KOLESOV, V.P.; ZENKOV, I. D.; SKURATOV, S. M.

Standard enthalpies of formation of chlorotrifluoromethane and dichlorodifluoromethane. Zhur. fiz. khim. 37 no. 3:720 Mr '63. (MIRA 17:5)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova, khimicheskiy fakul'tet.

KOLESOV, V.P.; ZENKOV, I.D.; SKURATOV, S.M.

Standard enthalpy of formation of chlorotrifluoromethane and dichlorodifluoromethane. Zhur. fiz. khim. 36 no.9:2082-2084 S '62. (MIRA 17:6)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

KOLESOV, V.P.; ZENKOV, I.D.; SKURATOV, S.M.

Standard enthalpy of formation of chlorotrifluoroethylene. Zhur. fiz.khim. 37 no.1:224-225 Ja '63. (MIRA 17:3)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

KOLESOV, V.P.; ZENKOV, I.D.; SKURATOV, S.M.

Standard enthalpy of formation of 2,2,2-trifluoroethanol.
Zhur.fiz.khim. 39 no.10:2474-2476 O '65.

(MIRA 18:12)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
Submitted July 13, 1964.

KOLESOV, V.P.; ZENKOV, I.D.; SKURATOV, S.M.

Standard enthalpy of the formation of tetrafluoroethylene.
Zhur. fiz. khim. 36 no.1:89-92 Ja '62. (MIRA 16:8)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova, Termokhimicheskaya laboratoriya im. V.F. Luginina.
(Ethylene) (Enthalpy)

KOLESOV, V.P.; ZENKOV, I.D.; ALEKHIN, S.P.; SKURATOV, S.M.

Hermetic calorimeter with magnetic stirrer. Zhur. fiz. khim. 36 no.4:910-912 Ap '62. (MIRA 15:6)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Calorimeters)

S/076/63/037/003/020/020
B101/B215

AUTHORS: Kolesov, V. P., Zenkov, I. D., Skuratov, S. M.

TITLE: Standard enthalpies of the formation of chlorotrifluoro methane and dichlorodifluoro methane

PERIODICAL: Zhurnal fizicheskoy khimii, v. 37, no. 3, 1963, 720

TEXT: The data for $\Delta H^{o}_{form}$ of $CCl_2F_2$ given in Zh. fiz. khimii, 36, 2082, 1962 were checked and found correct. The following values are given: $\Delta H^{o}(CCl_2F_2) = -112.1 \pm 1.2$ kcal/mole, $\Delta E^{o}(CClF_3) = -171.8 \pm 0.9$ kcal/mole. These were determined calorimetrically on the basis of the reaction $CCl_nF_{(4-n)} + 4\ Na = nNaCl + (4-n)NaF + C$.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova Khimicheskiy fakul'tet (Moscow State U[illegible]

Card 1/1 September 7, 1962

PLYUSNIN, K.P.; PLYUSNINA, A.A.; ZENKOV, I.I.

New data on grapholite slates in the eastern slope of the Southern Urals. Izv. AN SSSR. Ser.geol. 30 no.11:121-124 N '65. (MIRA 18:12)

1. Ural'skoye geologicheskoye upravleniye, Sverdlovsk. Submitted December 23, 1964.

ZEN'KOV, Ivan Stepanovich, prof.; SEREBRENNYY, German Nisonovich, dots.; KORNIYENKO, V.S., inzh., nauchnyy red.; KLENDO, M.A., red.izd-va; GOL'BERG, T.M., tekhn. red.

[Examples of organization planning in construction and erection work] Primery proektirovaniia organizatsii stroitel'no-montazhnykh rabot; opyt diplomnogo proektirovaniia. Moskva, Gosstroiizdat, 1963. 170 p. (MIRA 16:12)
(Construction industry--Management)

ZEN'KOV, I.S.; DIKOV, N.D.; TITOVA, V.A., tekhn.red.

[Organization and planning of construction enterprises] Organizatsiia i planirovanie stroitel'stva. Moskva, Vses. zaochnyi inzhenerno-stroit.in-t. No.1. 1958. 95 p. (MIRA 14:2)

(Construction industry)

ZEN'KOV, I.S., prof.; PETROV, N.M.; KOTOVICH, B.M., dots.; GAL'PERIN, M.I., doktor tekhn. nauk; ZEN'KOV, I.S., prof., red.; TITOVA, B.V., red.

[Main trends in the mechanization and automation of the construction industry; introductory lecture for students in the construction and mechanics courses of the All-Union Engineering and Construction Correspondence Institute] Osnovnye napravleniia v mekhanizatsii i avtomatizatsii stroitel'stva; vvodnaia lektsiia dlia studentov stroitel'nykh i mekhanicheskikh spetsial'nostei VZISI, 1961. 23 p. (MIRA 17:9)

1. Moscow. Vsesoyuznyy zaochnyy inzhenerno-stroitel'nyy institut.

ZEN'KOV, I.S., prof.; PETROV, N.M.; KOTOVICH, B.M., dots.; GAL'PERIN, M.I., doktor tekhn. nauk; ZEN'KOV, I.S., prof., red.; TITOVA, B.V., red.

[Main trends in the mechanization and automation of the construction industry; introductory lecture for students in the construction and mechanics courses of the All-Union Engineering and Construction Correspondence Institute] Osnovnye napravleniia v mekhanizatsii i avtomatizatsii stroitel'stva; vvodnaia lektsiia dlia studentov stroitel'nykh i mekhanicheskikh spetsial'nostei VZISI, 1961. 23 p. (MIRA 17:9)

1. Moscow. Vsesoyuznyy zaochnyy inzhenerno-stroitel'nyy institut.

ZENKOV, Leonid Filippovich; PECHNIKOV, A.I., retsenzent; BOYKO, A.A., retsenzent

[Establishing technical standards for strip mining operations] Tekhnicheskoe normirovanie na otkrytykh gornykh rabotakh. Moskva, Nedra, 1964. 239 p. (MIRA 18:6)

(2)

## 32. GROUNDWATER HYDROGEOLOGICAL INVESTIGATION METHODS EMPLOYED IN CONNEXION WITH WATER SUPPLY, DEWATERING AND DRAINAGE PROBLEMS IN THE NATIONAL ECONOMY AND CONSTRUCTION OF THE USSR

by

L. D. Bely and I. V. Zonkov

(Abstract)

The paper gives details of investigations conducted in the USSR in connexion with regional studies of groundwater for purposes of water supply, and in connexion with the construction of various structures. The problem is highlighted by reference to the influence of such structures on the groundwater regime, and *vice versa*. The importance of investigations of artificial dewatering, reclamation, drainage, etc. is noted.

Methods of drilling and testing operations are described, as well as the method for studying the groundwater regime. Information is given on dewatering and drainage in connexion with construction of hydro power structures.

The results of work carried out by Gidroenergo project on selecting the best types of filters to increase the efficiency of dewatering, drainage and water supply are given.

REPORT PRESENTED AT THE Fourth Regional Technical Conference on Water Resources Development in Asia and the Far East, Colombo, Ceylon, 5-13 Dec 1960

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001964430005-9"

ZENKOV, L.F.; STARTSEV, A.V.

Idling of railroad cars unforeseen by planning at the Upper Kama potash combine. Nauch. trudy PermNIUI no.5:129-133 '63. (MIRA 18:3)

ZENKOV, Leonid Filippovich; BENUNI, A.Kh., prof., red.; TSYMBALIST, N.N., red.izd-va; MATLYUK, R.M., tekhn.red.

[Technical norms in open-pit iron mines] Tekhnicheskoe normirovanie na zhelezorudnykh kar'erakh. Pod red. A.Kh.Benuni. Sverdlovsk, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1960. 166 p. (MIRA 13:6)
(Iron mines and mining--Standards)
(Strip mining--Standards)

ZENKOV, M. F.,

"Attachment for the Rockwell Hardness Tester for Computing Errors in Hardness Measurement,"

Experience of a Plant Metallographic Laboratory, Moscow, Mashgiz, Coll. of Articles, ed. Sagaradze, V. S., 1957, 82 pp.

The author describes his invention for computing hardness measurement errors arising from the unsatisfactory character of the bearing surface of the tested part.

ZENKOV, M.V., inzh.

Draining quick grounds using underground vacuum techniques.
Shakht. stroi. 4 no. 6:25-27 Je '60. (MIRA 13:11)

1. Institut Gidroenergoproyekt.
(Vacuum pumps) (Main drainage)

RAYEVSKIY, Sergey Petrovich; ZENKOV, Mikhail Vladimirovich; SHABLINSKIY, V.V., red.; MEDVEDEV, L.Ya., tekhn.red.

[Peat bogs fed by underground water under pressure; hydrogeological studies and methods of drying] Torfianye mestorozhdeniia naporno-gruntovogo pitaniia; gidrogeologicheskie issledovaniia i sposoby osusheniia. Moskva, Gos. energet. izd-vo, 1957. 135 p. (MIRA 11:4)
(Peat bogs)

LAYEVSKIY, S.P., inzhener; ZENKOV, M.V., inzhener.

Drainage of peat deposits fed by ground water under pressure.
Torf.prom.33 no.6:32-33 '56. (MLRA 9:10)

1.Mosgidep.

(Peat bogs) (Drainage)

ZENKOV, M.V., inzh.

Horizontal drainage using porous materials. Gidr. stroi. 30 no.10: 45-46 O '60. (MIRA 13:10)

(Drainage)

ZENKOV, M.V.

RAYEVSKIY, S.P., inzhener; ZENKOV, M.V., inzhener.

Importance of hydrogeological studies in planning a drainage network for peat deposits. Torf.prom. 34 no.2:31-32 '57. (MLRA 10:3)

1. Mosgidrop.
(Peat bogs) (Drainage)

TERENT'YEV, O.V. [deceased]; ZENKOV, M.V.

Using adhesive sand and gravel well-point filters in lowering the water table in soils. Osn., fund. i mekh. grun. no.1:24-26 '59.
(MIRA 12:7)
(Water, Underground) (Filters and filtration)
(Pumping machinery)

GAVRILKO, V.M.; ZENKOV, M.V.

Drainage under complex hydrochemical conditions. Osn., fund.i mekh.grun. 3 no.2:13-15 '61. (MIRA 14:5)
(Berezniki--Drainage)

TIZDEL', R.R.; KARPYSHEV, Ye.S.; MOLOKOV, L.A.; KONYAROVA, L.P.; PESTOVSKIY, K.N.; ZENKOV, M.V.; KIRICHENKO, N.I.; NEYSHTADT, L.I.; MALYAROVA, I.Ye.; PIRTSKHALAYSHVILI, G.P.; KALMYKOVA, N.I.; BELYY, L.D., doktor geol.-miner. nauk; BOROVOY, A.A., red.; GOTMAN, T.P., red.; LARIONOV, G.Ye., tekhn. red.

[Geology and dams]Geologiia i plotiny. Pod obshchei red. A.A. Borovogo. Moskva, Gosenergoizdat,(Its Materialy po proektirovaniiu gidroenergeticheskikh uzlov. Seriia 2: Izyskaniia) Vol.2. 1962. 151 p. (MIRA 15:9)

1. Moscow. Vsesoyuznyy gosudarstvennyy proyektnyy institut "Gidroenergoproekt." 2. Vsesoyuznyy gosudarstvennyy proyektnyy institut , Moscow (for all except Borovoy, Gotman, Larionov).

(Geology) (Dams)

ZENKOV, M.V., inzh.

Filters for fine-grained and pulverized sand. Gidr.stroi. 31 no.5:42-44 My '61. (MIRA 14:6)
(Filters and filtration)

YAKOVLEV, A., kand.tekhn.nauk; ZENKOV, N., inzh.

Fire resistance of bent structures made from lightweight and porous concrete. Pozh.delo 9 no.12:10-11 D '63. (MIRA 17:1)

ZENKOV, N.; SVETASHOV, I.

Accuracy and quality. Pozh. delo 8 no.10:12 O '62.
(MIRA 15:10)

(Precast concrete construction)
(Fire testing)

YAKOVLEV, A.I., kand. tekhn. nauk; ZENKOV, N.I., inzh.

Study of fire-resistant curved structures made from light-weight concretes. Trudy NIIZHB no.32:270-277 '63.
(MIRA 17:1)

STREL'CHUK, N.A.; YAKOVLEV, A.I.; ZENKOV, N.I.

Use of A.P.Vanichev's method in determining the limits of refractoriness of structural members of lightweight concrete. Inzh.-fiz. zhur. 7 no.4:105-110 Ap '64. (MIRA 17:4)

ZVYAGINTSEVA, K.M.; ZENKOV, S.N.; KOZHEVIN, V.G.; POPOV, V.E.; SENDERZON, E.M.; Prinimali uchastiye: KOKORIN, P.I., prof.; KULIBABA, A.N., dotsent; LINDENAU, N.I.; ZHURAVLEV, A.M.; STOLBOV, M.V.; CHETYRKIN, M.I., otv.red.; KOROVENKOVA, Z.A., tekhn.red.

[Kuznetsk Coal Basin; a statistical handbook] Kuznetskii ugol'nyi bassein; statisticheskii spravochnik. Moskva, Ugletekhizdat, 1959. 390 p. (MIRA 12:8)

1. Kemerovo. Gornyy institut. 2. Sotrudniki kafedry ekonomiki Kemerovskogo gornogo instituta (for Zvyagintseva, Popov, Kokorin, Kulibaba). 3. Kombinat Kuzbassugol' (for Zenkov, Lindenau, Zhuravlev, Stolbov). 4. Kemerovskiy sovnarkhoz (for Kozhevin). 5. Sibirskoye otdeleniye AN SSSR (for Senderzon).
(Kuznetsk Basin--Coal mines and mining--Statistics)

BELYAKOV, I.A., inzhener; ZENKOV, M.V., inzhener.

Light borehole filter pump (LIU-5). Torf.prom.33 no.4:35-36 '56.
(MLRA 9:9)

1.Giprotorf (for Belyakov).2.Mosgidep (for Zenkov)
(Pumping machinery)

ROYTMAN, M., kand.tekhn.nauk; ZENKOV, N., inzh.

Testing of silica bricks. Pozh.delo 5 no.12:14-15 D '59.
(MIRA 13:4)
(Bricks--Testing)

BELYY, L.D., doktor geologo-mineral.nauk; LYKOSHIN, A.G., inzh.-geolog; MOLOKOV, L.A., inzh.-geolog; KONYAROVA, L.P., inzh.-geolog; NEYSHTADT, L.I., kand.geologo-mineral.nauk; VASIL'YEVA, L.R., inzh.-geolog; ZENKOV, N.A., inzh.-geolog; VOZNESENSKIY, A.N., prof., obshchiy red.; ASANOV, A.M., tekhn.red.

[Geology and dams] Geologiia i plotiny. Pod obshchei red. A.N.Voznesenskogo. Moskva, Gos.energ.izd-vo. (Materialy po proektirovaniiu gidroenergeticheskikh uzlov. Ser.2. Izyskaniia). Vol.1. 1959. 182 p. (MIRA 13:2)

1. Moscow. Vsesoyuznyy gosudarstvennyy proyektnyy institut "Gidroenergoproyekt." 2. Glavnyy inzhener otdela izyskaniy instituta "Gidroenergoproyekt" (for Belyy).
(Dams) (Engineering geology)

ZENKOV, N.I., inzh.

Strength of structural steels at high temperatures. Prom. stroi. 36 no.11:26-28 N '58. (MIRA 12:1)
(Steel, Structural)

ZENKOV, R. L.

"Conveyers of Continuous Dragging." Sub 5 Nov 47, Moscow Order of the Labor Red Banner Electromechanical Inst of Railroad Engineers imeni F. E. Dzerzhinskiy

Dissertations presented for degrees in science and engineering in Moscow in 1947.

SO: Sum.No. 457, 18 Apr 55

ZENKOV, R. L.

Konveiery so stal'noi lentoi. Montazh i eksploatatsiia. Moskva, Mashgiz, 1950. 48 p.

(Steel belt conveyers. Installation and operation.)

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

ZENKOV, R. L.

Konveiery so stal'noi lentoi. (Novye mashiny). (Vestn. Mash., 1950, no. 9,p. 26-28).

(Steel belt conveyers. (New machines.))

DLC: TN4,V4

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

Zenkov, R.L.

D'YACHKOV, V.K., kandidat tekhnicheskiy nauk; ZENKOV, R.L., kandidat tekhnicheskikh nauk; ALFEROV, K.V., professor, retsenzent; PRONIN, B.A., kandidat tekhnicheskikh nauk, redaktor; SOKOLOVA, T.F., tekhnicheskiy redaktor

[Steel belt conveyers; principles of planning, calculation and operation] Konveiery so stal'noi lentoi; osnovy proektirovaniia, rascheta i ekspluatatsii. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1952. 161 p. [Microfilm] (MLRA 7:10)
(Conveying machinery)

ZENKOV, R. L.

ZENKOV, R.L., kandidat tekhnicheskikh nauk; OSTOL'SKIY, Vs.O., kandidat tekhnicheskikh nauk, retsenzent; DANILOV, I.Ya., inzhener, redaktor.

[Conveyers with submerged scrapers] Konveiery s pogrushennymi skrebkami. Moskva, Gos. nauchno-tekhn. izd-vo mashino-stroit. i sudostroit. lit-ry, 1953, 57 p. (MLRA 7:7)
(Conveying machinery)

ZENKOV, R.L.

ALFEROV, K.V., doktor tekhnicheskikh nauk; ZENKOV, R.L., kandidat tekhnicheskikh nauk; KHYLOV, V.I., inzhener, redaktor; GOLOVIN, S.Ya., inzhener, redaktor; POPOVA, S.M., tekhnicheskiy redaktor.

[Bunker installations: design, calculations and operation] Bunkernye ustanovki; proektirovanie, raschetti ekspluatatsiia. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1955. 307 p. (MLRA 8:10)

(Conveying machinery) (Loading and unloading)

SOV/118-58-12-4/17

AUTHOR: Zenkov, R.L., Candidate of Technical Sciences

TITLE: Powerful Belt Conveyers for the Transportation of Bulk Materials Over Medium and Long Distances (Moshchnyye lentochnyye konveyyery dlya transportirovaniya massovykh gruzov na sredniye i dal'niye rasstoyaniya)

PERIODICAL: Mekhanizatsiya trudoyëmkikh i tyazhëlykh rabot, 1958, Nr 12, pp 15 - 18 (USSR)

ABSTRACT: One of the most pressing problems in ferrous metallurgy is the creation of powerful conveyers for the transportation of bulk materials (coal, ore, agglomerates, etc.) not only over medium, but also over long distances. The author advocates the use of belt conveyers for the transportation of bulk cargo, and describes various conveyer types and conveyer belt materials (referring to tests carried out by the British firm ICI). The Gosudarstvennyy Komitet po khimii pri Sovete Ministrov SSSR (State Committee on Chemistry attached to the USSR Council of Ministers) will start preparatory work for the production of polyethylene fiber, the most suitable material for conveyer belts. The VNIIPTMASh has worked out various types of medium and long distance belt

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Powerful Belt Conveyers for the Transportation of Bulk Materials Over Medium and Long Distances

SOV/118-58-12-4/17

conveyers. The author says that preference should be given to conveyer transport even when the exploitation expenses exceed those of other means of transport. There are 3 diagrams, 1 drawing, and 2 tables.

Card 2/2

ZENKOV, R.L., doktor tekhn. nauk; PANKRATOV, S.A., doktor tekhn. nauk, prof., retsenzent

[Mechanics of bulk freight; bases for designing loading and unloading and transporting equipment] Mekhanika nasypnykh gruzov; osnovaniia rascheta pogruzochno-razgruzochnykh i transportnykh ustroistv. Izd.2., ispr. i dop. Moskva, Mashinostroenie, 1964. 250 p.
(MIRA 17:9)

ZENKOV, R.L.; PETROV, M.M.; KRUTIKOV, I.P., doktor tekhn. nauk, prof., retsenzent;

[High power conveyors] Konveiery bol'shoi moshchnosti. Moskva, Izd-vo "Mashinostroenie," 1964. 426 p. (MIRA 17:7)

GURF'INKEL', M.A.; SOROKIN, S.F.; ULIKOVSKIY, L.G. Prinimal uchastiye KUZNETSOV, S.V. D'YACHKOV, V.K., kand.tekhn.nauk, retsenzent; NIKOLAYEVSKIY, G.M., kand.tekhn.nauk, retsenzent; ZENKOV, R.L., doktor tekhn.nauk, red.; SAVEL'YEV, Ye.Ya., red.izd-va; SOKOLOVA, G.F., tekhn.red.; UVAROVA, A.F., tekhn.red.

[Conveying and loading and unloading machinery used in the chemical industries] Transportnye i pogruzochno-razgruzochnye mashiny v khimicheskoi promyshlennosti. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 495 p. (MIRA 13:12)
(Conveying machinery) (Loading and unloading)
(Chemical industries--Equipment and supplies)

ZENKOV, R. L. Doc Tech Sci -- (diss) "Bases of the calculation of transport-loading and unloading installations for bulk cargoes." Mos, 1959. 30 pp including cover (Min of Higher and Secondary Specialized Education RSFSR. Mos Order of Labor Red Banner Construction Engineering Inst im V. V. Kuybyshev), 150 copies (KL, 46-59, 136)

ZENKOV, R.L., kand.tekhn.nauk

High-power belt conveyors for medium and long-distance transportation of bulk materials. Mekh.trud.rab. 12 no.12:15-18 '58. (MIRA 11:12)

(Conveying machinery)

ZENKOV, Yu.I.; DEMCHUK, G.M., elektromekhanik

Unit for connecting ATS-10-40 exchanges to station communication circuits. Avtom., telem. i sviaz' 8 no.11:39-40 N '64.
(MIRA 17:12)

1. Starshiy inzh. Nizhne-Tagil'skoy distantsii Sverdlovskoy dorogi (for Zenkov).

ZENKOVICH, Vsevolod Pavlovich; AKSENOV, A.A., red. izd-va; GUS'KOVA, O.M., tekhn. red.

[Fundamentals of the theory of the formation of seashores] Osnovy ucheniia o razvitii morskikh beregov. Moskva, Izd-vo Akad. nauk SSSR, 1962. 710 p. (MIRA 15:5)
(Seashore)

ZENKOVA, A.I.

Lengthening the life of fixed reeds in warping. Obm.tekh.opyt. [MLP] no.15:32-33 '56. (MIRA 11:11)
(Looms)

ZENKOVA, A.V.

Changing the drive design for ChM-305 carding machine flats.
Obm.tekh.opyt. [MLP] no.16:24-25 '56. (MIRA 11:11)
(Carding machines)

PANIN, V.Ye.; ZENKOVA, E.K.

Superstructure in aluminum bronze. Izv.vys.ucheb.zav.;fiz. no.2: 201-205 '60. (MIRA 13:8)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete im. V.V. Kuybysheva.

(Aluminum bronze)

PANIN, V.Ye.; ZENKOVA, E.K.; FEDIN, V.P.; KUDRYAVTSEVA, L.A.

Diffusion transformations in solid solutions at high temperatures. Issl.po zharopr.splav. 8:161-168 '62. (MIRA 16:6)
(Copper-aluminum alloys--Metallography)
(Metals at high temperatures)

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SOV/20-129-5-17/64

AUTHORS: Panin, V. Ye., Zenkova, E. K.

TITLE: The Problem of Superstructure in Aluminum Bronze

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 5, pp 1024-1027 (USSR)

ABSTRACT: The present paper deals with a more detailed investigation of the ordering-phenomena in aluminum bronze and of the influence exerted by superstructure upon the course of the plastic deformation of the alloy at various temperatures and velocities. The investigations were carried out with an alloy, viz. a solid solution of Cu + 15.9 at% Al. The authors repeated earlier experiments concerning ascending diffusion and obtained the same results. In the case of the alloys under investigation, usual aluminum bronze thus appears to be concerned. In order to be able to investigate the state of the alloy, the specific heat $C_p$, the electric resistivity $\rho$, and the Vickers hardness $H_V$ were measured at a load of 5 kg. Hardening temperature exerts considerable influence upon the state of the alloy. Alloy hardness increases with rising temperature within the interval of 4

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The Problem of Superstructure in Aluminum Bronze

400-600°, after which it decreases sharply until 900°. The electric resistivity here increases until 500°, decreases slightly at 600°, after which it rises again. This is apparently due to the decrease in the degree of the short-range order. In the case of a hardening temperature of more than 535°, the alloy approaches the solubility limit. With an increase in hardening temperature, especially to more than 535°, the alloy deviated more and more from equilibrium. Hereby the ordering process in the alloy is facilitated and the temperature of the specific heat minimum decreases. Especially, the state of the alloy quenched at 500° was thoroughly investigated by determining the kinetic tempering curves of the Vickers hardness $H_V$ and the electric resistivity at various temperatures. The tempering isothermal lines of electric resistivity have the usual shape. Among the tempering isothermal lines for hardness the curve for 280° is, above all, conspicuous. It first has a sharp maximum, but later hardness decreases considerably and the curve takes a lower course than all other isothermal lines. Already a slight deviation of the tempering temperature from

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The Problem of Superstructure in Aluminum Bronze

280° changes the shape of the isothermal lines considerably. The hitherto discussed results clearly indicate the existence of a superstructure in aluminum bronze. An alloy quenched at 500° is ordered at 280°. Naturally, the superstructure of aluminum bronze must become noticeable in its plastic deformation. This influence naturally depends on temperature and on the deformation rate. The authors investigated this during the compression of the alloy Cu + 15.9 at% Al at the velocities $v_3$ = 6 mm/min, $v_2$ = 0.05 mm/min, and $v_1$ = 0.005 mm/min within the temperature interval 20-600°. At from 20 to 200° the velocity exerted practically no influence on the resistivity to deformation. Also the deformation temperature influences the position of the flow curve only little. At 300° the velocity exerts an inverse influence upon resistivity to deformation, and the wave-like course of the flow-curves is distinctly marked. Within the entire temperature interval 20-300° deformation is jump-like. Above 300° temperature and velocity exert a normal influence upon resistivity to deformation. The results thus found agree well with the concepts on the super-

The Problem of Superstructure in Aluminum Bronze

structure in the alloy. The results obtained by the present paper apply to a less extent also to the alloy Cu + 10 at% Al. There are 4 figures and 11 references, 7 of which are Soviet.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy nauchno-issledovatel'skiy institut pri Tomskom gosudarstvennom universitete im. V. V. Kuybysheva (Siberian Scientific Research Institute of Physics and Technology of Tomsk State University imeni V. V. Kuybyshev)

PRESENTED: August 6, 1959, by G. V. Kurdyumov, Academician

SUBMITTED: July 30, 1959

S/659/62/008/000/021/028
I048/I248

AUTHORS: Panin, V.Ye., Zenkova, E.K., Fedin, V.P., and Kudryavtseva, L.A.

TITLE: The problem of high-temperature diffusion transformations in solid solutions

SOURCE: Akademiya nauk SSSR. Institut metallurgii, Issledovaniya po zharoprochnym splavam. v.8. 1962. 161-168

TEXT: The alloys (Cu + 14.9% Al, Cu + 14.9% Al + 0.025% P, Cu + 14.9% Al, + 0.06% P, all percentages atomic) were homogenous solid solutions up to 1030°C. The electric resistivity of the alloys ($\rho$), measured at room temperature, was a function of the quenchin temperature ($T_q$), reaching a maximum value of 10.48 and 11.02 microohm. cm. for pure and P-containing alloys respectively at $T_q$=400-500°C. The $\rho$ of the alloys quenched in water was higher than that of the alloys cooled in air. The hardness ($H_v$) - $T_q$ relationship was similar to the $\rho$ - $T_q$ one, with $H_{v(max)}$= 55 kg./sq.mm. for the pure

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The problem of high-temperature diffusion...

alloy quenched from 450° in water. This indicates that the increase in $\rho$ is not caused by excessiv vacancies in the alloy, and that the P from the P-containing alloys combines with the vacancies reducing their mobility. Both $\rho$ and $H_v$ in the alloys quenched from 700°C are lower than in non-quenched specimens, indicating the existence of a highly ordered structure in the alloys quenched from high-temperatures. During annealing, $\rho$ decreases with time at the annealing temperature, the decrease in the pure alloys being much larger than in the P-containing ones, i.e., the stability of the quenched state is much higher in P-containing alloys. The energy of activation of the diffusion processes increases with the P content of the alloy and reaches 35±3.7 kcal./mole in an alloy containing 0.06% P, which is almost twice the value for the pure Cu-Al alloy; due to the decreased mobility of vacancies in the P-containing alloys. Diagrams show the effect of temperature on the electric resistivity and internal friction in the alloys. In the friction

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S/659/62/008/000/021/028
I048/I248

The problem of high-temperature diffusion...

diagram for pure alloy maxima at 260°C and 520°C are associated with the motion of the constituent atoms, and with stress relaxation on the grain boundaries respectively. The internal friction in pure alloy specimens quenched from 700-900°C and in the alloys containing P is much lower than in the annealed pure alloy; this proves that the specimens quenched from high temperatures possess an ordered structure, and that the P from the P-containing alloys reduces the mobility of defects within the alloy. There are 3 figures.

Card 3/3

PANIN, V.Ye.; ZENKOVA, E.K.; FADIN, V.P.

Investigating the phenomena of ordering in Cu-Al alloys. Fiz.met.i metalloved. 13 no.1:86-92 Ja '62. (MIRA 15:3)

1. Sibirskiy fiziko-tekhnicheskiy nauchno-issledovatel'skiy institut.
(Copper-aluminum alloys—Metallography)

✓ **Synthesis of p-aminobenzoic acid, and the preparation of anæsthesin, novocaine and cocaine, "labelled" with carbon-14.** Y. V. Markova, L. N. Zenkova and M. N. Shchukina (*Zh. obshch. Khim. SSSR*, 1955, 25, 1383—1387).—A modified method of prep. of *p*-aminobenzoic acid "labelled" with $^{14}C$ is described. From this, anæsthesin "labelled" with $^{14}C$ in the carboxyl-group was obtained, and from this novocaine similarly "labelled". Cocaine hydrochloride "labelled" with $^{14}C$ in the carboxyl-group of the benzoyl residue was also obtained. K. F. A. LINTON.

MD

MARKOVA,Yu.V.; ZENKOVA,L.N.; SHCHUKINA,M.N.

New method for the synthesis of $C^{14}$ labeled p-aminobenzoic acid and the preparation of $C^{14}$ labeled anesthetics anesthesine, novocaine. Zhur.ob.khim.25 no.7:1383-1387 Jl'55. (MLRA 8:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut imeni S.Ordzhonikidze.
(Carbon--Isotopes) (Benzoic acid) (Anesthetics)

MARKOVA, Yu.V.; ZHMKOVA, L.N.; SHCHUKINA, M.N.

Synthesis of $S^{35}$-thiamine. Khim.i med. no.11:29-34 '59.
(MIRA 13:6)

(THIAMINE)

MARKOVA, Yu.V.; ZENKOVA, L.N.; SHCHUKINA, M.N.

New method for the synthesis of $C^{14}$-paraaminobenzoic acid and obtaining $C^{14}$-anesthesin, novocaine, and cocaine. Khim.i med. no.11:53-59 '59. (MIRA 13:6)
(BENZOIC ACID) (ANESTHETICS)

MARKOVA, Yu.V.; ZENKOVA, L.N.; SHCHUKINA, M.N.

Synthesis of barbiturates labeled with $C^{14}$ and $S^{35}$. Khim.i med. no.11:60-68 '59. (MIRA 13:6)

(BARBITURATES)

AUTHORS: Markova, Yu. V., Zenkova, L. N., Shchukina, M. N. SOV/79-28-7-18/64

TITLE: The Synthesis of Mercapto Amino Compounds(Sintez merkaptoamino-soyedineniy) III. The Synthesis of 3-Mercapto-4-Amino-2-Methyl-butane and of 5-Amino-1-Mercapto Pentane (III. Sintez 3-merkapto-4-amino-2-metilbutana i 5-amino-1-merkaptopentana)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 7, pp. 1811 - 1815 (USSR)

ABSTRACT: The homologs of β-mercapto ethylamine of the type R-CH(SH)-$CH_2$ have hitherto been little described. For this reason it was of interest to the authors to investigate the influence exerted by the length and the character of the alkyl chain as well as the positions of the functional groups, and to synthetize a number of these compounds. They synthetized for the first time the chlorine hydrate of 3-mercapto-4-amino-2-methylbutane, the chlorine hydrate of 5-amino-1-mercapto pentane and its acetyl derivative (see schemes 1 and 2). Already after this work had been completed a paper was published (Ref 3) by Langendorf in which the problems of interest to the authors of the present

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paper were explained to some extent. In the present paper it was shown that in the hydrolysis of N-benzoyl-5-amino-1-mercapto pentane with hydrochloric acid a partial oxidation of this compound into the corresponding disulfide takes place beside the formation of the chlorine hydrate of 5-amino-1-mercapto pentane. As final product of the oxidation hydrolysis of the chlorine hydrate of N-benzoyl-5-amino-1-isothiuronium pentane the dichlorine hydrate of 5-amino-1-isothiuronium pentane was obtained which did not further hydrolize when heated with alkali liquor. In the oxidation of N-benzoyl-5-amino-1-mercapto pentane with an iodine alcohol solution a bis(N-benzoyl-5-aminopentyl)-disulfide was obtained. A convenient synthesis of N-benzoyl-5-amino-1-chloro pentane (in a yield of 63%) was elaborated. There are 10 references, 1 of which is Soviet.

The Synthesis of Mercapto Amino Compounds. III. The Synthesis of 3-Mercapto-4-Amino-2-Methylbutane and of 5-Amino-1-Mercapto Pentane SOV/79-28-7-18/64

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut imeni S.Ordzhonikidze (All-Union Institute of Scientific Chemical and Pharmaceutical Research imeni S. Ordzhonikidze)

SUBMITTED: June 27, 1957

1. Butanethiols--Synthesis 2. Pentanethiols--Synthesis

Card 3/3

ZENKOVA, N.F.; KARAKULOV, I.K.

Some facts on preventive inoculation of man with living brucellosis vaccine. Izv.AN Kazakh.SSSR Ser.kraev.pat. no.7:51-58 '51. (MLRA 9:8)
(BRUCELLOSIS--PREVENTIVE INOCULATION)

BEKLEMISHEV, N.D.; OSIPOVA, G.P.; ZENKOVA, N.F.; BUKEYKHANOVA, Sh.Kh.

Biomycin treatment for brucellosis. Vest.AN Kazakh.SSR 11 no.4:65-70 Ap '54. (MLRA 7:5)

Predstavlenc chlenom-korrespondentom Akademii nauk KazSSR I.K.Karakulcvym.
(Brucellosis) (Antibiotics)

ZENKOVA, N.F.

USSR/ Medicine - Antibiotic

Card 1/1 Pub. 123 - 12/16

Authors : Shnyreva, E. A.; Beklemyshev, N. D.; and Zenkova, N. F.

Title : Treatment of brucellosis with streptomycin

Periodical : Vest. AN Kaz. SSR 12, 82-86, Dec 1954

Abstract : The effectiveness of streptomycin in the treatment of patients suffering from brucellosis was investigated. Diurnal streptomycin dosages of 1.0 produced an evident and stable medicinal effect in about 2/3 of the patients treated. It was established that streptomycin is much slower and less reliable than biomycin and levomycetin. Some individual brucellosis cases were seen to respond much better to streptomycin than to the other two antibiotics. Streptomycin is not recommended as an independent drug for the treatment of brucellosis. A combination of any of the two antibiotics is considered more effective.

Institution : .....

Submitted : .....

BEKLEMISHEV, N.D.; SHNUREVA, Ye.A.; OSIPOVA, G.P.; ZENKOVA, N.F. (Alma-Ata)

Comparative rating of the effectiveness of several antibiotics in the treatment of brucellosis. Klin.med.33 no.5:45-51 My '55.

1. Iz Instituta krayevoy patologii Akademii nauk Kazakhskoy SSSR (dir-kandidat meditsinskikh nauk B.A. Atchabarov)

(BRUCELLOSIS, ther,
antibiotics, comparison of eff.)
(ANTIBIOTICS, ther. use
brucellosis, comparison of eff.)

ZENKOVA, N. F.

REMENTSOVA, M.M.; ZENKOVA, N.F.; KHRUSHCHEVA, N.F.

Brucellosis infection transmitted by the tick ornithodoros lahorensis. Trudy Inst.kraev.pat. AN Kazakh.SSR 3:37-39 '56. (MLRA 10:2)
(BRUCELLOSIS) (TICKS AS CARRIERS OF DISEASE)

ZENKOVA, N.F.

Comparative rating of the cutaneous and subcutaneous methods for immunizing guinea pigs with a living brucellosis vaccine. Trudy Inst.kraev.pat. AN Kazakh.SSR 3:53-64 '56. (MLRA 10:2)
(BRUCELLOSIS--PREVENTIVE INOCULATION)

ZENKOVA, N.F.

Preventive inoculation of people with a living brucellosis vaccine by scarification. Trudy Inst.kraev.pat. AN Kazakh.SSR 3:77-86 '56.
(BRUCELLOSIS—PREVENTIVE INOCULATION) (MLRA 10:2)

KARAKULOV, I.K.; ZENKOVA, N.F.

Diagnostic value of some brucellins. Zhur.mikrobiol.epid. i immun. 27 no.6:57-58 Je '56. (MLRA 9:8)

1. Iz Instituta krayevoy patologii AN Kazakhskoy SSR.
(BRUCELLOSIS--DIAGNOSIS)

BEKLEMISHEV, N.D.; KASYMOVA, Kh.A.; SHNYREVA, Ye.A.; KLYUCHNIKOVA, Ye.A.; MOSHKEVICH, V.S.; TLEULIN, S.Zh.; YAKOVLEVA, N.A.; ZENKOVA, N.F.

State of health in persons vaccinated with live antibrucellosis vaccines. Zhur. mikrobiol., epid. i imm. 41 no. 2:139-140 F '64. (MIRA 17:9)

1. Kazakhskiy institut krayevoy patologii AMN SSSR, Alma-Ata.

SHNYREVA, Ye.A.; ZENKOVA, N.F.; ISHCHANOVA, R.Zh.

Properties of Brucella isolated from guinea pigs treated with antibiotics. Izv. AN Kazakh. SSR. Ser. med. nauk no.3: 63-70 '63. (MIRA 17:1)

ZENKOVA, N.F.; SHNYREVA, Ye.A.

Characteristics of strains of Brucella obtained from patients treated with antibiotics. Trudy Inst.kraev.pat.AN Kazakh SSR 12:194-204 '62. (MIRA 15:11)

(BRUCELLA) (ANTIBIOTICS)

ZENKOVA, N.F.

Superinfection and reinfection in brucellosis under experimental conditions. Trudy Inst.kraev.pat.AN Kazakh.SSR 12:75-80 '62.
(MIRA 15:11)

(BRUCELLOSIS)

ZENKOVA, N.F.

Bacteriological examination of brucellosis patients at different periods of infection. Trudy Inst.kraev.pat.AN Kazakh.SSR 6:20-27 '58. (MIRA 12:6)

(BRUCELLOSIS)

ZENKOVA, N.F.

Effect of live brucellosis vaccine on infected guinea pigs.
Trudy Inst.kraev.pat.AN Kazakh.SSR 6:28-36 '58. (MIRA 12:6)
(BRUCELLOSIS)

KHRUSHCHEVA, N.F.; REMENTSOVA, M.M.; ZENKOVA, N.F.; KASYMOVA, Kh.A.; BOGDANOVSKAYA, G.K.; BUKEYKHANOVA, Sh.Kh.; SHNYREVA, Ye.A.

Index of literature on brucellosis from 1952 through 1956. Trudy Inst.kraev.pat.AN Kazakh.SSR 6:146-223 '58. (MIRA 12:6)

(BIBLIOGRAPHY--BRUCELLOSIS)

KARAKULOV, I.K., prof.; ZENKOVA, N.F., kand. med. nauk: BEKETAYEVA, A.M. (Alma-Ata)

Prevention of brucellosis. Klin. med. 37 no.3:40-44 Mr '59. (MIRA 12:7)

1. Chlen-korrespondent Akademii nauk Kazakhskoy SSR (for Karakulov)
(BRUCELLOSIS, prev. & control in Russia (Rus))

S/081/61/000/021/028/094
B101/B147

AUTHORS: Zhivopistsev, V. P., Zenkova, N. I.

TITLE: Colorimetric determination of bismuth by diantipyryl methane

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 21, 1961, 108 - 109, abstract 21D89 (Izv. Yestestvennonauchn. in-ta pri Permsk. un-te, v. 14, no. 4, 1960, 77 - 81)

TEXT: The authors suggest a method of determining small amounts of Bi based on the photocolorimetric determination of chloroform extracts of the compound formed during reaction of tetraiodo bismuthate with diantipyryl methane (I). The solution containing 0.02 - 0.3 mg Bi is mixed with 25 milliliters (ml) of $CHCl_3$, 2 - 3 ml of a 10% solution of ascorbic acid (II), 5 - 6 ml of a 10% KI solution, and 10 ml of a 5% solution of I in 0.5 N HCl. After 3 - 5 min shaking, the organic layer is photometrically referred to chloroform by a photoelectric colorimeter and blue light filter in a 2-cm cuvette. In the presence of >1 - 2% Cu, the solution is mixed with 3 - 4 ml of a 10% solution of II, 5 - 6 ml of a 10% solution of KI, and the resulting $Cu_2I_2$ precipitate is filtered off

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after a few minutes. It is washed with a small amount of water. The filtrate is mixed with 25 ml of $CHCl_3$, 10 ml of a 5% solution of thiourea, 10 ml of a 5% solution of I, and shaken for 3 - 5 min. In the presence of large amounts of $Cu^{2+}$ and $Fe^{3+}$, the filtrate is mixed with a 5% $NH_3$ solution (in portions of 2 - 3 ml) until the organic layer assumes a pure, red-orange color. A smaller amount of $CHCl_3$ is used when determining small Bi quantities. Bi determination is not disturbed by $<$10,000-fold excess of alkali and earth-alkali elements, $Mg^{2+}$, $Al^{3+}$, $Cr^{3+}$, $Ni^{2+}$, $Co^{2+}$, $Zn^{2+}$, and $Mn^{2+}$, a $<$1000-fold excess of $Cd^{2+}$, a $<$500-fold excess of $Fe^{3+}$, and a $<$300-fold excess of $Cu^{2+}$. Analytical error $<$4%. [Abstracter's note: Complete translation.]

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ZENKOVA, R.A.

PRIKHOT'KO, A.F.

24(7) P-3 PHASE I BOOK EXPLOITATION SOV/1365

L'vov. Universytet

Materialy X Vsesoyuznogo soveshchaniya po spektroskopii. T. 1: Molekulyarnaya spektroskopiya (Papers of the 10th All-Union Conference on Spectroscopy. Vol. 1: Molecular Spectroscopy) [L'vov] Izd-vo L'vovskogo univ-ta, 1957. 499 p. 4,000 copies printed. (Series: Its: Fizychnyy zbirnyk, vyp. 3/8/)

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po spektroskopii. Ed.: Jazer, S.L.; Tech. Ed.: Saranyuk, T.V.; Editorial Board: Landsberg, G.S., Academician (Resp. Ed., Deceased), Neporent, B.S., Doctor of Physical and Mathematical Sciences, Fabelinskiy, I.L., Doctor of Physical and Mathematical Sciences, Fabrikant, V.A., Doctor of Physical and Mathematical Sciences, Kornitskiy, V.G., Candidate of Technical Sciences, Candidate of Physical and Mathematical Sciences, Rayskiy, S.M., Candidate of Physical and Mathematical Sciences, Klimovskiy, L.K., Candidate of Physical and Mathematical Sciences, Milyanchuk, V.S., A. Ye., Candidate of Physical and Mathematical Sciences, and Glauberman,

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GORBENKO-GERMANOV, D.S.; ZENKOVA, R.A.

Microdetermination of $CO_3^{2-}$ by the volume of $CO_2$. Zhur. anal. khim. 20 no.6:749-750 '65. (MIRA 18:7)

1. Institut atomnoy energii imeni Kurchatova, Moskva.

L 36429-66 EWP(j)/EWT(m)/EWP(t)/ETI IJP(c) RM/WW/JD/JG

ACC NR: AP6015427 SOURCE CODE: UR/0051/66/020/005/0842/0847

AUTHOR: Gorbenko-Germanov, D. S.; Zenkova, R. A.

53
B

ORG: none

TITLE: Vibrational structure of the ground and excited levels of $UO_2^{++}$ in $K_4[UO_2(CO_3)_3]$

SOURCE: Optika i spektroskopiya, v. 20, no. 5, 1966, 842-847

TOPIC TAGS: luminescence spectrum, absorption spectrum, uranyl ion, vibration spectrum, electron energy level, uranium compound

ABSTRACT: In order to obtain information on the vibrational states of the uranyl ion $UO_2^{++}$, the absorption spectra (4600-4000 Å) and luminescence spectra (4700-5700 Å) of $K_4[UO_2(CO_3)_3]$ crystals were recorded at 77°K. The absorption spectra were obtained with an ISP-51 spectrograph with an FEU-29 photomultiplier. Both spectra have a pronounced electronic-vibrational character due to the specific doubly oxygenated structure of $UO_2^{++}$. An interpretation of constant differences in the luminescence spectrum is given and compared with data on IR spectra. A preliminary interpretation of constant differences in the absorption spectrum is also given. A regular decrease in the frequencies of the symmetric and antisymmetric vibrations ($\nu_1$ and $\nu_3$) of uranyl during the transition from the ground state to an excited state indicates a contrac-

Card 1/2 UDC: 535.338.42

L 36429-66

ACC NR: AP6015427

tion of the vibrational sublevels of the excited level of $UO_2^{++}$. It is shown that the ratio $\frac{\nu_3}{\nu_1}$ $UO_2^{++}$ (ground level) remains constant (1.09) in a series of different compounds. The ratio $\frac{\nu_3'}{\nu_1'}$ (excited level) in $K_4[UO_2(CO_3)_3]$ has a value close to $\frac{\nu_3}{\nu_1}$ (1.13). The ratio $\frac{\nu_1}{\nu_1'}$ also remains constant (1.20) in the series of uranyl compounds studied. Orig. art. has: 2 figures and 4 tables.

SUB CODE: 20/ SUBM DATE: 06Jul64/ ORIG REF: 001/ OTH REF: 003

Card 2/2

AUTHORS: Yakovlev, G. N., Gorbenko-Germanov, D. S., SOV/79-28-10-2/60
Razbitnoy, V. M., Kazanskiy, K. S., Zenkova, R. A.

TITLE: Investigation of the Double Sulfates of Americium According to the Absorption Spectra in the Crystals (Izucheniye dvoynykh sul'fatov ameritsiya po spektram pogloshcheniya v kristallakh)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 10, pp 2624 - 2637 (USSR)

ABSTRACT: In the present paper the normal sulfate and the double sulfate of americium with potassium, thallium, rubidium and cesium were investigated. The normal sulfate as well as the following double sulfates of americium were identified:

$Am_2(SO_4)_3 \cdot 5H_2O$ $KAm(SO_4)_2 \cdot 2H_2O$ $K_3Am(SO_4)_3 \cdot H_2O$
$TlAm(SO_4)_2 \cdot 4H_2O$ $K_8Am_2(SO_4)_7$
$RbAm(SO_4)_2 \cdot 4H_2O$ $Tl_8Am_2(SO_4)_7$
$CsAm(SO_4)_2 \cdot 4H_2O$ $Cs_8Am_2(SO_4)_7$

As it is known, the double sulfates of the rare earths

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and of the alkali metals are difficult to solve and, therefore, are of importance for the analytical chemistry of these elements.(According to the actinide theory, the transuranic elements are analogs of the rare earths, and in their case the analogy of the chemical properties of many compounds also plays a role, especially the similarity of the double sulfates with the alkali metals). The absorption spectra of the polycrystalline samples of these compounds were taken within the range of 4000-8500 Å at 300, 200 and 80° K(Figs 3-11). Phase diagrams were taken for the synthesis $R_2SO_4$-$Am_2(SO_4)_3$-$H_2O$ (R=K,Tl and Rb)(Figs 1,2). The split of the electron band $Am^{+++}$5030 Å in the crystals of the compounds to be investigated was studied. The group of electronically oscillating "bands" within the range of 4500 Å were identified which are not observed in solutions and which are in a high degree sensitive to a change of the composition of the compound. The influence of the temperature and the amount of crystal water on the character of the split of the electron band $Am^{+++}$5030 Å and the combination

of the above mentioned "bands" within the range of 4500 Å were investigated. There are 11 figures, 6 tables, and 13 references, 3 of which are Soviet.

SUBMITTED: August 16, 1957

SOV/75-13-5-16/24

AUTHORS: Gorbenko-Germanov, D. S., Zenkova, R. A., Bolotina, T. L.

TITLE: Method for the Quantitative Determination of Crystal Water in Some Crystal Hydrates by Their Absorption Spectra in the Near Infra-Red Region (0,8-2,5$\mu$) (Metod kolichestvennogo opredeleniya kristallizatsionnoy vody v nekotorykh kristallogidratakh po ikh spektram pogloshcheniya v blizhney infrakrasnoy oblasti (0,8-2,5$\mu$))

PERIODICAL: Zhurnal analiticheskoy khimii, 1958, Vol 13, Nr 5, pp 590-594 (USSR)

ABSTRACT: For the precise determination of the crystal water according to the method described in the present paper only milligram quantities of substance are needed. In order to be able to select an analytical band of the spectrum of liquid water for the subsequent investigation of crystal hydrates the authors recorded the spectrum of the liquid water in the range 0,8$\mu$ and 2,5$\mu$ (Refs 1, 2) with layer thickness of 0,046 - 100 mm. All measurements were performed in an infra-red spectrometer IKS -11. As analytical band the band at 5130 $cm^{-1}$ was chosen which exhibits the greatest intensity. Besides, in wave lengths

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Method for the Quantitative Determination of Crystal Water in Some Crystal Hydrates by Their Absorption Spectra in the Near Infra-Red Region (0,8-2,5$\mu$)

$<$1,9$\mu$ a very dense absorption occurs owing to the low transparency of solid preparations in this range of wave length. For the recording of spectra of preparations in the solid phase the equipment [illegible]-1, produced in series, was somewhat completed, since it did not guarantee the required precision. These modifications are detailed in the paper. For the recording of the absorption spectra of the solid crystal hydrates they were pressed in an optically inactive medium (dried, finely pulverized KCl, permeable up to 20$\mu$). The data of the hydraulic press used for this purpose are given. The thickness of the resulting tablets was measured by micrometer. The recording of the spectra showed that the band of the liquid water at 5130 $cm^{-1}$ in crystal hydrates is in several cases split up, the parts being divided by 100-200 $cm^{-1}$. This division and splitting of the band of liquid water proves the deep penetration of the water molecule into the molecule of the crystal hydrates. The authors also established a calibration curve. As standard the octahydrate of europium-sulfate $Eu_2(SO_4)_3 \cdot 8H_2O$ was used, this compound being

Method for the Quantitative Determination of Crystal Water in Some Crystal Hydrates by Their Absorption Spectra in the Near Infra-Red Region (0,8-2,5 $\mu$)

very stable. Besides it is possible to check the stability of this compound during the recording of the spectra by means of the character of the dissociation of the electron bands of $Eu^{3+}$ which lie in the range between 4000 and 5500 Å (Ref 3). This control was performed on a spectrograph ИСП-51. For the determination of the position of the 3 extreme points, which correspond with the absorption maximum as well as with the points of maximal transparency on both sides of the absorption maximum, the spectrum was recorded qualitatively. The precise measurement was then carried out on these 3 qualitatively determined extreme points only. In the same points also the absorption of a tablet of pure KCl was measured (blank test). The calculation of the optical density from the absorption values of these 3 special points is precisely described in the paper. This method was used for the analysis of various crystal hydrates; the results are satisfactory. The method renders possible the micro-determination of water in crystal hydrates in amounts which are already too small for a gravimetric

Method for the Quantitative Determination of Crystal Water in Some Crystal Hydrates by Their Absorption Spectra in the Near Infra-Red Region (0,8-2,5$\mu$)

determination. There are 6 figures and 3 references, 0 of which is Soviet.

SUBMITTED: August 14, 1957

GORBENKO-GERMANOV, D.S.; ZENKOVA, R.A.

Photometric microdetermination of potassium, rubidium, cesium, and univalent thallium as dipicryl aminates. Zhur. anal. khim. 20 no.9:1020-1022 '65. (MIRA 18:9)

1. Institut atomnoy energii imeni I.V. Kurchatova, Moskva.