

SUKHAREV, G.M.; PLYUSHCHENKO, V.G.

Zonality of underground waters of the Lower Cretaceous
in the Caucasus and the direction of their flow. Dokl.
AN SSSR 147 no.2:458-461 N '62. (MIRA 15:11)

1. Groznenskiy neftyanoy institut. Predstavleno
akademikom N.M. Strakhovym.
(Caucasus--Water, Underground)

PLYUSHCHENKO, Ye., inzhener-dendrolog

Landscaping the city of Volzhsk. Zhil. stroi. no.7:30 '62.
(MIRA 15:9)

1. Volgoradgidrostroy. (Volzhsk--Landscape architecture)

PLYUSHCHENKO Ye.A.

KHODAKOVSKIY, V.V.; YEFIMOV, V.A., kand. tekhn. nauk, starshiy nauchnyy rabotnik; KOSENKO, P.Ye., kand. tekhn. nauk; KAZAKEVICH, S.S.; LAPITSKIY, V.I., prof., doktor tekhn. nauk; FILIP'YEV, O.V.; STROGANOV, A.I., kand. tekhn. muk, dots.; DEMIDOVICH, A.V.; BORNATSKIY, I.I., kand. tekhn. nauk; MEDZHIBOZHSKIY, M.Ya., dots.; KOCHO, V.S., prof., doktor tekhn. nauk; RYN'KOV, V.I.; LOMAKIN, L.M., mladshiy nauchnyy sotrudnik; KOKAREV, N.I., dots.; KLYUCHAREV, A.P.; PLYUSHCHENKO, Ye.A.; KAPUSTIN, Ye.A., kand. tekhn. nauk, dots.; KOBZEA, I.I., kand. tekhn. nauk, nauchnyy sotrudnik; SHIROKOV, G.I.; UMRIKHIN, P.V., prof., doktor tekhn. nauk; LEZHAVA, K.I.; ZHIGULIN, W.I.; MOROKOV, P.K.; KHLIBNIKOV, A.Ye., prof., doktor tekhn. nauk, starshiy nauchnyy sotrudnik; TARASOV, N.S.; NIKOLAYEV, A.G.

Discussions. Biul. TSNIICEM no.18/19:40-66 '57.

(MIRA 11:4)

1. Starshiy inzhener Glavspetsstali Ministerstva chernoy metallurgii SSSR (for Khodakovskiy). 2. Institut gaza (for Yefimov). 3. Direktor Dneprodzerzhinskogo metallurgicheskogo instituta (for Kosenko). 4. Nachal'nik laboratorii Leningradskogo instituta ogne-uporov (for Kazakevich). 5. Zaveduyushchiy kafedroy metallurgii stali Dnepropetrovskogo metallurgicheskogo instituta (for Lapitskiy). 6. Nachal'nik laboratorii Giprostali (for Filip'yev). 7. Chelyabinskiy politekhnicheskiy institut (for Stroganov). 8. Nachal'nik teplotekhnicheskoy laboratorii Severskogo metallurgicheskogo zavoda (for Demidovich). 9. Zamestitel' nachal'nika TSentral'noy zavodskoy laboratorii Makeyevskogo metallurgicheskogo zavoda (for Bornatskiy).

(Continued on next card)

KHODAKOVSKIY, V.V.---(continued) Card 2.

10. Sibirskiy metallurgicheskiy institut (for Medzhibozhskiy).
11. Zaveduyushchiy kafedroy metallurgii stali Kiyevskogo politekhnicheskogo instituta (for Kocho). 12 Ispolnyayushchiy obyazannosti glavnogo inzhenera Beloretskogo metallurgicheskogo kombinata (for Ryn'kov). 13. Vsesoyuznyy nauchno-issledovatel'skiy institut metallurgicheskoy teplotekhniki (for Lomakin). 14. Ural'skiy politekhnicheskiiy institut (for Kokarev). 15. Zamestitel' nachal'nika teplotekhnicheskoy laboratorii Nizhne-Tagil'skogo metallurgicheskogo kombinata (for Klyucherov). 16. Nachal'nik teplotekhnicheskoy laboratorii Tsentral'noy zavodskoy laboratorii zavoda im. Voroshilova (for Flyushchenko). 17. Zhdanovskiy metallurgicheskiy institut (for Kapustin). 18. Institut metallurgii im. Baykova AN SSSR (for Kobeza). 19. Nachal'nik laboratorii martenovskikh pechey Vsesoyuznogo nauchno-issledovatel'skogo instituta metallurgicheskoy teplotekhniki (for Shirokov). 20. Zaveduyushchiy kafedroy metallurgii stali Ural'skogo politekhnicheskogo instituta (for Umrikhin). 21. Nachal'nik metallurgicheskoy laboratorii Tsentral'noy zavodskoy laboratorii Zakavkazskogo metallurgicheskogo zavoda (for Lezhava). 22. Zamestitel' glavnogo inzhenera zavoda im. Petrovskogo (for Zhigulin). 23. Nachal'nik martenovskogo tsekha Kuznetskogo metallurgicheskogo kombinata (for Morokov). 24. Institut metallurgii im. Baykova AN SSSR (for Khlebnikov). 25. Glavnyy inzhener Petrovsk-Zabaykal'skogo metallurgicheskogo zavoda (for Tarasov). 26. Nachal'nik tsekha Magnitogorskogo metallurgicheskogo kombinata (for Nikolayev).

(Open-hearth process)

PLYUSHCHENKOV, L.
STUKALIN, N.; PLYUSHCHENKOV, L.

Control room improved by a system for synchronizing asynchronous
motors. Muk.-elev.prom.21 no.9:28 S '55. (MIRA 8:12)

1. Smolenskiy mel'nichnyy kombinat
(Electric motors, Induction)

PLYUSHCHEV, A.A.

Methods of working out standards for piloting in harbors. Rech.
transp. 18 no.6:19-21 Je '59. (MIRA 12:9)

1. Starshiy inzhener Vorpa.
(Harbors) (Pilots and pilotage)

BCRODHIEN, G.I.; SINITSYN, V.A.; POPOV, I.A.; MAL'TSEV, B.N.; PLYOSKHEV,

A.N.

Results of testing the experimental model of the TD-1 geodimeter.
Geod. i kart. no.8:15-21 Ag '65. (MIRA 18:9)

ACC NR: AP6027122 (A,N) SOURCE CODE: UR/0416/66/000/005/0049/0051

AUTHOR: Plyushchev, B. (Engineer; Lieutenant Colonel)

ORG: None

TITLE: Baking bread aboard warships

SOURCE: Ty1 i snabzheniye sovetskikh vooruzhennykh sil, no. 5, 1966, 49-51

TOPIC TAGS: food service equipment, food technology, food chemistry, field food processing equipment, combatant ship, military installation

ABSTRACT: With the development of a new, fast, bread baking method involving the use of organic acids even ships without bread baking facilities, such as missile ships, destroyers, escorts, and auxiliaries, can now make fresh bread. Jury-rigged grills with open heating elements can be used as ovens. Detailed, step-by-step, instructions on bread baking, including the best time for starting, how long to dissolve the yeast, the maximum water temperature, kind and amounts of raw material, optimum size of loaves, how to calculate proportions of raw materials for desired amount of bread, as well as the time and temperature for baking of various grades of wheat, are discussed. Missile ships and destroyers should be supplied with electric ovens of the ESh-3 or ESh-3M type which are in production.

SUB CODE: 06,1513/SUBM DATE: None

Card 1/1

DAVYDENKO, N., podpolkovnik; PLYUSHCHEV, F., podpolkovnik

The number of outstanding soldiers is growing and our military preparations have been intensified. ~~Gen.~~ Vooruzh.Sil 1
no.7:60-63 Ap '61. (MIRA 14:8)
(Russia--Army--Infantry)

PLYUSHCHEV, V.A.

"Redkie metally"; collections of translated articles. TSvet.met.
28 no.5:72-73 S-0 '55. (MIRA 10:10)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im.
Lomonosova. (Metals, Rare and minor)

PLYUSHCHEV, V. YE.

USSR/Chemistry - Lithium

Aug 52

"New Data on the System Lithium Sulfate - Calcium Sulfate," V. Y. Plyushchev and L. N. Komissarova; Moscow Inst of Fine Chem Technol Imeni M. V. Lomo. nosov

"DAN SSSR" Vol 85, No 5, pp 1041-1043

Chemically pure Li_2SO_4 and $CaSO_4$ were used to obtain data for eutectic diagrams. The curve starts at 852° (pure Li_2SO_4). With 16.5 mole % of this compd there is an eutectic point at 695° after which the curve steadily climbs to 1205° at 78

239T15

mole %. From here on the curve has a different character due to oxide formation. Polymorphic conversion takes place at 575° . Submitted by Acad G. G Urazov 19 Jun 52.

239T15

Pyushchev, V.E.

USSR

Investigation of interaction of lithium, sodium, and calcium sulfates in fusions. V. E. Pyushchev, S. I. Zhdanov, L. N. Komissarova, and ~~S. I. Zhdanov~~ ^{Trudy Moskovsk. Inst. Tsvet. Khim. Tekhnol.} 1953, No. 4, 10-18; Referat. Zhur., Khim. 1954, No. 33879. — The liquidus of the system $Li_2SO_4-Na_2SO_4-CaSO_4$ was studied by the method of thermal analysis. The highest melting temps. were in fusions adjacent to the apex of $CaSO_4$. The area of low melting temp. was adjacent to the system $Li_2SO_4-Na_2SO_4$ and extended far into the depth of the diagram. The lowest melting temp. was 514° . A study of internal sections of the ternary system and of the microstructure of solid phases indicated the formation of a continuous series of solid solns. in the area adjacent to the binary system $Li_2SO_4-Na_2SO_4$ and partly to the system $Na_2SO_4-CaSO_4$. Upon cooling the solid solns. undergo appreciable changes and decompn. Particularly was observed the crystn. of the double salt $Li_2SO_4 \cdot Na_2SO_4$. Changes of the solid solns. connected with polymorphism was also observed. M. Hoesel

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Handwritten initials or signature.

PLYUSCHEV, V. E.

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1202. Gravimetric determination of lithium, V. E. Plyuschev and I. V. Shakhno *J. Anal. Chem., U.S.S.R.*, 1953, 8 (5), 293-299. — Solubilities (per cent. w/w) at 25° C of LiCl, NaCl and KCl in n-propanol, which are at equilibrium after stirring

for 6 to 7 days, are 15.60, 0.019 and 0.008, respectively. LiCl can be determined in a mixture with NaCl and KCl by extraction with n-propanol saturated with dry HCl. G. S. SMITH

PLYUSHCHEV, V. Ye

USSR/Chemistry - Lithium Comps

Sep/Oct 53

The Problem of Gravimetric Determination of Lithium, V. Ye. Plyushchev, I. V. Shakhno, Moscow Inst of Fine Chem Technol im M. V. Lomonosov

Zhur Anal Khim, Vol 8, No 5, pp 293-297

Reviews briefly the literature on the gravimetric detn of Li. Investigated by soly of LiCl, NaCl, and KCl in n-propyl alc at 25°. Showed that LiCl may be effectively extracted from a mixt of alkali metal chlorides with n-propyl alc that had been satd with dry HCl. Proposed a method for the

271110

quantitative detn of Li as Li₂SO₄ based on the extraction of LiCl from the mixt of chlorides with the solvent indicated.

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PLYUSHCHEV, V.Ye.

Formation of leucite from spodumene under laboratory and industrial conditions. Zapiski Vsesoyuz. Mineralog. Obshchestva 82, 32-4 '53.
(CA 47 no.17:8596 '53) (MLRa 6:4)

PLUSHCHEV, V. E.

USSR/ Chemistry Analysis methods

Card : 1/1 Pub. 151 - 6/33

Authors : Plushchev, V. E., and Markovskaya, N. F.

Title : Binary rubidium sulfate - magnesium sulfate system

Periodical : Zhur. ob. khim. 24/8, 1302 - 1304, August 1954

Abstract : The Rb_2SO_4 - $MgSO_4$ binary system was investigated by the thermal analysis method. The purity of these sulfates was investigated by a spectral method. The two main characteristic points of the binary system, are explained. The presence in the system of a melting and decomposing compound $Rb_2SO_4 \cdot 2MgSO_4$ was confirmed by the nature of the thermogram and by x-ray phase analysis. Two USA references (1900 and 1902). Table; graph.

Institution : The M. V. Lomonosov Institute of Precision Chemical Technology, Moscow

Submitted : February 16, 1954

PLVVS/HCHEN, V. E.

USSR .

The melting diagram of the system cesium sulfate-magnesium sulfate. V. E. Plungehev and N. F. Markovskaya (M. V. Lomonosov Inst. of Chem. Technol., Moscow). *Doklady Akad. Nauk S.S.S.R.* 95, 555-7(1954).--The system Cs_2SO_4 - $MgSO_4$ was examd. by means of cooling (heating) curves. Spectroscopically pure Cs_2SO_4 was prepd. by treating a soln. of $CsCl$ with an excess H_2SO_4 , neutralizing with Cs_2CO_3 , evapp. to dryness, and calcining. The liquidus of the system exhibits a slight inflection at 63 mol. % $MgSO_4$, indicating the formation of $Cs_2SO_4 \cdot 3MgSO_4$ (I), m. incongruently at 225° , and a eutectic at 69° of α - Cs_2SO_4 with I, corresponding to 45 mol. % $MgSO_4$. In the solidus $2Cs_2SO_4 \cdot 3MgSO_4$ was detected, and confirmed by X-ray analysis, at 57° corresponding to 33.3% $MgSO_4$.

I. Bancowitz

The reaction between sodium and calcium sulfates at high temperatures. L. N. Korotkova, P. H. Pyushchikov, and S. B. Stepina. *Trudy Moskovskogo Universiteta Khimicheskaya Seriya*, 1955, No. 1, p. 105-106, 107. *Chem. Abstr.* 50:105 (1955).

SO_2 - CaSO_4 was analyzed by methods at high temperatures. Results are given. The authors also discuss the reaction of SO_2 with CaSO_4 at high temperatures. The reaction of SO_2 with CaSO_4 at high temperatures is discussed. The reaction of SO_2 with CaSO_4 at high temperatures is discussed.

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Phyushchev, V.E.

Determination of cesium as cesium bismuth iodide.
 V. E. Phyushchev and B. G. Korshunov (M. V. Lomonosov) ~~Inst. Fin. Chem. Technol., Moscow. Zhur. Anal. Khim.~~
~~10, 110-23; J. Appl. Chem. U.S.S.R. 10, 107-11(1955)~~
 (Engl. translation).—The outlined method is a modification of the Tananayev method (C.A. 26, 4271, 5274). The improvement consists in eliminating H₂O in the detn. of Cs or by using the min. vol. of H₂O where unavoidable. The reagent is prepd. by mixing dry Bi₂O₃ 5 and KI 17 g., adding to it 50 ml. of glacial AcOH, and heating the whole to a boil while stirring. The CsCl-contg. soln. is evapd. to dryness, dissolved in a min. vol. of glacial AcOH, and the reagent added. K, Li, Rb, Mg, and Fe chlorides dissolve in AcOH. NH₄, Na, Ca, and Al chlorides do not dissolve in AcOH and the dry residue should be dissolved in 1 but not more than 3 ml. of H₂O before adding the reagent. Sulfate and carbonate solns. are analyzed similarly. The above-mentioned elements do not interfere but the ratio of Cs:Rb should not exceed 1:3. By this method 99.7% of Cs present is prtd. The same procedure is applicable to the detn. of Cs in pollucite. Pollucite was decompd. in HCl. M. Hoesch

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ПЛУДСКОЕ В. В.

Investigation of the interaction of chlorides of the alkali and alkaline earth elements in fusion. I. Ternary systems of sodium, rubidium, and calcium chlorides. V. E. Plyushchey, P. V. Kovalev, and I. V. Shakhno (Inst. Fine Chem. Technol., Moscow). *Zhur. Obshch. Khim.* 25, 855-60 (1955).—Tables and curves of m.p.s. of 225 ternary mixts. of the 3 anhyd. salts in which each varies from 0 to 100 mole % are given, with a triangular diagram of the area of liquidus. In the latter, four regions of crystn. are found: three represent the pure salts and the fourth, represents RbCl.CaCl₂. No 3-component compds. were observed. Two eutectics are found: RbCl 2.5%, NaCl 45%, and CaCl₂ 52.5%, m. 500°, and CaCl₂ 11.2%, NaCl 32.8%, and RbCl 56.0%, m. 505°. Because of the hygroscopicity of CaCl₂, it was fused first and then the other compds. were added. Malcolm M. Anderson.

(2)

PLYUSHCHEV V. Ye.

PLYUSHCHEV, V. Ye.; SHAKHNO, I. V.; POZHITKOVA, S. A.

Investigation of the interaction of fused alkali metal and alkaline earth chlorides. Part 2. The ternary system: sodium chloride - cesium chloride - calcium chloride. Zhur.ob.khim.25 no.6:1072-1075 Je'55.
(MLRA 8:12)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii
(Alkaline earth chlorides) (Alkali metal chlorides)
(Systems (Chemistry))

PLYUSHCHEV, V.YE.

URAZOV, G.G., akademik; TULINOVA, V.B.; PLYUSHCHEV, V.Ye.; CHUYKINA, N.I.

Study of conditions for the formation of double sulfates of
lanthanum and ammonium from solutions. Dokl. AN SSSR 103 no.4:
635-638 Ag'55. (MLRA 8:11)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V.
Lomonosova

(Lanthanum sulfate) (Ammonium sulfate)

PLYUSHCHEV, V. Ye.

USSR/ Physical Chemistry - Thermodynamics. Thermochemistry. Equilibrium.
Physicochemical analysis. Phase transitions

B-8

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11187

Author : Urazov G.G., Tulinova V.B., Plyushchev V.Ye., Chuykina N.I.

Inst : Academy of Sciences USSR

Title : Correction in the Paper "Study of the Conditions of Formation of Double
Sulfates of Lanthanum and Ammonium from Solutions"

Orig Pub : Dokl. AN SSSR, 1955, 105, No 5, 884

Abstract : Concerning RZhKhim, 1956, 50191

Card 1/1

PLYUSHCHEV, V.Ye., kandidat khimicheskikh nauk, redaktor; L'VOVA, N.M.,
redaktor; IOVLVA, N.A., tekhnicheskiy redaktor

[Cesium; a collection of translations (from foreign periodical
literature)] TSezii; sbornik perevodov (iz inostrannoi periodicheskoi
literatury). Moskva, Izd-vo inostrannoi lit-ry, 1956. 134 p.
(Cesium) (MIRA 10:1)

KORNILOV, Ivan Ivanovich; URAZOV, G.G., akademik, otvetstvennyy redaktor;
PLYUSHCHEV, V.Ye., redaktor izdatel'stva; CHERNOV, A.N., redaktor
izdatel'stva; MAKUHI, Ye.V., tekhnicheskiy redaktor

[Iron alloys] Zheleznye splavy. Moskva. Vol.3. [Iron-chromium-
nickel system of alloys] Splavy sistemy zhelezo-khrom-nikel'.
1956. 430 p. (MLRA 9:9)

1. Akademiya nauk SSSR. Institut metallurgii.
(Iron-chromium-nickel alloys)

Плечев, В. Е.

USSR/Thermodynamics. Thermochemistry. Equilibria. Physico-Chemical B-8
Analysis. Phase Transitions.

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26145

Author : V. Ye. Plyuchchev, L.N. Komissarova, L.V. Meshchaninova, L.M.
Akulkina.

Title : Study of Interaction of Chlorides of Alkali and Alkali Earth
Metals in Melts. III. Study of Interaction of Sodium, Potassium
Calcium, Cesium, Rubidium and Lithium Chlorides in
Melts.

Orig Pub : Zh. neorgan. khimii, 1956, 1, No 4, 820-833; corrections in
No 12, 2874

Abstract : The ternary systems $\text{LiCl} - \text{NaCl} - \text{CaCl}_2(\text{I})$, $\text{KCl} - \text{RbCl} - \text{CaCl}_2(\text{II})$ and $\text{KCl} - \text{CsCl} - \text{CaCl}_2(\text{III})$ were studied by the visual-polythermal method and the isotherms of the liquidus surfaces of the systems were plotted. The existence of two regions of primary crystallization of CaCl_2 and solid solutions of LiCl and NaCl was established in I. It is shown that II is of the zonal type. The system has 3 crystallization fields: of CaCl_2 , of a solid solution of KCl and RbCl ,

Card : 1/2

USSR/Thermodynamics. Thermochemistry. Equilibria. Physico-Chemical B-8
Analysis. Phase Transitions.

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26145

and of a solid solution of binary chemical compounds.
There are also 3 fields in III: of CaCl_2 , of a solid solution of KCl and CsCl, and of a solid solution of binary chemical compounds. Graphs of cross-sections, the projection of the crystallization surface of the system on the base triangle and tabulated data are shown. See RZhKhim, 1956, 57496 for the part II.

Card : 2/2

PLYUSHCHEV, V. Ye., Cand of Chem Sci, and SHAKHNO, I. V., Cand of Chem Sci.

"Rubidium and Cesium, Their Applications and the Methods of Producing Them," by V. Ye. Plyushchev, Candidate of Chemical Sciences, and I. V. Shakhno, Candidate of Chemical Sciences, Khimicheskaya Nauka i Promyshlennost', Vol 1, No 5, Sep/Oct 56, pp 534-539

Methods for the production of compounds of rubidium and cesium and of these metals themselves are reviewed. The applications of these metals and of their compounds are outlined with particular attention to uses in photocells. Cs_2Te , Rb_2Te , and Cs_3Sb photocathodes are mentioned, as is also the use of rubidium and cesium metazirconates Me_2ZrO_3 and orthostannates Me_4SnO_4 as luminescent substances in gas-filled electrical tubes. The medical applications of cesium eosinate are discussed on the basis of a French paper. An American patent is mentioned which proposes that the piezoelectric properties of RbH_2PO_4 be utilized and that furthermore mixed crystals containing cesium, which are obtained from phosphate solutions, be used as piezoelectrics.

A suggestion that the NaOH and KOH of storage batteries be replaced fully or partially with CsOH or RbOH so that these batteries will operate more efficiently at low temperatures of the order of minus $50^\circ C$ is discussed on the basis of another American patent.

In conclusion, the statement is made that there are plentiful supplies of raw materials containing rubidium and cesium and that the production of these metals in the USSR should be expanded greatly in the near future, notwithstanding the difficulty of processing some of the raw materials. Furthermore, the suggestion is made that carnallite, which is used to an ever-increasing extent for the production of magnesium and potassium, be also processed for rubidium.

A bibliography consisting of 33 references, 3 of them USSR, is appended to the article.

Sum 1239

Plavskiy, V. S.

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Reaction between the chlorides of the alkali and alkaline earth elements in molten state. The ternary system of chlorides of sodium, potassium and calcium.

Chlorides

[Faint handwritten notes and possibly a diagram or table, mostly illegible due to low contrast and bleed-through.]

B-8

Equilibria, Chemistry, Thermodynamics, Phase Transitions.

V. Ye.

PLV ushchev

Physical Chemistry - Chemical Analysis, No 2, 1958, 382L.

USSR/Physical Chemistry - Chemical Analysis, No 2, 1958, 382L.

Author: Referat. Zhurnal Khimii, No 2, 1958, 382L.

Inst: V. Ye. Plyushchey, G.P. Kuznetsova, Institute of Fine Chemical Chlorides in Hydrochloric Acid.

Title: Solubility of Rubidium and Cesium Chlorides in Hydrochloric Acid.

Orig Pub: Tr. Mosk. in-ta tonkoy khim. tekhnol., 1956, vyp. 6, 15-20.

Abstract: Each of the HCl - RbCl - H₂O and HCl - Cs - H₂O systems is characterized by a solubility isotherm (S) of the systems is greater than NaCl and KCl S at all temperatures, but less than LiCl in hydrochloric acid. The difference in S increases with the temperature rise. S increases with the temperature rise and HCl concentration.

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Card : 1/2

CIA-RDP86-00513R00134133

Plyushchev, V. Ye.

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

B-8

Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3821.

Author : V. Ye. Plyushchev, G.P. Kuznetsova,

Inst : Moscow Institute of Fine Chemical Technology.

Title : Solubility of Rubidium and Cesium Chlorides in Hydrochloric
Acid.

Orig Pub: Tr. Mosk. in-ta tonkoy khim. tekhnol, 1956, vyp. 6, 15-20.

Abstract: Each of the 0° and 25° solubility isotherms (S) of the systems
HCl - RbCl - H₂O and HCl - Cs - H₂O possesses a branch of cry-
stallization of anhydrous RbCl or CsCl in both cases. RbCl S
is greater than NaCl and KCl S at all temperatures, but less than
LiCl in a considerable range of HCl concentration. CsCl S in
hydrochloric acid is higher than S of other chlorides at all tem-
peratures. The difference in S increases with the temperature
rise. S increases with the temperature rise and HCl concentration

Card : 1/2

-59-

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

B-8

Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3821.

drop in all systems HCl - MCl - H₂O. Anhydrous chlorides appear as solid phases with the exception of LiCl, which produces crystallohydrates. The purification of CsCl solutions of NaCl and KCl by salting them out with gaseous HCl from hot solutions is possible.

Card : 2/2

-60-

PLYUSHCHEV, V.Ye.; MARKINA, I.B.; SHKLOVER, L.P.

Diagrams of phase conversions in binary systems formed by
rubidium and cesium nitrates with strontium and barium nitrates.
Zhur.neorg.khim. 1 no.7:1613-1618 J1 '56. (MLRA 9:11)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni
M.V. Lomonosova.
(Thermal analysis) (Nitrates)

PLYUDNEY, V. Ye

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SEPARATION OF ZIRCONIUM AND HAFNIUM, L. N. Komissarova and V. E. Plyudney, *Dokl. Akad. Nauk* 25, 1197-1222 (1956) Oct. 1956

A review is given of various methods for the separation of pure Zr and Hf. Fractional precipitation, the use of ion exchange and distillations of halogenides, adsorption and ion exchange, and extraction methods for zirconium-hafnium separation are discussed. 123 references. (R.V.J.)

FTB mk

PLYUSHCHEV, V. V.

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PLYUSHCHEV, V.YE., KOROVIN, S.S., BOLSHAKOV, K.A., and YERMAKOVA, T.A.

"Investigation of Solubilities in the System $UO_2C_2O_4 \cdot H_2C_2O_4 \cdot H_2O$," by K. A. Bol'shakov, S. S. Korovin, V. Ye. Plyushchev, and T. A. Yermakova, Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov, Zhurnal Neorganicheskoy Khimii, Vol 2, No 1, Jan 57, pp 222-228

Solubilities in the system indicated have been determined by the isotherm method at 0° , 25° , 40° , 50° , and 70° . It was established that the solubility of uranyl oxalate increases as the concentration of free oxalic acid increases up to 11-13% by weight. It was found that $UO_2C_2O_4 \cdot 3 H_2O$ and $H_2C_2O_4 \cdot 2 H_2O$ are the solid phases which form in the system; no crystallization of complex compounds or formation of hydrates of uranyl oxalate containing less water than the trihydrate was found to occur.

SUM. I287

AUTHORS: Plyushchev, V. Ye. and Tulinova, V. B. 588

TITLE: Study of solubility in the system Lithium Carbonate - Lithium Sulphate - Water at 0 C. (Izucheniye rastvorimosti v sisteme karbonat litiya - sul'fat litiya - voda pri 0°)

PERIODICAL: "Zhurnal Neorganicheskoy Khimii" (Journal of Inorganic Chemistry, Vol.II, No.2, pp.467-469 (U.S.S.R.) 1957

ABSTRACT: A brief account is given of solubility determinations with the aid of the normal isothermal method in the system $\text{Li}_2\text{CO}_3 - \text{Li}_2\text{SO}_4 - \text{H}_2\text{O}$ at 0 C., corresponding to maximal solubility of both components. Results are presented graphically and show that the solid phases in the system are Li_2CO_3 and $\text{Li}_2\text{SO}_4 \cdot \text{H}_2\text{O}$. No double salts or solid solutions are formed in the system. The single reference indicated in the test is omitted. 2 figures, 1 table.

Received October 13, 1956.

Card 1/1

PLYUSHCHEV, V.E.; TULINOVA, V.B.

Solubility of the system lithium carbonate -- lithium sulfate --
water at 50°. Khim.redk.elem. no.3:3-5 '57. (MLRA 10:8)

1. Institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova.
(Lithium carbonate)(Lithium sulfate) (Systems (Chemistry))

Plyushchev, V.E.

URAZOV, G.G.; TULINOVA, V.B.; PLYUSHCHEV, V.E.; CHUYKINA, N.I.

Solubility in the system lanthanum sulfate -- ammonium sulfate --
water at 50°. Khim.redk.elem. no.3:14-27 '57. (MLRA 10:8)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im.
M.V. Lomonosova.

(Ammonium sulfate)
(Lanthanum sulfate)

PLYUSHCHEV, V.I.; TULINOVA, V.B.; KUZNETSOVA, G.P.; KOROVIN, S.S.;
PETROVA, R.G.

Studying the system $\text{CsCl} - \text{CaCl}_2 - \text{H}_2\text{O}$. Zhur.neorg.khim. 2 (MIRA 10:12)
no.9:2212-2220 S '57.

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V.
Lomonosova.
(Caesium chloride) (Calcium chloride)

PLYUSHCHEV, V.Ye.; TULINOVA, V.B.; KUZNETSOVA, G.P.; KOROVIN, S.S.
SHIPETINA, N.S.:

Investigating the ternary system sodium chloride -- cesium
chloride --water. Zhur. neorg. khim. 2 no.11:2654-2660 N '57.
(MIRA 11:3)

1.Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.I.
Kalinina.

(Sodium chloride) (Cesium chloride)

PLYUSHCHEV, V.Ye.; SHAKHNO, I.V. (Moskva).

Development and present state of the technology of rubidium cesium,
and their compounds. Usp. khim. 26 no.8:944-964 Ag '57. (MLRA 10:8)
(Rubidium) (Cesium)

PLYUSHCHEV, V. Ye.

AUTHOR

URAZOV, G.G., Member of the Academy
SHAKHNO, I.V. PLYUSHCHEV, V. Ye.,

20-2-33/67

~~XXXXXXXXXX~~

TITLE

On Monotropic Transformation of Spodumene.

PERIODICAL

(K voprosu o monotropnom prevrashchenii spodumena -Russian)
Doklady Akademii Nauk SSSR, Vol 113, Nr 2, pp 361-363 (U.S.S.R.) 1957
Reviewed 7/1957
Received 6/1957

ABSTRACT

Among the numerous lithium minerals spodumene was above all, investigated; its thermal properties were the most interesting: fusibility and transformations at high temperatures. The fusion point values obtained 50 years ago (1880-1890°) are too low and not up to date. About one decade later the area 920-980° was regarded as zone of fusion (Endell and Rieke). In reality the specific gravity and the reflective index remain unchanged up to 920°. At about 950° spodumene passes into a different highly symmetrical modification. The volume abruptly increases by 24%. The specific gravity increases from $d=3.147$ (20°) to $d=2.367$ (138°). Reflective index is $n=1.66$ from 20° to 920°, then (at 980°) it suddenly changes and increases to 1.519 and remains constant at higher temperatures. The authors call this zone- the zone of thermal transformation- the spodumene. The new modification is irreversible and polymorphous. The spodumene-modification found in nature was called α -spodumene, the new one β -spodumene. This suggestion is considered correct by the authors, as there are no chemical, but only physical and optical differences in comparison with the

Card 1/3

AUTHORS: Plyushchev, V. I. Tulinova, V. B. SOV/156-58-1-3/46

TITLE: On the Investigation of the Conditions of Lithium Carbonate Precipitation From the Solutions of the Alkali Metal Solutions (K izucheniye usloviy osazhdeniya karbonata litiya iz rastvorov sul'fatov shchelochnykh metallov)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 1, pp. 9 - 11 (USSR)

ABSTRACT: Lithium is mostly isolated as Li_2CO_3 from solutions which contain common alkaline elements. Unfortunately, the mutual systems $\text{Li}_2\text{SO}_4\text{-Na}_2\text{CO}_3\text{-H}_2\text{O}$ and $\text{Li}_2\text{SO}_4\text{-K}_2\text{CO}_3\text{-H}_2\text{O}$ which come into question here have hitherto not been investigated. The great difference in the solubility of its two salt components is characteristic of the triple system $\text{Li}_2\text{SO}_4\text{-Li}_2\text{CO}_3\text{-H}_2\text{O}$ which forms a generating system of the two above mentioned systems. This difference is reduced with the temperature rise. This is of practical importance since the formation of Li_2CO_3 is determined by the equilibrium in complex aqueous solutions from

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On the Investigation of the Conditions of Lithium
Carbonate Precipitation From the Solutions of the Alkali Metal Solutions

SOV/156-58-1-3/46

Li_2SO_4 , K_2SO_4 and Na_2SO_4 in the case of the extraction of the sintering product from spodumene and K_2SO_3 . The authors investigated the system Li_2SO_4 - Li_2CO_3 - H_2O at 25, 50 and 75° according to the isothermal method. Figure 1 gives as example the solubility isothermal line in the mentioned system at 50°. Figure 2 shows the same system graphically with the rays of Shreynemakers at 50°. The solubility isothermal lines in this system are similar at other temperatures. They all consist of two branches which cross in the "eutonic" point. $\text{Li}_2\text{SO}_4 \cdot \text{H}_2\text{O}$ and Li_2CO_3 turn out to be bottom phases at all investigated temperatures. The solution which corresponds to the eutonic point is saturated with respect to the two last salts. It is in equilibrium with the two compounds which are very different with respect to the crystal size and the crystal type. The system Li_2SO_4 - Li_2CO_3 - H_2O belongs to the simple type of ternary systems, but does not form double salts and solid

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On the Investigation of the Conditions of Lithium Carbonate Precipitation From the Solutions of the Alkali Metal Solutions SOV/156-58-1-3/46

solutions. The solubility values of all components of the system, the composition of the solid phases which correspond to the two crystallization branches are given in a table as well as the composition of the eutonic solutions and the solid phases which correspond to them. The investigation of the common solubility of Li_2SO_4 and Li_2CO_3 showed that the solubility of the latter decreases rapidly with the concentration rise of Li_2SO_4 . There are 2 figures, 1 table, and 2 references, 1 of which is Soviet.

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

SUBMITTED: October 10, 1957

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153.-58-1-6/29

AUTHORS: Komissarova, L. N., Plyushchev, V. Ye., Yuranova, L. I.

TITLE: An Investigation of the Thermal Stability of Zirconium-Sulfate-Tetrahydrate (Izucheniye termicheskoy ustoychivosti tetragidrata sul'fata tsirkoniya)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 1, pp. 37 -42 (USSR)

ABSTRACT: The above-mentioned sulfate-tetrahydrate is of great importance amongst the other zirconium-sulfates. Its method of production is given and the crystalline form is mentioned from publications (Reference 1). A survey of the publications on the problem referred to in the title, is given. Details on the condition of the material used for the tests and on the methods applied, are given in the experimental part. The results are summarized in tables 1 and 2. A thermogram covering the range between 20°C and 1100°C is given in figure 1. It shows 3 clear endothermic effects: the two first one between 130° and 215°C, which correspond to the separation of the water of crystallization; the 3rd effect (700 to 740°C) characterizes a complete decay of the sulfate with the separation of SO₃.

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An Investigation of the Thermal Stability of Zirconium-Sulfate-Tetrahydrate
153.-58-1-6/29

(Figure 2). This figure shows the curve of the change of weight of the tetrahydrate which confirms and accurately defines the destructive character of this salt. The results of investigation of the dehydration- and decomposition- processes obtained by the methods described here, are compared in table 3.

Conclusions: 1) The last mentioned processes of dehydration and decomposition of zirconium-sulfate-tetrahydrate were investigated by means of a) Heating in air up to the attaining of a constant weight at various temperatures, b) Pyrometer by N. S. Kurnakov, and c) a continuous balance. 2) According to the velocity of heating, the dehydration of the tetrahydrate takes place either in 2 or 3 stages. In all cases, 3 water molecules within the range of 100 to 160°C are cracked at a time. One water molecule, on the other hand, is retained more vigorously and escapes slowly at graduate heating; at 190° to 215°C half of the quantity of the water gets lost up to the complete dehydration taking place at 300 to 340°C. 3) The decomposition of the zirconium sulfate is accompanied

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An Investigation of the Thermal Stability of Zirconium-Sulfate-Tetra-
hydrate

153-58-1-6/29

by an escape of SO_2 and is gradually completed between 450 to 800°C. 4) The special solidity of the bond of water molecule points to the fact that the properties of tetrahydrate are more correctly expressed by the coordination-formula $\text{H}_2\text{ZrO}(\text{SO}_4)_2 \cdot 3\text{H}_2\text{O}$. There are 2 figures, 3 tables, and 8 references, 6 of which are Soviet.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova. Kafedra tekhnologii redkikh i rasseyannykh elementov (Moscow Institute for Fine Chemical Technology imeni M. V. Lomonosov, Professorial Chair for Rare and Dispersed Elements)

SUBMITTED: September 16, 1957

Card 3/3

AUTHORS: Plyushchev, V. Ye., Shakhno, I. V., SOV/136-58-2-18/48
Komissarova, L. N., Nadezhdina, G. V.

TITLE: Concerning Several Regularities in the Change of Solubility of the Alkali Metal Chlorides in Alcohols (O nekotorykh zakonomernostyakh izmeneniya rastvorimosti khloridov shchelochnykh metallov v spirtakh)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 2, pp. 279 - 282 (USSR)

ABSTRACT: The problem referred to in the title was especially interesting from a practical point of view. There should be a way to separate the adjacent pairs of elements which always accompany one another (Li - Na, K - Rb, Rb - Cs). A literature search revealed that statements made about the solubilities of these alkali chlorides are widely contradictory. The theoretical aspects of the problem are interesting, but the practical are no less important, since single solvents can work specifically and selectively and make it possible by the solution of this particular problem to overcome other similar difficulties. On this basis the authors proceeded to carry out

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Concerning Several Regularities in the Change of
Solubility of the Alkali Metal Chlorides in Alcohols

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appropriate experiments at 0 - 70°. Solvents used were CH₃OH, C₂H₅OH, n.C₃H₇OH, n.C₄H₉OH, iso-C₄H₉OH (primary) and iso-C₅H₁₁OH (primary). In the system with LiCl 5 - 6 days were allowed for the system to reach equilibrium. 6 - 7 days were allowed for the others. The solid phase, which was in equilibrium with the saturated solution was the original starting chloride. Distinct phases formed by the dissolution of LiCl in CH₃OH and in C₂H₅OH at 0°. They represented LiCl · 3CH₃OH and LiCl · 4C₂H₅OH (Ref 6). Table 1 shows the extreme solubility (in weight per cent) plus the range of temperature during the investigation. From this data the following peculiarities are emphasized: 1) The solubility of each chloride increases gradually with temperature. Only with the formation of the solvated form does the curve show a divergence, corresponding to the second branching. 2) This solubility increases with increasing molecular weight of both the normal and iso alcohols. 3) LiCl is striking for its relatively high solubility in all alcohols. With the increasing atomic number the solubility of

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Concerning Several Regularities in the Change of
Solubility of the Alkali Metal Chlorides in Alcohols

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the chloride changes rapidly, so that in the transition from LiCl to KCl it increases by 100 to 10 000 times, while it increases twelve-fold in the transitions from RbCl to CsCl. There are 1 table and 6 references, 2 of which are Soviet.

ASSOCIATION: Kafedra tekhnologii redkikh i rasseyannykh elementov Moskovskogo instituta tonkoy khimicheskoy tekhnologii im.M.V.Lomonosova (Chair of Technology of the Rare and Dispersed Elements of the Moscow Institute for Precision Chemical Technology imeni M.V. Lomonosov)

SUBMITTED: October 31, 1957

Card 3/3

AUTHORS: Plyushchev, V. Ye., Shakhno, I. V. SOV/156-58-4-45/49

TITLE: Investigation of the Interaction Process of Pollucite With Mixtures of Oxides and Chlorides of Calcium (Izucheniye protsessa vzaimodeystviya pullutsita so smes'yu okisi i khlorida kal'tsiya)

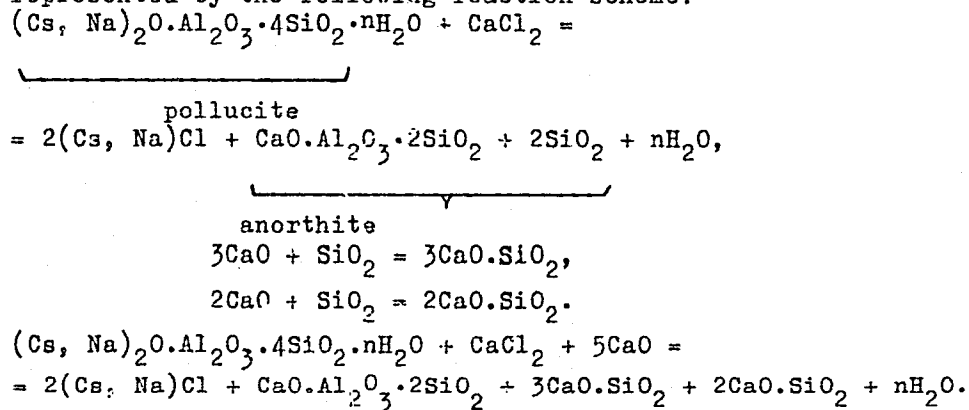
PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 4, pp 785-788 (USSR)

ABSTRACT: The results of the investigation of the technological process for the production of CsCl from pollucite was described. All experiments were carried out with absolutely pure pollucite. Slight impurities such as Cu, Sn, Mn, Fe, Pb, Li, K, Rb, and Ge were determined by spectrum analysis. On the treatment of pollucite with a mixture of CaO and CaCl₂ the alkali metals were transformed into chlorides. The phase that is insoluble in water, i. e. the solid phase, consists of the following compounds according to radiographic and thermal analyses: 1) anorthite, 2) tricalcium silicate, and 3) dicalcium silicate in the

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Investigation of the Interaction Process of SOV/156-58-4-45/49
 Pollucite With Mixtures of Oxides and Chlorides of Calcium

form of γ , β and α' . The presence of 3 modifications of $2\text{CaO}\cdot\text{SiO}_2$ was confirmed by thermal analysis. The interaction mechanism of pollucite with a mixture of CaO and CaCl_2 is represented by the following reaction scheme:



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Investigation of the Interaction Process of Pollucite With Mixtures of Oxides and Chlorides of Calcium SOV/156-58-4-45/49

There are 1 figure, 1 table, and 10 references, 7 of which are Soviet.

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

SUBMITTED: February 13, 1958

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5(1,2)

SOV/153-58-6-10/22

AUTHORS:

Plyushchev, V. Ye., Shakhno, I. V.

TITLE:

Investigation of the Interaction of Minerals Containing Rare Alkali Elements, With Salts and Oxides in the Sintering and Fusion Processes (Issledovaniye vzaimodeystviya mineralov, soderezhahchikh redkiye shchelochnyye elementy, s solyami i oksidami v protsessakh spekaniya i splavleniya). I. On the Production of Cesium Chloride by the Interactions of Pollucite With Calcium Oxide and -Chloride. (I. O poluchenii khlorida tseziya pri vzaimodeystvii pollutsita s okis'yu i khloridom kal'tsiya)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 6, pp 54-60 (USSR)

ABSTRACT:

In several hundreds of papers on the processing of the raw material with a content of rare elements mostly purely technological problems are discussed. The investigations of theoretical problems have been lagging far behind the former type of investigations. The paper under consideration serves the purpose of partly filling this gap. It is the first of three papers dedicated to the processing of pollucite (Cs.Na) $[AlSi_2O_6]_nH_2O$. The well-known processing methods for

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Investigation of the Interaction of Minerals Containing Rare Alkali Elements, With Salts and Oxides in the Sintering and Fusion Processes. I. On the Production of Cesium Chloride by the Interactions of Pollucite With Calcium Oxide and -Chloride

pollucite can be divided into 3 groups: 1) acid methods, 2) direct cesium production methods from ores, and 3) the methods mentioned in the title. A survey of scientific publications on said method is given (Refs 1-13). The methods of the 3rd group, ... sintering and fusion, are at present not very numerous (Ref. 13). This method mentioned in the subtitle has a number of advantages over other methods, as the compound desired by the technologist can be isolated almost directly. However, with a low cesium content (compared with other alkali metals), the reprecipitation of $3\text{CsCl} \cdot 2\text{SbCl}_3$ or a preliminary fractioned crystallization are necessary for a separation from sodium. The authors employed said method of pollucite decomposition for the production of pure CsCl . Subsequently, the results of the chemotechnological investigation of the CsCl production process by interaction with a CaO - and CaCl_2 mixture are described. The experimental part contains discussions of: Study of the roles played by individual reagents in the decomposition

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SOV/153-58-6-10/22

Investigation of the Interaction of Minerals Containing Rare Alkali Elements, With Salts and Oxides in the Sintering and Fusion Processes. I. On the Production of Cesium Chloride by the Interactions of Pollucite With Calcium Oxide and Chloride

process of pollucite (Table 1 with CaO, Table 2 with NaCl, KCl, CaCl₂ and BaCl₂). From this it is obvious that the last-mentioned 4 chlorides cannot be used as independent reagents for pollucite decomposition. CaCl₂ yielded the best results. However, the cesium yield from the concentrate falls noticeably at 900°. The role played by CaO must, however, not be underestimated. After all, CaCl₂ by itself is not able to fully complete the reaction. The shift of the reaction is secured only by CaO, as it favors the formation of Al and Si into insoluble compounds. Table 3 presents data thereon, as well as on the interactions with other mixtures. The interaction of pollucite with CaO and CaCl₂ yields the total cesium quantity in a water-soluble state in the form of CsCl. There are 3 tables and 18 refer-

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Investigation of the Interaction of Minerals Containing Rare Alkali Elements,
With Salts and Oxides in the Sintering and Fusion Processes. I. On the
Production of Cesium Chloride by the Interactions of Pollucite With Calcium
Oxide and -Chloride

ences, 4 of which are Soviet.

ASSOCIATION: Kafedra tekhnologii redkikh i rasseyannykh elementov; Moskovskiy
institut tonkoy khimicheskoy tekhnologii imeni M. V.
Lomonosova
(Chair of Technology of Rare and Scattered Elements; Moscow
Institute of Fine Chemical Technology imeni M. V. Lomonosov)

SUBMITTED: January 9, 1958

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SOV/81-59-10-34412

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 10, p 85 (USSR)

AUTHORS: Plyushchev, V.Ye., Kuznetsova, T.P., Grizik, A.A.

TITLE: The Study of the Ion-Exchange Capacity of the Cationites SBS, MSF, KU-1, KN¹ and RF¹ in Solutions of Chlorides of Alkali Metals

PERIODICAL: Tr. Mosk. in-ta tonkoy khim. tekhnol., 1958, Nr 7, pp 73-80

ABSTRACT: The absorption of alkali metals by H-forms of the resins SBS, MSF, Ku-1 and RF at various pH of the initial solution (in a non-buffer system) has been studied under static conditions. It is assumed that for industrial conditions these data characterize the ionite better than the dependence of the absorption on the pH of the equilibrium solution. ✓

M. Arkhangel'skiy

Card 1/1

SOV/78-3-9-21/38

AUTHORS: Plyushchev, V. Ye., Simanov, Yu. P., Shakhno, I. V.

TITLE: The High Temperature Synthesis of the Rubidium Aluminum Silicate
(Vysokotemperaturnyy sintez alyumosilikata rubidiya)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 9, pp 2133-2137
(USSR)

ABSTRACT: In the present paper the results of the investigations of the high temperature synthesis of the rubidium aluminum silicate of the composition $\text{Rb}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 4\text{SiO}_2$ were communicated. The reaction of the interaction between β -spodumene and Rb_2SO_4 was carried out at temperatures of 850, 950, and 1000°C in the case of different ratios of the components. The reaction is carried out according to the following scheme:
$$2\text{Li} [\text{AlSi}_2\text{O}_6] + \text{Rb}_2\text{SO}_4 \rightarrow 2\text{Rb} [\text{AlSi}_2\text{O}_6] + \text{Li}_2\text{SO}_4$$
The interaction between β -spodumene and Rb_2SO_4 lasts two hours. The samples obtained were radiographically analyzed. The thermographic analysis showed that a polymorphous transformation of the low temperature modification into the high temperature

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The High Temperature Synthesis of the Rubidium Aluminum Silicate

modification takes place at 1055-1068°C. In the case of a second heating of Rb $[AlSi_2O_6]$ no transformation could be found.

The results show that the aluminum silicate of rubidium is similar to leizite K $[Al.Si_2O_6]$ with tetragonal lattice

a = 13,36 kX and c = 13,72 kX. There are 1 figure, 1 table, and 11 references, 7 of which are Soviet.

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

SUBMITTED: July 8, 1957

Card 2/2

5(2)

AUTHORS: Komissarova, L. N., Plyushchev, V. Ye. SOV/75-13-6-19/21

TITLE: Analytical Chemistry of Hafnium
(Analiticheskaya khimiya hafniya)

PERIODICAL: Zhurnal analiticheskoy khimii, 1958, Vol 13, Nr 6, pp 709-715
(USSR)

ABSTRACT: In both natural and industrial materials hafnium is always accompanied by zirconium. A survey of the numerous methods serving for the direct determination of zirconium, suitable for the hafnium determination as well, was recently given by Portcastle (Ref 2). To determine hafnium by these methods it is necessary to separate it from zirconium in the first place. For this purpose it is best to use ion exchange methods (Ref 1). The determination of hafnium in the presence of zirconium can be carried out by a few physical methods, as there are no such completely reliable and specific reagents in analytical chemistry to allow the determination of Hf or Zr when occurring together (Ref 3). On the other hand, highly specific reagents for the sum of both elements have been known for a long time. For the qualitative determination of hafnium in the presence

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Analytical Chemistry of Hafnium

SOV/75-13-6-19/21

of zirconium, exclusively optical and radiospectroscopic methods are used (Ref 4). Radiospectroscopic analysis is specially suitable for the quantitative determination (Refs 4-8). The quantitative determination of hafnium in the presence of zirconium can be carried out today by chemical, physico-chemical and physical methods. The chemical methods are all indirect. The present paper constitutes a very comprehensive synopsis of the literature concerning all these methods for the determination of hafnium in the presence of zirconium. There are 67 references, 14 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova i Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov and Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov)

SUBMITTED: July 15, 1957

Card 2/2

PLYUSHCHEV, V.Ye., kand.khim.nauk, red.; L'VOVA, N.M., red.; KLIMENKO,
S.V., tekhn.red.

[Lithium; collection of translations] Litii; sbornik perevodov.
Moskva, Izd-vo inostr.lit-ry, 1959. 331 p. (MIRA 13:8)
(Lithium)

5(2)

SOV/156-59-2-16/48

AUTHOR:

Plyushchev, V. Ye.

TITLE:

The High-temperature Synthesis of Cesium Aluminum Silicate
(Pollucite) (Vysokotemperaturnyy sintez alyumosilikata tseziya
(pollutsita))

PERIODICAL:

Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya
tekhnologiya, 1959, Nr 2, pp 284-288 (USSR)

ABSTRACT:

The investigations of pollucite (Refs 1-11) of the only mineral containing cesium in greater quantities, are to a certain extent in contradiction. Especially the structure of the mineral and the position of water in its crystal lattice are unclarified. The author describes the synthesis of pollucite from lithium aluminum silicate (β -spodumene) and cesium sulphate. In the case of heating to 950-1000° a product was obtained which could be identified as pollucite by thermal, optical and X-ray analyses (Table 1). Pollucite belongs to the cubic syngony with $a = 13.646$ kX. The formation of pollucite from α -spodumene was also examined. The reaction equations for this case are given: $\alpha\text{-(Li, Na) Al[Si}_2\text{O}_6] \longrightarrow \beta\text{-(Li, Na) [AlSi}_2\text{O}_6]$

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and $2 \beta\text{-(Li, Na) [AlSi}_2\text{O}_6] + \text{Cs}_2\text{SO}_4 \longrightarrow (\text{Li, Na})_2\text{SO}_4 + 2\text{Cs [AlSi}_2\text{O}_6]$.

The High-temperature Synthesis of Cesium Aluminum Silicate (Pollucite) SOV/156-59-2-16/48

There are 1 table and 15 references, 4 of which are Soviet.

PRESENTED BY: Kafedra tekhnologii redkikh i rasseyannykh elementov Moskovskogo instituta tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova
(Chair of Technology of the Rare- and Trace Elements, Moscow
Institute of Fine Chemical Technology imeni M. V. Lomonosov)

SUBMITTED: September 1, 1958

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5(1,2)

SOV/153-2-4-22/32

AUTHORS: Plyushchev, V. Ye., Shakhno, I. V.

TITLE: Investigation of the Interaction of Minerals Containing Alkali Elements With Salts and Oxides in Sintering and Melting Processes. II. Thermographical Investigation of the Interaction Process of Pollucite With Calcium Oxide and Calcium Chloride

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1959, Vol 2, Nr 4, pp 582 - 588 (USSR)

ABSTRACT: The procedure (at high temperatures) mentioned in the subtitle is one of the most popular among various methods of processing pollucite to cesium compounds. Its superiority was confirmed by the authors. They showed the role played by individual reaction participants in the decomposition of the mineral mentioned by technological investigation, and examined the optimum conditions of interaction (Ref 1). The role played by each of the constituents of the charge could be defined, and the nature of the water-soluble components of the sintering products explained by means of the results shown here. Pure pollucite was used which was controlled by means of cathode rays according to G. F. Komovskiy and O. N. Lozhnikova (Ref 2).

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Investigation of the Interaction of Minerals Containing *SCV/153-2-4-22/32*
Alkali Elements With Salts and Oxides in Sintering and Melting Processes.
II. Thermographical Investigation of the Interaction Process of Pollucite
With Calcium Oxide and Calcium Chloride

The table (p 583) shows the results of the investigation mentioned in the subtitle. Hence it appears that pure roasted pollucite does not undergo any transformations between 20 and 950°. The ideas (still insufficient at present) on the character of the interaction between CaO and CaCl₂ do not influence the results and conclusions. The heating curves of mixtures containing pollucite do not differ from curves of substances or mixtures not containing pollucite. Thus, they give no indication as to the reaction process. The more difficult task of deciphering the thermograms of the sintering products can be solved by comparing the thermal variations of the initial components and the thermal variations caused by the interaction of the charge components with those depending on the properties of the water-soluble salt system formed. The latter variations are caused by the interaction of excess CaCl₂ with cesium- and sodium chloride. These salts are formed because of the reaction of CaCl₂ with pollucite (Ref 10). On account of the data on this interaction, an approximate computation can be made

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Investigation of the Interaction of Minerals Containing SOV/153-2-4-22/32
Alkali Elements With Salts and Oxides in Sintering and Melting Processes.
II. Thermographical Investigation of the Interaction Process of Pollucite
With Calcium Oxide and Calcium Chloride

of the CsCl- and NaCl-quantity formed by this reaction, and the excess CaCl_2 which together form the soluble salt system. The thermal transformations in this system can easily be found by means of heating curves with the use of the melting-point diagram of the system NaCl-CsCl-CaCl_2 . Upon comparison of this melting-point diagram with data on the fusibility of the salt mass of the sintering products, it may also be concluded that the sintering of pollucite with CaO and CaCl_2 proceeds under optimum conditions only if little melt is formed. This increases the exchange degree of the reaction. The thermogram of pollucite with CaO is simplest among all thermograms of sintering products. No reaction occurs between pollucite and CaO-CaCl_2 under optimum conditions for the interaction of pollucite with the CaO -mixture. Figure 1 shows the heating curve of the sintering product of pollucite with CaCl_2 , figure 2 that with CaO and CaCl_2 . They are thoroughly analyzed, and compared with each other. The results of the thermographical investigation will be published in an additional paper. There are 2 figures, 1 table, and 11 references,

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Investigation of the Interaction of Minerals Containing SOV/153-2-4-22/32
Alkali Elements With Salts and Oxides in Sintering and Melting Processes.
II. Thermographical Investigation of the Interaction Process of Pollucite
With Calcium Oxide and Calcium Chloride

9 of which are Soviet.
ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M. V.
Lomonosova; Kafedra tekhnologii redkikh i rasseyannykh elementov
(Moscow Institute of Fine Chemical Technology imeni M. V. Lomo-
nosov; Chair of Technology of Rare and Dispersed Elements)

SUBMITTED: April 21, 1958

Card 4/4

PLYUSHCHEV, V.Ye.; SHAKHNO, I.V.

Reactions of minerals containing rare alkali elements with salts
and oxides in the processes of sintering and fusion. Part 3:
745-750 '59. (MIRA 13:8)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni
M.V. Lomonosova, kafedra tekhnologii redkikh i rasseyanykh elementov.
(Pollucite) (Calcium oxide) (Calcium chloride)

5(4)

AUTHORS:

Tulinova, V. B., Morzhina, L. G.,
Plyushchev, V. Ye.

SOV/78-4-5-37/46

TITLE:

Investigation of the Common Solubility of Lithium Hydroxide
and Lithium Sulphate (Issledovaniye sovместnoy rastvorimosti
gidrookisi i sul'fata litiya)PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 5,
pp 1170 - 1173 (USSR)

ABSTRACT:

By means of the isothermal method solubility in the system
 $\text{LiOH-Li}_2\text{SO}_4\text{-H}_2\text{O}$ with 0° , 25° , 50° and 75°C was investigated
for the first time. Investigations with 0° were carried out
in a special thermostat. Re-crystallized chemically pure
mono-hydrate of lithium sulphate and mono-hydrate of lithium
hydroxide were used as initial materials. Data concerning the
solubility of the system $\text{LiOH-Li}_2\text{SO}_4\text{-H}_2\text{O}$ are given in table 1.
The isothermal line for the solubility of the system $\text{LiOH-Li}_2\text{SO}_4$
at 25° is shown by figure 1. The solubility isothermal line

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Investigation of the Common Solubility of Lithium Hydroxide and Lithium Sulphate SOV/78-4-5-37/46

in the three-component system $\text{LiOH} \cdot \text{Li}_2\text{SO}_4 \cdot \text{H}_2\text{O}$ at 0° , 25° , 50° and 70°C was found to consist of two branches intersecting each other at an "eutonic" point. At all temperatures the solid phases consist of $\text{LiOH} \cdot \text{H}_2\text{O}$ and $\text{Li}_2\text{SO}_4 \cdot \text{H}_2\text{O}$. In the presence of lithium sulphate solubility in $\text{LiOH} \cdot \text{H}_2\text{O}$ is lower. Solubility decreases considerably with an increase of lithium hydroxide concentration. There are 1 figure, 1 table and 3 references.

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

SUBMITTED: February 21, 1958.
Card 2/2

5(4)
AUTHORS: Plyushchev, V. Ye., Tulinova, V. B. SOV/78-4-5-39/46

TITLE: Investigation of the System $\text{LiCl-Li}_2\text{SO}_4\text{-H}_2\text{O}$
(Issledovaniye sistemy $\text{LiCl-Li}_2\text{SO}_4\text{-H}_2\text{O}$)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 5,
pp 1184-1189 (USSR)

ABSTRACT: The solubility in the system $\text{LiCl-Li}_2\text{SO}_4\text{-H}_2\text{O}$ at 0, 25, 50, and 75°C was investigated by means of the isothermal method. The results obtained are shown by table 1. The isothermal line of the solubility of the system $\text{LiCl-Li}_2\text{SO}_4\text{-H}_2\text{O}$ at 0, 25, 50 and 75°C is shown by figures 1 - 4. The results obtained show that the solubility isothermal line in this system are of similar character at all temperatures and consist of two branches which correspond to the crystallization of the components of the system. It was found that no double salts or solid solutions form in the three-component system $\text{LiCl-Li}_2\text{SO}_4\text{-H}_2\text{O}$. In the three-component system the solubility of lithium sulphate is considerably reduced in the presence of lithium chloride, which causes salting-out

Card 1/2

Investigation of the System $\text{LiCl} \cdot \text{Li}_2\text{SO}_4 \cdot \text{H}_2\text{O}$

SOV/78-4-5-39/46

to a considerable extent. There are 4 figures, 1 table,
and 12 references, 6 of which are Soviet.

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

SUBMITTED: February 21, 1958

Card 2/2

5(4)

AUTHORS:

Flyushchev, V. Ye., Kuznetsova, G. P.,
Stepina, S. B.

SOV/78-4-6-39/44

TITLE:

The Investigation of the System $\text{LiCl-KCl-H}_2\text{O}$ (Issledovaniye sistemy $\text{LiCl-KCl-H}_2\text{O}$)

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 6, pp 1449-1453 (USSR)

ABSTRACT:

The solubility in the system $\text{LiCl-KCl-H}_2\text{O}$ was investigated by the isothermal method at 0, 25, 50, and 75°C and the results are given in table 1. The results show that lithium chloride reduces the solubility of potassium chloride. The solubility of potassium chloride rises in the proximity of the "eutonic" point, probably under formation of complexes. No double salts or solid solutions are formed in the system $\text{LiCl-KCl-H}_2\text{O}$. There are 4 figures, 1 table, and 8 references, 4 of which are Soviet.

ASSOCIATION:

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

Card ~~12~~

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~~PLYUSHCHENY, N. Y.~~

High-temperature synthesis of pollucite. Zap. Vses. min. ob-va
88 no.2:152-156 '59. (MIRA 12:8)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im.
M.V. Lomonosova.

(Pollucite)

5(1)

AUTHOR:

Plyushchev, V. Ye.

SOV/20-124-3-42/67

TITLE:

On the Interaction of Spodumene With Sulfates of Alkali Metals
(O vzaimodeystvii spodumena s sul'fatami shchelochnykh metallov)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 3, pp 642-645
(USSR)

ABSTRACT:

A powder of thermally enriched spodumene (β -spodumene) was heated with sodium-, potassium-, rubidium- and cesium sulfates over a wide temperature range in a muffle furnace. The water extract of the product was tested with regard to silicon, and was thermally, optically, and roentgenographically analyzed. The reaction formula $2\text{Li}(\text{AlSi}_2\text{O}_6) + \text{Me}_2\text{SO}_4 + Q_{\text{cal}} =$

$2\text{Me}(\text{AlSi}_2\text{O}_6) + \text{Li}_2\text{SO}_4$ (Me = Na, K, Rb or Cs) applies to all sulfates with melting points beyond 1000°C . Lithium sulfate and, as an insoluble phase, the aluminosilicates of the individual alkali metals (leucite, the rubidium form of leucite that does not occur naturally, or pollucite) were formed. With sodium sulfate, the reaction takes a different course. As it melts at only 884°C , spodumene dissolves in the fusion into a

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On the Interaction of Spodumene With Sulfates of
Alkali Metals

SOV/20-124-3-42/67

vitreous mass. This explains the well-known fact that sodium cannot be employed in the decomposition of spodumene. On the use of the other alkali sulfates, the formation of lithium sulfate and of insoluble aluminosilicate occurs in the same way from natural (α -) spodumene, as the last-mentioned substance is converted into the β -modification by the action of high temperatures. Therefore, a special preliminary preparation of the β -modification from first class spodumene or from flotation concentrates is unnecessary. This fact constitutes the advantage of this method of decomposition as compared to the sulfuric acid method that can only be carried out with β -spodumene, but takes place in a temperature range which does not lead to the spontaneous formation of the β -modification. There are 1 table 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)

PRESENTED: September 22, 1958, by I. V. Tananayev, Academician

SUBMITTED: September 15, 1958
Card 2/2

5(1, 2)
AUTHORS:

Plyushchev, V. Ye., Simanov, Yu. P.,
Shakhno, I. V.

SOV/20-125-2-26/64

TITLE:

On the β -Modification of Spodumene (0 beta-modifikatsii
spodumena)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 2, pp 334-336
(USSR)

ABSTRACT:

Spodumene constitutes the most important industrial lithium source, and is characterized by the formula $\text{Li}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 4\text{SiO}_2$. However, the percentage of the components in spodumene varies as it never occurs pure (Refs 1, 2). Many elements are present in spodumene as isomorphic substituents, and cannot be removed mechanically (Refs 2, 3). Most of them replace lithium in the crystal lattice. From the processes in nature it becomes obvious that this lithium replacement can attain significant dimensions (Ref 4). This is the main characteristic of spodumene erosion by which the mineral is deprived of its value. Sodium plays the most conspicuous role in this process. Although spodumene for a long time used to figure with the aluminosilicates, there is no doubt today that it constitutes a double

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SOV/20-125-2-26/64

On the β -Modification of Spodumene

silicate of lithium and aluminium (Ref 5). Natural spodumene (mostly called α -spodumene) is characterized above all by the monotropic transition, between 950 and 1100°, into a high-temperature modification (β -modification or β -spodumene, Ref 7). This irreversible transition is of great practical importance, as in the roasting of spodumene-containing rocks it can be employed for their enrichment in lithium. Unlike α -spodumene the β -modification is brittle and comminutes easily. Thus a concentrate can be obtained by means of sifting. Contrary to the case of the α -modification there are no conclusive data on the structure of β -spodumene. It may be assumed that the symmetry of the latter is higher. The authors made an x-ray study of the latter. The results (Table 1) can be considered satisfactory only for 54 lines of the x-ray photograph. The paper under consideration was started under the direction of the late Academician G. G. Urazov (for many years Head of the Kafedra tekhnologii tonkikh neorganicheskikh produktov, MITKhT - Chair of the Technology of Fine Inorganic Products, at the Institute mentioned in the 1st Association). There are 1 table and 11 references, 3 of which are Soviet.

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On the β -Modification of Spodumene

SOV/20-125-2-26/64

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

PRESENTED: October 30, 1958, by I. V. Tananayev, Academician

SUBMITTED: September 15, 1958

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PLYUSHCHEV, V V

PHASE I BOOK EXPLOITATION SOV/5747

Vsesoyuznoye soveshchaniye po redkim shchelochnym elementam. 1st, Novosibirsk, 1958.

Redkiye shchelochnyye elementy; sbornik dokladov soveshchaniya po khimii, tekhnologii i analiticheskoy khimii redkikh shchelochnykh elementov, 27-31 yanvarya 1958 g. (Rare Alkali Elements; Collection of Reports of the Conference on the Chemistry, Technology, and Analytical Chemistry of Rare Alkali Elements, Held 27-31 January, 1958) Novosibirsk, Izd-vo Sibirskogo otd. AN SSSR, 1960. 99 p. 1000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Sibirskoye otdeleniye. Khimiko-metallurgicheskiy institut.

Resp. Ed.: T. V. Zabolotskiy, Candidate of Technical Sciences;
Members of Editorial Board: A. S. Mikulinskiy, Professor, Doctor of Technical Sciences, A. T. Logvinenko, Candidate of Technical Sciences, F. F. Barkova, Candidate of Chemical Sciences; Ed.: V. M. Bushuyeva; Tech. Ed.: A. F. Mazurova.

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Rare Alkali Elements; Collection (Cont.)

SOV/5747

PURPOSE : This book is intended for chemical engineers and technicians working in metallurgical and mining operations and related enterprises.

COVERAGE: The collection contains reports which deal with the physical and analytical chemistry of rare alkali elements and their compounds and their reactions with mineral ores and salts. Methods of extraction and modern analytical techniques and equipment are also discussed. No personalities are mentioned. References accompany individual articles.

TABLE OF CONTENTS:

Urazov, G. G. [Deceased], V. V. Plyushchev, Yu. P. Simanov, and I. V. Shakhno. [Moskovskiy institut tonkoy khimicheskoy tekhnologii im. (M.V.) Lomonosova - Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov]. High-Temperature Modification of Spodumene 5

Plyushchev, V. Ye. [Moscow Institute of Fine Chemical Technology

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Rare Alkali Elements; Collection (Cont.)

SOV/5747

imeni Lomonosov]. Physicochemical Investigation of the Process
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of Salts of Alkali Metals With Silica and Alumina and Proper-
ties of the Products Formed 43

Logvinenko, A. T. and G. D. Uryvayeva. [Khimiko-metallurgi-
cheskiy institut Sibirskogo otdeleniya AN SSSR - Institute of
Chemical Metallurgy of the Siberian Department of the Academy

Card 3/5

S/153/60/003/004/007/040/XX
B023/B054

AUTHORS: Plyushchev, V. Ye., Kovalev, F. V.

TITLE: Study of the Reaction of Alkali and Alkaline-earth Chlorides in Melts. V. Liquidus of the Ternary System Sodium Chloride - Potassium Chloride - Calcium Chloride

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1960, Vol. 3, No. 4, pp. 575 - 579

TEXT: The authors studied the liquidus of the system $\text{NaCl} - \text{KCl} - \text{CaCl}_2$ by the visual-polythermic method under conditions similar to those of the previous paper (Ref.20). Sodium and potassium chlorides, type "chemically pure", were crystallized out of water, and carefully dried; anhydrous CaCl_2 was obtained by the method of Ref.20. Ten cross sections of the $\text{NaCl} - \text{KCl} - \text{CaCl}_2$ system were studied. The diagram of the cross sections is combined with the isothermal diagram of the liquidus surface

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Study of the Reaction of Alkali and
Alkaline-earth Chlorides in Melts. V.
Liquidus of the Ternary System Sodium Chloride - Potassium Chloride -
Calcium Chloride.

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B023/B054

(Fig.2). Experimental data are given in Tables 1 and 2. The authors state that four ranges of primary crystallization (NaCl, KCl, CaCl₂, and compound KCl.CaCl₂) are present in the system concerned. Two triple eutectics crystallize at 465°C (E₁) and 515°C (E₂), respectively. Their graphically determined and experimentally confirmed compositions in mole% are: NaCl: 42.75, KCl: 7.25, CaCl₂: 50.0 (E₁), and NaCl: 31.5, KCl: 47.75, CaCl₂: 20.75 (E₂). The solid solutions NaCl and KCl, which are characteristic of the NaCl - KCl system, decompose in the system NaCl - KCl - CaCl₂ already near the liquidus surface. Therefore, the melting-point diagram for the given ternary system is different from the diagram plotted earlier for the binary system. There are 2 figures, 2 tables, and 21 references: 10 Soviet, 9 German, 1 French, and 1 British.

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Study of the Reaction of Alkali and
Alkaline-earth Chlorides in Melts. V.
Liquidus of the Ternary System Sodium Chloride - Potassium Chloride -
Calcium Chloride

S/153/60/003/004/007/040/XX
B023/B054

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im.
M. V. Lomonosova Kafedra tekhnologii redkikh i rasseyan-
nykh elementov (Moscow Institute of Fine Chemical
Technology imeni M. V. Lomonosov, Department of Technology
of Rare and Trace Elements) ✓

SUBMITTED: July 21, 1958

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This individual
is repeated on
Next Reel.

END

REEL 429

PLYUSHCHEV, V. YE.