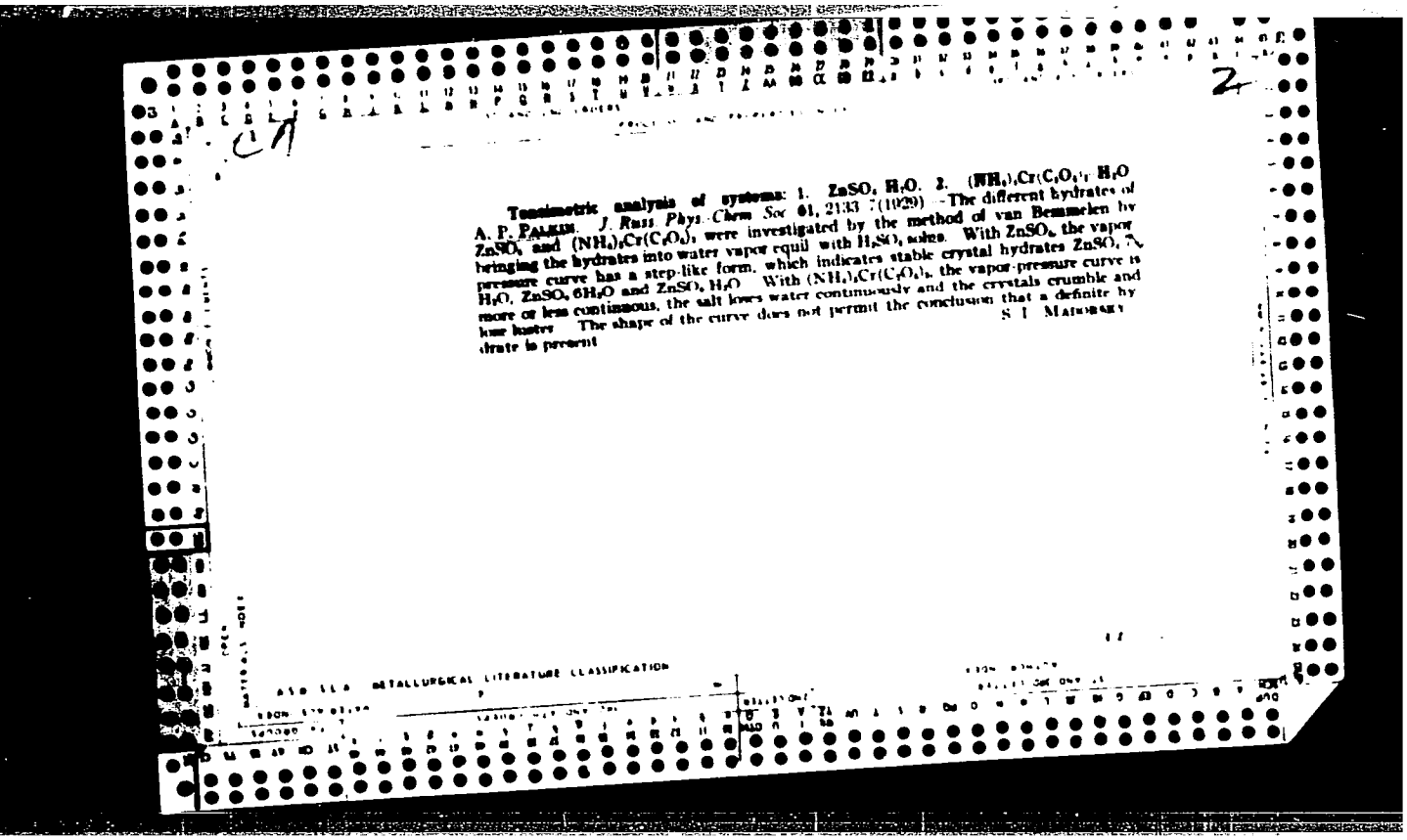


ac

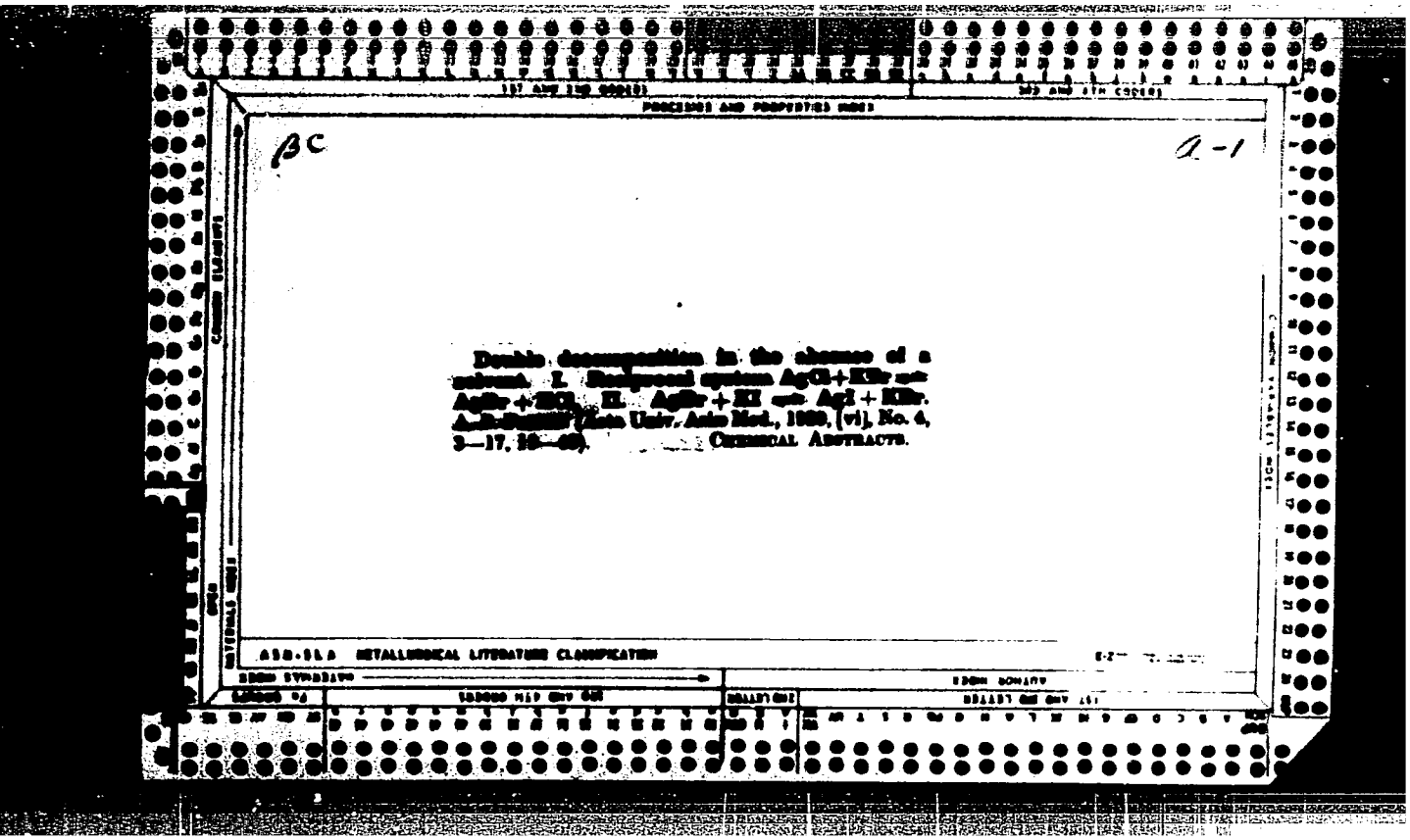
a-1

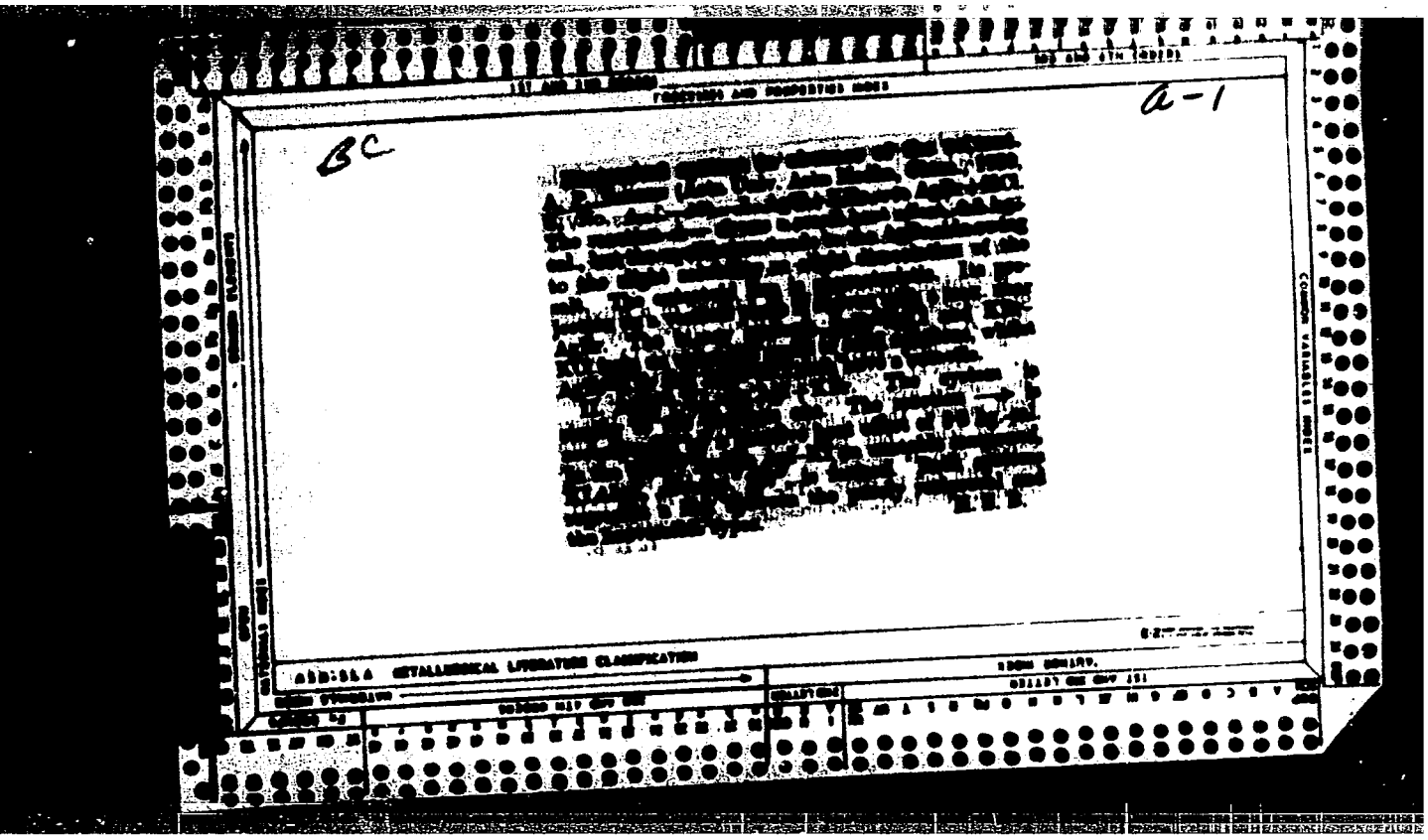
Equilibrium diagram of the system magnesium hydroxide–potassium chloride–water at 25°. A. P. Palkin (Bull. Univ. Asie centr., 1930, no. 18, 73—75).—The solubilities of $Mg(OH)_2$ and KCl are independent. Chemical Abstracts.



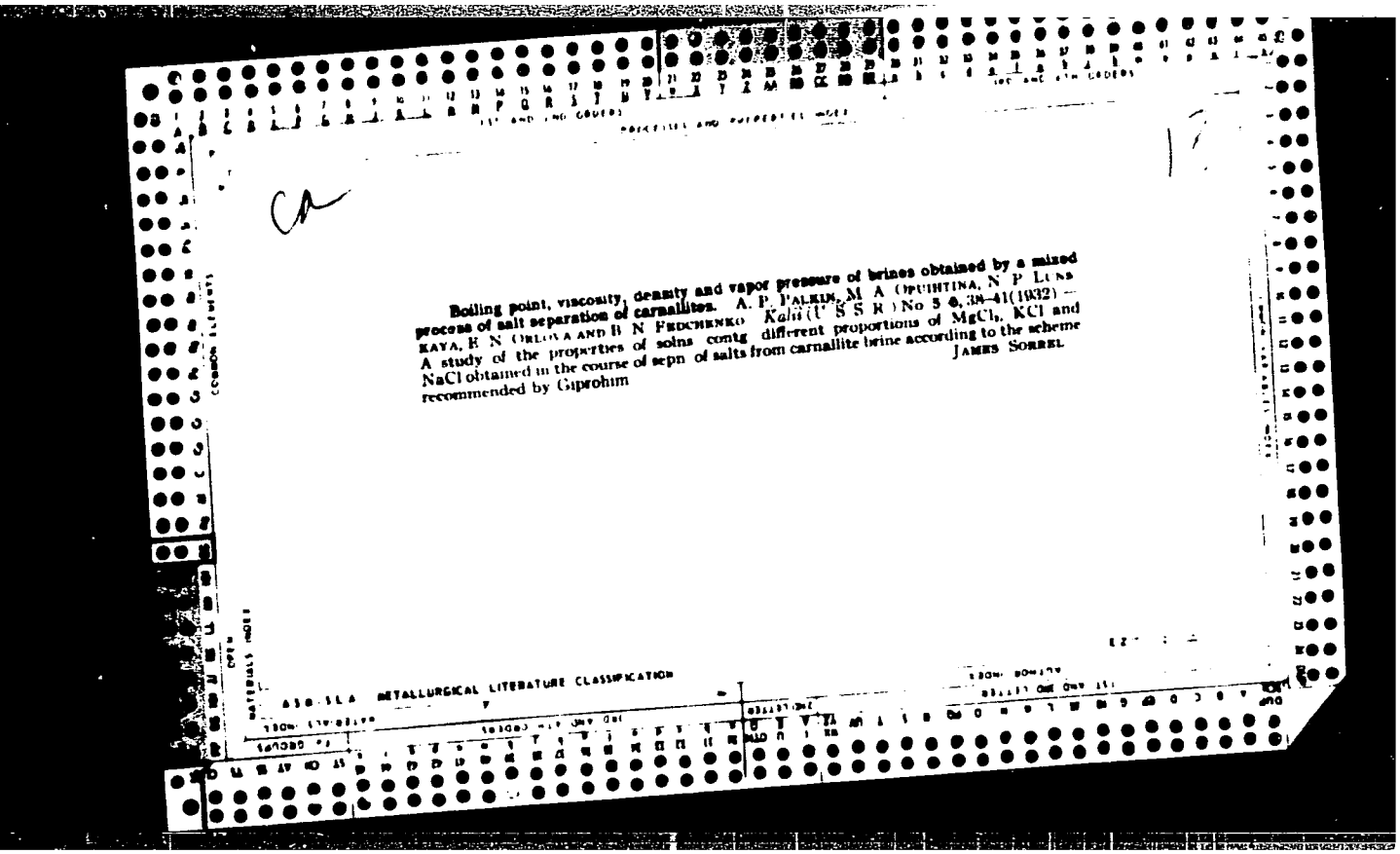


Tensimetric analysis of systems: 1. $ZnSO_4$, H_2O. 2. $(NH_4)_3Cr(C_2O_4)_3$, H_2O. A. P. Palkin. *J. Russ. Phys.-Chem. Soc.* 61, 2133-7 (1929).—The different hydrates of $ZnSO_4$ and $(NH_4)_3Cr(C_2O_4)_3$ were investigated by the method of van Bemmelen by bringing the hydrates into water vapor equil. with H_2SO_4 soln. With $ZnSO_4$ the vapor-pressure curve has a step-like form, which indicates stable crystal hydrates $ZnSO_4$, $7H_2O$, $ZnSO_4 \cdot 6H_2O$ and $ZnSO_4 \cdot H_2O$. With $(NH_4)_3Cr(C_2O_4)_3$ the vapor-pressure curve is more or less continuous, the salt loses water continuously and the crystals crumble and lose luster. The shape of the curve does not permit the conclusion that a definite hydrate is present. S. I. Malmgren





Double decomposition in the absence of solvent. XI. Singular mutual irreversible system. $TlNO_3 + KI \rightarrow KNO_3 + TlI$. A. P. Palkin. *J. Russ. Phys. Chem.* [illegible] **62**, [illegible] The binary system $TlNO_3$–KI was studied. The reaction between these two components is irreversible because of the insoly. of TlI. The temp. of eutectic is [illegible] and the compn. [illegible] KNO_3, [illegible] KI and [illegible] $TlNO_3$. The phase diagrams are given for the following mixts.: $TlNO_3$–KNO_3–TlI; $TlNO_3$–KI–KNO_3; KI–TlI–KNO_3; TlI–$TlNO_3$–KI [illegible]; $TlNO_3$ + [illegible] KNO_3 → KI [illegible]; $TlNO_3$ + [illegible] TlI → KI [illegible]; TlI + [illegible] KI → $TlNO_3$ [illegible]; KNO_3 + [illegible] KI → $TlNO_3$. The photographs of three dimension models for the complete system are given. [illegible]



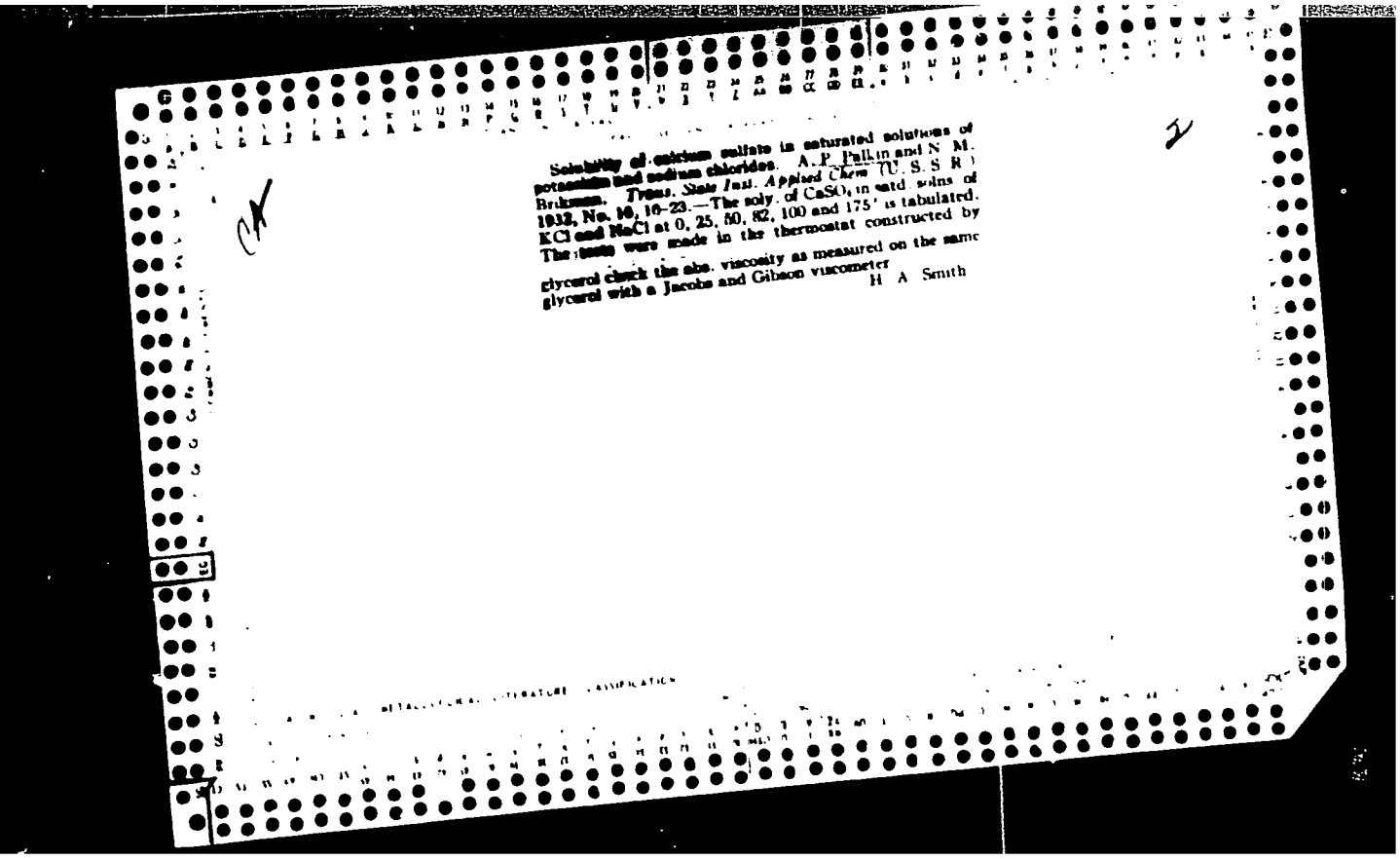
Boiling point, viscosity, density and vapor pressure of brines obtained by a mixed process of salt separation of carnallites. A. P. Palkin, M. A. Opuintina, N. P. Lu'sa kaya, E. N. Orlova and B. N. Frochenko. *Kalii* (U. S. S. R.) No 5 ♣, 38–41(1932).— A study of the properties of solns contg different proportions of $MgCl_2$, KCl and NaCl obtained in the course of sepn of salts from carnallite brine according to the scheme recommended by Giprohim

James Sorrel

A59-51A METALLURGICAL LITERATURE CLASSIFICATION

Solubilities in the system: potassium chloride sodium chloride magnesium chloride—water at 0°. A. P. PALKIN AND F. N. VARANOVA. J. Applied Chem. (U. S. S. R.) 5, 316 24(1932)

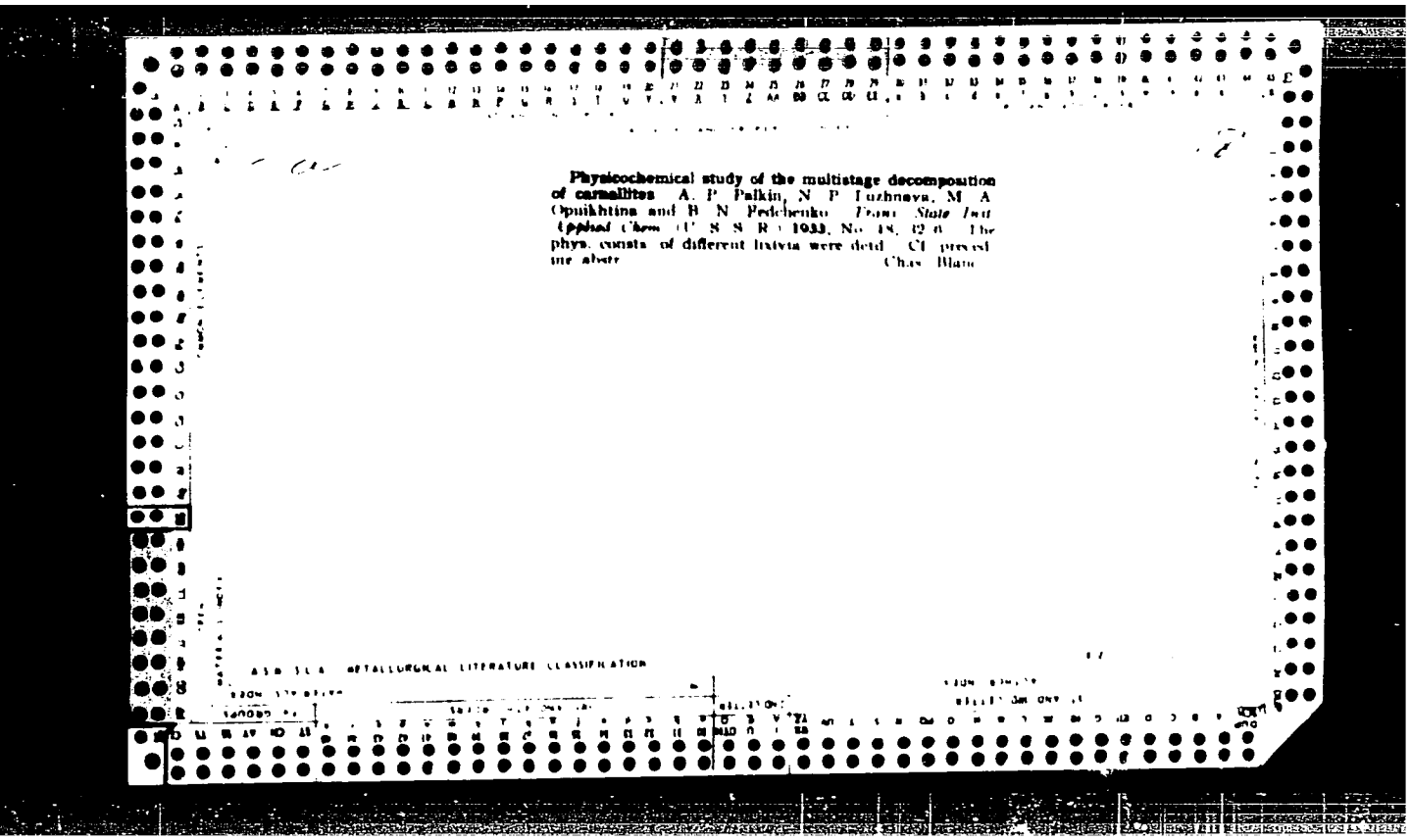
A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION



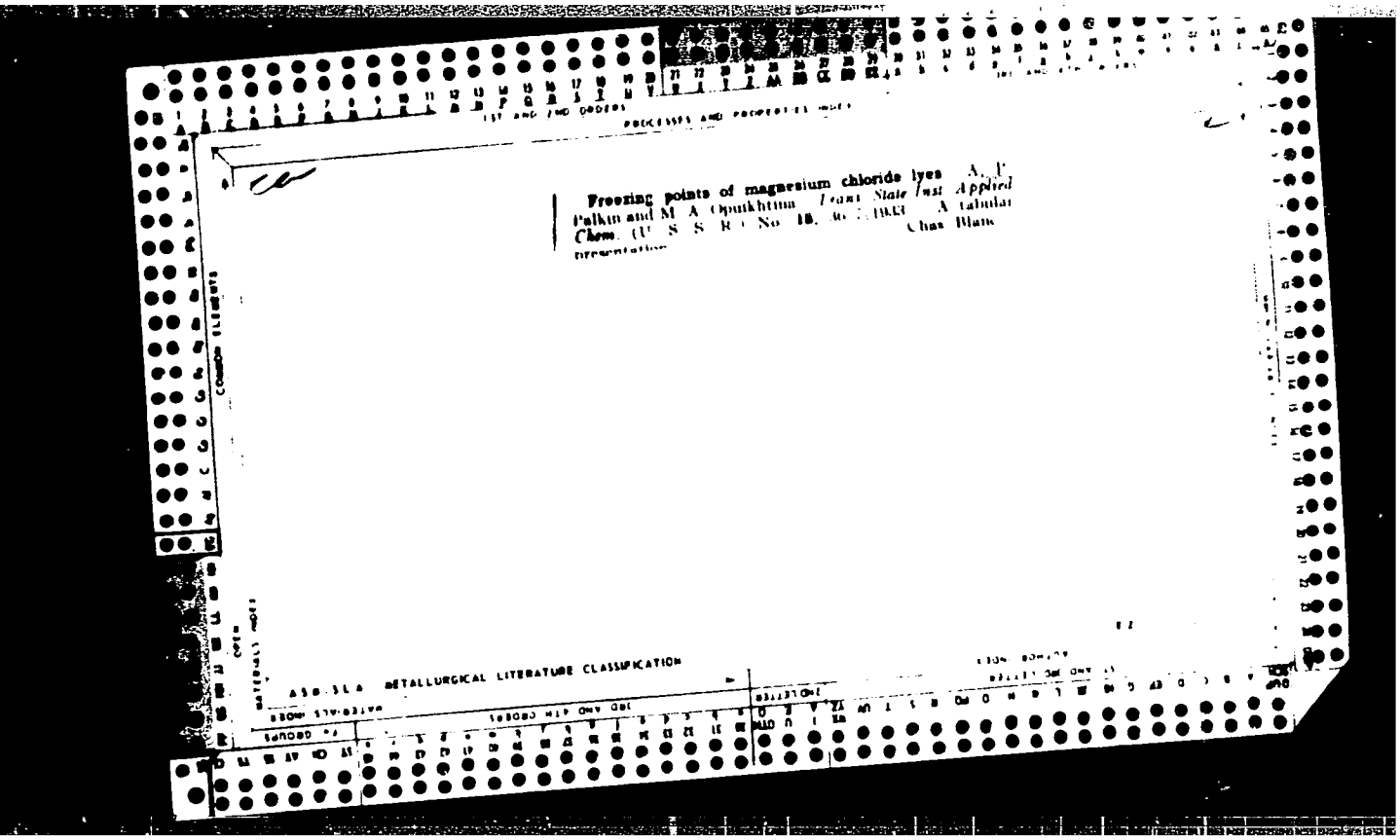
Solubility of calcium sulfate in saturated solutions of potassium and sodium chlorides. A. P. Pallin and N. M. Brukman. *Trans. State Inst. Applied Chem.* (U. S. S. R.) 1932, No. 10, 10–23.—The soly. of $CaSO_4$ in satd. solns. of KCl and NaCl at 0, 25, 50, 82, 100 and 175° is tabulated. The tests were made in the thermostat constructed by

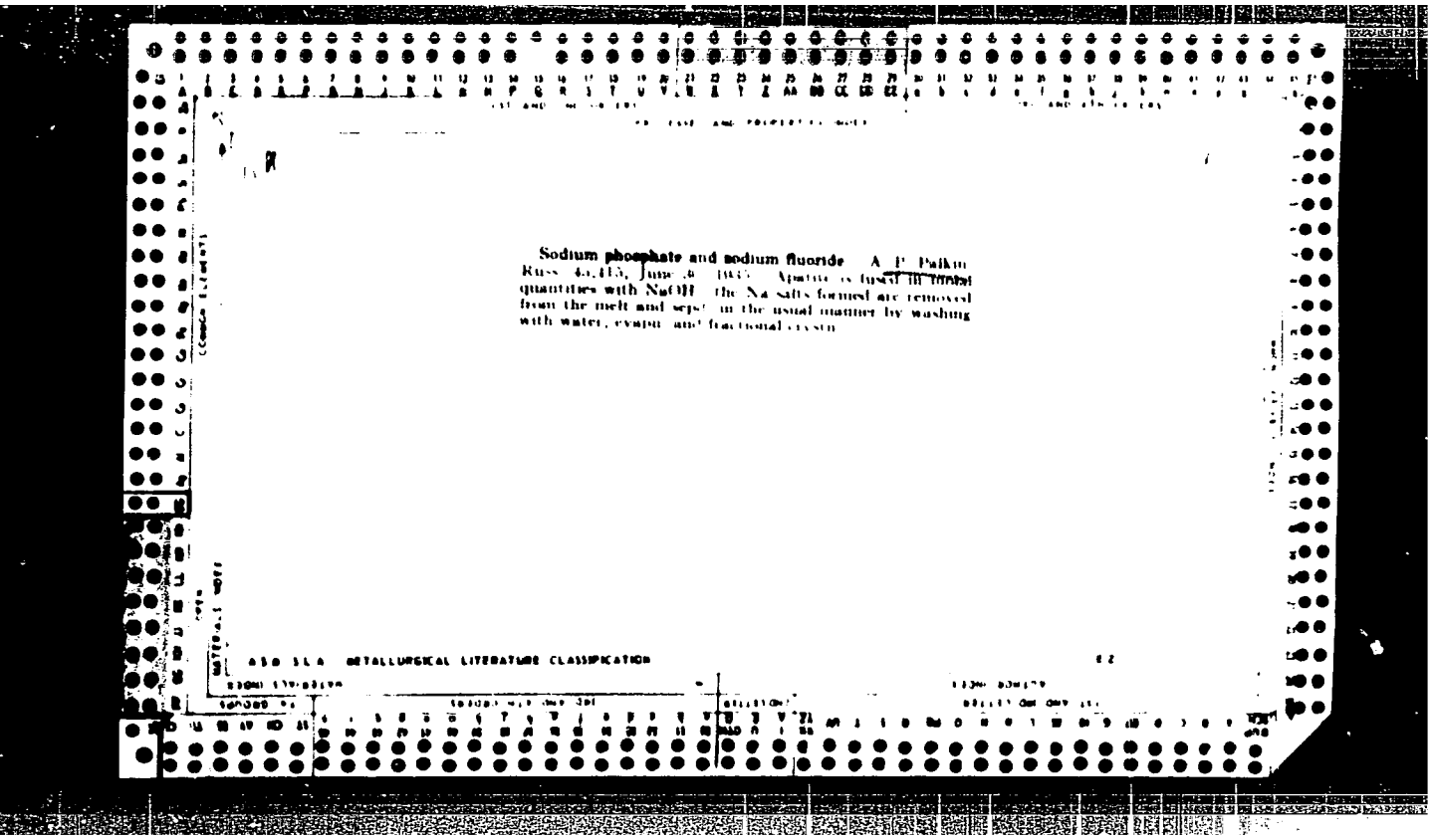
glycerol check the abs. viscosity as measured on the same glycerol with a Jacobs and Gibson viscometer

H. A. Smith

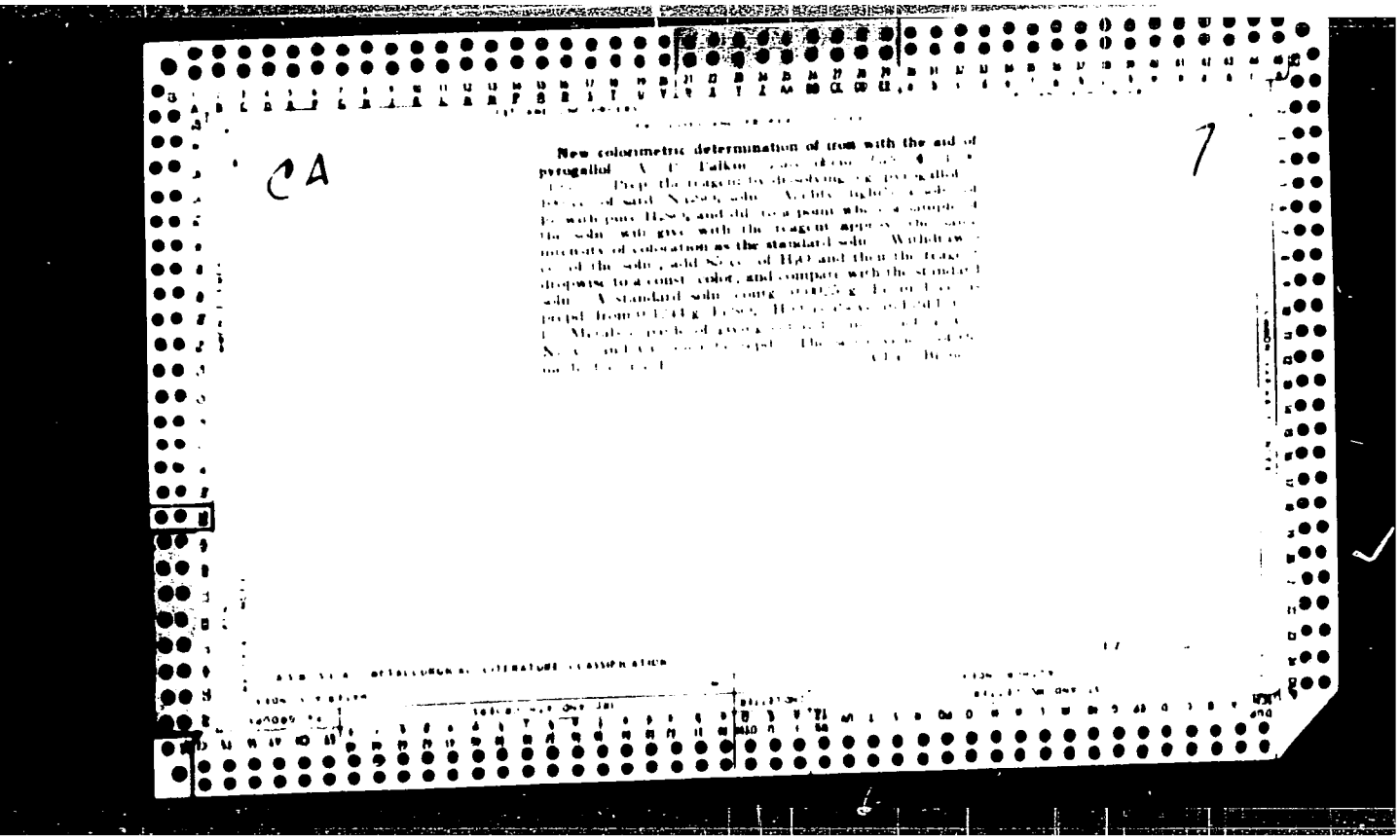


Physicochemical study of the multistage decomposition of carnallites A. P. Palkin, N. P. Luzhnova, M. A. Opuikhtina and B. N. Pedchenko. *Trans. State Inst. Applied Chem.* (U. S. S. R.) 1933, No. 18, 12 ff. The phys. consts. of different hydrates were detd. Cf. present me abstr. Chas. Blanc





Sodium phosphate and sodium fluoride A. P. Palkin. Russ. 4,113, June 30, 1945. Apatite is fused in small quantities with NaOH; the Na salts formed are removed from the melt and separated in the usual manner by washing with water, evaporation and fractional crystallization.



New colorimetric determination of iron with the aid of pyrogallol

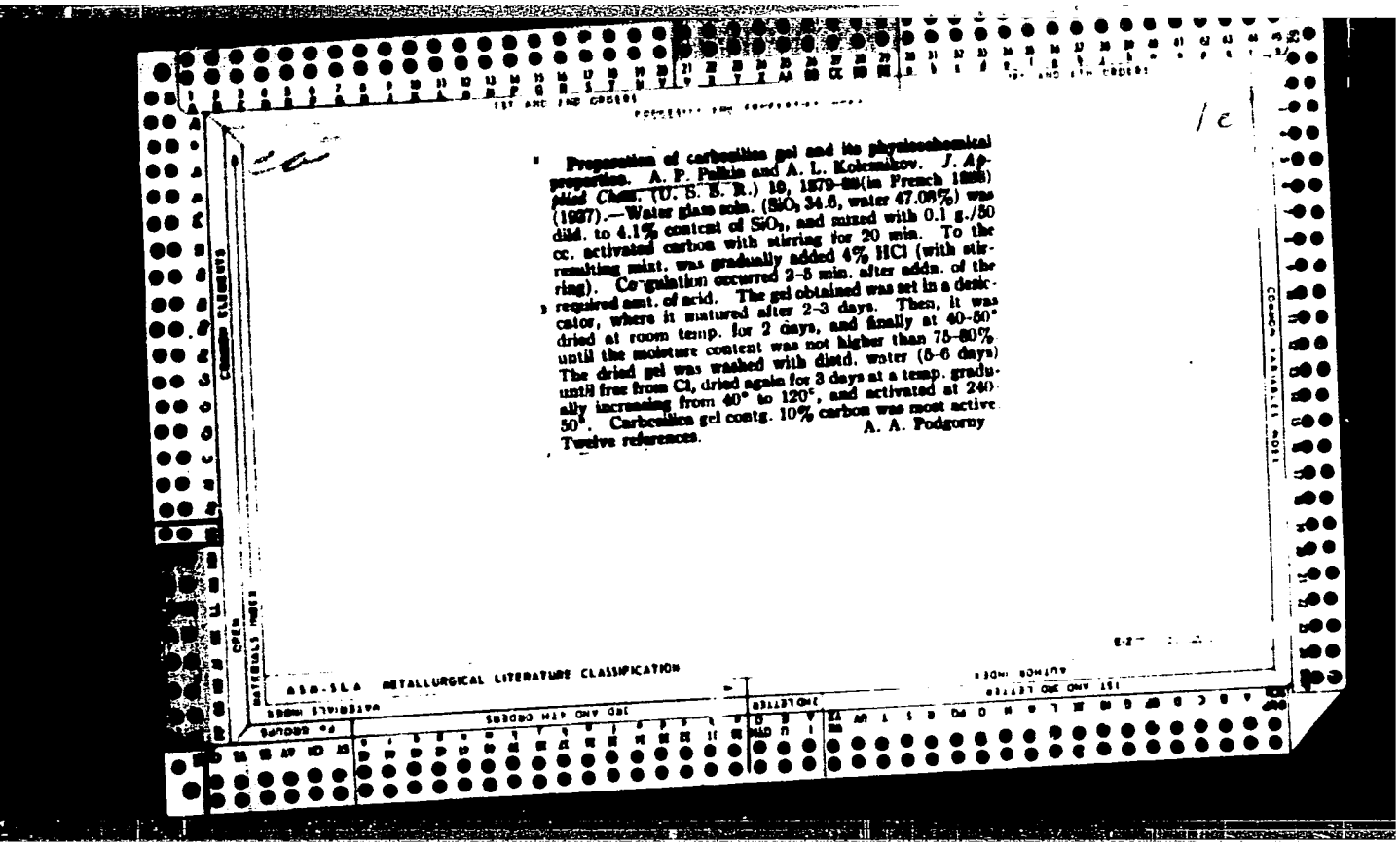
1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

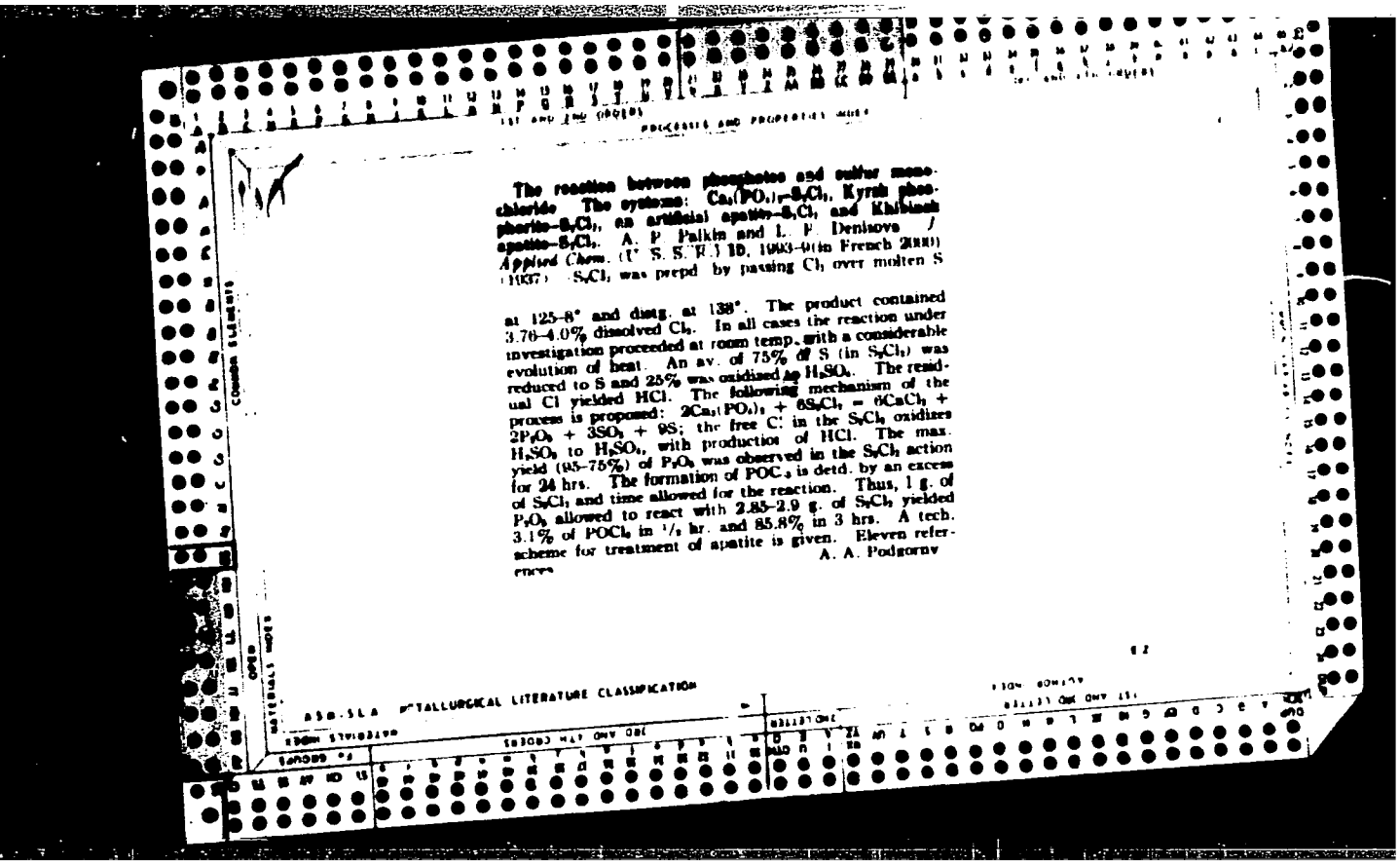
PROCESSES AND PROPERTIES INDEX

Double decomposition in the absence of solvents. The irreversible reciprocal system $Na_2Cr_2O_7 + 2KNO_3 \rightleftarrows K_2Cr_2O_7 + 2NaNO_3$. A. P. Palkin and I. M. Bukhovkin. *Acta Univ. Voronegiensis* 9, No. 3, 5-20 (in German 19) (1937).—The following systems were studied by thermal methods. $K_2Cr_2O_7$-$Na_2Cr_2O_7$, eutectic at 57.5% $Na_2Cr_2O_7$ and 300°; KNO_3-$K_2Cr_2O_7$, eutectic at 35.7% $K_2Cr_2O_7$ and 294°. $Na_2Cr_2O_7$-$NaNO_3$, eutectic at 45.4% $Na_2Cr_2O_7$ and 262°; $K_2Cr_2O_7$-$NaNO_3$, eutectic at 63.9% $NaNO_3$ and 222°; $Na_2Cr_2O_7$-KNO_3, where $K_2Cr_2O_7$ is formed, eutectics at 73.3 and 44.0% KNO_3 and 225° and 240°, resp., and a max. at 57.4% KNO_3 and 262°. The following ternary systems, in which 2 components were always in definite proportions, were also studied: (35% KNO_3 + 65% $K_2Cr_2O_7$)-$Na_2Cr_2O_7$, eutectic at 57.0% $Na_2Cr_2O_7$ and 250°; (30% $K_2Cr_2O_7$ + 70% KNO_3)-$NaNO_3$, eutectic at 47.1% $NaNO_3$ and 216°; (20% $NaNO_3$ + 80% KNO_3)-$Na_2Cr_2O_7$, eutectics at 23.5 and 48.8% $Na_2Cr_2O_7$ and 215° and 225°, resp., and a max. at 35% $Na_2Cr_2O_7$ and 250°; (25% KNO_3 + 75% $NaNO_3$)-$Na_2Cr_2O_7$, eutectic at 43.5% $Na_2Cr_2O_7$ and 233°; (30% KNO_3 + 70% $NaNO_3$)-$K_2Cr_2O_7$, eutectic at 24.5% $K_2Cr_2O_7$ and 216°. From these the diagram for the entire system is constructed. It belongs to subclass C, type 1, of the classification of Bergman and Domtrovska (C. A. 24, 2307). Besides the factors of solvency and thermal effect, the m. ps. of the components have an effect on this system, and the reaction goes toward the side of the highest melting component, $K_2Cr_2O_7$. H. M. Leicester

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Preparation of carbosilica gel and its physicochemical properties. A. P. Pukhin and A. L. Kolesnikov. *J. Applied Chem. (U. S. S. R.)* 10, 1579–88(in French 1588) (1937).—Water glass soln. (SiO_2, 34.6, water 47.08%) was dild. to 4.1% content of SiO_2, and mixed with 0.1 g./50 cc. activated carbon with stirring for 20 min. To the resulting mixt. was gradually added 4% HCl (with stirring). Coagulation occurred 2–5 min. after addn. of the required amt. of acid. The gel obtained was set in a desiccator, where it matured after 2–3 days. Then, it was dried at room temp. for 2 days, and finally at 40–50° until the moisture content was not higher than 75–80%. The dried gel was washed with distd. water (5–6 days) until free from Cl, dried again for 3 days at a temp. gradually increasing from 40° to 120°, and activated at 240–50°. Carbosilica gel contg. 10% carbon was most active. Twelve references. A. A. Podgorny



The reaction between phosphates and sulfur monochloride. The systems: $Ca_3(PO_4)_2$–S_2Cl_2, Kyrla phosphorite–S_2Cl_2, an artificial apatite–S_2Cl_2, and Khibinsk apatite–S_2Cl_2. A. P. Palkin and L. P. Denisova. *Applied Chem.* (U. S. S. R.) 10, 1003–9(in French 2nd) (1937). S_2Cl_2 was prepd. by passing Cl_2 over molten S at 125–8° and distg. at 138°. The product contained 3.76–4.0% dissolved Cl_2. In all cases the reaction under investigation proceeded at room temp. with a considerable evolution of heat. An av. of 75% of S (in S_2Cl_2) was reduced to S and 25% was oxidised to H_2SO_4. The residual Cl yielded HCl. The following mechanism of the process is proposed: $2Ca_3(PO_4)_2 + 6S_2Cl_2 = 6CaCl_2 + 2P_2O_5 + 3SO_2 + 9S$; the free Cl in the S_2Cl_2 oxidizes H_2SO_3 to H_2SO_4, with production of HCl. The max. yield (95–75%) of P_2O_5 was observed in the S_2Cl_2 action for 24 hrs. The formation of $POCl_3$ is detd. by an excess of S_2Cl_2 and time allowed for the reaction. Thus, 1 g. of P_2O_5 allowed to react with 2.85–2.9 g. of S_2Cl_2 yielded 3.1% of $POCl_3$ in 1/2 hr. and 85.8% in 3 hrs. A tech. scheme for treatment of apatite is given. Eleven references.

A. A. Podgornv

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

PALKIN, A. P.

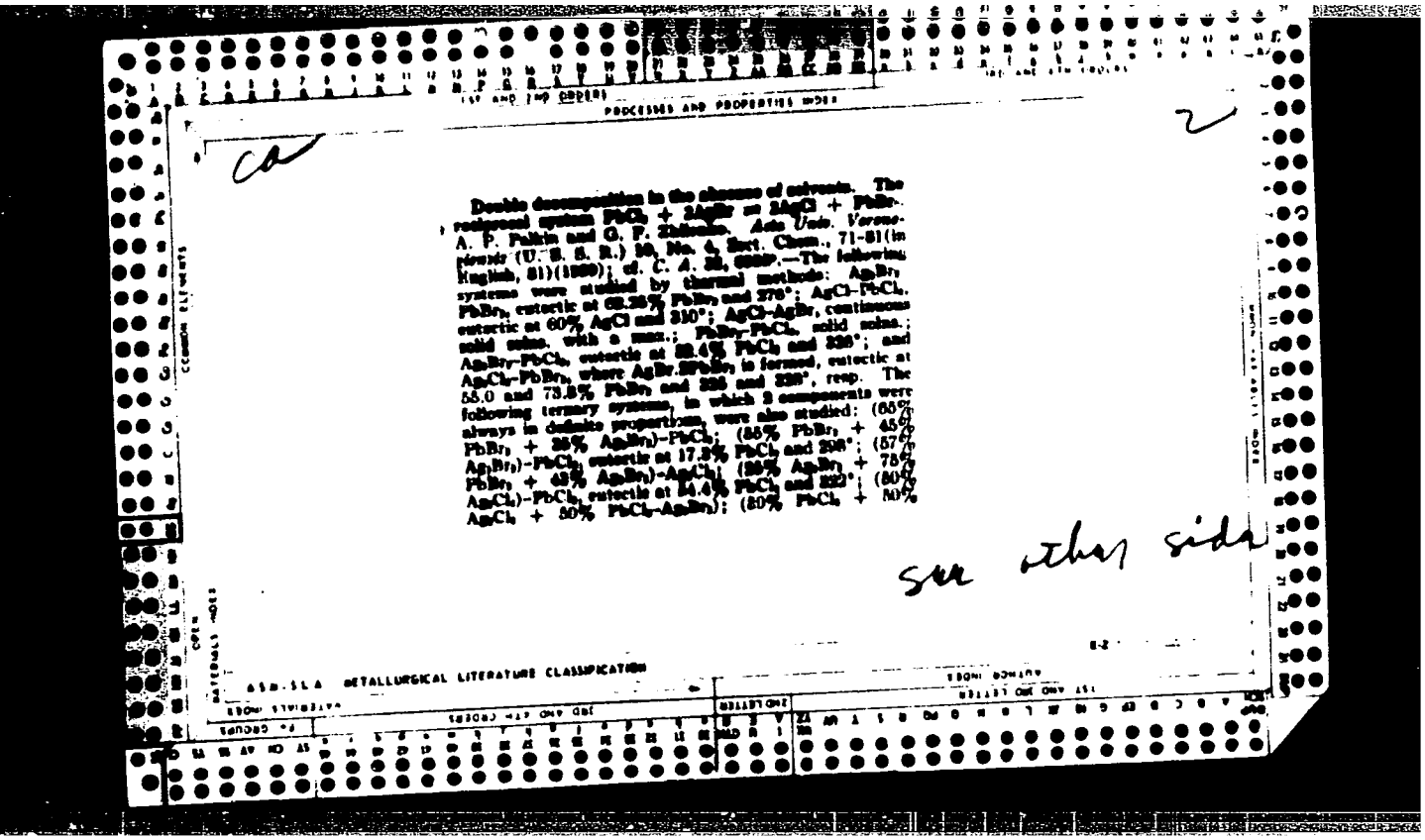
Ca

2

Ternary fusibility systems. A. P. Palkin, S. D. Gromakov, P. F. Reshetnikov, N. I. Semenov and M. G. Turanov. *Acta Univ. Voronegiensis* (U. S. S. R.) 10, No. 4, Sect. Chem., 3-80 (in English, 38)(1939).—The following systems were investigated by the visual method: KCl-TlCl-AgCl, eutectic at KCl 7, TlCl 57.3 and AgCl 35.9% and 125°, transition point at AgCl 37, KCl 7.1 and TlCl 55.9% and 260°; KNO_3-$NaNO_3$-$AgNO_3$, eutectic at KNO_3 42, $NaNO_3$ 7 and $AgNO_3$ 51% and 116°, transition point at KNO_3 45, $NaNO_3$ 20.7 and $AgNO_3$ 34.3% and 126°; KCl-NaCl-TlCl, eutectic at TlCl 87.41, NaCl 6.30 and KCl 6.29% and 418°. The NaCl + KCl solid soln. decomposes below 500-05°. NaCl-NaBr-Na_2SO_4, only two crystn. fields (divided by eutectic line): Na_2SO_4 and NaCl + NaBr solid soln., in this case Na_2SO_4 is a stabilizing factor, which prevents a decompn. of the NaCl + NaBr solid soln. The NaCl-KCl-AgCl system is of the 2nd type according to the Jänecke classification. The systems, salts of which m. 200-600°, were investigated in the presence of daylight by fusing in a test tube provided with a glass or metal stirrer and a jacket for a nichrome-constantan thermocouple. The whole chamber was suspended in the large test tube. The systems, salts of which m. 800-1800°, were investigated in the presence of a strong elec. light by fusing the salts in a porcelain or Pt crucible, which was placed in a crucible furnace. Data are tabulated and phase diagrams for the above ternary systems are plotted.

A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

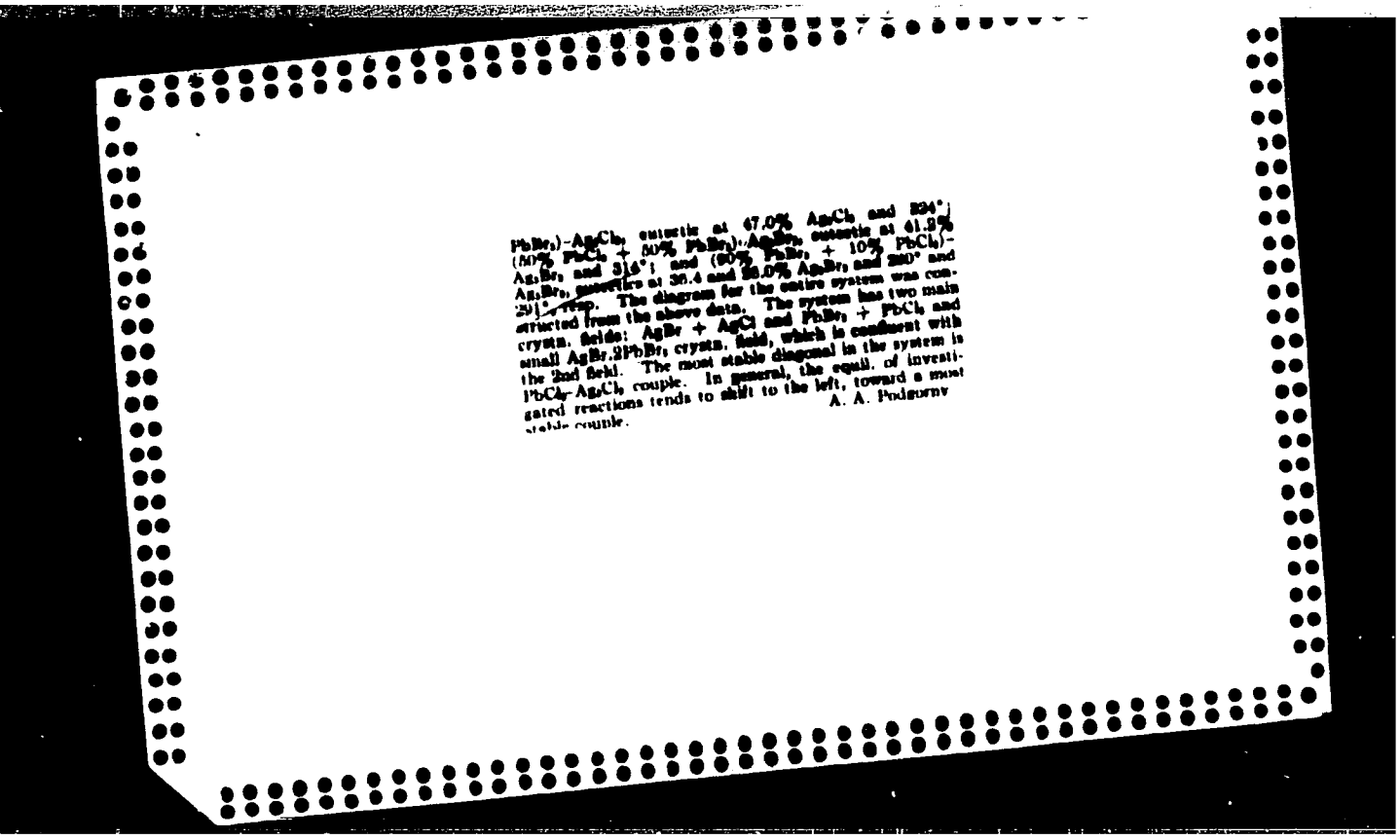


PROCESSES AND PROPERTIES INDEX

Double decomposition in the absence of solvents. The reciprocal system $PbCl_2$ + 2AgBr ⇌ 2AgCl + $PbBr_2$. A. P. Pukin and G. P. Zubkova. *Acta Univ. Voronez. Khimii* (U. S. S. R.) No. 4, Sect. Chem., 71-81 (in English, 81)(1959); cf. C. A. 53, 6888b.—The following systems were studied by thermal methods: $AgBr_2$-$PbBr_2$, eutectic at 68.28% $PbBr_2$ and 270°; AgCl-$PbCl_2$, eutectic at 60% AgCl and 310°; AgCl-AgBr, continuous solid solns. with a max.; $PbBr_2$-$PbCl_2$, solid solns.; $AgBr_2$-$PbCl_2$, eutectic at 88.4% $PbCl_2$ and 328°; and AgCl-$PbBr_2$, where $AgBr.2PbBr_2$ is formed, eutectic at 55.0 and 73.8% $PbBr_2$ and 325 and 258°, resp. The following ternary systems, in which 2 components were always in definite proportions, were also studied: (65% $PbBr_2$ + 35% $AgBr_2$)-$PbCl_2$; (55% $PbBr_2$ + 45% $AgBr_2$)-$PbCl_2$, eutectic at 17.5% $PbCl_2$ and 298°; (57% $PbBr_2$ + 43% $AgBr_2$)-AgCl; (20% $AgBr_2$ + 78% $AgCl_2$)-$PbCl_2$, eutectic at 84.4% $PbCl_2$ and 322°; (80% AgCl + 20% $PbCl_2$-$AgBr_2$); (80% $PbCl_2$ + 20%

see other side

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



$PbBr_2$)-$AgCl_2$, eutectic at 47.0% $AgCl_2$ and 324°; (50% $PbCl_2$ + 50% $PbBr_2$)-$AgBr_2$, eutectic at 61.8% $AgBr_2$ and 316°; and (90% $PbBr_2$ + 10% $PbCl_2$)-$AgBr_2$, eutectic at 38.4 and 38.0% $AgBr_2$ and 280° and 291°, resp. The diagram for the entire system was constructed from the above data. The system has two main crystn. fields: AgBr + AgCl and $PbBr_2$ + $PbCl_2$ and small $AgBr_2PbBr_2$ crystn. field, which is confluent with the 2nd field. The most stable diagonal in the system is $PbCl_2$-$AgCl_2$ couple. In general, the equil. of investigated reactions tends to shift to the left, toward a most stable couple.

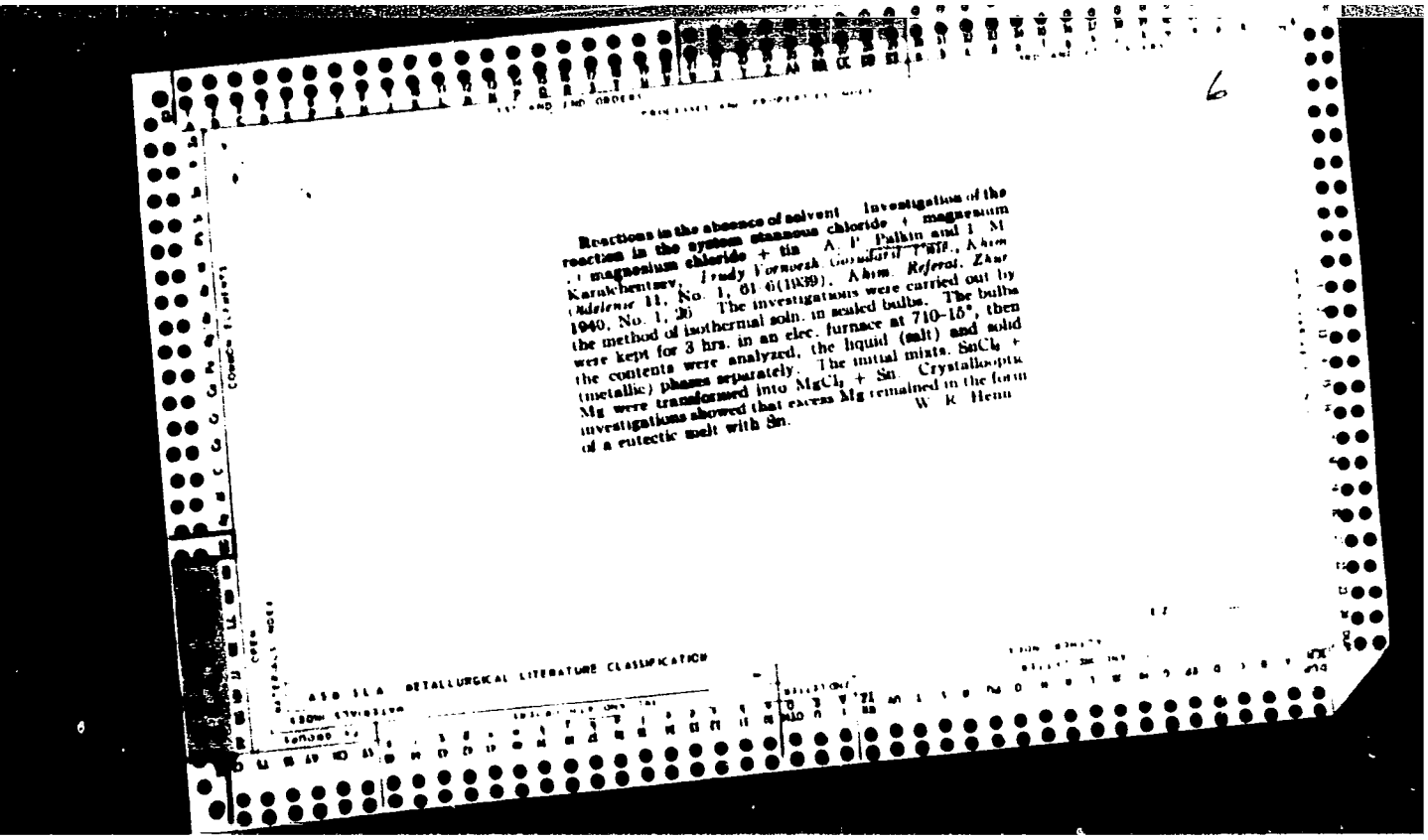
A. A. Poduzov

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

2

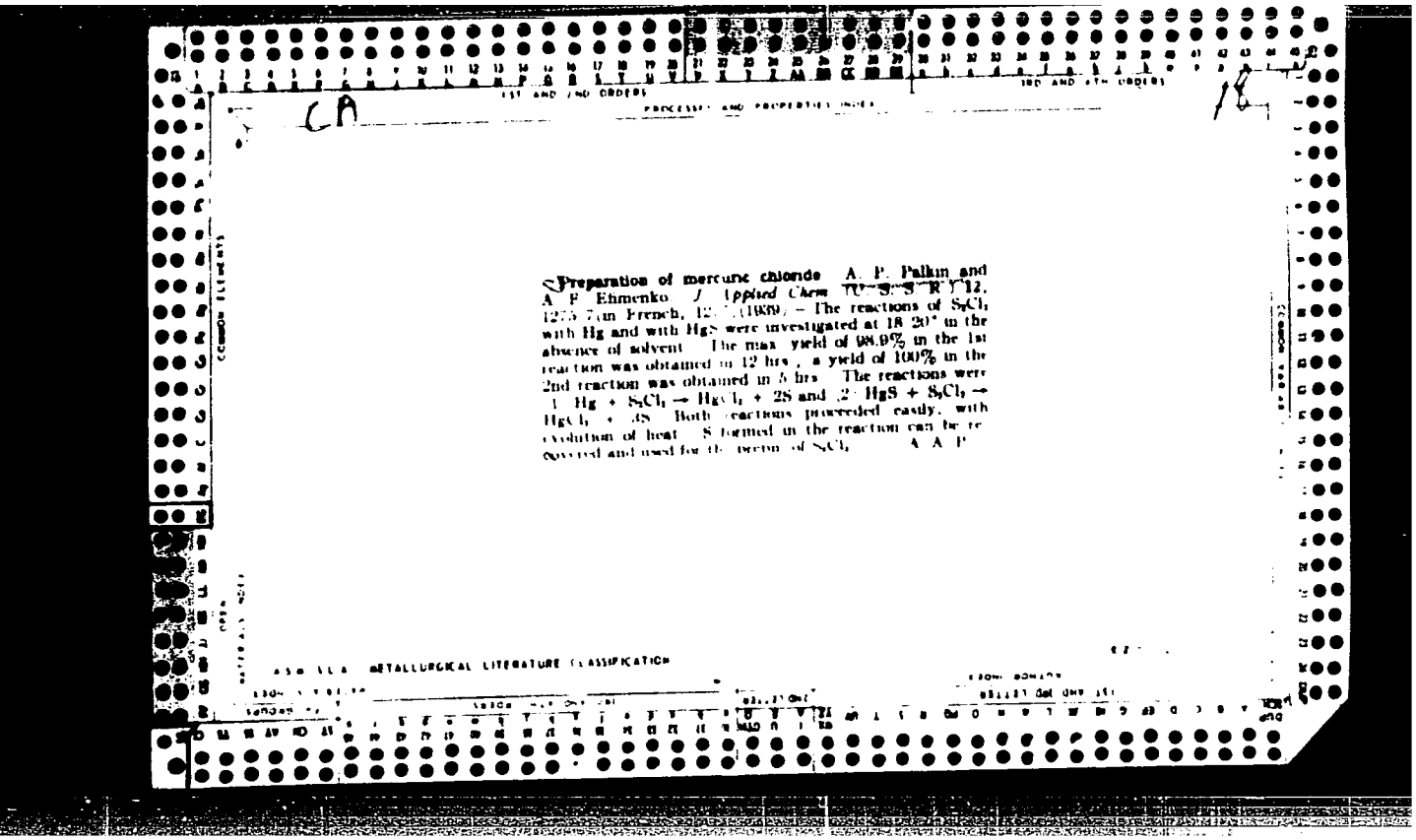
Mutual solubility in the aqueous sodium sulfate–boric acid–water and sodium chloride–boric acid–water. A. P. Palkin and M. V. Golubchikova. *Trudy Voronezh. Gosudarst. Univ., Khim. Otdelenie* 11, No. 1, 7–25(1939); *Referat. Zhur. Khim.* 1958, No. 1, 25.—The soly. was investigated by the visual-polythermal method. Seven diagrams were made for each system. For the system $NaCl$–H_3BO_3–H_2O isotherms were constructed for −20, −10, 10, 20 and 25° which were combined with the 35 and 75° isotherms (taken from the literature) into one polythermal diagram. This diagram contained NaCl, NaCl.$2H_2O$, H_3BO_3 and ice regions. The eutectic at −21.4° corresponds to NaCl [illegible], H_3BO_3 1.46 and H_2O 75.65%. The content of H_3BO_3 in the eutectic point increases rapidly and the content of NaCl decreases slightly with increase in temp. For the system Na_2SO_4–H_3BO_3–H_2O isotherms were constructed at 0, 10, 20 and 25° and the polytherm was brought up to 75° with data taken from the literature. The diagram was composed of the Na_2SO_4, Na_2SO_4.$10H_2O$, H_3BO_3 and ice regions. The compn. of the eutectic at −1.6° was Na_2SO_4 3.8, H_3BO_3 2.5 and H_2O 93.7%. Below the transition point (Na_2SO_4 [illegible]%, Na_2SO_4.$10H_2O$, H_3BO_3) the soly. of H_3BO_3 and Na_2SO_4 increases, that of H_3BO_3 increases and that of Na_2SO_4 decreases with increase in temp. W. R. Henn

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

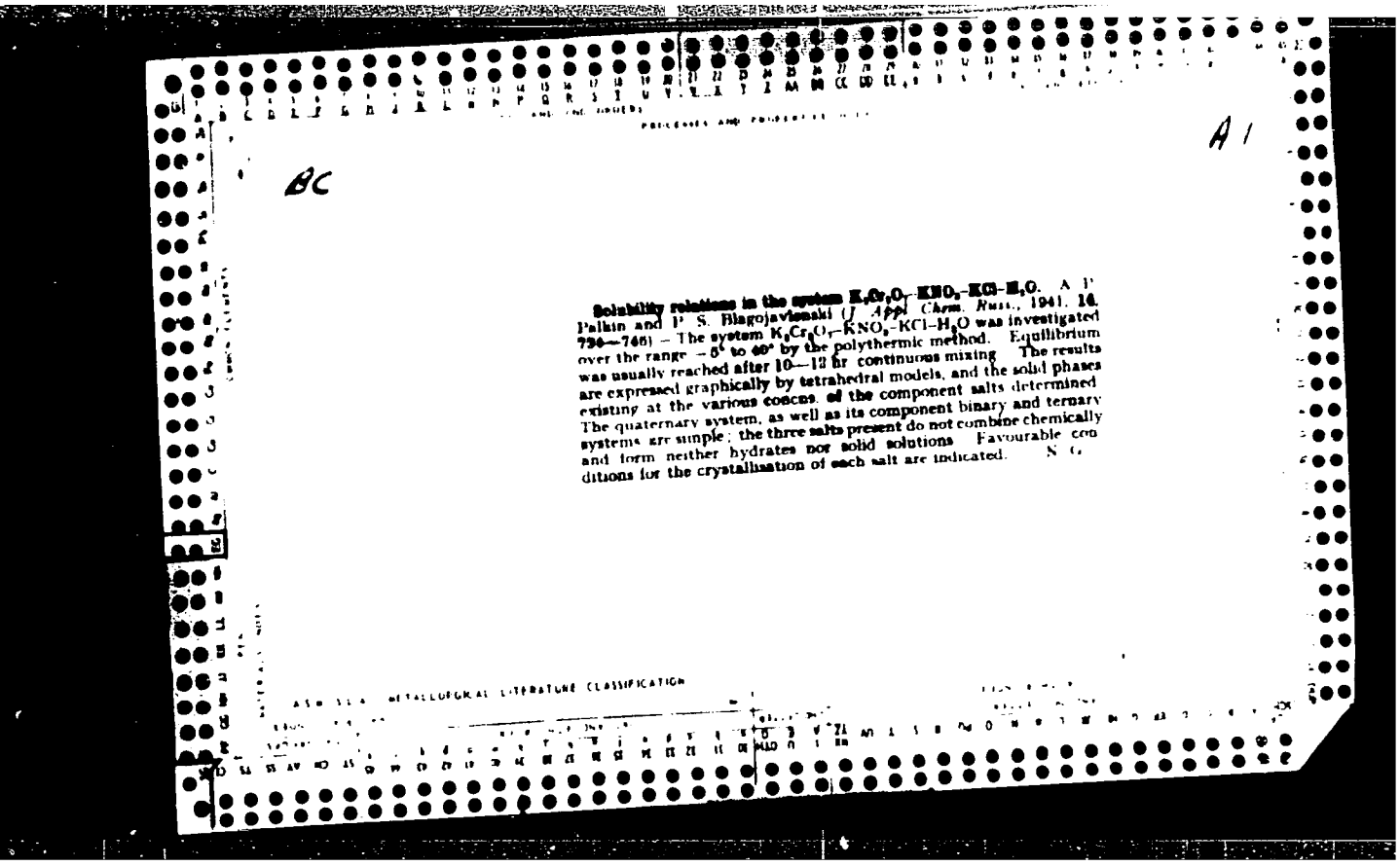


Reactions in the absence of solvent. Investigation of the reaction in the system stannous chloride + magnesium ... magnesium chloride + tin. A. P. Palkin and I. M. ... Karakhentsev, *Trudy Vsesoyuz. Gosudarst. Nauch.-Issled. Akad. Aluminiya* 11, No. 1, 61-6(1939). *Chem. Referat. Zhur.* 1940, No. 1, 30. The investigations were carried out by the method of isothermal soln. in sealed bulbs. The bulbs were kept for 3 hrs. in an elec. furnace at 710–15°, then the contents were analyzed, the liquid (salt) and solid (metallic) phases separately. The initial mixts. $SnCl_2$ + Mg were transformed into $MgCl_2$ + Sn. Crystalloptic investigations showed that excess Mg remained in the form of a eutectic melt with Sn.

W. R. Henn



Preparation of mercuric chloride. A. P. Palkin and A. F. Ehmenko. *J. Applied Chem. U.S.S.R.* 12, 1275-7 (in French, 12[illegible] (1939). — The reactions of S_2Cl_2 with Hg and with HgS were investigated at 18-20° in the absence of solvent. The max. yield of 98.9% in the 1st reaction was obtained in 12 hrs., a yield of 100% in the 2nd reaction was obtained in 5 hrs. The reactions were: 1. $Hg + S_2Cl_2 \rightarrow HgCl_2 + 2S$ and 2. $HgS + S_2Cl_2 \rightarrow HgCl_2 + 3S$. Both reactions proceeded easily, with evolution of heat. S formed in the reaction can be recovered and used for the prepn. of S_2Cl_2. A. A. P.

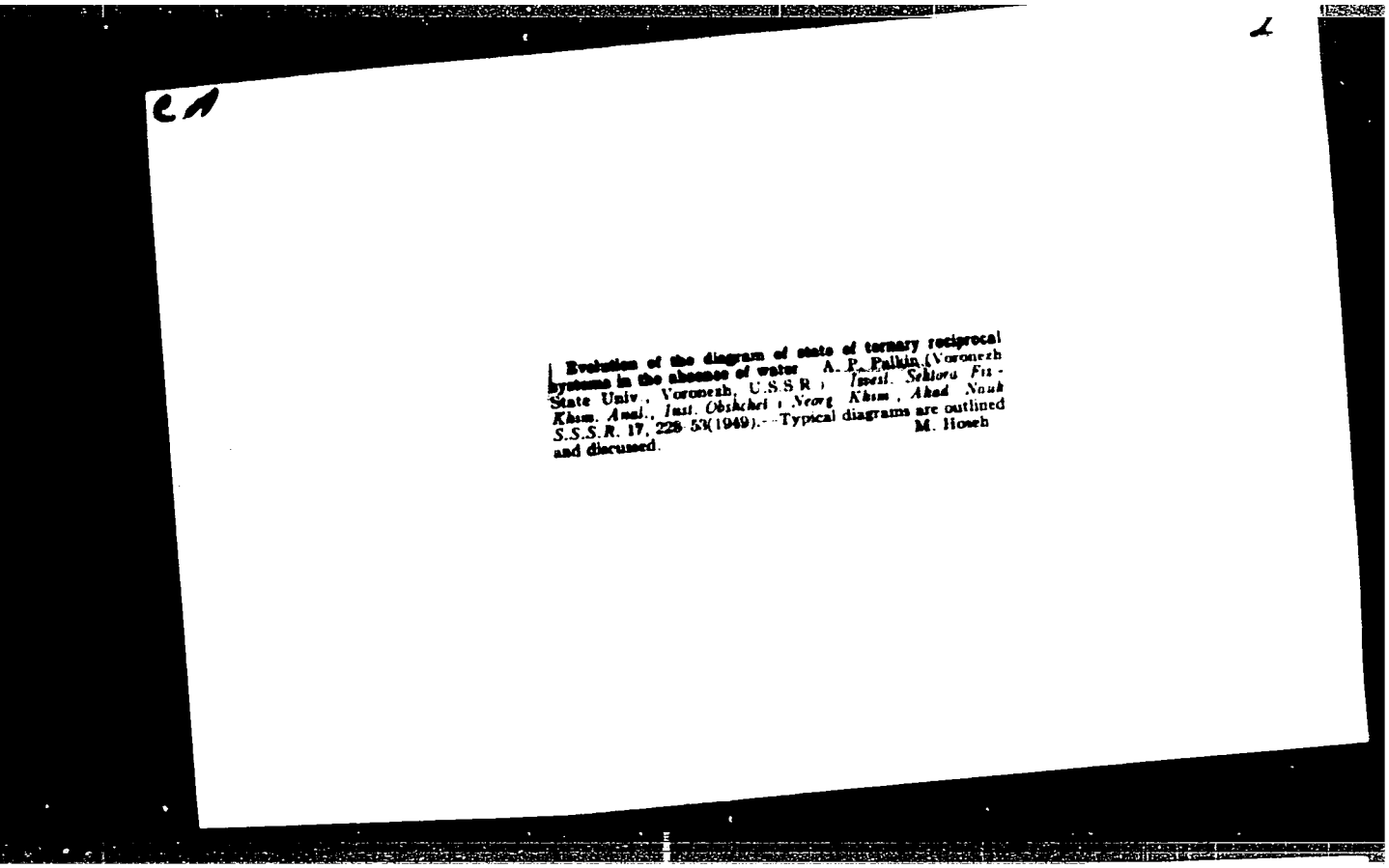


BC

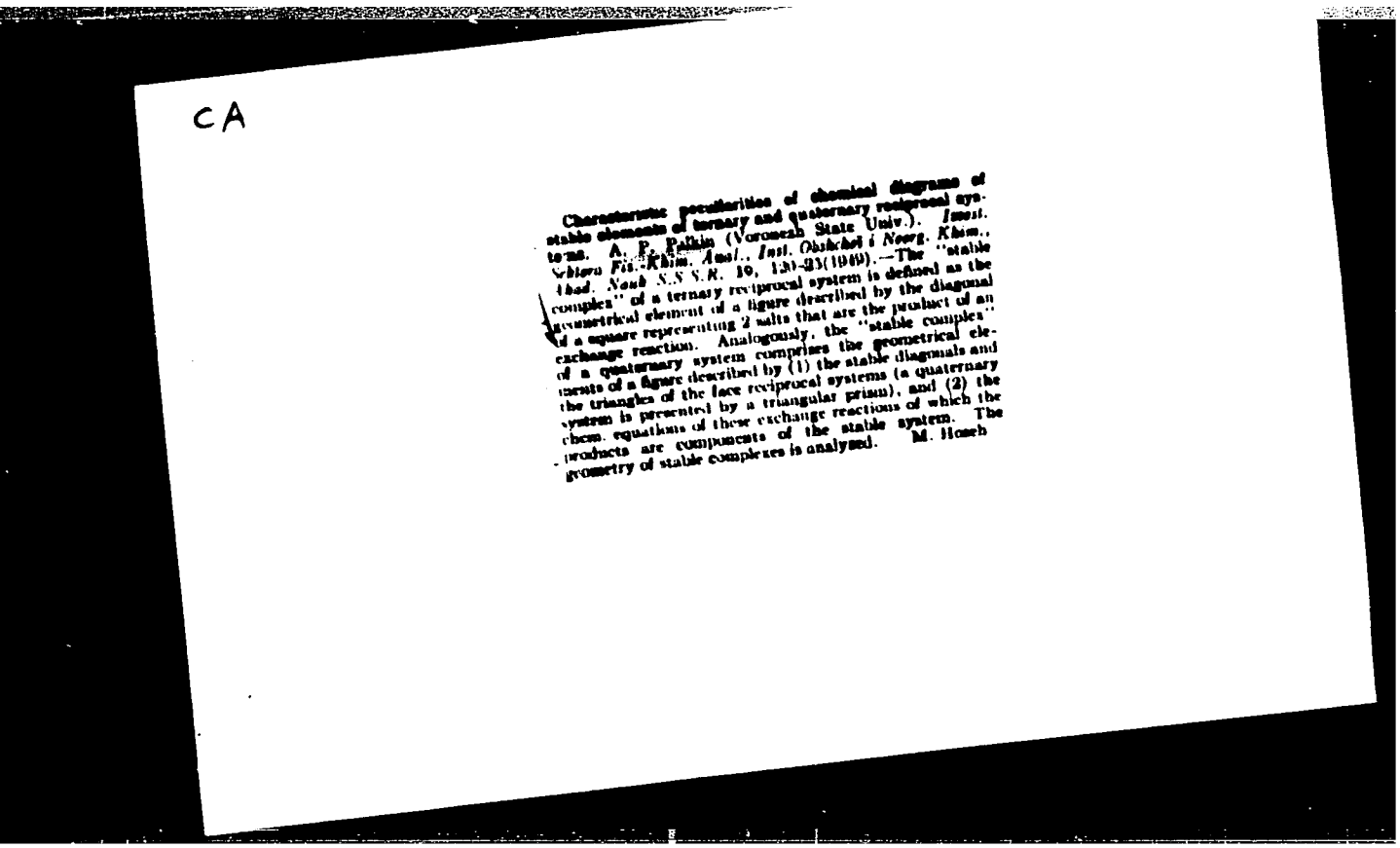
A1

Solubility relations in the system $K_2Cr_2O_7$–KNO_3–KCl–H_2O. A. P. Palkin and P. S. Blagojavlenski *U. Appl. Chem. Russ.*, 1941, **14**, 736—746). — The system $K_2Cr_2O_7$–KNO_3–KCl–H_2O was investigated over the range −5° to 40° by the polythermic method. Equilibrium was usually reached after 10—12 hr. continuous mixing. The results are expressed graphically by tetrahedral models, and the solid phases existing at the various concns. of the component salts determined. The quaternary system, as well as its component binary and ternary systems are simple; the three salts present do not combine chemically and form neither hydrates nor solid solutions. Favourable conditions for the crystallisation of each salt are indicated. S. G.

ASM 313.4 METALLURGICAL LITERATURE CLASSIFICATION



Evolution of the diagram of state of ternary reciprocal systems in the absence of water. A. P. Pulkin (Voronezh State Univ., Voronezh, U.S.S.R.). *Izvest. Sektora Fiz.-Khim. Anal., Inst. Obshchei i Neorg. Khim., Akad. Nauk S.S.S.R.* 17, 228-53(1949).—Typical diagrams are outlined and discussed. M. Hoseh



CA

Characteristic peculiarities of chemical diagrams of stable elements of ternary and quaternary reciprocal systems. A. P. Pavlin (Voronezh State Univ.). *Izvest. Vysshikh Ucheb. Zavedenii, Khim. i Khim. Tekhnol.* 12, 131-33(1969).—The "stable complex" of a ternary reciprocal system is defined as the symmetrical element of a figure described by the diagonal of a square representing 2 salts that are the product of an exchange reaction. Analogously, the "stable complex" of a quaternary system comprises the geometrical elements of a figure described by (1) the stable diagonals and the triangles of the face reciprocal systems (a quaternary system is presented by a triangular prism), and (2) the chem. equations of these exchange reactions of which the products are components of the stable system. The geometry of stable complexes is analyzed. M. Hosch

PALKIN, A. P.

Doc Chem Sci

Dissertation: "Peculiarities of the Chemical Diagrams of Ternary and Quaternary Mutual Salt Systems in Melts from the Viewpoint of Their Evolution and Morphology." 7/6/50

Inst of General and Inorganic Chemistry imeni N. S. Kurnakov, Acad Sci USSR

SO Vecheryaya Moskva
Sum 71

PALKIN, A.P.; CHEPURKO, G.P.

Reactions of salts with metals in melts. Interaction of CuCl with zinc. Zhur.neorg.khim. 1 no.8:1832-1842 Ag '56. (MLRA 9:11)

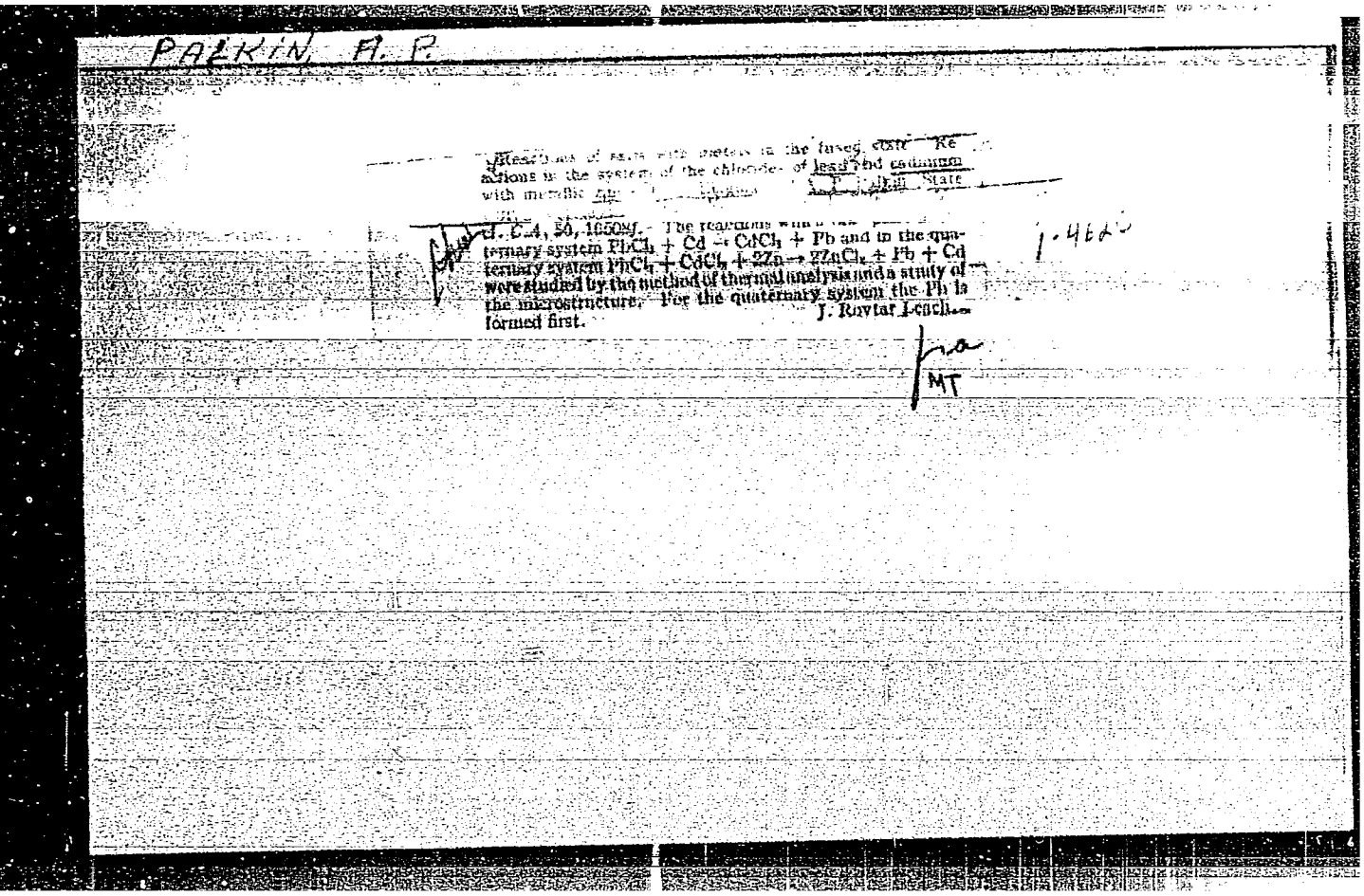
1. Voronezhskiy gosuniversitet, Kafedra obshchey i neorganicheskoy khimii.

(Copper chloride) (Zinc)

PALKIN, A. P.

Chem

The reaction of salts with metals in the molten state. The reaction of silver chloride with zinc. A. P. Palkin and N. A. Shchirova. *Zhur. Neorg. Khim.* 1, 2165–8(1956).—The reaction in the Ag_2Cl_2–Zn system was studied by thermal and chem. analysis. The following process took place reversibly: $Ag_2Cl_2 + Zn \rightarrow ZnCl_2 + 2Ag$. Pure Ag separates out in the form of a cryst. powder when the reaction mixt. contains less than 50 equiv. % of Zn. For Zn > 50 equiv. % alloys of Zn and Ag are obtained. This phenomenon is increased when a neutral salt (KCl) is used as a flux. I. R. I.



PAZKIN, A. P.

Reactions of salts with metals in the fused state. Report 4. Reactions in the system of the chlorides of lead and cadmium with metallic zinc [illegible]

Zh. O.Kh., 30, 1650-[illegible]. The reactions were [illegible] in the quaternary system $PbCl_2 + Cd \rightleftharpoons CdCl_2 + Pb$ and in the quaternary system $PbCl_2 + CdCl_2 + 2Zn \rightarrow 2ZnCl_2 + Pb + Cd$ were studied by the method of thermal analysis and a study of the microstructure. For the quaternary system the Pb is formed first.

J. Ruvtar Leach

1-462

MT

P A L K I N, A. P.

USSR/Physical Chemistry - Thermodynamics, Thermochemistry, Equilibria, Physical-Chemical Analysis, Phase Transitions. B-4

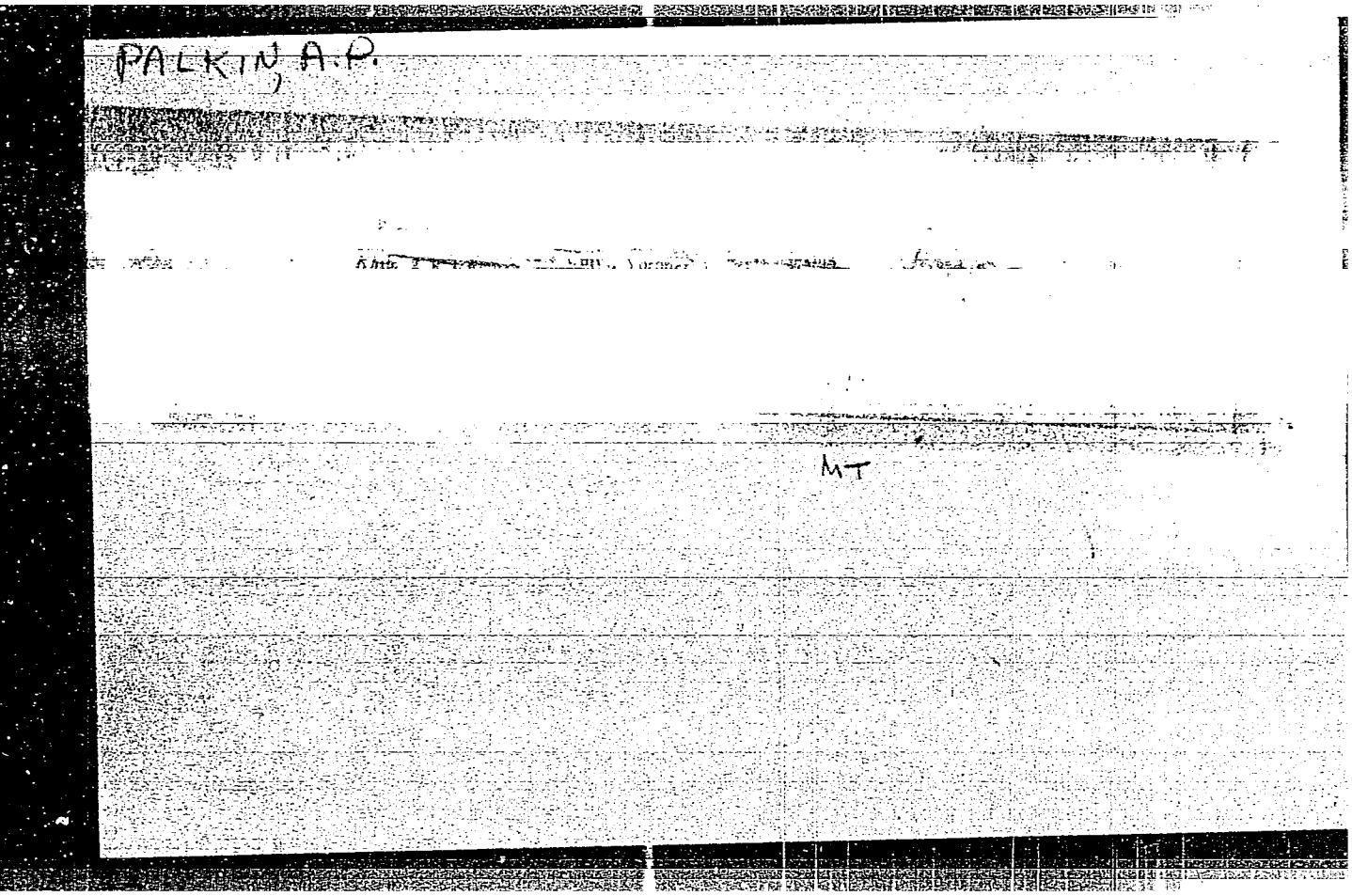
Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3816.

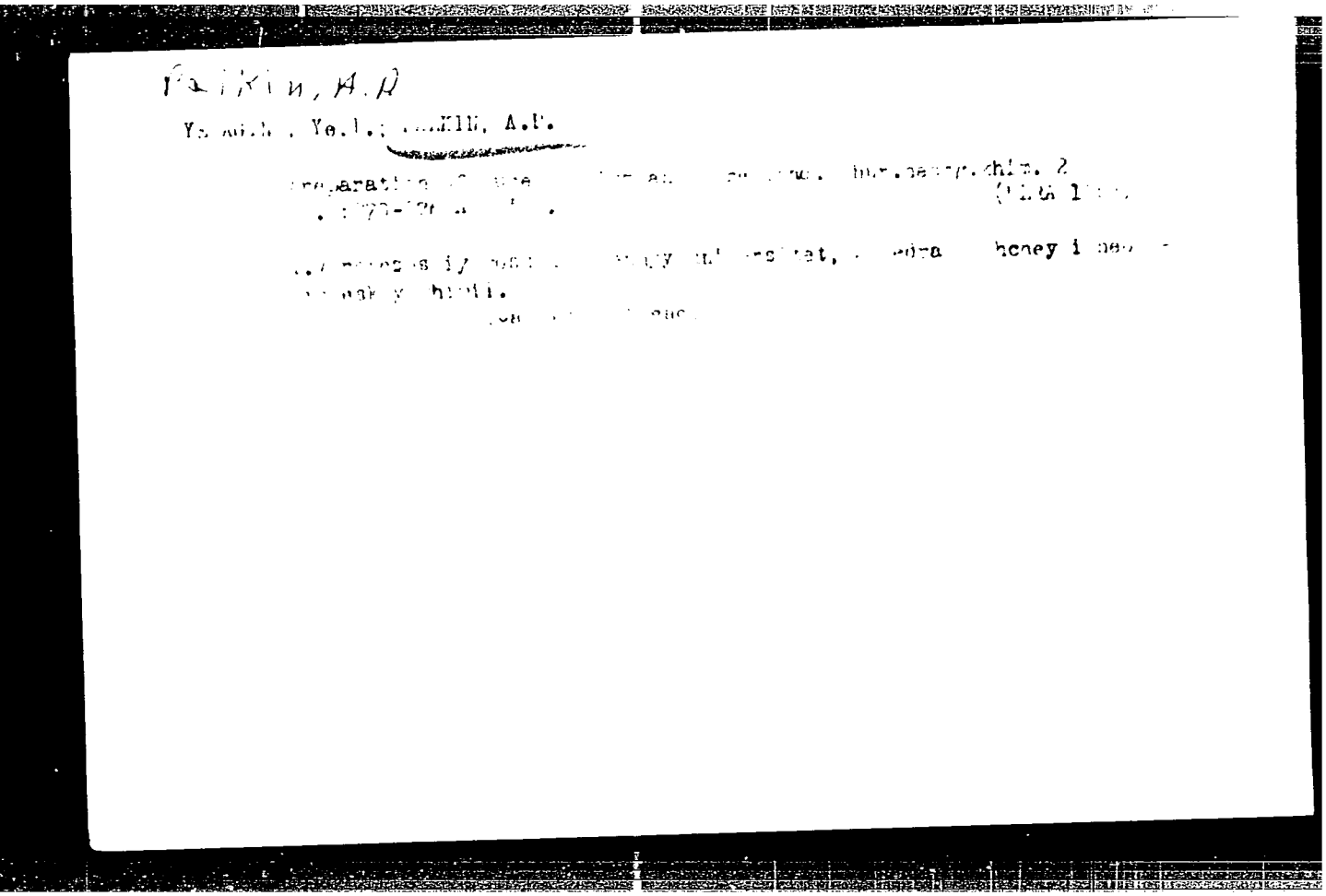
Author : Ya. I. Ugay, A.P. Palkin
Inst : Voronezh University.
Title : Shift Regularity of Metathesis and Replacement Reactions in Absence of Solvents.

Orig Pub: Tr. Voronezhsk. un-ta, 1956, 40, 11-16.

Abstract: The authors show with 30 examples that it is possible to judge upon the metathesis direction by the difference between the total energies of crystal lattices of salts to the right and to the left of the equality sign in the reaction equation AX + BY = AY + BX.

Card : 1/1 -52-





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

Abs Jour: Referat. Zhurnal Khimiya, No 3, 1958, 7164.

Author : A.P. Palkin, O.K. Belousov.
Inst :
Title : Reaction of Salts with Metals in Melted State. Interaction in System $3ZnCl_3 + 2Al \rightarrow 2AlCl_3 + 3Zn$.

Orig Pub: Zh. neorgan. khimii, 1957, 2, No 7, 1620-1628.

Abstract: The reaction $3ZnCl_2 + 2Al \rightarrow 2AlCl_3 + 3Zn$ was studied by the methods of thermography, microstructure and spectral analysis. The reaction proceeds to the end in the direction of Zn and $AlCl_3$ formation. Zn obtained from mixtures $ZnCl_2$ + Al with 15, 25 and 35 equ. % of Al does not contain Al.

Card : 1/1

KAURKOVSKIY, V.I.; PALKIN, A.P.

Physicochemical study of iron ores of the Lipetsk deposit. Trudy VGU 49:111-120 '58. (MIRA 12:1)
(Iron ores--Analysis)

KAURKOVSKIY, V.I.; PALKIN, A.P.

Physicochemical study of the process of siderite oxidation. Trudy VGU 49:121-126 '58. (MIRA 12:1)
(Siderite)

78-3-4-13/38

AUTHOR: Palkin, A. P.

TITLE: On the Problem of the Production of Metals and Alloys by the Interaction of Salts and Metals in Molten State (K voprosu o poluchenii metallov i splavov putem vzaimodeystviya soley s metallami v rasplavlennom sostoyanii)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 4, pp. 911-914 (USSR)

ABSTRACT: The displacement reactions of the systems of metals and metal-salt-halides in molten state were investigated.
In the system $ZnCl_2$-Pb-$PbCl_2$ besides melts of lead and the salt systems $ZnCl_2$-$PbCl_2$ also the metallic system Pb-Zn is formed.
By means of the quaternary system $PbCl_2 + CdCl_2 + 2\ Zn \rightarrow$ $\rightarrow 2\ ZnCl_2 + Pb + Cd$ purest cadmium and lead were produced.
By these methods it is also possible to produce metallic alloys with a definite composition and with definite metals by the displacement reaction in the melt.
Investigations of complicated 5-component systems by means of the displacement reaction of metals and salts are also possible.

Card 1/2

78-3-4-13/38

On the Problem of the Production of Metals and Alloys by the Interaction of Salts and Metals in Molten State

By means of the system $PbCl_2$ + CuCl + AlCl + 2 Zn also by displacement reaction in the melt copper, silver and lead can be obtained, and by means of the system $CdCl_2$ + $ZnCl_2$ + + $TiCl_2$ + 2 Al zinc, cadmium and potassium in purest state. There are 10 figures and 6 references which are Soviet

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet (Voronezh State University)

SUBMITTED: June 25, 1957

Card 2/2

PALKIN, A.P., prof., otv. red.; ZAVGORODNIY, S.V., red.; OCHNEVA, O.S., red.; PERCVA, A.P., red.; UGAY, Ya.A., red.; SHATALOV, A.Ya., red.; SHATALOV, V.P., red.

[Transactions of the Voronezh Branch of the D.I.Mendeleev All-Union Chemical Society] Sbornik trudov Voronezhskogo otdeleniia Vsesoiuznogo khimicheskogo obshchestva imeni D.I.Mendeleeva. Voronezh, Voronezhskoe knizhnoe izd-vo. No.2. 1959. 184 p. (MIRA 17:4)

1. Vsesoyuznoye khimicheskoye obshchestvo imeni D.I.Mendeleyeva. Voronezhskoye otdeleniye.

PALKIN, A.P.; SHCHIROVA, N.A.

Preparation of silver powder and a silver membrane. Trudy VGU 57:19-22 '59. (MIRA 13:5)
(Silver) (Silver-zinc alloys) (Metallic films)

SOV/78-4-[illegible]

3(4)

AUTHORS: Palyura, I. P., Palkin, A. P.

TITLE: On the Question of the Melting Diagram of the System $TlCl-CdCl_2$

(K voprosu o diagramme plavkosti sistemy $TlCl-CdCl_2$)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, No 1, pp 238-238 (USSR)

ABSTRACT: The melting diagram of the system $TlCl-CdCl_2$ was [illegible] examined by a visual-thermic method. Initial components of highest purity were used. The results of the thermic analysis are shown in a table. The liquidus temperatures and all the invariant points of the system were corrected. The composition of the eutectic, consisting of TlCl and the chemical compound $TlCl.CdCl_2$, was corrected and changed from 26.5 mol% to 21 mol%. There are 1 figure, 1 table, and 2 Soviet references.

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet, Kafedra neorgan. khimii (Voronezh State University, Chair of Inorganic Chemistry)

Card 1/2

5(4) SOV/78-4-4-11,44

AUTHORS: Palkin A. P., Chikanov N. D.

TITLE: On the Problem of the Interaction of Niobium Pentachloride With the Chlorides of Potassium and Sodium in Molten State (K voprosu o vzaimodeystvii pyatikhloristogo niobiya s khloristym kaliyem i natriyem v rasplavlennom sostoyanii)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 4, pp 899-90 (USSR)

ABSTRACT: The authors investigated the systems $NbCl_5$-KC and NaC NaC by a visual and differential thermographic method. Niobium pentachloride of a purity of 99.86% was synthesized by chlorination of metallic niobium. Niobium pentachloride was freed from niobium oxychlorides by sublimation in a dry stream of chlorine at 170-190°. Niobium pentachloride attains the melting point at 206°. The system $NbCl_5$-KC was investigated and the phase diagram is given in figure 1. The thermal analysis of the system indicates that niobium pentachloride enters reaction with potassium chloride at 286° with the formation of the congruently melting compound $KNbC_6$ with a

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SOV/78-4-4-[illegible]-44

On the Problem of the Interaction of Niobium Pentachloride With the Chlorides of Potassium and Sodium in Molten State

attains its melting point at 396°. The authors stated polymorphous transformations of this compound at 334° and 150°. Layers are formed within the range 0.1-42.5 mole % KCl. A thermal effect is shown by the thermograms within the range 0.1-50 mole % KCl at 220°. The system $NbCl_5$-NaCl, which was investigated by I. S. Morozov and B. G. Korshunov (Ref [illegible]), was checked and completed. In addition, the liquidus within the range 0-50 mole % NaCl as well as the range of layer formation at 7.5-3.5 mole % NaCl were determined. Figures 3 and 4 show the thermograms of the mixtures of 50 mole % $NbCl_5$ and 50 mole % KCl. The phase diagram of the system $NbCl_5$-NaCl is given in figure 6. The results of thermal analyses of the systems $NbCl_5$-KCl and $NbCl_5$-NaCl are listed in two tables. There are 6 figures, 2 tables, and 5 references, 4 of which are Soviet.

Card 2/2

SOV/78-4-[illegible]

On the Problem of the Interaction of Niobium Pentachloride With [illegible] of Potassium and Sodium in Molten State

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet (Voronezh State University)

SUBMITTED: January [illegible] 1958

Card 1/1

05870

SOV/78-4-11-27/50

5(2)

AUTHORS: Palkin, A. P., Palyura, I. P.

TITLE: On the Interaction in the Ternary System $CdCl_2+2Tl \rightleftharpoons Tl_2Cl_2+Cd$

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 11, pp 2531 - 2535 (USSR)

ABSTRACT: The authors investigated the quaternary system $CdCl_2+Tl_2Cl_2+2Zn \rightleftharpoons 2ZnCl_2+Cd+2Tl$ of which the system mentioned in the title is a component. This article reports on the conditions inside this component. Experiments were made by means of open test tubes in CO_2 atmosphere as well as in sealed Stepanov ampules. The same results were obtained in both cases. Reaction temperature: 450°; reaction time: 30 min. Control tests for 3 days at 500° did not show any variation. The 4 binary systems are briefly discussed. TiCl-$CdCl_2$ which has already been described in publications (Ref 1), but was checked by the authors and described in more detail (Fig 1). Cd-Tl (Fig 2); TlCl-Cl; there are no data available on this system. Experiments have shown that in this system TlCl and Tl melted independently of each other and the liquid melt is completely unmixed. $CdCl_2$-Cl is

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On the Interaction in the Ternary System $CdCl_2+2Tl \rightleftharpoons Tl_2Cl_2+Cd$

05870
SOV/78-4-11-23/30

illustrated in figure 3 according to G. G. Urazov and A. S. Karnaukhov (Ref 3). The following diagonal sections were studied in the ternary system: $CdCl_2$-Tl (Tables 1,2, Fig 4) and TlCl-Cd (Tables 3,4, Fig 5). The reaction proceeded more completely on the diagonal $CdCl_2$-Tl than on the diagonal TlCl-Cd. In the first instance, the reaction takes place according to the equation $3CdCl_2+2Tl \longrightarrow 2(TlCl.CdCl_2)+Cd$. On the diagonal TlCl-Cd, however, only a crystallization of TlCl occurs without any separation of metallic thallium. Consequently, Tl ranges before Cd in the order in which the metals are removed from the melts of their chlorides, but it is to be noted that these metals ($Tl \rightleftharpoons Cd$) may displace each other. There are 5 figures, 4 tables, and 5 Soviet references.

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet, Kafedra neorganicheskoy khimii (Voronezh State University, Chair of Inorganic Chemistry)

SUBMITTED: August 24, 1958

Card 2/2

JUN 25 19[illegible]

PHASE I BOOK EXPLOITATION SOV/6079

Palkin, A. P., Professor

Vzaimosvyaz' i razvitiye troynykh i chetvernykh vzaimnykh sistem v rasplavlennom sostoyanii (Evolution and Interrelationship of Three- and Four-Component Reciprocal Fused-Salt Systems). Khar'kov, Izd-vo Khar'kovskogo univ., 1960. 337 p. 3000 copies printed.

Sponsoring Agency: Voronezhskiy gosudarstvennyy universitet.

Resp. Ed.: Ye. I. Vayl'; Ed.: I. L. Bazilyanskaya; Tech. Ed.: A.S. Trofimenko.

PURPOSE: This book is intended for scientific research workers and engineering personnel in the fields of halurgy, nonferrous metallurgy, and glass manufacture.

COVERAGE: Experimental data on phase diagrams of three- and four-component reciprocal salt systems are reviewed, and the mechanism of evolution from

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simple to complex reciprocal salt systems is studied. The author thanks Professor M. A. Klochko, Doctor of Chemical Sciences, and Ye. I. Vayl'. There are 171 references, mostly Soviet.

TABLE OF CONTENTS:

PALKIN, A. I.

PHASE I BOOK EXPLOITATION SOV/4893

Vsesoyuznoye soveshchaniye po fizike, fiziko-khimicheskim svoystvam ferritov i fizicheskim osnovam ikh primeneniya. 3d, Minsk, 1959

Ferrity; fizicheskiye i fiziko-khimicheskiye svoystva. Doklady (Ferrites; Physical and Physicochemical Properties. Reports) Minsk, Izd-vo AN BSSR, 1960. 655 p. Errata slip inserted 4,000 copies printed.

Sponsoring Agencies: Nauchnyy sovet po magnetizmu AN SSSR Otdel fiziki tverdogo tela i poluprovodnikov AN BSSR.

Editorial Board: Resp. Ed.: N. N. Sirota, Academician of the Academy of Sciences BSSR; K. P. Belov, Professor; Ye. I. Kondor-skiy, Professor; K. M. Polivanov, Professor; R. V. Telesnin, Pro-fessor; G. A. Smolenskiy, Professor; N. N. Shol'ts, Candidate of Physical and Mathematical Sciences; B. M. Smolyarenko; and L. A. Bashkirov; Ed. of Publishing House: S. Kholyavskiy; Tech. Ed.: I. Volokhanovich.

PURPOSE: This book is intended for physicists, physical chemists, radio electronics engineers, and technical personnel engaged in the production and use of ferromagnetic materials. It may also be used by students in advanced courses in radio electronics, physics, and physical chemistry.

COVERAGE: The book contains reports presented at the Third All-Union Conference on Ferrites held in Minsk, Belorussian SSR. The reports deal with magnetic transformations, electrical and galvanomagnetic properties of ferrites, studies of the growth of ferrite single crystals, problems in the chemical and physicochemical analysis of ferrites, studies of ferrites having rectangular hysteresis loops and multicomponent ferrite systems exhibiting spontaneous rectangularity, problems in magnetic attraction, highly coercive ferrites, magnetic spectroscopy, ferromagnetic resonance, magneto-optics, physical principles of using ferrite components in electrical circuits, anisotropy of electrical and magnetic properties, etc. The Committee on Magnetism, AS USSR (S. V. Vonsovskiy, Chairman) organized the conference. References accompany individual articles.

Ferrites (Cont.) SOV/4893

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PALKIN, A. P.

PHASE I BOOK EXPLOITATION SOV/4893

Vsesoyuznoye soveshchaniye po fizike, fiziko-khimicheskim svoystvam ferritov i fizicheskim osnovam ikh primeneniya. 3d, Minsk, 1959

Ferrity; fizicheskiye i fiziko-khimicheskiye svoystva. Doklady (Ferrites; Physical and Physicochemical Properties. Reports) Minsk, Izd-vo AN BSSR, 1960. 655 p. Errata slip inserted. 4,000 copies printed.

Sponsoring Agencies: Nauchnyy sovet po magnetizmu AN SSSR. Otdel fiziki tverdogo tela i poluprovodnikov AN BSSR.

Editorial Board: Resp. Ed.: N. N. Sirota, Academician of the Academy of Sciences BSSR; K. P. Belov, Professor; Ye. I. Kondorskiy, Professor; K. M. Polivanov, Professor; R. V. Telesnin, Professor; G. A. Smolenskiy, Professor; N. N. Shol'ts, Candidate of Physical and Mathematical Sciences; E. M. Smolyarenko; and L. A. Bashkirov; Ed. of Publishing House: S. Kholyavskiy; Tech Ed.: I. Volokhanovich.

PURPOSE: This book is intended for physicists, physical chemists, radio electronics engineers, and technical personnel engaged in the production and use of ferromagnetic materials. It may also be used by students in advanced courses in radio electronics, physics, and physical chemistry.

COVERAGE: The book contains reports presented at the Third All-Union Conference on Ferrites held in Minsk, Belorussian SSR. The reports deal with magnetic transformations, electrical and galvanomagnetic properties of ferrites, studies of the growth of ferrite single crystals, problems in the chemical and physicochemical analysis of ferrites, studies of ferrites having rectangular hysteresis loops and multicomponent ferrite systems exhibiting spontaneous rectangularity, problems in magnetic attraction, highly coercive ferrites, magnetic spectroscopy, ferromagnetic resonance, magneto-optics, physical principles of using ferrite components in electrical circuits, anisotropy of electrical and magnetic properties, etc. The Committee on Magnetism, AS USSR (S. V. Vonsovskiy, Chairman) organized the conference. References accompany individual articles.

Ferrites (Cont.) SOV/4893

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BASHKIROV, L.A. [Bashkirau, L.A.]; PALKIN, A.P.; SIROTA, M.M. [Sirata, M.M.]

Magnesium-nickel-zinc ferrites and some of their properties. Vestsi AN BSSR. Ser.fiz.-tekh.nav. no.2:101-112 '60. (MIRA 13:10)
(Ferrates)

PALKIN, A.P.; PALYURA, I.P.

Interaction in the ternary reciprocal system involving the displacement $Tl_2Cl_2 + Zn = ZnCl_2 + 2Tl$. Zhur.neorg.khim. 5 no.1:160-171 Ja '60. (MIRA 13:5)

1. Voronezhskiy gosudarstvennyy universitet. Kafedra obshchey i neorganicheskoy khimii.
(Systems (Chemistry)) (Zinc chloride)
(Thallium)

PALKIN, A.P.; AFINOGENOV, Yu.P.

Interaction between cuprous chloride and lead in melts. Zhur. neorg.khim. 5 no.1:230-232 Ja '60. (MIRA 13:5)
(Copper chloride) (Lead)

PALKIN, A.P.; KOROTKIKH, G.G.; VLASENKO, N.B.

Interaction in the systems: $CdCl_2$ - $ZnCl_2$ - Al and $CdCl_2$ - TlCl - Al. Zhur. neorg. khim. 5 no.3:637-641 Mr '60. (MIRA 14:6)
(Cadmium chloride)
(Zinc chloride)
(Aluminum)
(Thallium chloride)

PALKIN, A.P.; AFINOGENOV, Yu.P.

Interaction between silver chloride, lead chloride, and zinc in melts. Zhur.neorg.khim. 5 no.7:1555-1558 Jl '60. (MIRA 13:7)

1. Voronezhskiy gosudarstvennyy universitet.
(Silver chloride) (Lead chloride) (Zinc)

PALKIN, A.P., prof.; VAIL', Ye.I., otv. red.; BAZILYANSKAYA, I.L., red.; TROFIMENKO, A.S., tekhn. red.

[Correlation and development of ternary and quaternary reciprocal systems in the fused state] Vzaimosviaz' i razvitie troinykh i chetvernykh vzaimnykh sistem v rasplavlennom sostoianii. Khar'kov, Izd-vo Khar'kovskogo gos. univ. im. A.M.Gor'kogo, 1961. 337 p. (MIRA 14:9)

(Systems (Chemistry)) (Salts)

ZALKIN, A.P.; CHUMAKOVA, G.G.

Interaction in the system $PbCl_2$ $PbBr_2$ 4Tl → 2TlCl + 2TlBr + 2 Pb. Zhur.neorg.khim. 6 no.5:1172-1177 My '61. (MIRA 14:4)

(Systems (Chemistry)) (Displacement reactions)

PALKIN, A.P.; AFINOGENOV, Yu.P.

Interaction in the quaternary reciprocal displacement system $Cu_2Cl_2+PbCl_2+2Zn \rightarrow 2ZnCl_2+2Cu+Pb$. Zhur. neorg. khim. 6 no.7:1636-1641 Jl '61. (MIRA 14:7)
(Systems (Chemistry))

S/078/61/006/008/015/018
B127/B226

AUTHORS: Palkin, A. P., Marshakova, T. A., Vinokurova, A. C.

TITLE: Reactions of indium chloride with aluminum in the melt

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 8, 1961, 1971-1972

TEXT: The authors studied the system $InCl_3 + Al \longrightarrow AlCl_3 + In$ by means of thermographical, chemicoanalytical, and spectroscopic methods. 99.98% chemically pure Al was used for the purpose. Anhydrous $InCl_3$ was produced by chlorination of indium oxide in the presence of carbon at 600°C. The indium oxide was contained in poorly meltable glass cylinders in a circular furnace; the chlorine was dried in Tishchenko cylinders by concentrated H_2SO_4. Then, H_2SO_4 was removed, the furnace heated, and after reaction, $InCl_3$ was cooled in a Cl_2-containing CO_2 flow. Working with hygroscopic $InCl_3$ demanded various precautions, wherefore a modified Stepanov vessel was used. The Al and In weighed-in portions were filled into the vessel, and evacuated to $5 \cdot 10^{-2}$ mm Hg. For the six reactions, a diagram was

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Reactions of indium...

recorded by the Kurnakov [illegible] action process [illegible] of 415 - 450°C showing a high exothermic effect. The metallic [illegible] obtained was washed in hot water and weighed. The quantity of [illegible] consumed in the reaction was calculated by the method of I. V. Tananayev (Ref. 1: Zh. neorgan. khimii, 4, 236 (1959)), one part of the [illegible] analyzed by the polarographic method. It was found that the reaction proceeded vigorously toward the formation of indium. [illegible] was melted in $InCl_3$, and by spectrum analysis, the latter was proved to be not absolutely free from Al. The analytical result [illegible] is given in two figures (Figs. 2, 3) and a table. There are 3 figures, 1 table, and 2 Soviet-bloc references.

Submitted: December 8, 1960

S/078/62/007/006/011/024
B106/B186

AUTHORS: [illegible], A. B., Ivanov, I. I.

TITLE: Reaction of niobium pentachloride with sodium- and potassium chlorides

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 6, 1962, 1370-1376

TEXT: The reaction of $NbCl_5$ with NaCl and KCl was studied by thermal analysis during their crystallization from the melt. For some compositions the electrical conductivity was determined at different temperatures. The phase diagram of the system $NbCl_5$-NaCl-KCl was constructed from the results. The polymorphous high-temperature modifications of the incongruent compound $KNbCl_6$ and the incongruent compound $NaNbCl_6$ form a continuous series of solid solutions; their polymorphous modifications, whose transition points are 318 and 247°C respectively, crystallize in a eutectoid system (eutectoid at 191° and 50% $NbCl_5$, 22% KCl, 25% NaCl). At 390°C, $KNbCl_6$ forms a eutectic with

Card 1/3

Reaction of niobium pentachloride ...

NaCl, composition % NaCl, 42 $NbCl_5$, [illegible] KCl. Passing from the binary system $NbCl_5$-NaCl to the section NaCl-$KNbCl_6$ and further to the system $KNbCl_6$-KCl, the peritectic process is replaced by a eutectic one, the temperature dropping from 444 to 361°C. A monotectic demixing comes next to the binary systems $NbCl_5$-NaCl and $NbCl_5$-KCl. It covers a considerable part of the corner contained by the sides $NbCl_5$-$KNbCl_6$ and $NbCl_5$-$NaNbCl_6$. $NbCl_5$, $KNbCl_6$, and $NaNbCl_6$ form a eutectic which is close to the axis of the composition $NbCl_5$, and whose melting point is practically the same as the crystallization temperature of pure $NbCl_5$. A large part of the liquidus surface of the system $NbCl_5$-NaCl-KCl consists of the fields of primary crystallization of the components: NaCl, solid solution NaCl-KCl, solid solution α-$KNbCl_6$-α-$NaNbCl_6$. The mixtures adjoining the vertex $NbCl_5$ are low-melting, those adjoining the vertices

Card 2/3

NaCl and KCl are high-melting. The transition temperature corresponding to the polymorphous low-temperature modification of $NbCl_5$ decreases in the ternary mixtures from [illegible] to [illegible]. In the common crystallization of $NbCl_5$, KCl and NaCl a small region is probably formed which is a solid solution on $NbCl_5$ basis. The polymorphous transformations $\beta \rightarrow \alpha$-$NaNbCl_6$ and $\beta \rightarrow \alpha$-$KNbCl_6$ are accompanied by a considerable increase in electrical conductivity and by pronounced thermal effects. In the system $NbCl_5$-KCl it is assumed that the incongruent compound $2KCl \cdot 3NbCl_5$ is formed. It exists between 210-160°C at a KCl content up to 50%. There are 1 figure and 1 table.

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet (Voronezh State University)

SUBMITTED: June 9, 1961

PALKIN, A.P.; POLIVANOVA, T.A.

Quaternary reciprocal system consisting of sodium and thallium chlorides, bromides, and sulfates. Zhur. neorg. khim. 7 no.8:1983-1989 Ag '62. (MIRA 16:6)

1. Voronezhskiy gosudarstvennyy universitet, kafedra neorganicheskoy khimii i Voronezhskiy meditsinskiy institut, kafedra obshchey khimii.
(Systems(Chemistry))

B144, B156

AUTHORS: Palkin, A. P., Chirkanov, N. D.

TITLE: Interaction of tantalum pentachloride with sodium and potassium chlorides

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 1, 1962, [illegible]

T.-T: The phase diagram of the $TaCl_5$-NaCl-KCl system was [illegible] justifies the following conclusions: 1) At 389°C $KTaCl_6$ and [illegible] eutectic (composition: 1.6% NaCl, 49.1% $TaCl_5$, 49.1% KCl). 2) $KTaCl_6$ and $NaTaCl_6$ form a complete series of solid solutions. Their [illegible] modifications with decomposition temperatures of 310 and [illegible]°C [illegible] limited series of solid solutions. The composition and temperature corresponding to the eutectoid point are: 50% $TaCl_5$, 20% KCl, 30% NaCl; 180°C. 3) A temperature drop from 484 through 380 to 37[illegible]°C is observed owing to a transition from the peritectic process in the $TaCl_5$-NaCl [illegible]

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S/078/62/007/011/004/022
B144/B186

Interaction of tantalum...

to eutectic [illegible] in the $KTaCl_6$-NaCl and $KTaCl_6$-KCl [illegible] ition takes place at [illegible]°C with [illegible] NaCl. Monotectic [illegible] observed in the $TaCl_5$-NaCl system up to 30% NaCl (404°C) and in the $TaCl_5$-KCl system up to 45% KCl (214°C). They blend without [illegible] 5) The [illegible] formed by $TaCl_5$, $KTaCl_6$, and $NaTaCl_6$ follow [illegible] mole- axis of $TaCl_5$. Its temperature coincides with the cry[illegible] temperature of pure $TaCl_5$. 6) The liquidus surface of the $TaCl_5$-[illegible] system consists mainly of crystallization regions of the solid [illegible] NaCl-KCl, of NaCl, and of the solid solution α-$KTaCl_6$ - ε-$NaTaCl_6$. The [illegible] the NaCl and KCl corners are high-melting, those close to the [illegible] are low-melting. 7) The temperature 195°C corresponding to the [illegible] decomposition β→α-$KTaCl_6$ drops to 161°C for the ternary system $TaCl_5$-$KTaCl_6$-NaCl; this is explained by the existence of a small [illegible] of β-$KTaCl_6$-$NaTaCl_6$ solid solutions. 8) The electrical conductivity of

Card 2/3

Interac[illegible] of [illegible]...

S/078/62/007/[illegible]
P144/B[illegible]

$TaCl_5$-$NaCl$-KCl melts [illegible] by the polym[illegible] [illegible] $\beta \rightarrow \alpha$-$NaTaCl_6$ and [illegible]-$nTaCl_5$. There are 2 figures and 2 tables.

AS[illegible]: Voronezhskiy gosudarstvennyy universitet (Voronezh State University)

[illegible]: January 12, 1962

Card [illegible]

S/078/[illegible]
B144/B186

AUTHORS: Patkin, A. P., Chikanov, N. D.

TITLE: Interaction between niobium and tantalum pentachl[illegible] sodium and potassium chlorides

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 10, 1[illegible]

TEXT: Melting point diagrams were plotted for the systems: (1) [illegible] $TaCl_5$-NaCl; (2) $NbCl_5$-$TaCl_5$-KCl. (1) The polymorphous modifications of the incongruently melting compounds $NaTaCl_6$ and $NaNbCl_6$ form a [illegible] series of solid solutions without extremes. The peritectic [illegible] follows the scheme: melt + NaCl $\rightleftharpoons$ solid α-$NaTaCl_6$ - α-$NaNbCl_6$ [illegible] Transition is continuous from the $TaCl_5$-NaCl system at 48 % NaCl [illegible] NbCl-NaCl system at 44 % NaCl with a temperature drop from 484 t[illegible] The liquidus surface corresponding to the NaCl crystallization [illegible] steeply from the interface curve. Decomposition between the solid solutions α-$NaNbCl_6$ - α-$NaTaCl_6$ $\rightleftharpoons$ β-$NaNbCl_6$ - β-$NaTaCl_6$ is accompanied [illegible]

Card 1/3

intense change in temperature. Demixing was observed up to [illegible] irrespective of the $NbCl_5$:$TaCl_5$ ratio. The liquidus surface [illegible] crystallization ranges of NaCl and of solid α-$NaNbCl_6$ - α-$NaTaCl_6$ [illegible] and a small range of solid $NbCl_5$-$TaCl_5$ solution. (2) The [illegible] melting compounds α-$KTaCl_6$ and α-$KNbCl_6$ and their β-modifications [illegible] complete series of solid solutions without extremes, with a temperature drop from 410 to 396°C. The low-temperature γ-modifications form a narrow series of solid solutions with a weak minimum. The temperature [illegible] tion from systems with less than 50 % KCl to the systems with [illegible] 50 % KCl suggest a small range of solid $KNbCl_6$-KCl solutions. The [illegible] surface ascends steeply from the eutectic line that corresponds to crystallization of the solid α-$KTaCl_6$ - α-$KNbCl_6$ solution with KCl. [illegible] surface includes ranges of KCl and solid solution $KTaCl_6$-$KNbCl_6$, with a small range of the solid solution $TaCl_5$-$NbCl_5$. Demixing is independent of the $TaCl_5$:$NbCl_5$ ratio up to 40 % KCl. It is true, for both cases, [illegible]

the melts near the monochloride vertex are high-melting, and those near the pentachloride vertices are low-melting. The line of crystallization of the solid β-solutions with the solid pentachloride solutions lies near the mole% axis of the pentachloride. There are 2 figures and 2 tables.

SUBMITTED: January 12, 1962

Card 3/3

PALKIN, A.P.; AFINOGENOV, Yu.P.

Interaction in the system AgCl + Cu $\rightleftarrows$ CuCl + Ag.
Zhur.neorg.khim. 7 no.11:2606-2610 N '62. (MIRA 15:12)

1. Voronezhskiy gosudarstvennyy universitet.
(Systems (Chemistry)) (Silver chloride)
(Copper chloride)

PALKIN, A.P.; AFINOGENOV, Yu.P.

Interaction in the quaternary reciprocal displacement system $AgCl + CuCl + Zn \rightarrow ZnCl_2 + Ag + Cu$. Zhur.neorg.khim. 7 no.11:2611-2616 N '62. (MIRA 15:12)

1. Voronezhskiy gosudarstvennyy universitet.
(Systems (Chemistry)) (Thermal analysis)

PALKIN, A.P.; OSTRIKOVA, N.V.

Melting diagram of the system $GaCl_2$ - $AlCl_3$. Zhur.neorg.khim. 7 no.11:2635-2636 N '62. (MIRA 15:12)

1. Voronezhskiy gosudarstvennyy universitet, kafedra neorganicheskoy khimii.
(Germanium chloride) (Aluminum chloride)
(Thermal analysis)

[illegible]EIKAN V, N.D.; PALKIN, A.[illegible], [illegible]IZIAYEVA, M.K.

Thermal study of the systems $TaCl_3$ - KCl - $AlCl_3$ and $TaCl_5$ - KCl - $AlCl_3$. Izv. vys. ucheb. zav.; khim. i khim. tekh. 6 no.3:355-360 '63. (MIRA 16:8)

1. Voronezhskiy gosudarstvennyy universitet, kafedra neorganicheskoy khimii.

(Systems (Chemistry)) (Thermal analysis)

S/078/63/008/001/024/026
B117/B108

AUTHORS: Palkin, A. P., Vinogradova, T. N., Glotova, L. I.

TITLE: Melting-point diagram of the system $InCl_3$ - TlCl

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 8, no. 1, 1963, 253-254

TEXT: Highly hygroscopic indium chloride (melting point 580°C) was produced by chlorination of metallic indium and subsequent topping in a chlorine flow. Thallium chloride (melting point 430°C) was precipitated from thallium nitrate by means of hydrochloric acid, and then recrystallized from a hot aqueous solution. The system $InCl_3$ - TlCl was studied by thermal differential analysis with simultaneous visual observation of the crystal formation. Two compounds were found: the incongruently melting $InCl_3 \cdot 2TlCl$ with melting point 350°C and polymorphic conversion at 320°C, and the congruently melting (480°C) $InCl_3 \cdot 3TlCl$. The system showed two eutectic points at 260 and 390°C corresponding to the compositions with 48 and 6.4 mole% $InCl_3$, respectively. There are 1 figure and 1 table.

Card 1/2

Melting-point diagram of the ...

S/078/63/008/001/024/026
B117/B108

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet, Kafedra neorganicheskoy khimii (Voronezh State University, Department of Inorganic Chemistry)

SUBMITTED: May 7, 1962

Card 2/2

PALKIN, A.P.; AFINOGENOV, Yu.P.

Interaction in the system $2AgCl + Pb \rightarrow PbCl_2 + 2Ag$. Zhur.neorg.khim. 8 no.2:379-383 F '63. (MIRA 16:5)

1. Voronezhskiy gosudarstvennyy universitet.
(Silver chloride) (Lead chloride)

PALKIN, A.P.; POLIVANOVA, T.A.

Quaternary system Tl_2Cl_2 - Tl_2Br_2 - Na_2SO_4 - K_2SO_4. Zhur. neorg. khim. 8 no.4:959-963 Ap '63. (MIRA 16:3)
(Thallium halides) (Alkali metal sulfates) (Systems (Chemistry))

CHIKANOV, N.D.; PALKIN, A.P.; BIZYAYEVA, M.K.

Thermal study of the systems Na, K || $AlCl_4$, Ta (Nb) Cl_6.
Zhur. neorg. khim. 8 no.8:1938-1944 Ag '63. (MIRA 16:8)

1. Kafedra neorganicheskoy khimii Voronezhskogo gosudarstvennogo universiteta.
(Systems (Chemistry)) (Thermal analysis)

PALKIN, A.P.; OSTRIKOVA, N.V.; VIGUTOVA, T.N.

Interaction in the system $InCl_3$ - In . Zhur. neorg. khim. 8 no.11:2566-2568 N '63. (MIRA 17:1

1. Voronezhskiy gosudarstvennyy universitet, kafedra neorganicheskoy khimii.

PALKIN, A.P.; AFINOGENOV, Yu.P.; MUSHENKO, Ye.S.

Interaction in the system $AgCl + CuCl + Pb \rightarrow PbCl_2 + Ag + Cu$.
Zhur. neorg. khim. 8 no.11:2580-2584 N '63. (MIRA 17:1)

1. Voronezhskiy gosudarstvennyy universitet.

PALKIN, A.P.; POLIVANOVA, T.A.

Quinary reciprocal system consisting of chlorides, bromides, sulfates of sodium, potassium, and thallium. Zhur. neorg. khim. 9 no.3:709-717 Mr '64. (MIRA 17:3)

1. Kafedra neorganicheskoy khimii Voronezhskogo gosudarstvennogo universiteta i Kafedra obshchey khimii Voronezhskogo meditsinskogo instituta.

L 15175-65 EWT(m)/EWP(t)/EWP(b) JD/JG
ACCESSION NR: AP4043589 S/0078/64/009/008/2043/2044

AUTHOR: Palkin, A. P.; Ostrikova, N. V.

TITLE: The $GaCl_3$-Ga system

SOURCE: Zhurnal neorganicheskoy khimii, v. 9, no. 8, 1964, 2043-2044

TOPIC TAGS: $GaCl_3$-Ga system, differential thermal analysis, phase diagram, polymorphic transition, Ga_4Cl_9, $GaCl_2$, salt phase, metallic phase

ABSTRACT: The $GaCl_3$-Ga system was studied by the differential thermal analytical method. The phase diagram was constructed (fig. 1). A polymorphic transition occurred at 58C. Two compounds were noted in the system; Ga_4Cl_9, melting incongruently at 87C, and $GaCl_2$ melting congruently at 170C. Melts containing over 66.67% mol% $GaCl_3$ were monophasic salt phase; melts containing less $GaCl_3$ consisted of two layers--a salt and a metallic phase. Orig. art. has: 2 figures and 1 table.

Card 1/3

L 15175-65
ACCESSION NR: AP4043589

ASSOCIATION: Voronezhskiy gosudarstvenny*y universitet Kafedra neorganicheskoy khimii. (Voronezh State University, Department of Inorganic Chemistry)

SUBMITTED: 03Mar64 ENCL: 01

SUB CODE: GC NO REF SOV: 000 OTHER: 001

Card 2/3

L 15175-65
ACCESSION NR: AP4043589

ENCLOSURE: 01

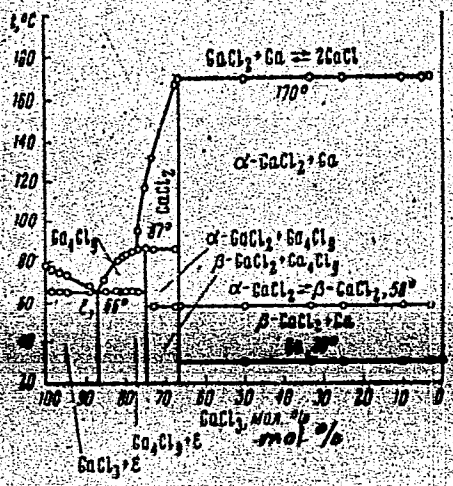

Fig. 1
Phase diagram of the $GaCl_3$-Ga system

Card 3/3

ACCESSION NR: AP4043770 S/0080/64/037/008/1830/1834

AUTHOR: Chikanov,N. D.; Palkin, A. P.

TITLE: Thermal study of the systems $TaCl_5$-$MgCl_2$-KCl and $NbCl_5$-$MgCl_2$-KCl

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 8, 1964, 1830-1834

TOPIC TAGS: Kurnakov pyrometer, liquidus, primary crystallization field, four-phase equilibrium, tantalum

ABSTRACT: The authors conducted a study of the fusibility diagrams of the systems. The cooling and heating curves were recorded on a Kurnakov pyrometer. In addition, visual observations were also conducted. Methods of preparing the initial substances as well as the execution of the experiment were described by the authors in previous papers (AhNKh, 7, 1370(1962); AhIKh, 7, 2388(1962)). Based on data from a differential-thermographic analysis the authors constructed fusibility diagrams of the systems $TaCl_5$-$MgCl_2$-KCl and $NbCl_5$-$MgCl_2$-KCl, and have proven that the surface of the liquidus of these systems consist of large fields of primary crystallization of KCl, $MgCl_2$, $KMgCl_3$ and small fields of $KTaCl_6$($KNbCl_6$), $TaCl_5$($NbCl_5$). The authors

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ACCESSION NR: AP4043770

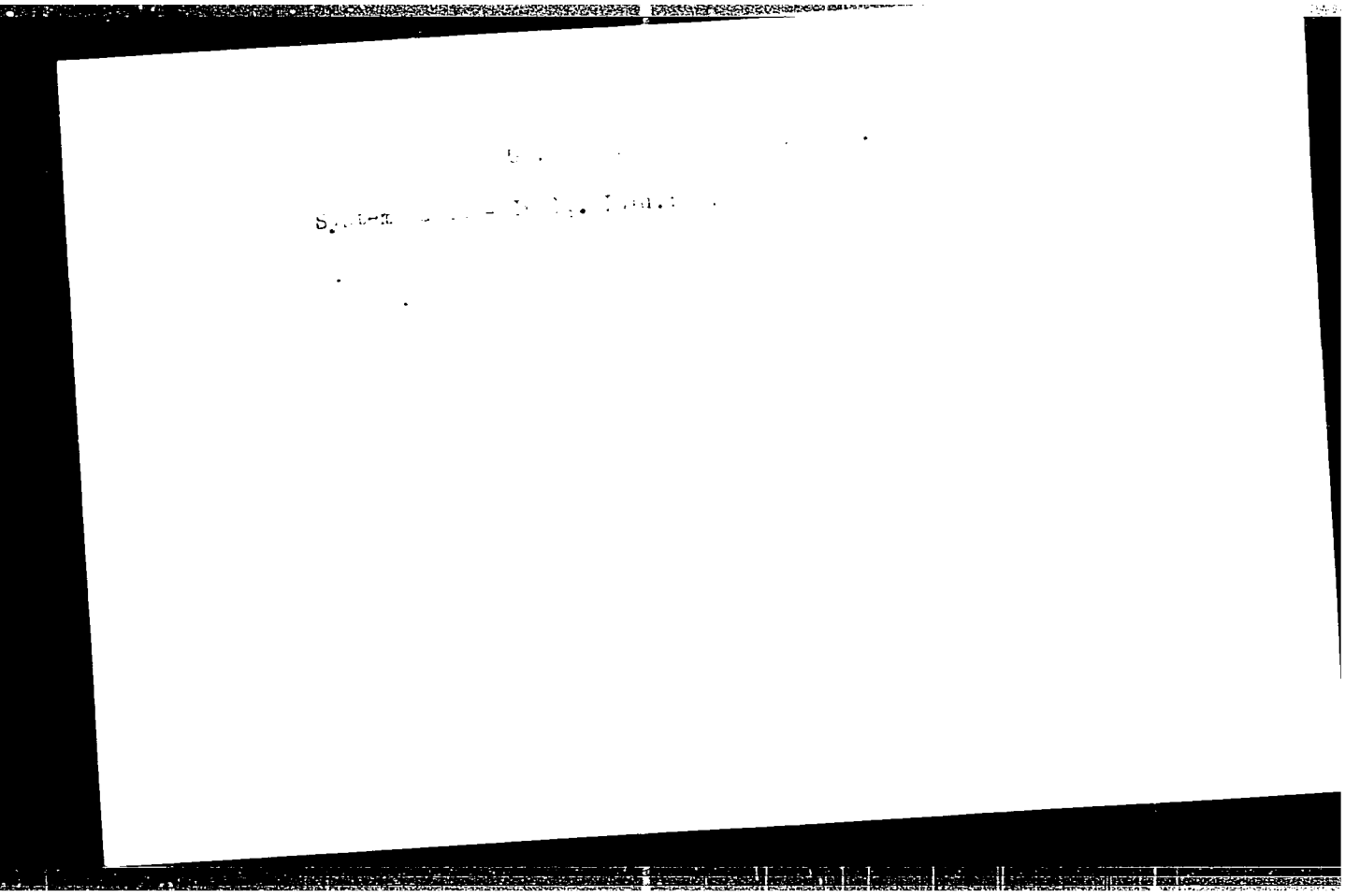
concluded that the elasticity of the $TaCl_5$ vapor over the fusion of the mixtures KCl, $KMgCl_3$ and $KTaCl_6$ (up to 500°C) is insignificant. This very important circumstance makes it possible to use these mixtures for obtaining tantalum electrolitically. Orig. art. has: 2 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 02Nov62

SUB CODE: IC, MT NO REF SOV: 004 ENCL: 00 OTHER: 000

Card 2/2



PALKIN, A.P. [deceased]; POLIVANOVA, [illegible]

Singular star of the system Na, K, [illegible] [illegible]
khim. 9 no. [illegible] 1964.

1. Voronezhskiy gosudarstvennyy universitet, Kafedra neorganicheskoy khimii [illegible] i Voronezhskiy meditsinskiy institut, [illegible] khimii.

PALKIN, A.P. [deceased]; PALYURA, I.P.

System $(TlCl)_3 + Al \rightleftarrows AlCl_3 + (Tl)_3$. Zhur. neorg. khim. 9 no.11 2613-2618 N '64 (MIRA 18:1)

Effect of complex formation on the equilibrium of the salt-metal displacement systems. Ibid. 2619-2622

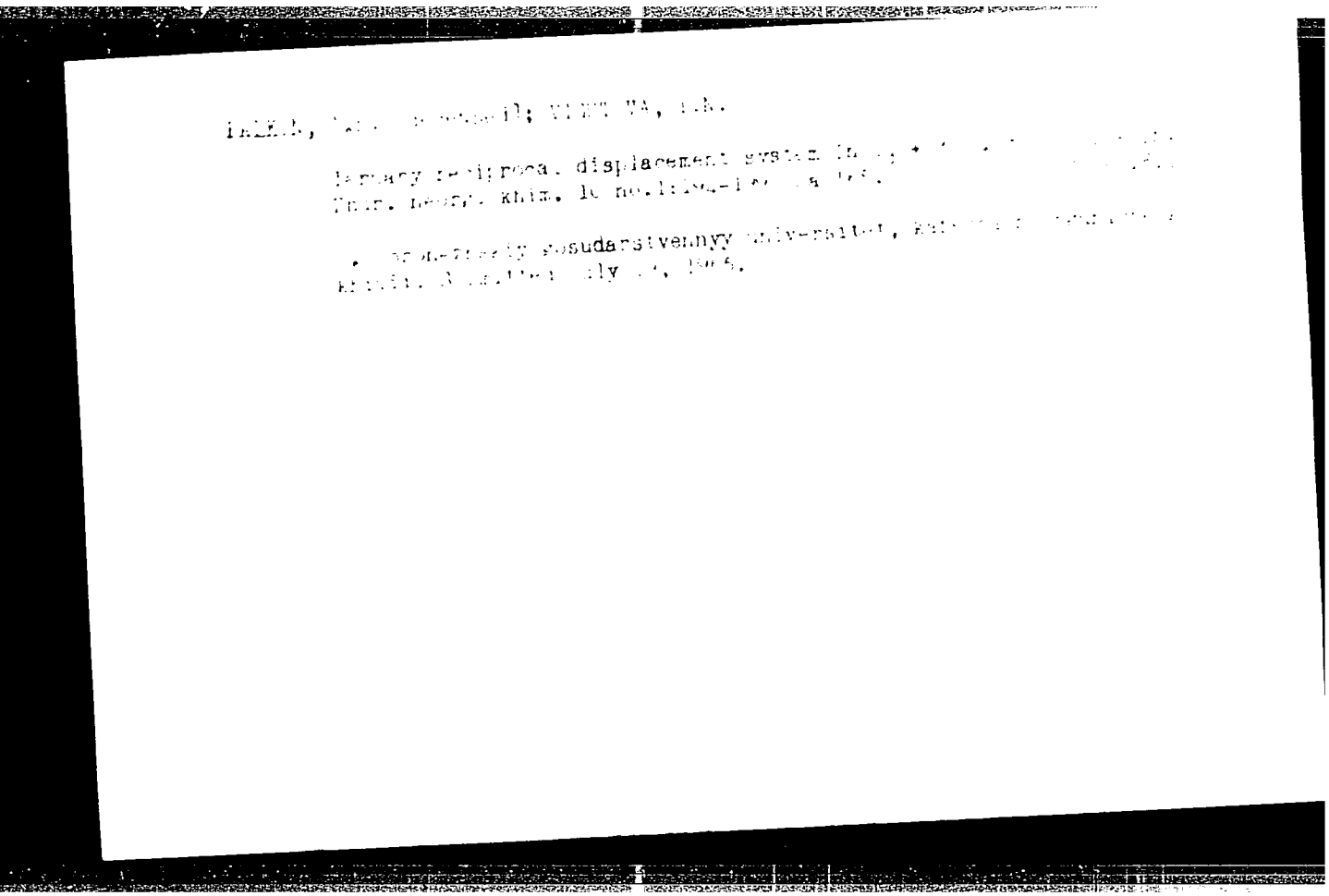
System $AlCl_3$ - TlCl. Ibid. 2668-2669

1. Kafedra neorganicheskoy khimii Voronezhskogo gosudarstvennogo universiteta.

CHIKANOV, N. [illegible]

System [illegible] - Na[illegible] - [illegible]. Zhur. neorg. khim. 10 no. [illegible] My '65. (MIRA 18:6

1. Voronezhskiy gosudarstvennyy universitet, kafedra neorganicheskoy khimii.



LERNER, Boris Markovich; LEBELEV, Viktor [illegible]; FA[illegible], Aleksandr Prokof'yevich; SAZ[illegible], A.[illegible], [illegible].

[Diesel D trains; working principles, [illegible], maintenance and repair] Dizel'nye poezda D; [illegible], ekspluatatsiia i remont. Moskva, Transport, [illegible]. [illegible]. (MIA [illegible])

28(5),15(9)
AUTHORS: Yegorova, M. I., Palkin, B. A., Slonimskiy, G. L.

SOV/32-25-9-38/53

TITLE: Micro-hardness Gauge for Rubber

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 9, pp 1127-1129 (USSR)

ABSTRACT: The micro-hardness gauges (MG) for rubber (R) (Ref 1) at present used possess a low sensitivity with respect to the hardness (H) change of (R) with medium or higher (H) (above 60 Shore units) and also show considerable differences with parallel measurements of one and the same sample. The micro-hardness of (R) is to be evaluated according to two readings taken within a certain period of time i.e. according to the depth of penetration of the indentor (I) which has definite dimensions and a definite shape and is under a definite pressure, as well as according to the degree of residual deformation (RD) after a reduction of the stress. A (MG) was designed which permits measurements of the penetration depth of the (I) as well as the (RD) under the influence of temperature, a medium, repeated deformations, etc., on (R) and similar materials. The following working procedure was chosen:

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30 seconds load application, 60 seconds maintenance of full load, 30 seconds load removal. The device (Fig 2) basically consists of an optical system (with two objectives and an illuminator tube of the type OI-1), a semi-automatic load application unit, the (I) unit, the objective stage, and a sturdy stand. The two latter parts were taken over from the (MG) of the type PMT-3 designed for metal tests. The total load of the (I) amounts to 21 g, the (RD) being determined at a load reduction of 20 g. For particularly accurate measurements A. L. Dorofeyev designed an electronic apparatus of the type IT-1 in the VIAM by means of which position changes of the (I) of 0.5 μ can be measured. The tests showed that measurements of samples of a thickness of 0.5-5 mm can be made. A linear function between the penetration depth of the (I) and the (H) (Fig 3, measurements of SKB and SKN rubber) was determined according to Shore by means of the (MG) of the type TM-2. Hardness changes of 10 Shore units correspond to a penetration depth change of the (I) of 40 μ, i.e., the described (MG) is four times as sensitive as the

Micro-hardness Gauge for Rubber SOV/32-25-9-38/53

device TM-2 according to Shore, and may, in contrast with the other devices, be used for measurements of the hardest (R) types. There are 4 figures and 2 references.

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SOV/32-25-3-32/62

25(2)
AUTHORS: Drozdovskiy, B. A., Falkin, B. A., Kazanov, ... V.

TITLE: Resonance-vibrator for the Production of Cracks in Samples (Rezonansnyy vibrator dlya sozdaniya treshchin v obraztsakh)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 3, pp 341-343 (USSR)

ABSTRACT: Methods of testing cracked samples have already been reported on (Ref 1). Since the methods of producing cracks in samples used so far take up too much time, a resonance-vibrator unit for producing cracks was constructed (Figs 1,2). The vibrator (according to TsAGI), which can be freely shifted along the tube, is fastened to the tube at the support. Vibration speed of the vibrator disk: 1500 rpm, length of the tube: 400 mm, weight of the vibrator with support: 1 kg, outer diameter of the tube: 45 mm, inner diameter: 35 mm. With an amplitude of 5-6 mm cracks can be produced within 3-4 minutes. Investigations of the influence of the load frequency which were carried out by periodical impact tests on cracked samples on the one hand (150 impacts/min) and on the vibrator on the other hand (frequency: 900 periods/min), showed no difference for medium-resistant steel 30KhGSA and highly-resistant steel 30KhGSNA.

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Resonance-vibrator for the production of cracks in samples

Cracked samples of the same material with the dimensions 10 × 8 mm and 5 × 4 mm were tested and a comparison of the results showed that both tests give the same classification and, for the most part, give absolute values of the specific work similar to those obtained in impact bending tests. There are 2 figures and 1 Soviet reference

Card 2/2