USSR / Cultivated Plants. Cereal Crops. M-3

Abs Jour : Ref Zhur - Biologiya, No 13, 1958, No. 58517

Author : Fedorov, P.E
Inst : Alma-Ata Selection Station
Title : Winter Wheat Cultivation in South-Eastern Kazakhstan

Orig Pub : S.-kh. Kazakhstana, 1956, No 9, 31-35

Abstract : The yield capacity of winter wheat exceeded that of the summer wheat in seed cultivating sowings of the Alma-Ata selection station by 6.3 ctw/ha on the average, calculated for 15 years, when the soil was irrigated and by 3.2 ctw/ha on bogara (non-irrigated soil). Winter wheat grows well on occupied fallows and over grains crops in irrigated soil. Vetch-oats mixtures, early vegetables and corn are the best crops in the fallows. At the Alma-Ata station winter wheat yields over 30 cwt/ha, and it is only necessary to water the field once, before

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USSR / Cultivated Plants. Cereal Crops.

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- Abs Jour : Ref Zhur - Biolcgiya, No 13, 1958, No. 58517

sowing; watering during the vegetation period is not necessary. 3-4 waterings are necessary on highly drained soils and when the irrigated fields are located on a sharp slope. The following five varieties of winter wheat are adapted to the conditions prevailing in Alma-Ata and the Taldy-Kurgan oblasts: Ukrainka, Hybrid 599, Cooperatorka, Gostianum 237, Hybrid 186 and Alma-Atinskaya (Mil'turum 5031). During the last few years, new varieties of winter wheat were created at the Alma-Ata station. The best of these varieties is Zailiyskaya (Lyutescens 5903) variety.
-- G. N. Chernov

Card 2/2

FEDOROV, P.G. (Leningrad).

Innovations and inventions in the Leningrad printing industry. Poligr. proiz.4:5-6 Ap '53. (MLRA 6:6)

(Leningrad--Printing industry)

34139
S/149/62/000/001/008/009
A006/A101

18.1246
15.2240

AUTHORS: Fedorov, P. I., Ioffe, A. A.

TITLE: On lithium-silicon alloys

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, no. 1, 1962, 127 - 131

TEXT: To complete data on the lithium-silicon system presented by H. Böhm, the authors have published data obtained by thermal and microstructural analysis of the system. The initial materials were lithium of 98.5% purity containing 0.8% Na, 0.2% K and 0.2% Mg and silicon of 98.5% purity containing iron, aluminum and calcium admixtures. The microstructural analysis was made with slow-cooled and cast alloys, produced in a special device. Results of the thermal analysis are tabulated and a constitutional diagram is given (Figure 2). The liquidus consists of three lines. Lines AB and BC correspond to the crystallization of two $Li_4Si$ modifications from the melt, designed as $\beta$ and $\beta'$, and line DC corresponds to the crystallization of phase $\gamma$ with a higher Si content, which obviously corresponds to $Li_2Si$ silicide described in literature. The AK horizontal is an eutectic line. Interruptions on the cooling curves corresponding to this

Card 1/3/ 2

On lithium-silicon alloys

line are observed at 182°C, whereas the lithium employed has a melting temperature of 185°C. Lithium silicide $Li_4Si$ dissociates at 636°C by a peritectic reaction (line CEF). Horizontals BG and HI are apparently associated with the polymorphous transformation of this silicide. Line BG is an eutectoid and HI a peritectoid line. The homogeneous range of the β-phase extends from about 49 to 53 weight %. The composition point of $Li_4Si$ (50.3 weight % Si) is located within this range. Alloys containing over 50% Si are heterogeneous. The density of $Li_4Si$ is equal to 1.16 - 1.17. The chemical properties of lithium silicide were established by investigating the behavior of the alloy in respect to dry air, water, sulfur, liquid bromine, and other substances. There are 4 figures, 1 table and 8 references, 2 Soviet-bloc and 6 non-Soviet-bloc.

ASSOCIATIONS: Moskovskiy institut tonkoy khimicheskoy tekhnologii (Moscow Institute of Fine Chemical Technology) Kafedra khimii i tekhnologii redkikh i rasseyannykh elementov (Department of Chemistry and Technology of Rare and Dispersed Elements)

SUBMITTED: February 22, 1961

Card 2/β 2

FEDOROV, P.I.; TSIMBALIST, V.V.

Interaction of gallium chloride with the chlorides of lithium, potassium, and thallium (I). Zhur. neorg. khim. 9 no.7:1676-1680 Jl '64. (MIRA 17:9)

FEDOROV, P.I.; TSIMBALIST, V.V.; LYU GO-YUAN' [Liu Kuo-yuan]

Interaction of gallium chloride with zinc, cadmium, and mercury chlorides. Zhur. neorg. khim. 9 no.7:1681-1683 Jl '64. (MIRA 17:9)

ACC NR: AP6036795 SOURCE CODE: UR/0363/66/002/011/2064/2066

AUTHOR: Andrianov, V. G.; Bol'shakov, K. A.; Sokolov, Yu. B.; Chirkin, A. V.; Fedorov, P. I.

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

TITLE: Thermal analysis of the germanium-barium phase diagram

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy. v. 2, no. 11, 1966, 2064-2066

TOPIC TAGS: germanium barium alloy, alloy phase diagram, alloy ~~phase~~ composition, alloy structure , alloy system, germanium alloy, barium alloy, thermal analysis

ABSTRACT: A phase diagram of the germanium-barium system (Fig. 1) was plotted on the basis of data obtained by thermal analysis of 34 alloys containing 0 to 100% barium. It was found that the system includes three compounds: BaGe, $BaGe_2$, and $Ba_2Ge$ whose melting temperatures are 1145, 1050 and 940C, respectively. All compounds have high hardness and are unstable when exposed to air, particularly those with a high barium content, which rapidly decompose and turn into a yellow-brown powder. $BaGe_2$ was the most stable compound. It has a cubic lattice a = 14.52 + 0.03Å. Orig. art. has: 1 figure and 1 table.

SUB CODE: 11/ SUBM DATE: 08Jan66/ ORIG REF: 003/ OTH REF: 005/

Card 1/2 UDC: 546.3-19-289-43:620.181.4

ACC NR: AP6036795

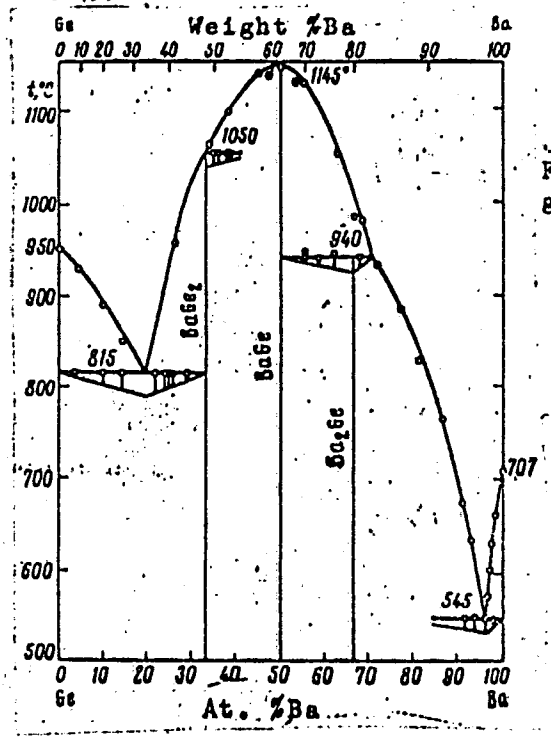



Fig. 1. Phase diagram of the germanium-barium system.

Card 2/2

1. FEDOROV,,P. F. Eng.

2. USSR (600)

4. Agricultural Machinery

7. Improve machines and implements for the care of forest plantings. Les i step' 4 no. 10: 1952

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

[redacted], I. I.

Forestry Engineering

New machinery and implements for forestry, Les. khoz. 5 No. 3(42), 1952

Monthly List of Russian Accessions, Library of Congress, July 1952. Unclassified.

Kurushin, F.F.

KURUSHIN, Faust Mikhaylovich; RUSANOV, Sergey Gavrilovich; FEDOROV, P.F., redaktor; SVETLAYEVA, A.S., redaktor izdatel'stva; BOCHURINA, A.M., tekhnicheskiy redaktor

[Mechanized care of seedbeds and plantations in forestry] Mekhanizatsiia ukhoda za posadkami i posevami v lesnom khozyaystve. Moskva, Goslesbumizdat, 1956. 47 p. (MLRA 10:4)
(Forests and forestry--Equipment and supplies)

BOGDASHIN, A.S.; BOGORODSKIY, A.A.; VINGARDT, M.B.; GORBUNOV, V.I.; GORBUNOV, V.R.; DUROV, V.K.; YERMAKOV, A.L.; IVANOV, A.A.; KARAKOVA, N.I.; KOBYLYAKOV, L.M.; KOZLOVSKIY, N.I.; MARAKHTANOV, K.P.; MIRUMYAN, G.N.; NECHETOV, G.P.; NOVIKOV, A.G.; OL'KHOVSKIY, K.I.; PESTRYAKOV, A.I.; POLAPANOV, A.V.; SKLYARENSKAYA, Ye.Kh.; SOLDATENKOV, S.I.; SOROKIN, Ye.M.; TRUSHINA, Z.V.; FEDOROV, P.F.; FEDOSEYEV, A.M.; FROG, N.P.; SHAMAYEV, G.P.; YANOVSKIY, V.Ya.; ORLKHOV, A.D., spetsred.; DEYEVA, V.M., tekhn.red.

[Handbook on new agricultural machinery] Spravochnik po novoi tekhnike v sel'skom khoziaistve. Moskva, Gos.izd-vo sel'khoz. lit-ry, 1959. 364 p. (MIRA 13:2)
(Agricultural machinery)

GORBUNOV, V.I., inzh.; MIRUMYAN, G.N., inzh.; YANOVSKIY, V.Ya., inzh.; IVANOV, A.A., inzh.; YERMAKOV, A.L., inzh.; FEDOROV, P.F., inzh.; LARYUKHINA, G.G., inzh.; NECHETOV, G.P., inzh.; NOVIKOV, A.G., inzh.; DUROV, V.K., inzh.; BARSUKOV, A.F., red.; PECHENKIN, I.V., tekhn. red.

[New tractors and agricultural machines; test results of 1957] Novye traktory i sel'skokhoziaistvennye mashiny; rezul'taty ispytanii 1957 goda. Moskva, M-vo sel'.khoz.SSSR. No.3. 1959. 350 p. (MIRA 15:10)

1. Russia (1923- U.S.S.R.)Glavnoye upravleniye mekhanizatsii i elektrifikatsii sel'skogo khozyaystva.
(Agricultural machinery)

BIYASHEV, G.Z., akademik; NECHIPORENKO, N.A., FEDOROV, P.F., kand.sel'-skokhozyaystvennykh nauk; AMANTAYEV, Ye.A., kand.sel'skokhozyay-stvennykh nauk

Most important problems in the agriculture of southern and southeastern Kazakhstan. Zemledelie 23 no.4:8-14 Ap '61. (MIRA 14:3)

1. Kazakhskaya akademiya sel'skokhozyaystvennykh nauk (for Biyashev).
2. Chlen-korrespondent Kazakhskoy akademii sel'skokhozyaystvennykh nauk (for Nechiporenko).
(Kazakhstan--Agriculture)

ANTSYSHKIN, S.P.; BOBYLEV, G.V.; GORYACHEV, I.V.; ISACHENKO, Kh.M.; KOVALIN, D.T.; LAVRENT'YEV, V.A.; LITVINOV, I.V.; MUKIN, A.F.; PEREPECHIN, B.M.; PIS'MENNYY, N.R.; REBROVA, G.I.; SERGEYEV, P.A.; SOBINOV, A.M.; FEDOROV, P.F.; FILINOV, N.P.; KHRAMTSOV, N.N.; KAZAKOVA, Ye.D., red.; BALLOD, A.I., tekhn. red.

[Reference book for foresters] Spravochnik lesnichego. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1961. 894 p. (MIRA 14:7)
(Forests and forestry)

KORNIYENKO, Petr Prokop'yevich; FEDOROV, P.F., red.; GOSPODARSKAYA, T.N., red. izd-va; GRECHISHCHEVA, V.I., tekhn. red.

[Mechanization of soil cultivation in forestry]Mekhanizatsiia obrabotki pochvy v lesnom khoziaistve. Moskva, Goslesbumizdat, 1962. 47 p. (MIRA 15:8)
(Forests and forestry--Equipment and supplies)
(Forest soils)

FEDOROV. P.G.; IOFFE, YE. F.; MOS'KIN, V.S.; RYAZANOV, A.A.

Electric Circuit Breakers

Rapid repairing of electric breakers. Elec. sta. 23 No. (1952) St. Master

Monthly List of Russian Accessions, Library of Congress, August, 1952. UNCLASSIFIED.

PATLAN', N.N.; SHABASH, L.Ye.; FEDOROV, P.I.

Metal chute with a drum feeder and pneumatic drive. Sbor. rats. predl. vnedr. v proizv. no.2:8-9 '61. (MIRA 14:7)

1. Rudoupravleniye imeni Dzerzhinskogo, shakhta "Gigant". (Mining machinery)

FEDOROV, P.I.; IL'INA, N.I.

Interaction of the chlorides and indium, potassium, copper (1), silver, and thallium. Zhur. neorg. khim. 9 no.5:1207-1210 My '64. (MIRA 17:9)

TROFIMOV, N.P.; ARIF'YEVA, S.A.; KOMAROVA, T.A.; LITVINENKO, V.G.; SEMOV, V.A.; SKOSYREVA, N.A.; SHCHERBAKOV, N.P.; FEDOROV, P.I., otv.red.; SAYTANIDI, L.D., tekhn.red.

[Wages on state farms; a collection of materials on wages and work norms for state farms] Oplata truda v sovkhozakh; sbornik materialov po oplate truda i normam vyrabotki v sovkhozakh. Moskva, Izd-vo M-va sel'.khoz.RSFSR, 1960. 380 p. (MIRA 13:5)

1. Russia (1917- R.S.F.S.R.) Ministerstvo sel'skogo khozyaystva. Upravleniye organizatsii truda i zarabotnoy platy. 2. Upravleniye organizatsii truda i zarabotnoy platy Ministerstva sel'skogo khozyaystva (for all except Fedorov, Saytanidi).
(Wages) (State farms)

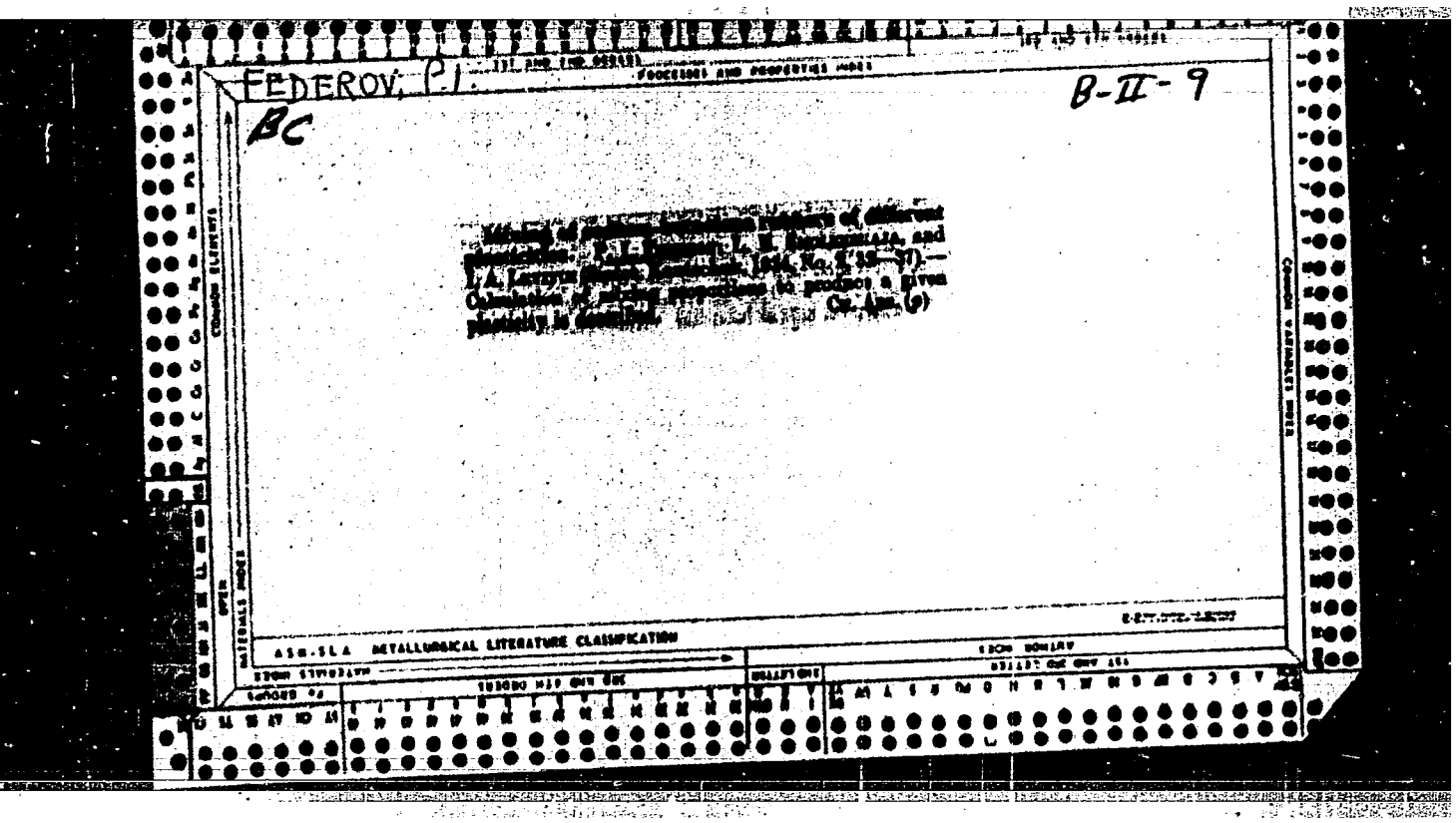
FEDOROV, P.I.; SITDYKOVA, N.S.

Removal of tin and lead impurities from indium by zone melting of its chloride. Dokl. AN SSSR 153 no.1:126-128 N '63. (MIRA 17:1)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova. Predstavleno akademikom I.V. Tananayevym.

FEDOROV, P.I.

Joining asbestos-cement pipes with the help of unions with self-sealing sleeves. Sbor. trud. LISI no. 41:69-82 '62. (MIRA 17:5)



FEDOROV, P. I.

FEDOROV, P. I. - "Study of the Reaction of Chlorides and Sulfates of Sodium, Cobalt, and Nickel at High Temperatures." Sub 12 May 52, Moscow Inst of Fine Chemical Technology imeni M. V. Lomonosov. (Dissertation for the Degree of Candidate in Chemical Sciences).

SO: Vechernaya Moskva January-December 1952

FEDOROV, P. I.

"Trends in Inorganic Chemical Research Work," translated from the Russian (but no Russian source given), Ko' - hsueh Tung-pao, pp. 4-16, April 1956

Fedorov is on the staff of Peking University (Chemical Faculty.)

FEDOROV, P I

USSR/Physical Chemistry - Thermodynamics. Thermochemistry. Equilibrium. Physico-chemical Analysis. Phase Transitions, B-8

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 370

Author: Bol'shakov, K. A., and Fedorov, P. I.

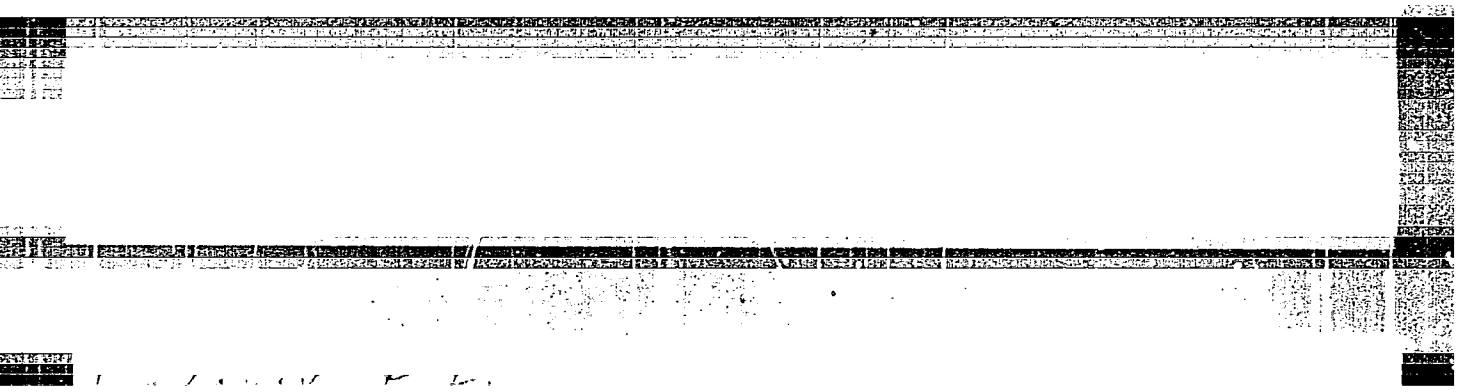
Institution: None

Title: Investigation of the Sodium Sulfate-Cobalt Sulfate and Sodium Sulfate-Nickel Sulfate Systems

Original Periodical: Zh. obshch. khimii, 1956, Vol 26, No 2, 348-350

Abstract: The systems $Na_2SO_4$(I)-$CoSO_4$(II) and I-$NiSO_4$(III) have been investigated by thermic analysis. Mutual solubility of the components in the liquid state is observed in both systems together with the formation of an extensive region of solid solutions, based on sodium sulfate and the presence of 3 binary compounds: $3Na_2SO_4 \cdot MSO_4$, $Na_2SO_4 \cdot MSO_4$, and $Na_2SO_4 \cdot 3MSO_4$ (M = Ni, Co). Phase diagrams are presented for the systems investigated together with a characterization of the compounds covered, based on crystallographic data. In the system I-II

Ca Card 1/2



APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000412620019-6"

FEDOROV, P. I.

CHINA / Physical Chemistry. Thermodynamics, Thermochemistry, Equilibriums, Phys. Chem. Analysis, Phase Transitions. B

Abs Jour: Ref Zhur-Khimiya, No 16, 1958, 52955.

Author : Fedorov P. I., Chen Guan.
Inst : Not given.
Title : A Solubility Study in the System Thallium Chloride -Cadmium Chloride-Water at 0, 25, 50, and 75°C.

Orig Pub: Khuasyue syuebao, Acta chim. sinica, 1957, 23, No 6, 469-473.

Abstract: The solubility isotherms were studied in the system $TlCl-CdCl_2-H_2O$ at 0, 25, 50, and 75°C. The following solid phases were discovered: TlCl, $TlCl \cdot CdCl_2$,

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SOV/156-58-3-2/52

AUTHORS: Bol'shakov, K. A., Fedorov, P. I., Shakhova, M. N.

TITLE: The Saturation Vapor Pressure of Thallium Chloride (Davleniye nasyshchennogo para khloristogo talliya)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 3, pp. 408-412 (USSR)

ABSTRACT: The saturation vapor pressure of thallium chloride was determined according to two methods: the method of boiling points, and the method of saturated current (metod potoka nasyshcheniya). The use of these two methods made it possible to cover a great temperature range and after analysis of the results obtained to draw conclusions on the molecular state of thallium chloride. The apparatus for the determination of the vapor pressure according to the boiling point method is shown in a scheme and is discussed briefly. Three experimental series were carried out; the results obtained are given in tables and are made use of in the accompanying diagrams. An apparatus built according to the instructions of Gerasimov, Dreving and Komandin (Ref 5) was used for the determination of the saturation vapor pressure.

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The Saturation Vapor Pressure of Thallium Chloride

Table 2 gives the results calculated for TlCl and $Tl_2Cl_2$. A comparison of some data from publications with some of the results obtained by the authors of this paper shows that up to 460° C $Tl_2Cl_2$ is present, and from 620° C upward it is TlCl. Between these two temperatures there exists a mixture of these compounds. Table 3 gives the mean molecular weight of the vapor, the percentage of TlCl molecules, and the logarithm of the respective equilibrium constants of the reaction $Tl_2Cl_2 \rightleftarrows 2\ TlCl$ for four temperatures in this interval. The change of the constant of the equilibrium with the temperature was calculated and shown in a diagram. The boiling point of TlCl is at 818° C, as is shown by the observations made by the authors. There are 4 figures, 3 tables, and 6 references, 2 of which are Soviet.

ASSOCIATION: Kafedra tekhnologii redkikh i rasseyannykh elementov Instituta tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova (Chair for the Technology of Rare and Trace Elements of the Institute of Chemical Fine Technology imeni M.V. Lomonosov)

SOV-128-58-10-5/19

AUTHORS: Fedorov, P.I., Furman, M.I., Glebov, A.M.

TITLE: The Use of Cast Low-Alloy Manganese Steel for the SA-3 Automatic Coupler (Primeneniye litoy nizkolegirovannoy margantsem stali dlya avtostsepki SA-3)

PERIODICAL: Liteynoye proizvodstvo, 1958, Nr 10, pp 8 - 9 (USSR)

ABSTRACT: At present the body of the SA-3 automatic coupler is cast from carbon steel, the composition of which is indicated in GOST 88-55 (table 1). Stronger couplers cannot be obtained by an increase of the carbon content of the casting steel. Experiments were made in the Lyublinskiy liteynomekhanicheskiy zavod (Lublin Casting and Mechanical Engineering Plant) using a 400-ton press (fig. 2). Workers of TsNII MPS (TsNII MPS) and Doctor of Technical Sciences P.N. Biduli participated. Steel of the marks 15GL, 27GL and 15 GSL was smelted, cast and heat-treated, (table 1), then press-tested (table 3). The properties of 27GL steel

Card 1/2

The Use of Cast Low-Alloy Manganese Steel for the SA-3 Automatic Coupler

were investigated in separately-cast samples (table 4). It was found that low-alloy manganese steel yields positive results, recommending it for use in automatic RR couplers. Experiments and tests in this direction are still going on. There are 5 photos, 4 tables and 1 graph.

1. Railroad car couplers--Production 2. Manganese steel--Casting
3. Carbon--Effectiveness 4. Steel alloys--Test results

SOV/78-3-8-28/48

AUTHORS: Bol'shakov, K. A., Fedorov, P. I., Agashkina, G. D.

TITLE: The Ternary System of the Chlorides of Sodium, Cobalt, and Nickel (Troynaya sistema iz khloridov natriya, kobal'ta i nikelya)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol. 3, Nr 8, pp. 1891-1895 (USSR)

ABSTRACT: By means of thermal analysis the binary system of the chlorides of cobalt and nickel and the ternary system of the chlorides of sodium, cobalt, and nickel were studied. The binary system $CoCl_2$-$NiCl_2$ was examined only in the range of small $NiCl_2$ contents. Uninterrupted solid solutions are formed in this system and a minimum appears on the melting-diagram. The minimum lies at 680°centigrade and 7 per cent $NiCl_2$. Solid solutions do not appear in the ternary system when sodium chloride is present, but there are eutectic points which practically coincide with the points of the binary eutectic of the system NaCl-$CoCl_2$. There are 11 figures and 2 references, 2 of

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The Ternary System of the Chlorides of Sodium, Cobalt, and Nickel

which are Soviet.

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

SUBMITTED: July 8, 1957

Card 2/2

AUTHORS: Bol'shakov, K. A., Fedorov, P. I. SOV/78-3-8-29/48

TITLE: II. The Ternary System of Sodium-Cobalt-, and Nickel Sulphates (II. Troynaya sistema iz sul'fatov natriya, kobal'ta i nikelya)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol. 3, Nr 8, pp. 1896-1900 (USSR)

ABSTRACT: The ternary system of the sulphates of sodium, cobalt, and nickel was studied by means of thermographic analysis. Nine sections were examined. Based on the examinations at hand, the diagram of the ternary system as well as the isotherm of the surface-liquids were plotted at 50°centigrade. In the ternary system the following solid solutions were established: δ- on the basis of $Na_2SO_4CoSO_4$, $Na_2SO_4.NiSO_4$ and β- on the basis of $3Na_2SO_4$, $3Na_2SO_4.NiSO_4$. The melting diagram shows four crystallization fields which correspond to the solid solutions. Uninterrupted solid solutions are formed between the sulphates of cobalt and nickel and the corresponding combinations of these sulphates and sodium sulphate. There are 8 figures and 1 reference, 1 of which is Soviet.

Card 1/2

SOV/79-3-8-29/48

II. The Ternary System of Sodium-, Cobalt-, and Nickel Sulphates

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

SUBMITTED: July 8, 1957

Card 2/2

FEDOROV, Polina Ivanovna; AVAKIMOVA, L.A., red.

[Thyrotoxicosis (Basedow's disease) in a hot climate] Tireotoksikoz (bazedova bolezn') v usloviiakh zharkogo klimata. Tashkent, Medgiz UzSSR, 1963. 194 p. (MIRA 17:11)

TABLE

5 (3) CHICOM/2-24-3-11/12

AUTHOR: Chung, Huan-pang (钟焕邦), Sun, I-chen (孙义臣), and P.Y. Fedorov

TITLE: Solubility Diagram of the System $Th(SO_4)_2$-$Ce_2(SO_4)_3$-$H_2O$ at 25°C

PERIODICAL: Hua Hsüeh Hsüeh Pao, 1958, Vol 24, Nr 3, pp 274-276

ABSTRACT: $Th(SO_4)_2 \cdot 8H_2O$ and $Ce_2(SO_4)_3 \cdot 8H_2O$ were used with water for composing the isothermal solubility diagram (Fig. 1). In this system, the double salt formation point was at $Th(SO_4)_2$ 4.23%, $Ce_2(SO_4)_3$ 9.52% (by weight). Since solubilities for $Th(SO_4)_2$ and $Ce_2(SO_4)_3$ at 25°C are only 1.82% and 7.62%, a mutual increase in solubilities of these two compounds is expected in their mixed solution. Yao, K'e-min (姚克敏), and Professor Chang, Ch'ing-lien (张青莲) participated in the experiments. There are 1 figure, 1 table, and 8 references (2 French, 4 German, 2 American).

ASSOCIATION: Chung Kuo K'o Hsüeh Yüan Ying Yung Hua Hsüeh Yen Chiu So (Institute of Applied Chemistry, Chinese Academy of Sciences). Pei-ching Ta Hsüeh Hua Hsüeh Hsi (Department of Chemistry Peking University).

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Solubility Diagram of the System $Th(SO_4)_2$-$Ce_2(SO_4)_3$-$H_2O$ at 25°C (Cont.)
CHICOM/2-24-3-11/12

SUBMITTED: October 25, 1957

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Card 2/2

BOL'SHAKOV, K.A.; FEDOROV, P.I.

Fusibility diagram of the antimony sulfide - sodium sulfate system. Izv. vys. ucheb. zav.; tsvet. met. 2 no.2:51-53 '59. (MIRA 12:7)

1.Moskovskiy institut tonkoy khimicheskoy tekhnologii, Kafedra tekhnologii redkikh i rasseyannykh elementov.
(Systems (Chemistry)) (Antimony--Metallurgy)

BOL'SHAKOV, K.A.; FEDOROV, P.I.; STEPINA, L.A.

Fusibility curve for the lithium - lithium nitride system.
Izv.vys.ucheb.zav.; tsvet.met. 2 no.4:52-53 '59.
(MIRA 13:1)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii. Kafedra khimii i tekhnologii redkikh i rasseyannykh elementov.
(Lithium--Thermal properties)
(Lithium nitride--Thermal properties)

SOV/78-4-4-30/44

5(4)

AUTHORS: Fedorov, P. I., Bol'shakov, K. A.

TITLE: Reciprocal Ternary System of Chlorides and Sulphates of Sodium and Cobalt (Troynaya vzaimnaya sistema iz khloridov i sul'fatov natriya i kobal'ta)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 4, pp 892-897 (USSR)

ABSTRACT: The authors plotted the phase diagram of the reciprocal system consisting of chlorides and sulphates of cobalt and sodium. The system is irreversibly reciprocal. Fifteen internal sections of this system, the results of which are contained in figure 2 were investigated. The stable diagonal of the reciprocal system $NaCl-CoSO_4$ bears the nature of a binary system with formation of compounds between the components. The compound $NaCl.2CoSO_4$ is produced in prismatic crystals. The phase diagram of the diagonal section $CoCl_2-Na_2SO_4$ is represented in figure 4. The fifteen internal sections are contained in figures 3 to 9. Seven crystallization ranges were stated in the system: sodium chloride, cobalt chloride, cobalt sulphate, sodium sulphate,

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Reciprocal Ternary System of Chlorides and Sulphates of Sodium and Cobalt

$NaCl.2CoSO_4$ (phase $\lambda$), $Na_2SO_4.3CoSO_4$ (phase $\varepsilon$) and $Na_2SO_4.CoSO_4$ (phase $\delta$). The results indicate that only cobalt sulphate is produced by chlorinating calcination of cobalt-containing sulphidic substances. There are 11 figures and 11 references, 9 of which are Soviet.

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

SUBMITTED: January 13, 1958

URAZOV, G.G. [deceased]; BOL'SHAKOV, K.A.; FEDOROV, P.I.; VASILEVSKAYA, I.I.

Ternary system antimony - iron - sulfur (on the theory of precipitation smelting). Zhur.neorg.khim. 5 no.2:449-455 F '60. (MIRA 13:6)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.
(Antimony) (Iron) (Sulfur)

AUTHORS: Urazov, G. G. (Deceased), Bol'shakov, K. A., Fedorov, P. I., Vasilevskaya, I. I. S/078/60/005/03/022/048 B004/B015

TITLE: The Ternary System Bismuth - Iron - Sulfur. (On the Theory of the Precipitating Melt of Bismuth)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol 5, Nr 3, pp 630-636 (USSR)

ABSTRACT: It is the aim of the present study to investigate the interaction and the mutual solubility of the components of the reaction $Bi_2S_3 + 3Fe = 3FeS + 2Bi$ to define the conditions of this reaction which is of great importance for the metallurgy of bismuth. The authors describe the preparation of the melts and present the diagrams of the binary systems Fe - Bi (Fig 1), Fe - S (Fig 2) known from publications as well as the diagram of the system Bi - S (Fig 3) which was corrected by them. The existence of the compound BiS assumed by Ya. I. Gerasimov (Ref 7) was not confirmed. Only $Bi_2S_3$ (Fig 4) is separated from the melt. Five sections of the system Bi - Fe - S were subjected to a thermal analysis by means of a Kurnakov pyrometer. Their position is shown in figure 5, and the results are diagrammatically represented in figures 6-10. Figure 11 shows the limit of the dissociation zone, and figure 12 the melting-point diagram of that part of the system in which Bi

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The Ternary System Bismuth - Iron - Sulfur. (On the Theory of the Precipitating Melt of Bismuth)

S/078/60/005/03/022/048
B004/B015

is precipitated, as obtained on the basis of experimental data. This part is divided by the section Bi - FeS into two ternary systems in which the crystallization of all melts ends with the formation of a ternary eutectic. Results and thermodynamic calculations prove the practically irreversible course of the reaction. V. N. Levina, V. A. Antsibor, and M. V. Ushakova assisted in the experiments. There are 12 figures and 7 references, 2 of which are Soviet.

SUBMITTED: December 29, 1958

Card 2/2

S/149/61/000/004/004/008
A006/A101

AUTHORS: Fedorov, P. I.; Mokhosoyev, M. V.

TITLE: A physico-chemical study of the interaction in melts of sodium ditungstate with sodium chromate and silicate, and lead tungstate

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, Vol. 4 no. 4, 1961, 105-110

TEXT: For the purpose of determining the physico-chemical conditions of refining sodium ditungstate from chromium, silicon and lead admixtures by zonal melting, the authors studied the interaction in the melts of admixtures in the form of sodium chromate and silicate and lead tungstate. Sodium ditungstate (melting point 738°C) was obtained by alloying refined sodium tungstate with tungsten anhydride at 750°C; sodium silicate (melting point 1,027°C) by alloying sodium carbonate with silicic acid at 1,070°C; sodium chromate was recrystallized twice; lead tungstate was obtained from diluted solutions of chemically pure sodium tungstate and lead nitrate. The thermal analysis of the systems was made by recording the heating and cooling curves with a Kurnakov pyrometer. The temperature was measured with the aid of a platinum-platinum rhodium thermocouple.

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S/149/61/000/004/004/008
A006/A101

A physico-chemical study of the interaction ...

Porcelain crucibles were used and the heating rate was 10°C per minute. Phase diagrams of systems $Na_2W_2O_7$ - $Na_2CrO_4$; $Na_2W_2O_7$ - $Na_2SiO_3$; $Na_2W_2O_7$ - $PbWO_4$ were plotted which show that 1) during the interaction of sodium ditungstate with sodium chromate compound $2Na_2W_2O_7 \cdot 3Na_2CrO_4$ is formed (at 60 mol.% sodium chromate), which melts congruently at 650°C; 2) during the interaction of sodium ditungstate with sodium silicate, compound $Na_2W_2O_7 \cdot Na_2SiO_3$ is formed (at 50 mol.% sodium silicate), which melts incongruently at 700°C; 3) during the interaction of sodium ditungstate with lead tungstate, compound $Na_2W_2O_7 \cdot PbWO_4$ is formed (at 50 mol.% lead tungstate) in the solid phase. There are 3 figures, 1 table and 7 references: 6 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATIONS: Moskovskiy institut tonkoy khimicheskoy tekhnologii (Moscow Institute of Fine Chemical Technology); Kafedra khimii i tekhnologii redkikh i rasseyannykh elementov (Department of Chemistry and Technology of Rare and Dispersed Elements)

SUBMITTED: October 13, 1960

Card 2/2

FEDOROV, P.I.; SHAKHOVA, M.N.

Pressure of cuprous bromide and chloride saturated vapors. Izv.vys.-ucheb.zav.;khim.i khim.tekh. 4 no.4:550-553 '61. (MIRA 15:1)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova, kafedra khimii i tekhnologii redkikh i rasseyannykh elementov.
(Copper bromide) (Copper chloride) (Vapor pressure)

MOKHOSOYEV, M.V.; FEDOROV, P.I.

Obtaining pure compounds of tungsten; a survey. Trudy BKNII no.1:58-71 '61. (MIRA 18:2)

FEDOROV, P.I.; MOKHOSOYEV, M.V.

Phase diagram of the system sodium ditungstate - sodium dimolybdate. Zhur. neorg. khim. 6 no.1:242-243 '61. (MIRA 14:2)
(Sodium tungstate) (Sodium molybdate)

S/078/61/006/001/019/019
B017/B054

AUTHORS: Fedorov, P. I., Dudareva, A. G.

TITLE: Physicochemical Study of the System Indium(III) Iodide - Cadmium Iodide

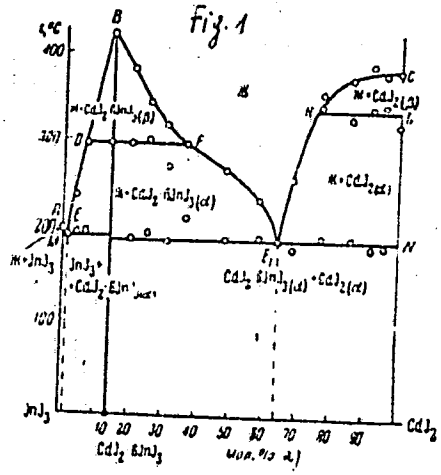
PERIODICAL: Zhurnal neorganicheskoy khimii, 1961, Vol. 6, No. 1, pp. 252 - 253

TEXT: The authors studied the system $InI_3$ - $CdI_2$ by thermal analysis. The cooling and differential heating curves were automatically recorded by Kurnakov's ПК-52 (PK-52) pyrometer. The results of these investigations are given in a table. Fig.1 shows the state diagram of the system $InI_3$ - $CdI_2$. In this system, a chemical compound of the composition $CdI_2 \cdot 6InI_3$ forms, which has a congruent melting point of 420°C. This compound forms a eutectic with $InI_3$ (98.5 mole% of $InI_3$) with a melting point of 196°C, and a eutectic with $CdI_2$ (62.5 mole% of $CdI_2$) with a melting point of 190°C. The compound $CdI_2 \cdot 6InI_3$ undergoes a polymorphous

transformation at 298°C. Solid solutions on the basis of indium iodide have not been found in the system. There are 1 figure, 1 table, and 1 non-Soviet reference.

SUBMITTED: August 2, 1960

Fig. 1




Legend to Fig.1:
a) mole%;
K = liquid

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21343
S/078/61/006/004/017/018
B107/B218

54210 1087, 1273, 1043

AUTHORS: Chung Huang-pang, Fedorov, P. I.

TITLE: The ternary system thorium sulfate - sodium sulfate - water

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 4, 1961, 971-976

TEXT: The solubility of the system thorium sulfate - sodium sulfate - water was studied at 25 and 50°C. An investigation of thorium sulfate at 75°C was not possible since hydrolysis occurred already after 4 hr. Thorium and rare-earth sulfates form a number of complex salts together with alkali sulfates. The different solubility of these complex salts is of technological importance to the separation of thorium from other elements. For the determination of solubility, the authors used ordinary glass vessels with stirrers and hydraulic seals. Thorium in solution and in the precipitate was determined as oxalate, and the sulfate ions were determined as barium sulfate. The content of sodium was calculated from the difference. The solid products obtained were studied microscopically, roentgenographically, and thermographically. In order to shorten the time until equilibrium is reached, the authors used thorium sulfate with 9 mole-

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cules of crystal water at 25°C, and thorium sulfate with 4 molecules of crystal water at 50°C since the latter hydrate is stable above 43°C. Thorium sulfate was obtained by evaporation of dry thorium nitrate with an excess of concentrated sulfuric acid. All investigations of the system at 50°C were carried out with fresh salt solutions in order to prevent hydrolysis. Results are listed in a table. At 25°C, three solubility curves were obtained. They correspond to the equilibrium of $Th(SO_4)_2 \cdot 9H_2O$, $Na_2SO_4 \cdot 10H_2O$ and the compound $Th(SO_4)_2Na_2SO_4 \cdot 6H_2O$ in solution. If sodium sulfate is added to the thorium-sulfate solution, the solubility of the latter increases considerably and attains a maximum of 5.3 % at the point of double saturation, in which case the concentration of sodium sulfate is exactly 4 % (Fig. 1). By a further increase of the concentration of sodium sulfate, the content of thorium sulfate in the solution decreases. When adding $Th(SO_4)_2$ to an $Na_2SO_4$ solution, the solubility of the latter decreases only slightly. The compound $Th(SO_4)_2 \cdot Na_2SO_4 \cdot 6H_2O$ forms white-needle-shaped crystals, and is incongruently soluble. It crystallizes at 25°C from solutions containing 4 to 21.4 % of sodium sulfate. Analysis

The ternary system thorium sulfate...

yielded 39.10 % of thorium dioxide and 43.04 % of sulfate. The theoretical values are 39.16 % $ThO_2$ and 42.73 % of sulfate. At 50°C, four solid substances were found. The solubility curves correspond to the equilibrium between $Th(SO_4)_2$, anhydrous $NaSO_4$ and two compounds: $Th(SO_4)_2$ $Na_2SO_4 \cdot 6H_2O$ and $Th(SO_4)_2$ $2Na_2SO_4 \cdot 4H_2O$. Both compounds are incongruently soluble in water, and are only stable against solutions containing an excess of sodium sulfate. They crystallize from solutions containing 3.6 to 12.6 %, and 12.6 to 30.5 % of sodium sulfate. When adding sodium sulfate to a solution of thorium sulfate at 50°C, the solubility of thorium sulfate is increased up to the point of double saturation of 8 % of thorium sulfate and 3.6 % of sodium sulfate (Fig. 3). After that, the solubility of $Th(SO_4)_2$ decreases to attain its minimum below 0.01 % at a sodium-sulfate content of 24-29 %, and increases only slightly up to the eutectic point. The compound $Th(SO_4)_2 \cdot 2Na_2SO_4 \cdot 4H_2O$ forms small, colorless, prismatic crystals. Analysis yielded 33.44 % to 34.12 % of thorium dioxide (theoretical value: 33.87 %), and 49.41 to 49.91 % of sulfate (theoretical value: 49.87 %). As regards the compound $Th(SO_4)_2$ $2Na_2SO_4$ $4H_2O$, the temperature of the endothermic

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The ternary system thorium sulfate...

effect is much higher than that of the exothermic effect, contrary to the compound $Th(SO_4)_2Na_2SO_4\ 6H_2O$. The fact that thorium sulfate is practically insoluble in a 24 to 29 % sodium-sulfate solution at 50°C could be utilized for the separation of thorium from other elements. There are 5 figures, 1 table, and 8 references.

SUBMITTED: December 2, 1959

Legend to the Table: 1) The system thorium sulfate - sodium sulfate - water at 25°C and 50°C; 2) content in the liquid phase, wt%; 3) content in the solid phase, wt%; 4) and 6) thorium sulfate; 5) and 7) sodium sulfate; 8) composition of the solid phase; 9) at 25°C; 10) at 50°C.

1) Система сульфат тория — сульфат натрия — вода при 25 и 50°

| 2) Содержание в жидкой фазе, вес.% | | 3) Содержание в твердом остатке, вес.% | | 8) Состав твердой фазы |
|---|---|---|---|---|
| 4) сульфата тория | 5) сульфата натрия | 6) сульфата тория | 7) сульфата натрия | |

Card 4/8

FEDOROV, P.I.; MOKHOSOYEV, M.V.

Phase diagram of the system potassium tetratungstate - potassium tetramolybdate. Zhur.neorg.khim. 6 no.4:1009-1011 Ap '61. (MIRA 14:4)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V.Lomonosova.
(Potassium tungstate) (Potassium molybdate)

FEDOROV, P.I.; DUDAREVA, A.G.; KUZ'MINA, E.M.

Physicochemical study of the systems indium (III) iodide - tin (II) iodide, indium (III) iodide - lead (II) iodide. Zhur.neorg.khim. 6 no.6:1378-1380 Je '61. (MIRA 14:11)
(Systems (Chemistry)) (Iodides)

BAL'SHAKOV, K.A.; FEDOROV, P.I.; SMARINA, Ye.I.; SMIRNOVA, I.N.

Cosolubility of magnesium and gallium in aluminum. Zhur.neorg.khim. 6 no.12:2727-2731 D '61. (MIRA 14:12)
(Aluminum-magnesium-gallium alloys)

FEDOROV, P.I.; CHZHAN TSZU-LYAN

Reaction of indium chloride with tin (II) and lead chlorides.
Zhur.neorg.khim. 6 no.11:2605-2606 '61. (MIRA 14:10)
(Indium chloride) (Tin chloride) (Lead chloride)

S/137/62/000/002/002/008
A006/A101

AUTHORS: Fedorov, P. I., Shachnev, V. I., Dolgopolova, A. M.

TITLE: Phase diagram of the lead-bismuth-magnesium system

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, no. 2, 1962, 58-64

TEXT: The authors studied the phase diagram of Pb-Bi-Mg system by the method of thermal analysis. On the whole, 8 sections were investigated in the given ternary system. The results obtained are illustrated by a number of graphs which show that sections $Pb\text{-}Mg_2\text{-}Bi_2Mg_3$ and $Pb\text{-}Bi_2Mg_3$ are binary ones and that the given ternary system is divided into three separate, ternary systems, namely: $Pb\text{-}Bi\text{-}Bi_2Mg_3$; $Pb\text{-}PbMg_2\text{-}Bi_2Mg_3$ and $PbMg_2\text{-}Mg\text{-}Bi_2Mg_3$. In section $PbMg_2\text{-}Bi_2Mg_3$ the formation of a ternary phase was observed, which decomposed at 520°C by peritectic reaction $\textcircled{M} \rightleftarrows liq_{solut.} + \alpha$. There are 11 figures and 3 references: 1Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATIONS: Moskovskiy institut tonkoy khimicheskoy tekhnologii (Moscow Institute of Fine Chemical Technology); Kafedry khimii i

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35712
S/136/62/000/003/004/008
E021/E435

18.3700
AUTHORS: Fedorov, P.I., Mokhosoyev, M.V.

TITLE: Zone-refining of acid tungstates

PERIODICAL: Tsvetnyye metally, no.3, 1962, 61-66

TEXT: Zone-refining experiments were carried out on tungsten compounds ($Na_2W_2O_7$; $K_2W_4O_{13}$; $NaPO_3 \cdot WO_3$) to remove isomorphous impurities of molybdenum. In the experiments, quartz and platinum boats on a horizontal apparatus were used. The zone refining was followed by spectrographic analysis. The most efficient purification from molybdenum occurred with the smallest zone-width and the lowest rate of traverse; the best results being obtained from a zone of 10 mm and a rate of 2 cm/hour. The coefficients of distribution for molybdenum under these conditions were 0.37, 0.20 and 0.60 for $Na_2W_2O_7$, $K_2W_4O_{13}$ and $NaPO_3 \cdot WO_3$, respectively. With increasing Mo concentration up to 1%, the coefficient of distribution decreased. Thus, for a zone of 15 mm and a rate of traverse of 2 cm/hour across $Na_2W_2O_7$ the coefficient was 0.8, 0.72, 0.64, 0.59 and 0.52 for 0.098, 0.015, 0.08, 0.5 and 0.95 % Mo, respectively. Almost all tungsten

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Zone-refining of acid tungstates

compounds contain small quantities of lead, iron, chromium, silicon and other elements which could affect the distribution coefficient of molybdenum. Experiments on sodium ditungstate showed that small quantities of lead or magnesium increased the degree of purification from molybdenum, whereas silicon and copper lowered the efficiency of purification. The coefficients of distribution K for other elements were also calculated (Table 4). The described method can also be used for purification of molybdenum compounds from tungsten. There are 4 tables.

S/149/62/000/003/003/011
A006/A101

AUTHORS: Fedorov, P. I., Shachnev, V. I.

TITLE: Studying the joint solubility of bismuth and magnesium, antimony and magnesium in molten lead

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, no. 3, 1962, 94 - 99

TEXT: Processes occurring during debismuthizing of lead can be more clearly represented with the aid of data on the joint solubility of bismuth-magnesium and antimony-magnesium in molten lead. The joint solubility of these systems was studied by isothermic analysis at 400°C. The following initial materials were used to prepare the alloys: grade МГ -1 (MG-1) magnesium (99.92%); С -1 (S-1) grade lead (99.98%), grade ВТУ -3153-54 (VTU-3153-54) granulated bismuth (96.43% Bi + 3% Pb); Су -1 (Su-1) grade antimony (99.65%). The main problem in preparing the alloys was the selection of the required initial composition, assuring the optimum amount of the solid phase, so that a continuous dendrite network was not formed when the taking-off of "liquid-phase" samples was impossible. The specimens

Studying the joint...

produced showed a distinct boundary between segregated crystals of the solid phase (upper layer) and the settled liquid phase (lower layer). The results of analyzing the upper and lower portions were plotted on a concentration triangle and the composition of the solid phase was determined according to Shreynemaker's method. The results obtained are illustrated. It was found that in the Pb-Bi-Mg system, there are 3 solid phases in equilibrium with the melt at the given temperature. These phases represent ternary solid solutions on the base of the following compounds: $PbMg_2$, $Bi_2Mg_3 \cdot 2PbMg_2$ and $Bi_2Mg_3$; the points of double saturation (E and P) contain: 94.98% Pb, 0.35% Bi, 4.67% Mg and 96.70% Pb, 0.30% Bi, 3.00% Mg, respectively. In the Pb-Sb-Mg system ternary solid solutions on $PbMg_2$, $Sb_2Mg_3$ and antimony base are in equilibrium with the liquid phase. The compositions of double saturations points are: 96.55% Pb, 0.20% Sb, 3.25% Mg (point $E_1$) and 88.40% Pb, 11.30% Sb, 0.30% Mg (point D). The possibility is shown of eliminating bismuth from lead in the form of ternary phase $Bi_2Mg_3 \cdot 2PbMg_2$ when over 3 percent magnesium is added. Maximum refining of lead from bismuth (up to 0.1%) at the experimental temperature is obtained when about 2% Mg is added. There are 6 figures and 2 tables.

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Studying the joint...

S/149/62/000/003/003/011
A006/A101

ASSOCIATION: Moskovskiy institut khimicheskoy tekhnologii (Moscow Institute of Chemical Techniques) Kafedra khimii i tekhnologii redkikh i rasse-yannykh elementov (Department of Chemistry and Techniques of Rare and Dispersed Elements)

SUBMITTED: June 23, 1961

Figure 1.
Isotherm and conodes in the Pb-Bi-Mg system at 400°C

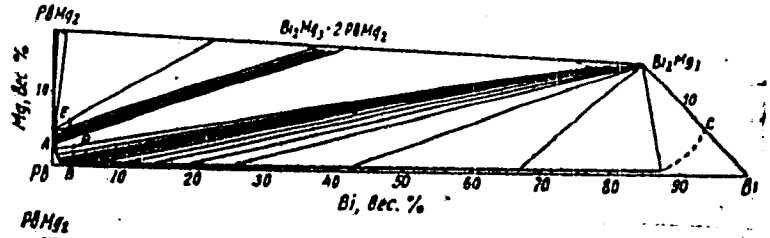
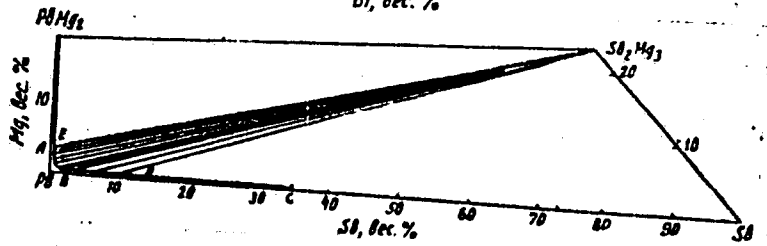



Figure 4.
Isotherm and conodes in the Pb-Sb-Mg system at 400°C




Card 3/3

FEDOROV, P.I.; IOFFE, A.A.

Lithium-silicon alloys. Izv.vys.ucheb.zav.; tsvet.met. 5 no.1:127-131 '62. (MIRA 15:2)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii, kafedra khimii i tekhnologii redkikh i rasseyannykh elementov.
(Lithium-silicon alloys)

FEDOROV, P.I.; SHACHNEV, V.I.

Simultaneous solubility of calcium and antimony in molten lead at 400°. Izv. vys. ucheb. zav.; tsvet. met. 5 no.5:86-88 '62. (MIRA 15:10)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii, kafedra khimii i tekhnologii redkikh i rasseyannykh elementov.
(Nonferrous metals—Thermal properties)(Metals at high temperature)

S/149/62/000/006/002/008
A006/A101

AUTHORS: Fedorov, P. I., Shachnev, V. I.

TITLE: Joint solubility of bismuth and calcium in molten lead at 400°C

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, no. 5, 1962, 66 - 70

TEXT: The method of isothermal analysis was used to study the joint solubility of bismuth and calcium in lead at 400°C - the isotherm of the lead vertex of the Pb-Bi-Ca system. Studies of the solubility from data of chemical analysis were accompanied by investigations of the microstructure of the alloys and by measurements of microhardness of liquated crystals. Photographs of the microstructure of the alloys were taken using microscope МИМ-7 (MIM-7) and the microhardness was measured on a ПМТ-3 (PMT-3) device at 20 and 50 g loads. The isotherm of the system (Fig. 1) consists of three sections, corresponding to solubilities of $CaPb_3$, $Ca_3Bi_3$ and $CaBi_3$. Solubility of calcium varies from 0.16% in the binary Pb-Ca system to 0.21% in the eutonic point $E_1$. The $Ca_3Bi_2$ compound formed in the

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S/149/62/000/006/002/008
A006/A101

Joint solubility of bismuth and calcium in...

lead vertex has a minimum solubility in respect to bismuth of 0.065% (in the eutonic point $E_1$) and a microhardness as high as 350 - 370 kg/mm$^2$. The approximate composition of transition point $E_2$ is 68.0% Bi and 0.5% Ca. When adding calcium to lead which contains over 68.0% Bi, a $CaBi_3$ compound is formed which is incongruently dissolved in lead and has a microhardiness as high as 45 - 50 kg/mm$^2$. On the basis of the position of isotherms a formula for the optimum calcium consumption is proposed:

$$P_{Ca} = 2.86A + 1,$$

where $P_{Ca}$ is the calcium consumption (in kg) per one ton of refined lead; A is the percentage of bismuth contained in the initial lead. There are 3 figures and 1 table.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii (Moscow Institute of Fine Chemical Techniques) Kafedra khimii i tekhnologii redkikh i rasseyannykh elementov (Department of Chemistry and Techniques of Rare and Dispersed Elements)

SUMBITTED: March 9, 1962

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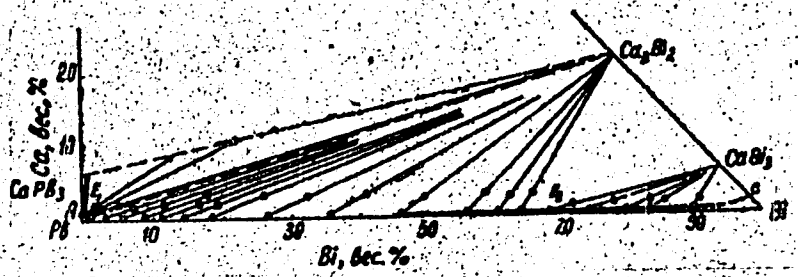
S/149/62/000/006/002/008
A006/A101

Joint solubility of bismuth and calcium in...

Figure 1.




Card 3/3

BOL'SHAKOV, K.A.; FEDOROV, P.I.; STEPINA, S.B.; AKULKINA, L.M.; SHAKHOVA, M.N.

Preparation of anhydrous strontium and barium iodides and study of their interaction in molten state. Zhur.neorg.khim. 7 no.3:605-608 Mr '62. (MIRA 15:3)

(Strontium iodide) (Barium iodide)

3L861

S/078/62/007/003/010/019
B110/B138

18.1245

AUTHORS: Bol'shakov, K. A., Fedorov, P. I., Smarina, Ye. I.

TITLE: Equilibrium in the Mg-rich part of the Mg-Al-Ga system

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 3, 1962, 609-614

TEXT: The constitution diagrams of Mg-rich alloys of the Mg-Al-Ga system were examined by thermal (Kurnakov pyrometer) and microstructural analyses, as well as hardness and microhardness tests. Mg (99.91%) AL (99.6%) Ga (99.9%) were alloyed under a fluxing agent of the following composition: $MgCl_2$, 46%; KCL, 35%; $CaCl_2$ + NaCl, 8%; $BaCl_2$, 11%. The equilibrium in the solid state and the joint solubility of Ga and Al at 340, 280, and 240°C were determined in samples annealed for 3-4 days at 360°C, then soaked for 40 - 100 days at the required temperature, and finally quenched in ice water. A 1% solution of HCl and $HNO_3$ was the etching medium for microstructural analysis. Hardness measurements were made on a Vickers tester (5 kg), and microhardness on a ПМТ-3 (PMT-3) apparatus (50 and 20 g). Five radial sections with constant Ga-to-Al ratio (1 : 9, 1 : 4, 2 : 3, 3 : 2,

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4 : 1) were examined, and one passing through the points of the compounds $Al_3Mg_4$ and $Mg_5Ga_2$. In sample 1:9, the constitution diagram consists of the primary crystallization lines of the $\delta$-solid solution on Mg base and primary precipitation of the $\gamma$-phase with a flat peak at 460°C. The two lines intersect at 67.5% of Mg and 435°C. A wide $\gamma$-$\delta$ two-phase range exists in the solid state. A homogeneous zone of the $\gamma$-phase is believed to exist at 50-57% weight Mg. In ratio 1 : 4, the liquidus consists of the precipitation lines of the $\delta$-solid solution and the $\gamma$-phase which intersect at 66.5 wt % Mg and 425°C. The maximum of the $\gamma$-phase liquidus curve falls to 454°C. In the $\delta+\gamma+Mg_5Ga_2$ three-phase range (ternary eutectic at 380°C) and $\delta+\gamma$ two-phase range sections it was found that in ratio 2 : 3 the $\delta+\gamma$ range was remarkably narrow in the solid state. In ratio 3 : 2 the liquidus line corresponded to the crystallization of the $\delta$-solid solution and the $\gamma$-phase. In the $\delta+Mg_5Ga_2$ range, in ratio 4 : 1 the liquidus consists of the line of primary precipitation of the solid solution on Mg base, and of the binary $Mg_5Ga_2$ compound. The intersection point was at 57.5 wt % Mg and 405°C. The section $\delta+\gamma+Mg_5Ga_2$ and $\delta+Mg_5Ga_2$ was taken. Since the $Al_3Mg_4$-$Mg_5Ga_2$ section

Equilibrium in the Mg-rich part...

intersects the radical cuts proceeding from the Mg vertex of the triangle (Fig. 2), its examination complements that of the remaining sections. The diagram (Fig. 3) is quasibinary (eutectic at 388°C). The microhardness of the six samples was 293 - 307 kg/mm$^2$, and that of the $Mg_5Ga_2$ phase - 242 - 256 kg/mm$^2$. The $Al_3Mg_4$ - $Mg_5Ga_2$ section in the Mg-Al-Ga system is quasibinary and cuts off the triangle Mg-$Al_3Mg_4$-$Mg_5Ga_2$ representing an elementary ternary system. The crystallization field of the solid solution on Mg base, lying on the liquidus surface of this system, is adjacent to the crystallization fields of the $\gamma$-phase of Al-Mg and of $Mg_5Ga_2$ of Mg-Ga. The lines of the monovariant equilibrium $E_1E$, $E_2E$, $E_3E$ correspond to the reactions liq $\rightleftarrows \delta + \gamma$, liq $\rightleftarrows \delta + Mg_5Ga_2$, liq $\rightleftarrows \gamma + Mg_5Ga_2$. The point of equilibrium was found at 62 wt % Mg, 26 wt % Ga, 13 weight % Al, and 380°C. Combined solubility, showed a decrease from 9.5 (Al + Ga) at 340°C to 4 wt % at 20°C. K. I. Marinina is thanked for assistance in the experiments. There are 7 figures and 11 references: 1 Soviet and 10 non-Soviet. The three references to English-language publications read as follows: M. Hansen. Constitution of binary alloys, 1958, p. 105. V. Hume-Rothery, G. Raynor. J.

Card 3/5

FEDOROV, P.I.; SHACHNEV, V.I.

Simultaneous solubility of calcium and magnesium in fused lead at 400°C. Zhur.neorg.khim. 7 no.6:1473-1475 Je '62. (MIRA 15:6)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova.

(Lead-calcium-magnesium alloys)

MOKHOSOYEV, M.V.; KULESHOV, I.M.; FEDOROV, P.I.

Thermographic investigation of the systems consisting of potassium tetramolybdate - potassium carbonate and potassium tetratungstate - potassium carbonate. Zhur.neorg.khim. 7 no.7:1628-1631 Jl '62. (MIRA 16:3)

1. Institut fizicheskoy khimii AN SSSR i Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosva.
(Potassium carbonate) (Molybdates) (Tungstates) (Thermal analysis)

S/078/62/007/007/009/013
B117/B101

AUTHORS: Fedorov, P. I., Postnikova, S. V., Stifiyenko, L. A.

TITLE: Examination of solubility in the system potassium perrhenate - potassium chloride - water

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 7, 1962, 1670 - 1674

TEXT: Studies of the system $KReO_4$ - KCl - $H_2O$ at 0, 25, 50, and 75°C showed the solubility isotherms to consist of two branches. The branch which corresponds to the crystallization of potassium perrhenate showed only one solid phase, namely anhydrous $KReO_4$. The very small crystallization branch of KCl was not studied. $KReO_4$ was found to be salted out by KCl, an effect which increases as the temperature is lowered. An addition of 10% by weight of KCl to the solution reduces the solubility of $KReO_4$ at 75°C to 1/5 and at 0°C to 1/32. Complete separation of $KReO_4$ could not be achieved at 75°C. Although the solution was saturated with KCl, it still contained 0.35% of $KReO_4$. At 0°C, the separation of $KReO_4$ was practically

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Examination of solubility...

complete even at a slight excess of KCl. There are 3 figures and 1 table.

SUBMITTED: June 14, 1961

Card 2/2

FEDOROV, P.I.; SHANCHEV, V.I.

Role of antimony in debismuthizing lead. Izv. vys. ucheb. zav.; tsvet. met. 6 no.3:77-84 '63. (MIRA 16:9)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii, kafedra khimii i tekhnologii redkikh i rasseyannykh elementov.
(Lead--Metallurgy) (Antimony)

S/078/63/008/001/026/026
B117/B1C8

AUTHORS: Fedorov, P. I., Akulkina, L. M., Razgon, Ye. S.

TITLE: Solubility in the system $NH_4VO_3$ - $NH_4Cl$ - $H_2O$ at 25°C

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 8, no. 1, 1963, 258-260

TEXT: The solubility in the system mentioned was determined at 25 ± 0.1°C by addition of $NH_4Cl$. The initial salts were recrystallized and dried at room temperature. After adding ammonium chloride to the saturated ammonium metavanadate solution, the equilibrium in the system was established within 7 days. The crystallization field of ammonium metavanadate in the system was found by simultaneous determination of the compositions of the solid phase and of the saturated solutions corresponding to them. The $NH_4VO_3$ content decreases rapidly with increasing $NH_4Cl$ concentration. With 20% $NH_4Cl$, the $NH_4VO_3$ is almost completely salted out of the solution. The eutonic point corresponds to 28.8% $NH_4Cl$. There are 2 figures and 1 table.

Card 1/2

L 17017-63 EWP(q)/EDS/EWT(m) AFFTC/ASD JD

S/078/63/008/005/020/021

AUTHOR: Fedorov, P. I., Dudarev, A. G. and Drobot, N. I. 57

TITLE: An InI - CuI system

PERIODICAL: Zhurnal neorganicheskoy khimii, v. VIII, No. 5, May 1963, 1286-1287

TEXT: Their experimental study of an $InI_3$-CuI system leads the authors to conclude that in the system two compounds are present -- $InI_3 \cdot CuI$, of peritectic type incongruently fusible at 300°, and $InI_3 \cdot CuI$, fusible at 560° with breakdown into two liquid phases; further, that the compound $InI_3 \cdot CuI$ forms a eutectic with $InI_3$ (5 mol % CuI) with fusion temperature of 170°, and that the compound $InI_3$ forms a eutectic with $\gamma$-CuI (92.5 mol % CuI) fusible at temperature 500°. There is 1 figure.

SUBMITTED: Oct. 16, 1962

Card 1/1

L 17018-63 EWP(q)/EWT(m)/BDS AFFTC JD

S/078/63/008/005/021/021

AUTHOR: Fedorov, P. I., Dunareva, A. G. and Drobot, N. I. 55

TITLE: Pressure of a saturated vapor of indium iodide (III)

PERIODICAL: Zhurnal neorganicheskoy khimii, v. VIII, No. 5, May 1963, 1287-1288

TEXT: The authors fused indium iodide at 198°, determining the pressure of the resulting vapor within the interval 200 - 300°. The inert gas present was nitrogen which had been previously purified. The results are presented graphically. There is 1 figure and 1 table.

SUBMITTED: June 16, 1962

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L 10653-63
EWP(q)/EWT(m)/BDS--AFFTC/ASD--JD
ACCESSION NR: AP3001219 S/0078/63/008/006/1412/1418

56

AUTHOR: Bol'shakov, K. A.; Fedorov, P. I.; Smarina, Ye. I.

TITLE: Beta prime phase of aluminum-magnesium system.

SOURCE: Zhurnal neorganicheskoy khimii, v. 8, no. 6, 1963, 1412-1418

TOPIC TAGS: aluminum, magnesium, microhardness, interplanar distances, Ga, In, Tl

ABSTRACT: The section of the Al-Mg diagram between 35-50 wt. % Mg was investigated. The Beta prime phase was formed by cooling melts containing 40-43 wt. % Mg at about 2.5 degrees per minute; more rapid cooling gave Gamma and Gamma + Beta phases; cooling at 0.5 degrees per minute crystallized the Beta + Gamma phases in a eutectic environment. Microhardness and interplanar distances were measured in poured samples (41-41.5% Mg, Beta prime phase) prepared under incomplete annealing. A study of the possibility of stabilizing the Beta prime phase in crystallization from the melt by addition of Ga, In or Tl showed that only Ga stabilized effectively. "In conclusion, we thank Ye. S. Makarov for help and consultation in conducting the X-ray investigations. Orig. art. has: 4 tables and 4 figures.

ASSOCIATION: none

Card 1/2

PREGER, Ye.A., kand.tekhn.nauk; FEDOROV, P.I.

Survey and analysis of butt joints of asbestos-cement pipes.
Sbor. trud. LISI no. 41:26-68 '62. (MIRA 17:5)

PREGER, Ye. A., kand.tekhn.nauk; FEDOROV, P.I.

The new standard for asbestos-cement pipes. Sbor. trud. LISI no. 41:83-88 '62. (MIRA 17:5)

FADEYEV, V.N.; FEDOROV, P.I.

Vapor pressure of $In_2Cl_3$. Zhur. neorg. khim. 8 no.8:2007-2009 Ag '63. (MIRA 16:8)

(Indium chlorides) (Vapor pressure)

L 20299-63 EWP(q)/EWT(m)/EWP(B)/BDS AFFTC/ASD JD/JG

ACCESSION NR: AP3006801 S/0078/63/008/009/2103/2105

AUTHORS: Fedorov, P. I.; Yakunina, V. M.

TITLE: The interaction of gallium, sodium, copper (I) and silver chlorides.

SOURCE: Zhurnal neorganicheskoy khimii, v. 8, no. 9, 1963, 2103-2105.

TOPIC TAGS: thermal analysis, gallium, chloride-sodium chloride system, gallium chloride, copper chloride, silver chloride, sodium chloride.

ABSTRACT: The systems $GaCl_3$-NaCl, $GaCl_3$-CuCl, $GaCl_3$-AgCl have been investigated by thermal analysis and their phase diagrams were constructed. In all three systems, the incongruently-melting compounds were found to be of the common formula $MGaCl_4$ which form low-melting eutectics with $GaCl_3$. All three systems investigated are analogous to the aluminum chloride systems. Orig. art. has: 3 figures and 3 tables.

ASSOCIATION: none

SUBMITTED: 20Oct62 DATE ACQ: 30Sep63 ENCL: 00

SUB CODE: CH NO REF SOV: 002 OTHER: 010

Card 1/1

BOL'SHAKOV, K.A.; FEDOROV, P.I.; IL'INA, N.I.

Binary systems of sodium sulfate with copper (II) and iron (III) sulfates. Zhur. neorg. khim. 8 no.11:2577-2579 N '63.
(MIRA 17:1)

FEDOROV, P.I.; SLOTVINSKIY-SIDAK, N.P.; TSIMBALIST, T.N.

Solubility in the system vanadium pentoxide - sulfuric acid - water. Zhur. neorg. khim. 8 no.11:2593-2596 N '63.
(MIRA 17:1)

SLOTVINSKIY-SIDAK, N.P.; FEDOROV, P.I.; AKULKINA, L.M.; LOVETSKAYA, G.A.; SITDYKOVA, N.S.

Production of pure vanadium pentoxide from process solutions. Zhur. prikl. khim. 36 no.11:2367-2372 N '63. (MIRA 17:1)

ACCESSION NR: AP4009353 S/0078/64/009/001/0169/0172

AUTHORS: Mokhosoyev, M. V.; Fedorov, P. I.

TITLE: Interaction of sodium ditungstate with ferrous, magnesium and cupric tungstates

SOURCE: Zhurnal neorganicheskoy khimii, v. 9, no. 1, 1964, 169-172

TOPIC TAGS: sodium ditungstate, ferrous tungstate, magnesium tungstate, cupric tungstate, sodium ditungstate purification

ABSTRACT: The purpose of this work is a method of purification of sodium ditungstate from admixtures of Cu, Mg, Fe and Pb by means of zone melting. The assumption is that they are present in the form of their tungstates, while silicon and chromium are present in the form of sodium silicate and chromate. Their interaction in melts was studied by preparing phase diagrams of binary melts of the above components with sodium ditungstate. Eutectic, liquidus, and polymorphic transformation temperatures were observed. It was revealed that the components of the tungstate compounds formed have

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ACCESSION NR: AP4009353

different congruent or incongruent melting points and that purification of sodium ditungstate from Fe, Mg and Cu by zone melting is possible. Orig. art. has: 1 figure, 2 tables.

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

SUBMITTED: 04Jan63 DATE ACQ: 07Feb64 ENCL: 00

SUB CODE: CH NR REF SOV: 006 OTHER: 000

Card 2/2

FEDOROV, P.I.; CHZHAN TSZU-LYAN [Chang Tsu-liang]

Interaction of indium chloride with sodium chloride. Zhur.neorg.khim. 9 no.1:231-232 Ja '64. (MIRA 17:2)

ACCESSION NR: AP4012443 S/0078/64/009/002/0378/0380

AUTHORS: Fedorov, P. I.; Fadeyev, V. N.

TITLE: Fusion diagram of the In--$InCl_3$ system

SOURCE: Zhurnal neorg. khim., v. 9, no. 2, 1964, 378-380

TOPIC TAGS: indium--indium chloride system, fusion diagram, indium containing system, indium chloride containing system, $In_4Cl_7$, $In_2Cl_3$, $InCl_2$, polymorphic transition, $In_4Cl_5$

ABSTRACT: The fusibility of the In--$InCl_3$ system was completely investigated by thermal analysis (fig. 1). The existence of $In_4Cl_7$ was established; $In_4Cl_5$, indicated in previous work (R. I. Clark, E. Griswald, J. Kleinberg, J. Amer. Chem. Soc. 80, 4764 (1958)) was not found. The presence of $In_2Cl_3$ (congruent melting point 323°) was verified; the compound has two polymorphic transitions at 275° and 305°. Solid $InCl_2$ has a polymorphic transition at 190°. In the region containing 50-100% In, two immiscible solutions are formed with monotectec temperature of 225°, equal to the melting point of InCl. Orig. art. has: 2 Figures and 1 Table.

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ACCESSION NR: AP4012444 S/0078/64/009/002/0381/0388

AUTHORS: Fadeyev, V. N.; Fedorov, P. I.

TITLE: Vapor pressure in the In--InCl sub 3 system

SOURCE: Zhurnal neorg. khim., v. 9, no. 2, 1964, 381-388

TOPIC TAGS: indium-indium chloride system, vapor pressure, tensimetric analysis, thermal analysis, indium trichloride polymerization, indium chloride, indium sub 2 chlorine sub 3, In sub 2 Cl sub 3, indium sub 4 chlorine sub 7, In sub 4 Cl sub 7, indium chlorine sub 2, InCl sub 2, heat of vaporization, entropy of vaporization, boiling point

ABSTRACT: A tensimetric study was made of the In--$InCl_3$ system using a glass zeromanometer. The existence of four intermediate compounds was established: InCl, $In_2Cl_3$, $In_4Cl_7$ and $InCl_2$. The heat and entropy of vaporization and boiling temperature was determined for each compound. The average molecular weight of the gas phase in the unsaturated vapor region was determined for all compounds. The polymerization of $InCl_3$ in saturated vapors was established. The

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ACCESSION NR: AP4012444

tensimetric data is in agreement with that obtained by thermal analysis. (fig. 1). Orig. art. has: 7 Figures and 2 Tables.

ASSOCIATION: None

SUBMITTED: 18Feb63 DATE ACQ: 26Feb64 ENCL: 01

SUB CODE: PH NR REF SOV: 004 OTHER: 014

Card 2/2

ACCESSION NR: AP4041588 S/0078/64/009/007/1681/1683

AUTHOR: Fedorov, P. I.; Tsimbalist, V. V. ; Liu, Kuo-yuan

TITLE: Interaction of gallium chloride with zinc, cadmium and mercury chlorides

SOURCE: Zhurnal neorganicheskoy khimii, v. 9, no. 7, 1964, 1681-1683

TOPIC TAGS: gallium zinc chloride, gallium cadmium chloride, gallium mercury chloride, gallium chloride, zinc chloride, cadmium chloride, mercury chloride

ABSTRACT: The work was prompted by the fact that binary systems of gallium chloride with zinc-, cadmium-, and mercury chlorides have not been described in the literature. Chloride mixtures welded in Stepanov's containers (abstractor's note (not explained)) were melted and then slowly cooled with the furnace to achieve the equilibrium state. From all mixtures tested, only those containing less than 25 mol % ZnCl yielded crystalline products. All other melts formed brown transparent vitreous masses. Those containing between 25 and 35 mol% Zn are semiliquid at room temperature. The eutectic point of 30C corresponds 32 mol% Zn. With cadmium, chlorogalliates are formed of the $CdCl_2 \cdot 2GaCl_3$ or $Cd(GaCl_4)_2$ type analogous to chlorogalliates of monovalent elements. Cadmium chlorogalliate melts

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