

SHEVTSOVA, A.M.

Characteristics of the chemical composition of onions grown on marshy soils. Dokl. AN BSSR 6 no.7:460-461 J1 '62. (MIRA 16:8)

1. Belorusskiy nauchno-issledovatel'skiy institut plodovodstva, ovoshchevodstva i kartofelya. Predstavleno akademikom AN BSSR T.N. Godnevym.

(Onions)

USSR/Cultivated Plants - Technical, Oleaginous, Sacchariferous. n-7

Abstr Jour : Rev Jour - Biol., No 9, 1958, 39430

Author : Lofte, R.Ya., Shevtsova, D.I.

Inst : All Union Scientific Research Institute of Bast Cultivation

Title : The Time of Garbo Hemp (*Humulus Cannabis*) Sowing in Uzbekistan.

Orig Pub : Tr. Vses. n.-i. in-ta kul'tur, 1957, vyp. 22, 132-137.

Abstract : No abstract.

Card 1/1

- 123 -

CHERTKOV, Yakov Borisovich; BOL'SHAKOV, Gennadiy Fedorovich;  
GULIN, Yevgeniy Il'ich; DAVYDOV, P.I., nauchn. red.;  
SHEVTSOVA, E.M., ved. red.; YASHCHURZHINSKAYA, A.B.,  
tekh. red.

[Jet fuels] Topliva dlia reaktivnykh dvigatelei. Le-  
ningrad, Izd-vo "Nedra," 1964. 225 p. (MIRA 17:3)

MARA: ZIN, Aleksandr Vasil'yevich; YERMOLAYEV, Vasiliy Mikhaylovich  
[deceased]; SHEVTSOVA, E.M., ved. red.

[Boring structural prospecting holes] Burenie strukturno-  
poiskovykh skvazhin. Izd.2., isp. i dop. Leningrad, Ned-  
ra, 1964. 390 p. (MIRA 17:9)

SHEVTSOVA, G.B.

Age changes in the topography of the peripheral part of the facial nerve in man. Stomatologiya 35 no.5:53-54 S-O '56 (MLRA 10:4)

1. Iz kafedry normal'noy anatomii II Moskovskogo meditsinskogo instituta imeni I.V. Stalina (nauchnyy rukovoditel'-deystvitel'nyy chlen AMN SSSR prof. V.N. Ternovskiy)  
(NERVES, FACIAL)

SHEVTSOVA, G.N.; SHORSHER, I.N.

Nitronic acid salts as collectors in the flotation of oxidized  
ores. Obog. rud 4 no.4:7-9 '59. (MIRA 14:8)  
(Flotation--Equipment and supplies)

SHEVTSOVA, I.

Device for testing hydraulic cranes. Avt. transp. 41 no.3:33  
Mr '63. (MIRA 16:4)

(Cranes, derricks, etc.—Testing)

SHEVTSOVA, I. I., Cand Biol Sci (diss) -- "Changes in the properties of certain soil bacteria in the rhizosphere of agricultural plants". Kiev, 1959. 16 pp  
(Min Higher and Inter Spec Educ Ukr SSR, Kiev Order of Lenin State U in T. G. Shevchenko, Chair of Microbiology and Antibiotics), 200 copies (KL, No 11, 1960, 131)



SHEVTSOVA, I.I.

Spore formation in phosphorus and silicate bacteria occurring  
in the rhizosphere of some agricultural plants. Mikrobiol.  
zhur. 21 no.1:32-36 '59. (MIRA 12:6)

1. Z kafedri mikrobiologii ta antibiotikiv Kiivs'kogo derzhavnogo  
universitetu.

(RHIZOSPHERE MICROBIOLOGY) (BACTERIA, PHOSPHORUS)  
(BACTERIA, SILICATE)

SHEVTSOVA, I.I.

Effect of root sap from leguminous plants on nodule bacteria [with summary in English]. Mikrobiologiya 28 no.1:75-79 Ja-F '59.  
(MIRA 12:3)

1. Kiyevskiy gosudarstvennyy universitet imeni T.G. Shevchenko.

(BACTERIA,

root nodule bact., eff. of leguminous plant root  
juices (Rus))

(PLANTS, -

eff. of leguminous plant root juice on root nodule  
bact. (Rus))

SHEVTSOVA, I.I.

Effect of perennial leguminous plants on some facultative pathogenic  
bacteria in soils. Mikrobiol. zhur. 22 no. 1:33-37 '60.  
(MIRA 13:10)

1. Iz Kiyevskogo gosudarstvennogo universiteta im. T.G. Shevchenko,  
kafedra mikrobiologii.  
(LEGUMINOSAE) (BACTERIA, PATHOGENIC) (RHIZOSPHERE MICROBIOLOGY)

SHEVTSOVA, I.I.

Characteristics of phosphorus and silicate bacteria in the  
rhizosphere at different phases of plant growth. Visnyk.  
Kyiv. un. no. 4. Ser. biol. no.2:69-72'61. (MIRA 16:6)  
(BACTERIA, PHOSPHORUS) (BACTERIA, SILICATE)  
(RHIZOSPHERE MICROBIOLOGY)

SAVINA, I.I.

Isolation of acid bacteria actively dissolving calcium phosphates.  
Nauch. dokl. vys. shkoly; biol. nauk no. 1:175-177, 1965.

(MIRA 18:2)

1. Rekomendovana kafedroy mikrobiologii i antibiotikov P'jetrovskogo  
gosudarstvennogo universiteta.

SHEVTSOVA, I.N., kandidat veterinarnykh nauk.

Use of hypertonic solutions of sodium chloride in veterinary therapy. Veterinariia 30 no.3:44-49 Mr '53. (MLRA 6:3)

1. Sverdlovskiy sel'skokhozyaystvennyy institut.

SHEVTSOVA, I.N., dotsent.

Intravenous injections of hypertonic salt solutions in some diseases of domestic animals. Veterinariia 32 no.9:60-63 S 155. (MLRA 8:12)

1.Sverdlovskiy sel'skhozayastvennyy institut.  
(INJECTIONS, SALINE) (VETERINARY MEDICINE)

SHEVTSOVA, I.M., nauchnyy sotrudnik

Case of the poisoning of cows by sugar beets. Veterinariia 41  
no.3:72 Mar '65. (MIRA 18:4)

i. Nauchno-proizvodstvennaya laboratoriya po boleznyam molodnyaka  
zhivotnykh Ministerstva proizvodstva i zagotovok sel'skokhozyayst-  
vennykh produktov RSFSR.



L 30791-66 EWT(1)/T JK

ACC NR: AP6022091 (A,N)

SOURCE CODE: UR/0346/66/000/003/0040/0042 28

AUTHOR: Malakhova, T. I. (Candidate of veterinary sciences, Manager); Shevtsova, I. N. (Candidate of veterinary sciences); Zaytseva, L. P. (Director); Chudnovskiy, Ye. I. (Chief veterinary physician of Lyubertsy district of Moscow Region)

ORG: /Malakhova/ Production Section, Scientific-Production Veterinary Laboratory, MSKh, RSFSR (Proizvodstvennyy otdel Nauchno-proizvodstvennyy veterinarnoy laboratorii); /Shevtsova/ Scientific-Production Veterinary Laboratory, MSKh, RSFSR (Nauchno-proizvodstvennaya veterinarnaya laboratorii); /Zaytseva/ Lyubertsy Interdistrict Veterinary Laboratory (Lyuberetskaya mezhrayonnaya veterinarnaya laboratoriya)

TITLE: Preparation and use of blood from convalescent animals for foot-and-mouth disease 0

SOURCE: Veterinariya, no. 3, 1966, 40-42

TOPIC TAGS: foot and mouth disease, blood, epizootiology, experiment animal, preventive medicine, animal disease therapeutics

ABSTRACT: A total of 7,821 cattle and 1,400 swine were inoculated with blood obtained from animals convalescing from foot-and mouth disease. The results were best in calves up to one month old when the dose was 2.5-3 ml per kg of animal weight. Very few of the animals contracted the disease even in the midst of an epizootic. And in the few that did the course was very mild, with the animals having a normal temperature and good appetite. In most cases the inoculations halted the outbreak.

The blood of convalescent animals was also administered to very sick adult cows and bulls in doses of 500-600 ml and 700-800 ml, respectively. The course of the disease was much milder and recovery took place sooner than in the control.

Thus, the use of blood from animals recovering from foot-and-mouth disease has both prophylactic and therapeutic value. Orig. art. has: 2 figures. [JPRS]

SUB CODE: 06, 02/ SUBM DATE: none

Card 1/1

UDC: 619:616.988.43-085.3757: 636.2

Shevtsova, K.

Method of obtaining new liver preparations for subcutaneous injection. L. Pozhariskaya, K. Shevtsova, and T. Krasil'nikova. *Mysl'sya* *Med. S.S.S.R.* 45, No. 4, 47-8 (1964).—This method of prepn. of antianemia concentrate for subcutaneous injections includes: Aq. extrn. of livers at pH 4.8-4.9 and 70° filtration. pptn. with  $(NH_4)_2SO_4$ , filtration, treatment of ppt. with 70% EtOH, filtration to remove ppt., another pptn. with 10 vols. EtOH at pH 4.5, filtration, soln. of ppt. in distil. water so that each ml. of prepn. represents 20 kg. of original liver, warming at 85° for 1 hr., filtration under sterile conditions, and placing in ampuls at 2 ml. per ampul. M. M. Fiskur

YELOSHOVICH, B.; SHEVTSOVA, K.

Questions and answers, Mias. ind. SSSR 32 no. 5:52-53 '61.  
(MIRA 14:11)

(Pituitary body)  
(Liver extract)

SHEVTSOVA, K.A., starshiy nauchnyy sotrudnik; PENKIN, B.A., inzh.

Mechanization of the operations of bottling and stoppering of  
liquid hematogen. Trudy VNIIMP no.9:109-114 '59. (MIRA 13:8)  
(Hematogen)

SHEVTSOVA, K.A., starshiy nauchnyy sotrudnik

Production of highly active heparin for therapeutic use. Trudy  
VNIIMP no.14:102-111 '62. (MIRA 16:8)  
(Heparin)

SHEVTSOVA, L.M.

At the Kalach Observation Station. Zashch. rast. ot vred. i bol.  
5 no.4;50-52 Ap '60. (MIRA 13:9)

1. Zaveduyushchaya punktom sluzhby ucheta i prognozov Voronezhskoy  
oblasti.

(Kalach District--Plant protection)

SHEVTSOVA, N.G.

Early detection of coronary insufficiency in diseases of the abdominal cavity. Vrach. delo no.8:73-76 Ag '60. (MIRA 13:9)

1. Kafedra fakul'tetskoy terapii lechebnogo fakul'teta (zav. -  
zasl. deyatel' nauki, prof. M.A. Yasinovskiy) Odesskogo meditsin-  
skogo instituta.

(ABDOMEN—DISEASES)

(CORONARY VESSELS—DISEASES)

(ELECTROCARDIOGRAPHY)

SHEVTSOVA, N. G.

Cand Med Sci - (diss) "Early manifestation of coronary insufficiency in rheumatism by the electrocardiography method in conjunction with several functional tests." L'vov, 1961. 15 pp; (L'vov State Med Inst); 300 copies; price not given; (KL, 10-61 sup, 227)



KOLPAKOVA, T.A.; GOLYENBIYEVSKAYA, Z.I.; SHEVTSOVA, N.I.; RYBINA, M.I.;  
NIKITINA, N.N.; RYBAKOVA, L.F.; SHIPSHINA, N.D.; KORN, A.N.; KO-  
ROVKIN, B.F.; KOSYAKOV, K.S.; STEPNAJA, A.A.

Suggestions made at the September 29, 1963, conference of "La-  
boratornoe delo" readers, members of the Leningrad Society of Phy-  
sicians and Laboratorians. Lab. delo-10 no.4:256 '64. (MIRA 17:5)

1. Predsedatel' pravleniya Leningradskogo obshchestva vrachey-la-  
borantov (for Kolpakova). 2. Chleny pravleniya Leningradskogo ob-  
shchestva vrachey-laborantov (for all except Kolpakova).

S SVTSONA, N. I., (Assistant Professor, Sverdlov Agricultural Institut )

About the ruminative action of solutions of neutral salts in the  
intravenous administration

Veterinariya vol. 38, no. 7, July 1961 p. 59.

SHEVTSOVA, N. K.

2662. The photocolorimetric determination of cadmium in polymetallic ores by means of dithizone.

D. P. Shcherbov and N. K. Shevtsova. *Izv. Akad. Nauk Kazakh. SSR, Ser. Khim.*, 1955, (8), 105-113; *Ref. Zhur., Khim.*, 1955, (17), Abstr. No. 37,507.

The determination of Cd is based on measurement of the intensity of the red colour of a soln. of the Cd-dithizone compound, separated from Bi, Fe, Mn, Pb and Zn by extraction with CCl<sub>4</sub> in alkaline medium in the presence of tartrate; Cu is removed by a preliminary extraction from acid soln. Decompose 0.1 g of the polymetallic ore (0.01 to 0.75 per cent. of Cd, > .5 per cent. of Cu) with 10 ml of aqua regia and evaporate to dryness; add 5 ml of HCl (1:1) and evaporate once more. Moisten the dry residue with HCl (1:1), dissolve it by warming with 10 ml of water and make the vol. up to 50 ml. Acidify an aliquot with HCl, add 5 ml of 0.05 per cent. dithizone in CCl<sub>4</sub> and shake for 1 to 2 min. Separate the violet organic layer (dithizone-Cu compound). Extract the aq. soln. repeatedly until the violet colour changes to green. To the aq. layer add 2 ml of 20 per cent. K Na tartrate soln., a crystal of hydrazine sulphate, 15 ml of 10 per cent. NaOH and 10 ml of 0.01 per cent. dithizone in CCl<sub>4</sub>. To the lower layer (containing the Cd-dithizone and some Zn-dithizone) add 5 ml of 5 per cent. NaOH soln. Wash the orange-red layer repeatedly with NaOH soln. until colourless. Wash the dithizone-Cd soln. with water and measure the extinction, with a green filter, at 500 to 520 mμ. The colour of the soln. is stable for 6 hr. A blank determination is made with the reagents. Results are satisfactorily reproducible for < 15 μg of Cd in 10 ml of soln.

C. D. KOPKIN

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005

DM

ZEBREVA, A.I.

5(2)

PHASE I BOOK EXPLOITATION 80V/1699

Akademiya nauk Kazakhskoy SSR. Institut khimicheskikh nauk

Issledovaniya po elektrokhimii vodnykh rastvorov i rasplavov i amal'ganyy metallurgii (Research on the Electrochemistry of Water Solutions, Fusions and Amalgam Metallurgy) Alma-Ata, Izd-vo AN Kaz. SSR, 1958. 122 p. (Series: Ita: Trudy, t. 3) 1,300 copies printed.

Ed.: V.V. Aleksandriyev; Tech. ed.: Z.P. Borokina; Editorial Board of Series: I.I. Zabolin, V.M. Ilyushchenko, G.Z. Klr'yakov (Duzhnyy Nauch. Ed.), M.T. Kozlovskiy, (Nauch. Ed.) and L.N. Shaluyakov.

PURPOSE: This book is intended for scientists and engineers in the electrochemical and nonferrous metal industries.

COVERAGE: This collection contains 14 reports by the Laboratories for Analytical Chemistry and Electrochemistry attached to the Institute of Chemical Sciences, Academy of Sciences, Kazakhstan Republic. The amalgam method of obtaining thallium from lead powder, the electrolysis of sulfate solutions of zinc and the impoverishment of waste slag during nickel production are described. The majority of articles have a practical nature and deal with problems of developing and perfecting new electrochemical methods for the production of non-ferrous metals.

Boek, M.V., V.M. Ilyushchenko, and M.T. Kozlovskiy. Investigation of Potentials of Some Amalgam Metals During Anodic Oxidation in a Sulfate-Amalgam Electrolyte 29

Bakman, S.P., and M.V. Boek. Polarographic Method of Determining Indium 39

Zabolin, I.I., M.T. Kozlovskiy, and G.Z. Klr'yakov. Electrolysis of Sulfate Solutions of Zinc With a Mercury Cathode and a Low Content of Zinc in the Solution 43

Shvetsova, N.K., and M.T. Kozlovskiy. The Use of Amalgams for Impoverishment of Metals From Water Solutions of Their Salts 53

Klr'yakov, G.Z., and F.L. Bayulyetova. The Influence of Some Metal Ion Additions on the Cathode Process During the Electrolysis of Zinc Sulfate Solutions Under Conditions of High Current Density 63

Card 3/4

SKLYARENKO, S.I.; SMIRNOV, I.V.; RYSEV, A.P.; SHEVTSOVA, N.S.

Production of cesium hydroxide by electrolysis of cesium  
chloride in an electrolyzer with a horizontal filtering  
diaphragm. Zhur.prikl. khim. 37 no. 5:1036-1041 My '64.  
(MIRA 17:7)

GANAGO, F.M., kand. med. nauk; Prinsipali uchastiye: ALEKSEYEVA, R.M.,  
vrach (Sverdlovsk); AYZENSHTeyN, B.S., vrach (Sverdlovsk);  
BABINOVA, G.D., vrach (Sverdlovsk); BOROVITSKAYA, L.M., vrach  
(Sverdlovsk); VARGANOVA, M.V., vrach (Sverdlovsk); KOPYLOVA,  
K.P., vrach (Sverdlovsk); SOKOLOVA, O.V., vrach (Sverdlovsk);  
SHEVTSOVA, R.P., vrach (Sverdlovsk); SHELOMOVA, I.M., vrach  
(Sverdlovsk); BYKHOVSKAYA, M.A., vrach (Revda); BELYAYEVA,  
N.Ya., vrach (Magnitogorsk); KRUGLOVA, N.A., vrach (Kurgan);  
NIKIFOROVA, F.N., vrach (Kurgan); MITINA, O.A., vrach (Asbest);  
PORKHOVNIKOVA, E.D., vrach (Ufa); PONOMAREVA, N.I., vrach  
(Orenburg); RASSOSHNYKH, G.P., vrach (Perm); SAZANOVA, V.V.,  
vrach (Izhevsk)

Chemoprophylaxis of tuberculosis in children and adolescents  
in foci of tuberculous infection. Probl. tub. 42 no.1:6-11  
'64. (MIRA 17:8)

1. Detskoye otdeleniye (zav. F.M. Ganago) Sverdlovskogo insti-  
tuta tuberkuleza (dir. - prof. I.A. Shaklsin) (for Ganago).



SOKOLOV, G.V., inzh.; SHEVTSOVA, S.M., inzh.

Wall blocks made with cinders removed from thermoelectric  
power plants by hydraulic methods. Stroi. mat 6 no.3:29-30  
Mr '60. (MIRA 13:6)

(Gorkiy Province--Cinder blocks)



PENYAZ', V.S. [Peniaz', U.S.]; SHEVTSOVA, T.M. [Shautsova, T.M.]

Growth rate of commercial fishes in the Drissa River. Vestsi  
AN BSSR Ser. bial. nav. no.2:106-110 '63 (MIRA 17:3)

PENYAZIN, V.S.; SHEVTSOVA, T.M. [Shantsova, T.M.]

Growth rate of some commercial fishes in the Western Dvina.  
Vestsi AN BSSR, Ser. biial nav. no.2:102-109 '64.

(MIRA 17:11)

SHEVTSOVA, Z.I.

Assimilation of the "valence" concept by the eight-year school students. Khim. v shkole 16 no.5:46-52 S-0 '61. (MIRA 14:9)

1. Pedagogicheskiy institut, g. Yuzhnosakhalinsk.  
(Valence (Theoretical chemistry) |—Study  
and teaching)

L 42158-66 EWP(j)/EWT(m)/EWP(t)/ETI IJP(c) RM WW/JD/JG/GD

ACC NR: AT6022479 (A) SOURCE CODE: UR/0000/65/000/000/0048/0054

AUTHOR: Drobot, D. V.; Korshunov, B. G.; Shevtsova, Z. M. 57  
B+1ORG: Moscow Institute of Fine Chemical Technology im. M. V. Lomonosov (Moskovskiy institut tonkoy khimicheskoy tekhnologii)TITLE: Some aspects of complex formation in melts containing rare earth and alkali metal chloridesSOURCE: Vsesoyuznoye soveshchaniye po fizicheskoy khimii rasplavlennykh soley. 2d. Kiev, 1963. Fizicheskaya khimiya rasplavlennykh soley (Physical chemistry of fused salts); trudy soveshchaniya. Moscow, Izd-vo Metallurgiya, 1965, 48-52.

TOPIC TAGS: rare earth element, alkali halide, chlorides, phase diagram, MELTING POINT, ALKALI METAL

ABSTRACT: An attempt was made to identify the relationships underlying the melting point diagrams of binary systems formed by rare earth and alkali metal chlorides in relation to the decrease in ionic radius (from lanthanum to lutetium) and to the change in ionic radius in the series of alkali metals. The following binary systems were investigated:  $\text{SmCl}_3\text{-NaCl}$ ,  $\text{SmCl}_3\text{-KCl}$ ,  $\text{SmCl}_3\text{-RbCl}$ ,  $\text{SmCl}_3\text{-CsCl}$ ,  $\text{YCl}_3\text{-NaCl}$ ,  $\text{YCl}_3\text{-KCl}$ ,  $\text{GdCl}_3\text{-NaCl}$ ,  $\text{GdCl}_3\text{-KCl}$ ,  $\text{DyCl}_3\text{-NaCl}$ ,  $\text{DyCl}_3\text{-KCl}$ ,  $\text{ErCl}_3\text{-NaCl}$ , and  $\text{ErCl}_3\text{-KCl}$ . It was found that the decrease in the ionic radius of the rare earth element does not affect complex formation monotonically in the interaction with alkali metal chlorides.

Card 1/2

L 42158-66

ACC NR: AT6022479

The existence of a "dysprosium corner," where the interaction of the components is most strongly manifested, is postulated. When the ionic radius of the rare earth element remains constant, the stability of the compounds  $MeSm_2Cl_7$  and  $Me_3SmCl_6$  (where  $Me = K, Rb, Cs$ ) increases regularly, while the stability of the compounds  $Me_2SmCl_5$  decreases with a gradual degeneracy. A study of the ternary systems  $SmCl_3$ ,  $KCl-NaCl$  and  $YCl_3-KCl-NaCl$  showed the presence of interaction in these systems, in which the ternary compound  $KNa_2R_2Cl_{10}$  was identified. The existence of this compound also indicates that the extent of complex formation depends on the ionic radius of the rare earth element. The liquidus lines were calculated for all the systems, and this led to the hypothesis that complex ions of the composition  $(RCl_6)^3$  are present in the melts. Orig. art. has: 10 figures and 2 tables.

SUB CODE: 07/ SUBM DATE: 23Aug65/ ORIG REF: 007/ OTH REF: 007

*ms*  
Card 2/2

AUTHORS: Urazov, G. G. and Shevtsova, Z. N.

78-3-24/35

TITLE: Study of Solubility in Aqueous Systems formed by Lanthanum Nitrate and certain Metal Nitrates. (Izuchenije rastvorimosti v vodnykh sistemakh, obrazovannykh azotnokislym lantanom i nekotorymi nitratami metallov.) I. Solubility Isotherms for the Systems:  $\text{La}(\text{NO}_3)_3 - \text{Mg}(\text{NO}_3)_2 - \text{H}_2\text{O}$  at 25 and 50°C;  $\text{La}(\text{NO}_3)_3 - \text{NH}_4\text{NO}_3 - \text{H}_2\text{O}$  at 25°C. (I. Izotermy rastvorimosti sistem:  $\text{La}(\text{NO}_3)_3 - \text{Mg}(\text{NO}_3)_2 - \text{H}_2\text{O}$  pri 25 i 50°;  $\text{La}(\text{NO}_3)_3 - \text{NH}_4\text{NO}_3 - \text{H}_2\text{O}$  pri 25°.)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1957, Vol.II, Nr.3, pp. 655-658. (USSR)

ABSTRACT: The solubility isotherms obtained for the above systems indicated the existence of certain solid phases; this has been confirmed by crystallo-optic and thermographic investigation. There are 3 tables, 9 figures and 10 references, 1 of which is Slavic.

Card 1/2

Study of Solubility in Aqueous Systems formed by Lanthanum  
Nitrate and certain Metal Nitrates. I.

78-3-24/35

ASSOCIATION: Moscow Institute for Fine Chemical Technology  
imeni M. V. Lomonosov. (Moskovskiy institut  
Tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova.)

SUBMITTED: October 8, 1956.

AVAILABLE: Library of Congress.

Card 2/2

78-3-25/35

Study of Solubility in Aqueous Systems formed by Lanthanum Nitrate and Certain Metal Nitrates. II.

ASSOCIATION: Moscow Institute for Fine Chemical Technology imeni M. V. Lomonosov., Department of Rare and Scattered Elements. (Moskovskiy institut Tonkoy Khimicheskoy Tekhnologii im. M. V. Lomonosova, Kafedra redkikh i rasseyannykh Elementov.)

SUBMITTED: October 8, 1956.

AVAILABLE: Library of Congress.

Card 2/2



MOROZOV, I.S.; SHEVTSOVA, Z.N.; KLYUKINA, L.V.

Phase diagram of the system  $\text{NdCl}_3$  --  $\text{CaCl}_2$  --  $\text{NaCl}$ . Zhur.neorg.  
khim. 2 no.7:1639-1642 JI '57. (MIRA 10:11)  
(Neodymium chlorides) (Calcium chlorides) (Sodium chloride)

AUTHORS: Shevtsova, Z. N., Zelova, V. S., Ushakova, L. I. SOV/156-58-3-4/52

TITLE: The Solubility in the Systems:  $\text{LaCl}_3 - \text{NaCl} - \text{H}_2\text{O}$ ,  $\text{NdCl}_3 - \text{NaCl} - \text{H}_2\text{O}$ ,  $\text{LaCl}_3 - \text{CaCl}_2 - \text{H}_2\text{O}$ , and  $\text{NdCl}_3 - \text{CaCl}_2 - \text{H}_2\text{O}$  at  $25^\circ$  (O rastvorimosti v sistemakh:  $\text{LaCl}_3 - \text{NaCl} - \text{H}_2\text{O}$ ,  $\text{NdCl}_3 - \text{NaCl} - \text{H}_2\text{O}$ ,  $\text{LaCl}_3 - \text{CaCl}_2 - \text{H}_2\text{O}$  i  $\text{NdCl}_3 - \text{CaCl}_2 - \text{H}_2\text{O}$  pri  $25^\circ$ )

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 3, pp. 417 - 421 (USSR)

ABSTRACT: The isothermal lines of the mentioned systems were investigated at  $25^\circ$ . The results are given in tables 1 - 4 and in diagrams 1 - 4. Equilibrium was reached within three days. It was considered to be constant when two successive samples showed the same composition. The composition of the solid phases was determined chemically and crystal-optically, and was graphically determined according to the method of Shreynemakers. From this paper these conclusions are drawn:

Card 1/3

SOV/156-58-3-4/52

The Solubility in the Systems:  $\text{LaCl}_3 - \text{NaCl} - \text{H}_2\text{O}$ ,  $\text{NdCl}_3 - \text{NaCl} - \text{H}_2\text{O}$ ,  
 $\text{LaCl}_3 - \text{CaCl}_2 - \text{H}_2\text{O}$ , and  $\text{NdCl}_3 - \text{CaCl}_2 - \text{H}_2\text{O}$  at  $25^\circ$

1) Isometrically the solubility in the following systems was found to be:  $\text{LaCl}_3 - \text{NaCl} - \text{H}_2\text{O}$ ,  $\text{NdCl}_3 - \text{NaCl} - \text{H}_2\text{O}$ ,  $\text{LaCl}_3 - \text{CaCl}_2 - \text{H}_2\text{O}$ ,  $\text{NdCl}_3 - \text{CaCl}_2 - \text{H}_2\text{O}$ .

2) The mentioned systems may be represented in simple diagrams with an "evtonika"; these are located at a composition of 47,95%  $\text{LaCl}_3$  and 0,98%  $\text{NaCl}$ , of 48,72%  $\text{NdCl}_3$  and 0,61%  $\text{NaCl}$ , respectively, and for the systems with  $\text{CaCl}_2$ : 7,57%  $\text{LaCl}_3$  and 40,10%  $\text{CaCl}_2$ , 6,40%  $\text{NdCl}_3$  and 39,14%  $\text{CaCl}_2$ , respectively.

3) Lanthanum and neodymium chloride form crystal hydrates with the compositions  $\text{LaCl}_3 \cdot 7 \text{H}_2\text{O}$  and  $\text{NdCl}_3 \cdot 6 \text{H}_2\text{O}$ .

There are 4 figures and 4 tables.

ASSOCIATION:

Kafedra tekhnologii redkikh i rasseyannykh  
elementov Moskovskogo instituta tonkoy khimicheskoy tekhn-

Card 2/3

The Solubility in the Systems:  $\text{LaCl}_3 - \text{NaCl} - \text{H}_2\text{O}$ ,  $\text{NdCl}_3 - \text{NaCl} - \text{H}_2\text{O}$ ,  
 $\text{LaCl}_3 - \text{CaCl}_2 - \text{H}_2\text{O}$ , and  $\text{NdCl}_3 - \text{CaCl}_2 - \text{H}_2\text{O}$  at  $25^\circ$  SOV/156-58-3-4/52

logii im. M. V. Lomonosova (Chair for the Technology of Rare  
and Trace Elements of the Moscow Institute of Chemical Fine  
Technology imeni M. V. Lomonosov)

SUBMITTED: January 21, 1958

Card 3/3

SHEVTSOVA, Z.N.; MOROZOV, I.S.; YEFREMOVA, O.A.

Fusibility diagram for the system praseodymium chloride-  
magnesium chloride - potassium chloride. Izv. vys. ucheb. zav.;  
tsvet. met. 3 no.3:109-111 '60. (MIRA 14:3)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii, Kafedra  
khimii i tekhnologii redkikh i rasseyannykh elementov.  
(Praseodymium chloride—Electrometallurgy)  
(Melting points)

SHEVTSOVA, Z.N.; ZHIZHINA, L.I.; EL'TSBERG, L.Ye.

Solubility isotherms of the systems:  $\text{LaCl}_3 - \text{KCl} - \text{H}_2\text{O}$ ,  $\text{NdCl}_3 - \text{KCl} - \text{H}_2\text{O}$ ,  $\text{LaCl}_3 - \text{NH}_4\text{Cl} - \text{H}_2\text{O}$ , and  $\text{NdCl}_3 - \text{NH}_4\text{Cl} - \text{H}_2\text{O}$  at  $25^\circ$ .  
Izv. vys. ucheb. zav.; khim. i khim. tekhn. 4 no. 2:176-178 '61.  
(MIRA 14:5)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im.  
M.V. Lomonosova.  
(Systems (Chemistry)) (Solubility)

SHEVTSOVA, Z.N.; KULICHKINA, G.N.; FEDOROVA, A.N.

Solubility isotherms of the systems:  $\text{PrCl}_3\text{-KCl - H}_2\text{O}$  and  $\text{PrCl}_3\text{-NH}_4\text{Cl - H}_2\text{O}$  at 25° and 50°. *Izv. vys. ucheb. zav.; khim. i khim. tekh.* 4 no. 2:178-179 '61. (MIRA 14:5)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova. Kafedra tekhnologii redkikh i rasseyannykh elementov. (Systems (Chemistry)) (Solubility)

S/149/62/000/001/007/009  
A006/A101

AUTHORS: Shevtsova, Z. N., Kottser, L. A., Korshunov, B. G.

TITLE: On the interaction of neodymium chloride with sodium and potassium chlorides in melts

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, no. 1. 1962, 121 - 126

TEXT: The authors studied the interaction of neodymium, sodium and potassium chlorides during the joint crystallization of their melts. The interaction of components in a  $\text{NdCl}_3\text{-NaCl-KCl}$  system was investigated by the fusibility method. Cooling curves were recorded with the Kurnakov pyrometer. Six internal sections of the system were studied. Their orientation was determined mainly by the location of non-variable equilibrium points on lateral double diagrams. Section ( $\text{K}_3\text{NdCl}_6\text{-NaCl}$ ) is stable and divides the diagram into two partial diagrams corresponding to systems  $\text{NdCl}_3\text{-NaCl-K}_3\text{NdCl}_6$  and  $\text{K}_3\text{NdCl}_6\text{-NaCl-KCl}$ . The eutectic point of the section (Figure 7) (Van Rheyne point) corresponds to the following composition in mol. %: 17.6  $\text{NdCl}_3$ , 29.6  $\text{NaCl}$ , 52.8  $\text{KCl}$  and  $538 \pm 2^\circ\text{C}$  melting temperature. The horizontal, marked on the diagram, corresponds at  $420^\circ\text{C}$  to the

Card 1/2



On the interaction of...

S/149/62/000/001/007/009  
A006/A101

polymorphous transformation of the chemical compound  $K_3NdCl_6$ . On the basis of data obtained, a fusibility diagram of the ternary system was plotted. The liquidus surface of the system consists of five fields of initial crystallization corresponding to the separation of  $NdCl_3$ ,  $NaCl$ ,  $KCl$ ,  $K_2NdCl_5$ , and  $K_3NdCl_6$  from the melt. There are 7 figures, 1 table and 16 references, 9 Soviet-bloc and 7 non-Soviet-bloc.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii (Moscow Institute of Fine Chemical Technology) Kafedra tekhnologii redkikh i rassenyannykh elementov (Department of the Technology of Rare and Dispersed Elements) ✓

SUBMITTED: March 27, 1961

Card 2/3 2

S/078/62/007/008/007/008  
B101/B138

AUTHORS: Safonov, V. V., Korshunov, B. G., Shevtsova, Z. N.

TITLE: Investigation of the interaction of niobium (IV) chloride  
with rubidium and cesium chlorides in melts

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 8, 1962, 1979-1982

TEXT: The fusibility diagrams of the  $\text{NbCl}_4$  -  $\text{RbCl}$  and  $\text{NbCl}_4$  -  $\text{CsCl}$  systems were constructed to determine the optimum conditions for electrochemical deposition of niobium from melts, for the purpose of refining crude niobium etc. Mixtures containing more than 50 - 55 mole%  $\text{NbCl}_4$  could not be studied owing to  $\text{NbCl}_4$  disproportionation. Results: (1) The congruent-melting compound  $\text{Rb}_2\text{NbCl}_6$  forms in the system  $\text{NbCl}_4$  -  $\text{RbCl}$  at  $802^\circ\text{C}$ . The eutectic of this compound and  $\text{RbCl}$  melts at  $630^\circ\text{C}$  and contains 83 mole%  $\text{RbCl}$ . (2) The congruent-melting compound  $\text{Cs}_2\text{NbCl}_6$  forms in the system  $\text{NbCl}_4$  -  $\text{CsCl}$  at  $622^\circ\text{C}$ . The eutectic of this compound and  $\text{CsCl}$  melts at

Card 1/2

Investigation of the interaction of ...

S/078/62/007/008/007/008  
B101/B138

595°C and contains 90 mole% CsCl. The eutectic of  $\text{Cs}_2\text{NbCl}_6$  and  $\text{NbCl}_4$  melts at 282°C and contains 43 mole% CsCl. (3) A study of  $\text{Cs}_2\text{NbCl}_6$  and  $\text{Rb}_2\text{NbCl}_6$  in polarized light showed these compounds to be optically isotropic.

(4) The calculation of crystallization curves on the basis of the Shreder equation suggests that melts of the  $\text{NbCl}_4$  -  $\text{RbCl}$  system contain niobium as

$[\text{NbCl}_6]^{2-}$ , whereas the  $\text{NbCl}_4$  -  $\text{CsCl}$  system may contain  $[\text{NbCl}_5]^-$  as well as  $[\text{NbCl}_6]^{2-}$ . There are 4 figures. ✓

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im.  
M. V. Lomonosova (Moscow Institute of Fine Chemical Technology  
imeni M. V. Lomonosov)

SUBMITTED: October 2, 1961

Card 2/2

SHEVTSOVA, Z.N.; KORZINA, Ye.N.; KORSHUNOV, B.G.

Interaction of praseodymium chloride with sodium and  
potassium chlorides in melts. Zhur.neorg.khim. 7  
no.11:2596-2599 N '62. (MIRA 15:12)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii  
imeni Lomonosova.  
(Praseodymium chloride) (Alkali metal chlorides)  
(Fused salts)

PASHINKIN, A.S.; DROBOT, D.V.; SHEVTSOVA, Z.N.; KORSHUNOV, B.G.

Determination of vapor pressure of anhydrous solid chlorides  
of yttrium and samarium. Zhur.neorg.khim. 7 no.12:2811-2813  
D '62. (MIRA 16:2)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni  
Lomonosova i Moskovskiy gosudarstvennyy universitet imeni  
Lomonosova.  
(Yttrium chloride) (Samarium chloride) (Vapor pressure)

L 10642-63 EWP(q)/EWT(m)/BDS--AFFTC/ASD--JD/JXT(IJP,DE)

ACCESSION NR: AP3001227

S/0078/63/008/006/1531/1532

AUTHOR: Korshunov, B. G.; Lidina, Ye. D.; Shevtsova, Z. N. 61

TITLE: Melt diagram for the system <sup>M</sup>MoCl sub 5 - AlCl sub 3 - FeCl sub 3

SOURCE: Zhurnal neorganicheskoy khimii, v. 8, no. 6, 1963, 1531-1532

TOPIC TAGS: melt diagram, MoCl sub 5-AlCl sub 3-FeCl sub 3, eutectics.

ABSTRACT: The melt diagram for the MoCl sub 5 - AlCl sub 3 - FeCl sub 3 system is given. Eutectics for MoCl sub 5 - AlCl sub 3 = 121 degrees; for MoCl sub 5 - FeCl sub 3 = 88 degrees; surface of the liquidus corresponds to the separation of MoCl sub 5 from solution and to the solid solution of Al and Fe chlorides.

"Indices of refraction of crystals of the compounds were determined by L. V. Milyutina, for which the authors express their deep appreciation." Orig. art. has: 1 figure.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology)

SUBMITTED: 12Nov62

DATE ACQD: 01Jul63

ENCL: 00

Card 1/2

L 12597-63 FCS(f)/EWP(q)/EWT(m)/BDS AFFTC/ASD JD

ACCESSION NR: AP3003484 S/0078/63/008/007/1749/1752

AUTHOR: Shevtsova, Z. N.; Ying, Wei-Chuan 57

TITLE: Solubility in the systems SmCl<sub>3</sub> - KCl - H<sub>2</sub>O and YCl<sub>3</sub> - KCl - H<sub>2</sub>O at 25 and 50C

SOURCE: Zhurnal neorganicheskoy khimii, v. 8, no. 7, 1963, 1749-1752

TOPIC TAGS: SmCl<sub>3</sub>, KCl, YCl<sub>3</sub>, solubility, crystallization

ABSTRACT: A study of isotherms of solubility of ternary systems consisting of chlorides of samarium, yttrium and potassium chloride at temperatures 25 and 50C was conducted. The solubility diagrams of systems SmCl<sub>3</sub> - KCl - H<sub>2</sub>O and YCl<sub>3</sub> - KCl - H<sub>2</sub>O at 25 and 50C are analogous. Each is shown by two branches of crystallization of pure components which intersect. Orig. art. has: 3 figures..

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology); Kafedra tekhnologii redkikh i rasseyannykh metallov (Department of

Card 1/2

SAFONOV, V.V.; KORSHUNOV, B.G.; SHEVTSOVA, Z.N.; SHADROVA, L.G.

Interaction of tantalum tetrachloride with rubidium and  
cesium chlorides. Zhur. neorg. khim. 9 no.6:1406-1410 Je '63  
(MIRA 17:8)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni  
Lomonosova.



KORSHUNOV, B.G.; DROBOT, D.V.; BUKHTIYAROV, V.V.; SHEVTSOVA, Z.N.

Interaction of samarium (III)chloride with the chlorides of sodium, potassium, rubidium, and cesium. Zhur. neorg. khim. 9 no.6:1427-1430 Je '63 (MIRA 17:8)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova.

SAFONOV, V.V.; KORSHUNOV, B.G.; SHEVTSOVA, Z.H.; BAKUM, S.I.

Interaction of tantalum trichloride with fused alkali  
metal chlorides. Zhur. neorg. khim. 9 no.7:1687-  
1691 J1 '64.

(MIRA 17:9)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni  
Lomonosova.

BOL'SHAKOV, K.A.; SAFONOV, V.V.; KOGAN, L.M.; SHEVTSOVA, Z.N.; SHADROVA, L.G.

Solubility of chloro derivatives of some metals in 1,3-  
hexachlorobutadiene. Zhur. fiz. khim. 38 no.5:1305-1306  
My '64. (MIRA 18:12)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni  
Lomonosova i Vsesoyuznyy nauchno-issledovatel'skiy institut  
khimicheskikh sredstv zashchity rasteniy. Submitted June 7, 1963.

L 16674-65 EWT(m)/EWP(t)/EWP(b) IJP(c) JD/JG

ACCESSION NR: AP4048306

S/0078/64/009/011/2606/2612

AUTHOR: Morozov, I. S.; Shevtsova, Z. N.; Li, Chih-fa

B

TITLE: Reaction of yttrium chloride with the chlorides of certain metalsSOURCE: Zhurnal neorganicheskoy khimii, v. 9, no. 11, 1964, 2606-2612  
27,27

TOPIC TAGS: yttrium chloride, phase diagram, yttrium chloride metal chloride

ABSTRACT: Binary systems of  $YCl_3$  with chlorides of Na, K, Ca, Mg, Fe and Sn were subjected to thermal analysis and phase diagrams were constructed (figs. 1-6). The compound  $Na_3YCl_6$ , melting incongruently at 552C was found in the  $YCl_3$ -NaCl system.  $K_3YCl_6$ , melting congruently at 749C and  $KCl \cdot 3YCl_3$ , melting incongruently at 550C were formed. The  $YCl_3$ - $FeCl_2$  system formed limited solid solutions and the compound  $FeYCl_5$  which had a polymorphic transition at 360C. Phase diagrams were also constructed for the ternary systems  $YCl_3$ - $CaCl_2$ -NaCl and  $YCl_3$ - $MgCl_2$ -KCl (fig. 7 and 8) and the limits of the fields of primary crystallization were determined. Orig. art. has 8 figures and 8 tables

Card 1/7

L 16674-65

ACCESSION NR: AP4048306

ASSOCIATION: None

SUBMITTED: 20Jun61

ENCL: 05

SUB CODE: IC, GC

NO REF SOV: 008

OTHER: 002

Card 2/7

L 16674-65  
ACCESSION NR: , AP4048306

ENCLOSURE: 01

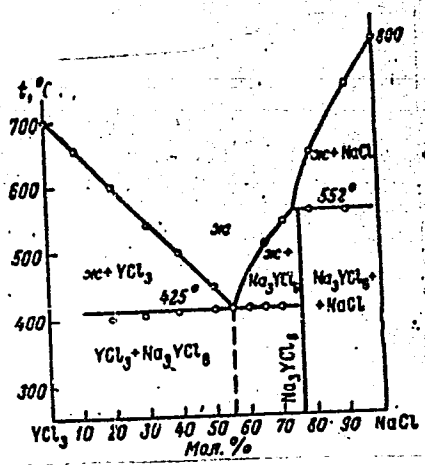


fig. 1

phase diagram of the YCl<sub>3</sub>-NaCl system

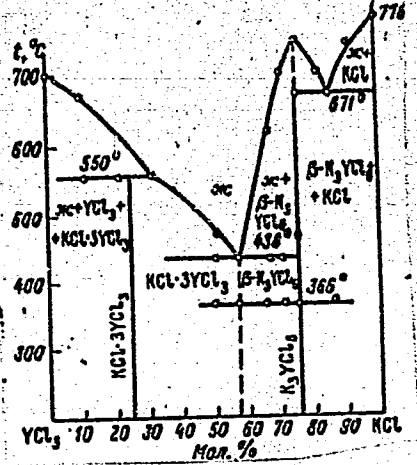


fig. 2

phase diagram of the YCl<sub>3</sub>-KCl system

Card 3/7

L 16674-65  
 ACCESSION NR: AP4048306

ENCLOSURE: 02

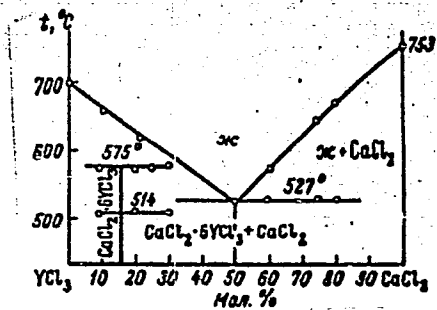


fig. 3  
 phase diagram of the YCl<sub>3</sub>-CaCl<sub>2</sub>  
 system

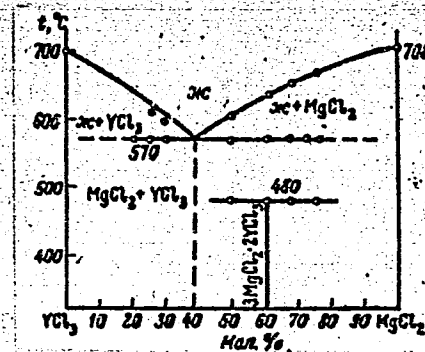


fig. 4  
 phase diagram of the YCl<sub>3</sub>-MgCl<sub>2</sub>  
 system

Card 4/7

L 16674-65  
 ACCESSION NR: AP4048306

ENCLOSURE: 03

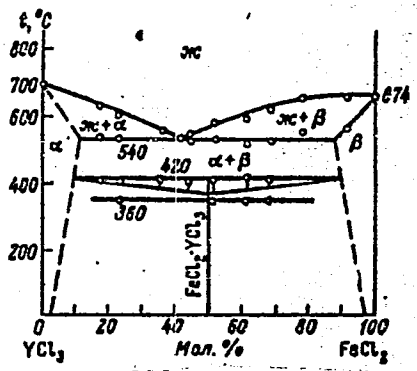


fig. 5  
 phase diagram of the  $YCl_3$ - $FeCl_2$   
 system

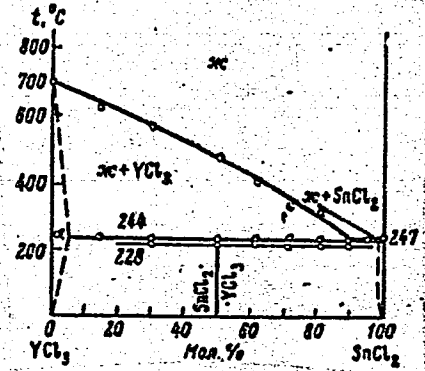


fig. 6  
 phase diagram of the  $YCl_3$ - $SnCl_2$   
 system

Card 5/7



L 15574-65  
ACCESSION NR: AP4048306

ENCLOSURE: 04

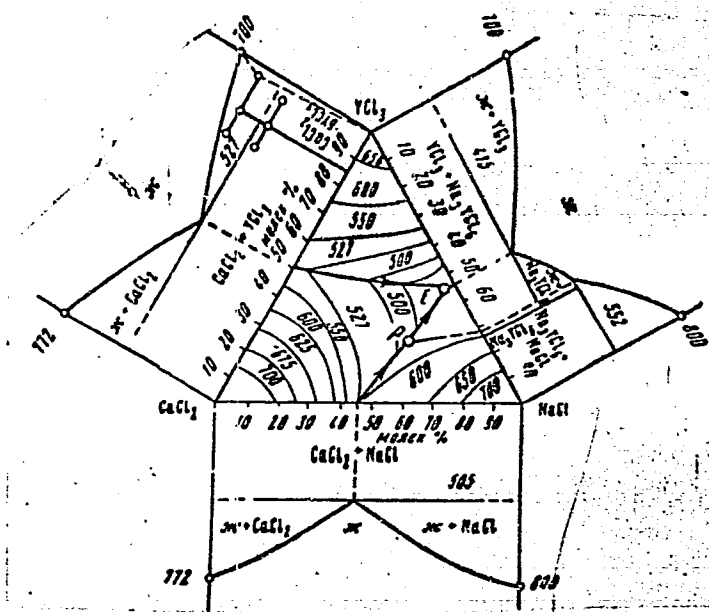


fig. 7  
phase diagram of the YCl<sub>3</sub>-CaCl<sub>2</sub>-  
NaCl system

Card 6/7

L 16674-65  
ACCESSION NR: AP4048306

ENCLOSURE: 05

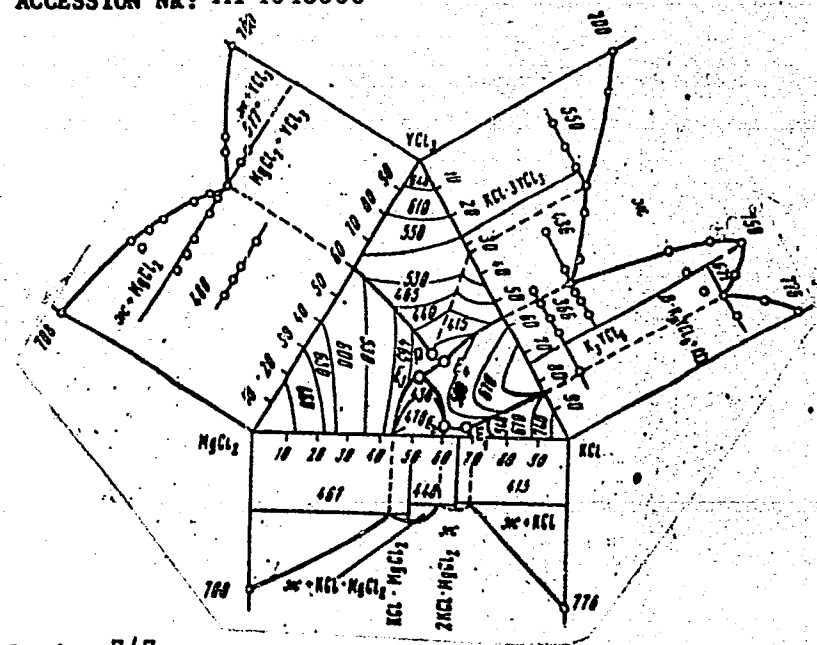


fig. 8

Phase diagram of the  
YCl<sub>3</sub>-MgCl<sub>2</sub>-KCl system

Card 7/7

L 44318-65 EPA(s)-2/EAT(m)/EAF(c)/EAF(n)-2/EAP(t)/EAP(b) Pr-4/Pt-7/Pu-4

IJP(c) JD/JG

ACCESSION NR: AP5008483

S/0078/65/010/003/0669/0671

AUTHOR: Safonov, V. V.; Korshunov, B. G.; Shevtsova, Z. N.; Shadrova, L. G.

TITLE: Reaction of tantalum tetrachloride with sodium and potassium chlorides

SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 3, 1965, 669-671

TOPIC TAGS: potassium compound, tantalum compound, tantalum tetrachloride, sodium chloride, potassium chloride, high purity metal production, niobium tetrachloride, eutectic, complex ion, melt

ABSTRACT: The reaction of tantalum tetrachloride with sodium and potassium chlorides in melts has been studied because the production of high purity metals by subhalide methods is assuming increasing importance. A thermal analysis of the systems has been made and fusibility diagrams constructed. The  $TaCl_4$ -NaCl system is of the eutectic type and the eutectic contains 55 mol.% NaCl and melts at 270C. The components of the  $TaCl_4$ -KCl system form a  $K_2TaCl_6$  compound that melts at 732C. The eutectic formed by  $K_2TaCl_6$  and KCl melts at 590C and contains 75 mol.% KCl, while the eutectic formed by  $K_2TaCl_6$  and  $TaCl_4$  melts at 215C and contains about 51 mol.%  $TaCl_4$ . Unlike  $TaCl_4$ , the  $K_2TaCl_6$  compound is optically isotropic and has

Card 1/2

L 44318-65

ACCESSION NR: AP5008483

a tendency to decompose in the atmosphere. Its refractive index exceeds 1.789, and its density is  $3.017 \text{ g/cm}^3$ , as compared with  $2.539 \text{ g/cm}^3$  for the similarly obtained niobium compound  $\text{K}_2\text{NbCl}_6$ . The  $\text{NaCl}_4$  experimental crystallization curve of the  $\text{TaCl}_4$ - $\text{NaCl}$  system is in good agreement with the estimated crystallization curve in the range from 0 to 20 mol.%  $\text{TaCl}_4$ , suggesting the possible presence of tantalum in the form of  $[\text{Ta}_2\text{Cl}_{10}]^{2-}$  in the melt. The  $\text{KCl}$  experimental crystallization curve is also in good agreement with the estimated curve, and it is assumed that the melt contains tantalum in the form of the complex ion  $[\text{TaCl}_6]^{2-}$ . Orig. art. has: 4 figures.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomono-  
sova (Moscow Institute of Fine Chemical Technology)

SUBMITTED: 10Jun64

ENCL: 00

SUB CODE: IC

NO REF SOV: 004

OTHER: 006

ls  
Card 2/2

KORSHUNOV, B.G.; DROBOT, D.V.; SHEVTSOVA, Z.N.

System  $YCl_3$  - NaCl - KCl. Zhur.neorg.khim. 10 no.8:1901-1905  
Ag '65. (MIRA 19:1)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni  
M.V.Lomonosova. Submitted July 1, 1963.

REF ID: A66019050  
ACC NR: AF6019050 (A) SOURCE CODE: UR/0078/66/011/002/0411/0414 -

AUTHOR: Korshunov, B. G.; Drobot, D. V.; Galchenko, I. Yo.; Shovtsova, Z. N.

ORG: Moscow Institute of Fine Chemical Technology im. M. V. Lomonosov (Moskovskiy institut tonkoy khimicheskoy tekhnologii)

TITLE: Interaction of fused holmium and erbium chlorides with fused potassium chloride

SOURCE: Zhurnal neorganicheskoy khimii, v. 11, no. 2, 1966, 411-414

TOPIC TAGS: thermal analysis, holmium compound, erbium compound, potassium chloride

ABSTRACT: A thermal analysis has been conducted of the  $\text{HoCl}_3\text{-KCl}$  and  $\text{ErCl}_3\text{-KCl}$  systems, which had not been investigated before. The chemical analysis of chlorides used was 61.14% Ho+39.19% Cl for  $\text{HoCl}_3$  and 60.95% Er+39.12% Cl for  $\text{ErCl}_3$ , against calculated values of 60.85% Ho+39.15% Cl and 61.03% Er+38.97% Cl, respectively. The time-temperature curves were recorded with the aid of a Kurnakov pyrometer. The salts were fused in quartz-glass Stepanov vessels. The liquidus curves of the systems were calculated as proposed by P. Ehrlich, G. Kaupa, and K. Blankenstein (Z. anorg. allgem. Chem., 299, 213, 1959), and R. V. Chernov (Ukr. khim. zhurn. 27, 34, 1961). The results of the thermal analysis are given in Tables 1 and 2, and Figures 1 a and b. Compounds which were formed in the given systems were identified by X-ray phase analysis in a

Card 1/6 UDC: 546.665/.666:131-386

L 08662-67

ACC NR: AP6019050

Mole% HoCl <sub>3</sub>	Liqui- dus, C	Primary phase	Temperature, C			Polymorphous transformation of K <sub>3</sub> HoCl <sub>6</sub>
			Eutectic HoCl <sub>3</sub> + KHo <sub>2</sub> Cl <sub>7</sub>	Eutectic KHo <sub>2</sub> Cl <sub>7</sub> + K <sub>3</sub> HoCl <sub>6</sub>	Eutectic K <sub>3</sub> HoCl <sub>6</sub> + KCl	
100.0	718	HoCl <sub>3</sub>	—	—	—	—
95.0	697	HoCl <sub>3</sub>	560	—	—	—
90.0	667	HoCl <sub>3</sub>	555	—	—	—
85.0	636	HoCl <sub>3</sub>	552	—	—	—
80.0	560	HoCl <sub>3</sub> + KHo <sub>2</sub> Cl <sub>7</sub>	560	—	—	—
75.0	567	KHo <sub>2</sub> Cl <sub>7</sub>	560	—	—	—
70.0	575	KHo <sub>2</sub> Cl <sub>7</sub>	560	—	—	—
66.66	587	KHo <sub>2</sub> Cl <sub>7</sub>	—	—	—	—
65.0	569	KHo <sub>2</sub> Cl <sub>7</sub>	—	454	—	—
60.0	530	KHo <sub>2</sub> Cl <sub>7</sub>	—	454	—	395
55.0	526	KHo <sub>2</sub> Cl <sub>7</sub>	—	455	—	397
50.0	—	KHo <sub>2</sub> Cl <sub>7</sub>	—	453	—	403
45.0	454	KHo <sub>2</sub> Cl <sub>7</sub> + K <sub>3</sub> HoCl <sub>6</sub>	—	460	—	395
40.0	628	KHo <sub>2</sub> Cl <sub>7</sub> + K <sub>3</sub> HoCl <sub>6</sub>	—	454	—	395
35.0	740	KHo <sub>2</sub> Cl <sub>7</sub> + K <sub>3</sub> HoCl <sub>6</sub>	—	457	—	400
33.33	760	KHo <sub>2</sub> Cl <sub>7</sub> + K <sub>3</sub> HoCl <sub>6</sub>	—	453	—	403
30.0	800	KHo <sub>2</sub> Cl <sub>7</sub> + K <sub>3</sub> HoCl <sub>6</sub>	—	456	—	400
25.0	816	KHo <sub>2</sub> Cl <sub>7</sub> + K <sub>3</sub> HoCl <sub>6</sub>	—	—	—	400
20.0	794	KHo <sub>2</sub> Cl <sub>7</sub> + K <sub>3</sub> HoCl <sub>6</sub>	—	—	662	404
15.0	725	KHo <sub>2</sub> Cl <sub>7</sub> + K <sub>3</sub> HoCl <sub>6</sub>	—	—	664	398
10.0	664	K <sub>3</sub> HoCl <sub>6</sub> + KCl	—	—	664	400
5.0	750	KCl	—	—	660	400

Table 1. Results of the thermal analysis of the HoCl<sub>3</sub>-KCl system

Card 2/6

100-67  
ACC NR: AF6019050

Mole % ErCl <sub>3</sub>	Liquidus, C	Primary phase	Temperature, C			
			Peritectic	Eutectic: KEr <sub>3</sub> Cl <sub>10</sub> K <sub>3</sub> ErCl <sub>6</sub>	Eutectic: K <sub>3</sub> ErCl <sub>6</sub> KCl	Polymorphous transformation of K <sub>3</sub> ErCl <sub>6</sub>
100.0	764	ErCl <sub>3</sub>	—	—	—	—
95.0	702	ErCl <sub>3</sub>	—	—	—	—
90.0	690	ErCl <sub>3</sub>	480	—	—	—
85.0	647	ErCl <sub>3</sub>	492	—	—	—
80.0	621	ErCl <sub>3</sub>	490	—	—	—
75.0	575	ErCl <sub>3</sub>	486	—	—	—
70.0	530	ErCl <sub>3</sub>	490	416	—	—
66.66	514	ErCl <sub>3</sub>	—	416	—	—
65.0	490	KEr <sub>3</sub> Cl <sub>10</sub>	—	414	—	—
60.0	485	KEr <sub>3</sub> Cl <sub>10</sub>	—	416	—	—
55.0	472	KEr <sub>3</sub> Cl <sub>10</sub>	—	416	—	—
50.0	416	KEr <sub>3</sub> Cl <sub>10</sub> + K <sub>3</sub> ErCl <sub>6</sub>	—	416	—	—
45.0	—	K <sub>3</sub> ErCl <sub>6</sub>	—	416	—	340
40.0	606	K <sub>3</sub> ErCl <sub>6</sub>	—	416	—	340
35.0	717	K <sub>3</sub> ErCl <sub>6</sub>	—	416	—	340
33.33	743	K <sub>3</sub> ErCl <sub>6</sub>	—	416	—	340
30.0	762	K <sub>3</sub> ErCl <sub>6</sub>	—	416	—	343
25.0	780	K <sub>3</sub> ErCl <sub>6</sub>	—	—	—	343
20.0	740	K <sub>3</sub> ErCl <sub>6</sub>	—	—	642	337
15.0	642	K <sub>3</sub> ErCl <sub>6</sub> + KCl	—	—	642	340
10.0	683	KCl	—	—	640	—
5.0	728	KCl	—	—	642	—
0.0	774	KCl	—	—	—	—

Table 2. Results of the thermal analysis of ErCl<sub>3</sub>-KCl system



L 08662-67

ACC NR: AP6019050

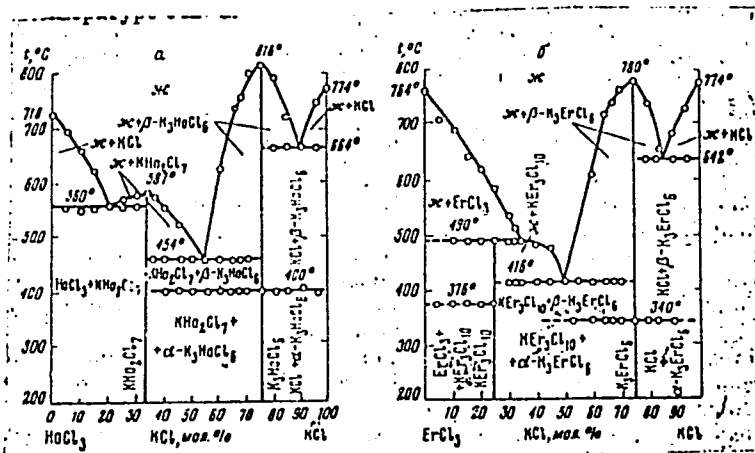


Figure 1. Phase diagrams a - HoCl<sub>3</sub>; b - ErCl<sub>3</sub>-KCl

Cont 4/6

ACC NR: AP6019050

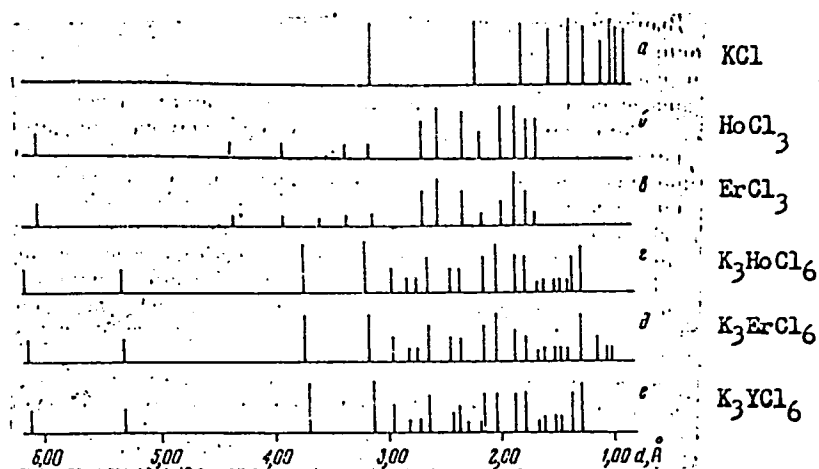


Figure 2. Roentgenogram of  $K_3RCl_6$  compounds and their chlorides

Card 5/6

L 08662-67

ACC NR: AP6019050

Table 3: Relative densities of compounds in  $RCl_3$ -KCl systems (R = Ho, Er)

System	Compound	Color	$d_{40}^{25}$
HoCl <sub>3</sub> -KCl	KHo <sub>2</sub> Cl <sub>7</sub>	light yellow	3.614
	K <sub>3</sub> HoCl <sub>6</sub>	white with yellow hue	2.749
ErCl <sub>3</sub> -KCl	KEr <sub>3</sub> Cl <sub>10</sub>	reddish-violet	3.677
	K <sub>3</sub> ErCl <sub>6</sub>	reddish-violet	2.768

R.K.D. 57.3-mm diameter camera with nickel filter and copper radiation. The results of the analysis confirmed the formation of new phases in the  $RCl_3$ -KCl systems (R = Ho, Er). Roentgenograms for  $K_3RCl_6$  (R = Ho, Er, Y) compounds in Figure 2 give evidence of their isomorphism. The authors attribute the isostructural properties of these compounds to the isomorphism of the original chlorides and yttrium. The effects observed in the  $ErCl_3$ -KCl system at 376G could not be explained. Densities of all low-temperature modifications (Table 3) were determined using  $CCl_4$  with  $d_{40}^{25} = 1.5828 \text{ g/cm}^3$ . Orig. art. has: 2 fig. and 4 tables.

SUB CODE: 07/ SUBM DATE: 05Feb65/ ORIG REF: 004/ OTH REF: 002

Card 6/6

SHEVTSOVA, E. V., and TUMANYAN, M. A.

"Chemotherapy of Radiation Diseases in Experiments Performed on Monkeys."  
Proceedings of Inst. Epidem. and Microbiol. im. Gamaleya, 1954-56.

Division of Medical Microbiology, Troitskiy, V. L., professor, Corresponding  
Member, Academy of Medical Sciences, USSR, head, Inst. Epidem. and Microbiol.  
im. Gamaleya, AMB USSR.

SO: Sum 1186; 11 Jan 57.

TUMANYAN, M.A.; SHEVTSOVA, Z.V.

Chemotherapy of radiation sickness in monkeys under experimental conditions. Med.rad. 1 no.2:41-45 Mr-Apr '56. (MLRA 9:9)

1. Iz otdela meditsinskoy mikrobiologii (zav. - chlen-korrespondent AMN SSSR V.L.Troitskiy) Instituta epidemiologii i mikrobiologii imeni N.F.Gamaleya AMN SSSR.

(RADIATION SICKNESS, experimental,  
eff. of antibiotics in monkeys (Rus))  
(ANTIBIOTICS, effects,  
on exper. radiation sickness in monkeys (Rus))

SHEVTSOVA, Z.V.

Effect of irradiation on the course of the vaccinal process caused  
by the introduction into the organism of live brucellosis vaccine.  
Med.rad. 4 no.10:46-53 0 '59. (MIRA 13:2)

1. Iz otdela radiatsionnoy mikrobiologii i immunologii (zav. - prof.  
V.L. Troitskiy) i otdela brutselleza (zav. - prof. P.A. Vershilova)  
Instituta epidemiologii i mikrobiologii imeni N.F. Gamalei AMN SSSR  
(dir. - prof. S.N. Muromtsev).

(RADIATION EFFECTS exper.)

(BRUCELOSIS immunol.)

(IMMUNITY)

SHEVTSOVA, Z.V.

Immunity in guinea pigs immunized with a live Brucella vaccine  
under the influence of radiations. Zhur.mikrobiol.epid.i immuni.  
31 no.9:105-109 S '60. (MIRA 13:11)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei AMN  
SSSR.

(BRUCELLOSIS)

(RADIATION—PHYSIOLOGICAL EFFECT)

SHEVTSOVA, Z. V., CAND MED SCI, "EFFECT OF X-RAY IRRADIATION <sup>W/267</sup> ON IMMUNOGENESIS AND INTENSITY OF IMMUNITY IN ANIMALS IMMUNIZED WITH LIVE BRUCELLOSIS VACCINE." MOSCOW, 1961.  
(ACAD MED SCI USSR). (KL, 3-61, 236).



SILICH, V.A.; SHEVTSOVA, Z.V.

Experience with combined vaccination against brucellosis  
and Q fever. Zhur. mikrobiol., epid. i immun. 33 no.7:66-  
72 J1 '62. (MIRA 17:1)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei  
AMN SSSR.

ACCESSION NR: AP4031448

S/0016/64/000/004/0100/0105

AUTHOR: Shevtsova, Z. V.

TITLE: Causes of reduced natural resistance to live Brucella vaccine in irradiated animals

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 4, 1964, 100-105

TOPIC TAGS: Brucella abortus No. 19-Ba vaccine, 200 r X-irradiation dose, reduced natural resistance, live vaccine, killed vaccine, antigen complex, death rate, Brucella endotoxin, increased endotoxin sensitivity, detoxication mechanism disturbance

ABSTRACT: Experimental guinea pigs (280 to 300 g) were X-irradiated (RUM-3 unit, 180 kv, 15 ma, filters 0.5 mm Cu and 1 mm Al, 42r/min) with single 200 r doses before inoculation with Brucella vaccine. On the 10th day after irradiation one group of experimental animals was administered a live Brucella culture (Br. abortus No. 19-Ba), a second group was administered a killed (by heating) Brucella culture (Br. abortus No. 19-Ba), a third group was administered a Br. abortus No. 19-Ba antigen complex, and a fourth group serving as a control was

1/2

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ACCESSION NR: AP4031448

administered a physiological solution. Animals were observed for 28 days and the death rate was determined for each group. In an additional experiment the intensity of Brucella multiplication in the various organs of irradiated and non-irradiated guinea pigs and white rats was investigated during periods corresponding to the highest number of deaths. Findings show that live and killed Brucella cultures and the Brucella antigen complex increase the death rate of irradiated animals. However, the intensity of Brucella multiplication in the various organs of irradiated and non-irradiated animals does not differ and virulence does not increase. The reduced resistance of irradiated animals to Br. abortus 19-Ba is attributed largely to increased Brucella endotoxin sensitivity and related detoxication mechanism disturbance. Orig. art. has: 5 tables.

ASSOCIATION: Institut epidemiologii i mikrobiologii im. Gamalei AMN SSSR (Epidemiology and Microbiology Institute AMN SSSR)

SUBMITTED: 29May62

ENCL: 00

SUB CODE: LS

NR REF SOV: 008

OTHER: 003

Card 2/2

L 45667-65 EWA(b)-2/EWA(j)/EWT(1) JK

UR/0016/64/000/009/0076/0081

ACCESSION NR: AP5013168

AUTHOR: Shevtsova, Z. V.

TITLE: Effect of irradiation on preventive properties of sera of guinea pigs immunized with live brucellosis vaccine (C)

26  
19  
C

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 9, 1964, 76-81

TOPIC TAGS: serum, experiment animal, brucellosis, irradiation

Abstract: The article describes the effect of irradiation on the preventive properties of the sera of guinea pigs irradiated with a dose of 200 r. at various intervals before and after immunization with live brucellosis vaccine. The preventive properties were measured with respect to the ED<sub>50</sub> and the LD<sub>50</sub>. The effect depended on the interval between irradiation and vaccination. When the animals were vaccinated 24 hours before or after irradiation, a retardation in the rise of the preventive properties was observed on the 15th day of immunogenesis but it was not evident on the 30th day; when the animals were vaccinated on the 3rd day after irradiation (in the period of pronounced symptoms of radiation sickness), the effect of ir-

Card 1/2

L 45667-65

ACCESSION NR: AP5013168

radiation was considerably stronger and even on the 30th day the preventive properties were three times less than in the control animals. When the animals were vaccinated 30 days after irradiation no difference was observed between irradiated and control animals. Irradiation on the 30th day of immunogenesis showed no effect on the preventive properties of the sera. No correlation was found between the quantity of agglutinins in the sera and their preventive properties. Orig. art. has 2 tables.

ASSOCIATION: Institut epidemiologii i mikrobiologii im. Gamalei AMN SSSR  
(Institute of Epidemiology and Microbiology, AMN SSSR)

SUBMITTED: 19Feb63

ENCL: 00

SUB CODE: LS

NO REF SOV: 016

OTHER: 001

JPRS

Card 2/2 MB

L 42945-65 EWT(1)/EWA(j)/EWA(b)-2 JK

ACCESSION NR: AP5008015 S/0016/65/000/003/0056/0058

AUTHOR: Shevtsova, Z. V.

TITLE: A study of the virulence of a brucella vaccine strain after being in an irradiated organism

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 42-3, 1965, 56-58

TOPIC TAGS: guinea pig, brucella, live vaccine, vaccine virulence, X-ray irradiation, single radiation dose

ABSTRACT: Guinea pigs (280-300 g) were X-irradiated (RUM-3 unit, 180 kv, 15 ma, 0.5 mm Cu and 1 mm Al filters, 42 r/min) with single 200 r doses (20-30% mortality within 30 days) to determine the effect of an irradiated organism on live brucella vaccine virulence. On the third day following irradiation the animals were immunized subcutaneously with a live brucella vaccine strain (1 billion bacterial cells) and killed 3, 10, 20, and 30 days later. Ten of the cultures obtained were from animals in the acute stage of radiation sickness

Card 1/2

L 42945-65

ACCESSION NR: AP5008015

(6th and 13th days) and 15 of the cultures obtained were from animals in the last stages of radiation sickness (23d and 33d days). Culture virulence was measured by its capacity to produce the disease in healthy animals after introducing single doses of 100 or 1,000 bacterial cells. In control experiments non-irradiated animals were immunized with the initial live brucella vaccine strain and cultures were taken for the same periods as in experimental animals. The virulence of 20 of the 25 brucella vaccine cultures after 3, 10, 20, and 30 days in an irradiated organism was basically the same as that of the initial brucella vaccine strain, and the virulence of the other 5 cultures was slightly increased. No conclusions are drawn. Orig. art. has: None.

ASSOCIATION: Institut epidemiologii i mikrobiologii im. Gamalei AMN SSSR (Institute of Epidemiology and Microbiology AMN SSSR)

SUBMITTED: 30Apr64,

ENCL: 00

SUB CODE: LS

NR REF SOV: 003

OTHER: 002

Card 2/2 *pin*

L 21950-66 ENT(1)/ENT(m)/T JK

ACC NR: AP6014448

SOURCE CODE: UR/0016/65/000/010/0061/0065

AUTHOR: Shevtsova, Z. V.; Grekova, N. A.

ORG: Institute of Epidemiology and Microbiology im. Galamova, AMN SSSR (Institut epidemiologii i mikrobiologii AMN SSSR)

TITLE: Morphological characteristics of the brucella vaccine process in irradiated guinea pigs

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 10, 1965, 61-65

TOPIC TAGS: immunization, bacteria, bacteriology, radiation biologic effect, experiment animal, hematopoiesis

ABSTRACT: Experiments were performed on guinea pigs irradiated with 150 r at various times before and after immunization with live brucella vaccine (Br. abortus 19-BA). The lymph nodes within 5 days of immunization were marked by hyperplasia of the reticular elements. Groups of light reticular cells and occasional symplasts appeared between the 15th and 30th days. The morphological picture in the lymph nodes tended to return to normal after 3 months. Hyperplasia of the reticular cells and pulp was noted in the spleen along with intensified lymphopoiesis. During the first month after vaccination the liver was also characterized by hyperplasia and swelling of Kupffer's cells.

In irradiated but not immunized animals, during the first 15 days after irradiation the lymph nodes lost many of their follicles. The blood vessels

Card 1/2

UDC: 616.98.1.42-097-092.9-06:617-001.281-091



L.2195C-66

ACC NR: AP6011448

were dilated and hyperemic. Signs of restoration of lymphopoiesis appeared between the 10th and 15th days and continued until the 50th day after irradiation.

The morphological changes in the lymph nodes and various organs were the same regardless of the sequence of irradiation and vaccination or the duration of the interval between them. No necrotic changes or liver cirrhosis were observed in the controls (immunization without irradiation and irradiation with immunization). Orig. art. has: 2 figures. [JPRS]

SUB CODE: 06 / SUBM DATE: 26Jun64 / ORIG REF: 008

Card 2/2 *U.R.*

SHILOVA-SHILOVSKAYA, K D

Insecticide. N. N. Mel'nikov, K. D. Shvetsova-Shilovskaya, R. A. Pokrovskii, and A. S. Sedukh. U.S.S.R. Izv. Akad. Nauk SSSR, 1957, Jan. 25. Mixed esters of dithiophosphoric acid contg. a carbamide group in the aliphatic radical, and

4

SHEVTSOVICH, I.P.

Device for centrifugal paper chromatography. Zav.lab. 29 no.4:502  
'63. (MIRA 16:5)

1. Spetsial'noye konstruktorskoye byuro biofizicheskoy apparatury i  
elektronnykh mashin. (Paper chromatography)

SHEVUYEV, A.N., kandidat khimicheskikh nauk; PESHEKHONOVA, A.I.;  
KIRILENKO, K.G.; KURCHENINOVA, N.K.

Bromometric method for determining monochlorophenoxyacetic acid  
in 2,4-D. Khim, prom. no.7:430-431 O-N '55. (MLRA 9:3)

1. Nauchno-issledovatel'skiy institut organicheskikh poluproduk-  
tov i krasiteley imeni K.Ye. Voroshilova.  
(2,4-D)

SHEVYAKHOVA, I. P.

Turbulence and Dynamic Meteorology

Dissertation: "Study of the Motion of Drops in a Liquid Medium Under Mass Exchange Conditions." Cand Tech Sci, Leningrad Technological Inst, Leningrad, 1953.  
(Referativnyy Zhurnal -- Mekhanika, Moscow, Mar 54)

SO: SUM 213, 20 Sep 1954

SHEVYAKHOVA, I. P.

13000

✓ Movement of bodies in a medium. IX. Movement of

droplets of changing mass in a liquid medium. I. P. Shevyakova and N. I. Sinitov (Lensovet Technol. Inst., Leningrad). *Zhur. Priklad. Khim.*, 29, 183-93 (1956); cf. C.A. 46, 4320a; 49, 7329f. --The math. equation for the rate of rise of a droplet in a solvent medium is similar to that of a rising air bubble in a liquid medium:  $Re = k Ga^{0.4} Pr_D^{0.1} Pr_C^{-1.2} S^{2.1}$ . The addnl. dimensionless groups are the soly. criterion  $S = (1 - C_D)/(1 - C_C)$  and the Prandtl criteria of diffusional coeffs.  $Pr_D$  and  $Pr_C$  of the droplet and the medium, resp.;  $C_D$  and  $C_C$  are the solubilities of the medium in the droplet and that of the droplet in the medium, resp. The exptl. measurements for the rate of rise of droplets of BuOH, EtBr, cyclohexanol, diisopropyl ether, acrylonitrile, aniline, nitrofurantoin, and AmOH in astd. H<sub>2</sub>O and of droplets of H<sub>2</sub>O in aniline and iso-BuOH agree with the equation within  $\pm 5-7\%$ . The values of the proportionality const.  $k$  and the exponents  $a, b, c, d, e, f,$  and  $g$  for turbulent and transition flows are: 1.32, 1.24; 0.5, 0.66; 0.4, 8/15; -0.62, -0.1; -1.5, -2; -0.1, -0.2; -0.1, 0.67; and 0.6, 1. By equating the 2 equations for the 2 flow regions the value of 1.46 is obtained for the boundary. The limiting value between the transition and the laminar regions was not obtained experimentally, but from analogy of the process with that of air droplets the following relation was assumed:  $Re = k Ga^{0.4} Pr_D^{0.1} Pr_C^{-1.2} S^{2.1}$ ; the proportionality const.  $k$  remains unknown.

I. Benowitz

Chem

13000

MAYMIND, V.I.; TOKAREV, B.V.; GOMES, E.; VDOVINA, R.G.; YERMOLAYEV, K.M.;  
SHIVYAKIN, M.M.

Research in the field of compounds labeled with  $C^{14}$  and  $N^{15}$ .  
Part 4. Synthesis of "key" compounds. Zhur.ob.khim. 26 no.7:  
1962-1967 J1 '56. (MLRA 9:10)

1. Institut biologicheskoy i meditsinskoy khimii Akademii nauk  
SSSR. (Phthalimide) (Hydrocyanic acid) (Radioactive tracers)

SADOVSKIY, V.D.; MALYSHEV, K.A.; SAZONOV, B.G.; SHEVYAKINA, L.Ye., redaktor;  
LUCHKO, Yu.V., redaktor; KOVALENKO, N.I., ~~tekhnicheskii~~ redaktor.

[Phase and structure changes during the heating of steel] Fazovye i  
strukturnye prevrashchenia pri nagreve stali. Sverdlovsk, Gos. nauch-  
no-tekhn. izd-vo lit-ry po chernoi i tavetnoi metallurgii, 1954. 183 p.  
(Metallography) (Steel--Heat treatment) (MLRA 8:1)



20282

S/148/60/000/009/019/025  
A161/A030

18.7500

AUTHORS: Popov, A.A. and Shevyskina, L.Ye.

TITLE: Peculiarities of the formation and decomposition of supersaturated ferrite in alloy steel

PERIODICAL: Izvestiya vysshikh uchetykh zavedeniy. Chernaya metallurgiya, no. 9, 1960, 140-147

TEXT: An investigation has been carried out with medium-carbon steel with different W and Mn content, i.e. elements that belong to carbide forming and raising the  $\delta \rightleftharpoons \gamma$  transformation temperature in carbon steel. This choice of alloy elements was made in view of the fact that isothermic cross sections of ternary phase diagrams prove that alloy elements lowering the  $\alpha \rightleftharpoons \delta$  transformation temperature must decrease the oversaturation of forming ferrite with carbon at a constant transformation temperature, and hence slow down the decomposition of oversaturated ferrite with the more probable formation of graphite instead of carbides, whilst elements raising the transformation temperature have the opposite effect, i.e. raise the oversaturation making the formation of carbides more probable. Specimens of

Card 1/4

20282

S/148/60/000/009/019/025

A16i/A030

Peculiarities of the formation ...

steel with six different compositions were heated to 1100°C, soaked for 5 min, and laid into lead baths heated to certain subcritical temperatures, soaked for a different time, and quenched in water. The results are illustrated in 7 sets of photomicrographs. In steel with 0.88% W and 1.06 Mo in temperature above the eutectic range the structure was the usual bright ferrite that did not decompose in longer isothermic soaking. But at lower temperatures, transformation was present and slightly oversaturated ferrite formed and decomposed in isothermic soaking with the formation of graphite; graphitization of oversaturated ferrite was particularly clear in the transformation at about 750°C. At 700°C ferrite was more oversaturated and decomposed into graphite and carbide; at 650°C the oversaturation is still higher and only the carbides are separated. Analogous transformation took place in higher-alloyed steel, and it could be stated that higher content of W and particularly of Mo resulted in much higher oversaturation of the forming ferrite with carbon at same transformation temperatures, and formation of carbides; e.g. at 4.41% W, 3.18% Mo, or 5.44% Mo, decomposition of ferrite formed at 750°C and lower was accompanied by the formation of disperse carbides only. Decomposition of oversaturated ferrite was

Card 2/4

20282

S/148/60/000/009/019/025  
A161/A030

Peculiarities of the formation ...

particularly clear at 700-650°, except in highest-alloyed steel with 5.44% Mo. It was also observed that a ferrite-carbide mixture formed in steel with 4.41% W and 3.18% Mo at 700 and 650° after the ferrite formation, with small blurred spots of pearlite-troostite. This was not stated in steel with 5.44% Mo. It follows from the observations that oversaturated ferrite really forms in medium-alloy steel with W or Mo. In temperatures near the eutectic the oversaturation is comparatively slight, and ferrite oversaturated with carbon decomposes with the formation of graphite; more oversaturated ferrite forms at lower temperatures, and this ferrite decomposes with the formation of carbides. Increased W or Mo content raises oversaturation at a given temperature, and the tendency to carbides formation rises, i.e. the effect of higher W or Mo content is equivalent with the effect of an increased degree of supercooling. Ferrite in such higher alloyed steel can decompose with the formation of a peculiar ferrite-carbide mixture resembling the sorbite or troostite forming in direct decomposition of austenite but forming from oversaturated ferrite. Analogous regularities can be expected to exist in other steel compositions containing elements that raise the

Card 3/4

20282

S/148/60/000/009/019/025  
A161/A030

Peculiarities of the formation ...

transformation temperature.

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnical  
Institute)

SUBMITTED: 28 March 1960

Card 4/4