"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

MOROZOVA, M.I.; PETROSYANTS, M.A.; CHERNYSHEVA, O.N.

Mean wind field above mountain systems of Central Asia. Trudy Inst. mat. AN Uz. SSR no.25:23-44 '62. (MIRA 16:8)
(Asia, Central--Winds)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

L 37652-65 EWT(1)/FCC GW

ACCESSION NR: AR5008605 S/0169/65/000/001/B040/B040

12
B

SOURCE: Ref. zh. Geofizika, Abs. 1B255

AUTHOR: Burkova, M. V.; Morozova, M. I.; Chernysheva, O. N.

TITLE: Some patterns of movement and development of isotach maxima in jet streams

CITED SOURCE: Tr. In-ta matem. AN UzSSR, vyp. 27, 1963, 18-25

TOPIC TAGS: isotach, jet stream, steering current, wind

TRANSLATION: The steering current concept is applied to the movement of regions of isotach maxima (regions of the strongest wind) at the jet stream level. The movement of isotach maxima and change in their intensity under different conditions of atmospheric circulation occurs differently. In summer, the maximum velocities of movement of the isotach maxima in zonal jet streams are 14-16° of latitude in 12 hours, but in the case of southwesterly jet streams they are approximately 12° of latitude. The maximum wind velocities can weaken or increase in 12 hours by 100 km/hour or more in zonal jet streams but by not more than 60 km/hour in southwesterly jet streams. The isotach maxima are moved along the steering current, which is created by the jet streams themselves in the planetary high-level frontal

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ACCESSION NR: AR5008605

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zones; in this case the velocity of movement of the isotach maximum is far less than the velocity of the wind forming this maximum. All changes in direction and velocity of the steering current conform precisely to the movement of the isotach maximum and therefore the trajectories of both are curved greatly in many cases and can even have the form of almost closed circles or ellipses. The most characteristic regions of a high-level field, where the isotach maxima are originated (isotach maxima generators) are: a region of strong convergence of counterflows meeting at an angle of 180°; place of merging of an ultrapolar trough with a zonal flow (angle close to 130°); merging of a meridional high-level trough with a zonal flow (angle of merging approximately 90°); southern part of a meridional trough where a closed cyclonic center develops rapidly; extensive, usually ultrapolar troughs when there are planetary high-level frontal zones bordering two troughs, seemingly fitted into one another; region of merging of jet streams of extensive gently sloping troughs where flows meet at angles of 30-45°. Almost every one of these circulatory systems has a similar corresponding system but of opposite sign where the air flows diverge and the systems of isotach maxima weaken or are annihilated. The article is accompanied by diagrams of possible "generators" and "annihilators" of the regions of isotach maxima. The authors give the laws of change in intensity of regions of isotach maxima. Z. Makhover.

SUB CODE: ES ENCL: 00

Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

MOROZOVA, M.I.; CHERNYSHEVA, G.N.

Aerosynoptical analysis of long-lived isotach maxima in arctic-front jet streams in January 1960. Izv. AN Uz. SSR Ser.fiz.-mat nauk 7 no. 6 91-97 '63. MIRA 17:1

1. Institut matematiki AN UzSSR.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

L 64374-65 EWT(1)/FCC GW

ACCESSION NR: AT5016866 UR/2648/64/000/019/0038/0056

AUTHORS: Dzhordzhio, V. A.; Morozova, M. I.; Petrosyants, M. A.; Chernysheva, O. N.

44,55 44,55 44,55 44,55

TITLE: Static characteristics of motion of isotach maxima in jet streams according to charts of maximum wind

SOURCE: Tashkent. Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut. Trudy, no. 19(34), 1964. Voprosy regional'noy sinoptiki Sredney Azii (Problems in regional synoptics of Central Asia), 38-56

TOPIC TAGS: jet stream, weather forecasting, meteorology, climatology, wind, isotach

44,55,12

ABSTRACT: The motion of regions of closed isotachs, greater than—or equal—to 100 km/hr, on the maximum wind surface in jet streams is studied. Operational charts of maximum wind, compiled by the Central Institute of Forecasting for January and July 1960, were used as working material. A review of the working data is given, including a breakdown of jet streams by type (polar front, arctic front, subtropical), the month of observation, and subcategories of circulation type. A study is made of the duration of existence of the isotachs observed.

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L 64374-65
ACCESSION NR: AT5016866

3

Results are tabulated and plotted as shown in Fig. 1 on the Enclosure, and a discussion of the causes of the observed frequencies is given. A second frequency study is made according to the intensity of isotach maximum as classified by basic jet stream types. The study is then further subdivided to indicate the frequencies corresponding to characteristic types of circulation observed for each of the three jet stream types. The data are also tabulated to indicate the frequency of occurence of selected ranges of translational velocities, and correlation is made between the mean rate of motion of isotach maxima and the qualitative characteristics of variation of intensity. In the latter analysis the intensities are simply grouped according to weakening, increasing, or static intensities, with summary tables given for each basic jet stream type. In turn, the data for intensity variation are correlated with translation rates of isotach maxima for four basic types of circulation. The authors disclaim any over-generalization of conclusions stemming from the analysis presented due to the limited number of observations made. The suggestion is made to expand the study on the basis of further data. Orig. art. has: 16 tables and 1 figure.

ASSOCIATION: Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut (Central Asian Scientific Research Hydrometeorological Institute)

44,55

Card 2/4

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

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ACCESSION NR: AP5016866

SUBMITTED: 00 ENCL: 01 SUB CODE: ES

NO REF SOV: 001 OTHER: 000

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ACCESSION NR: AP5016866

ENCLOSURE: 01

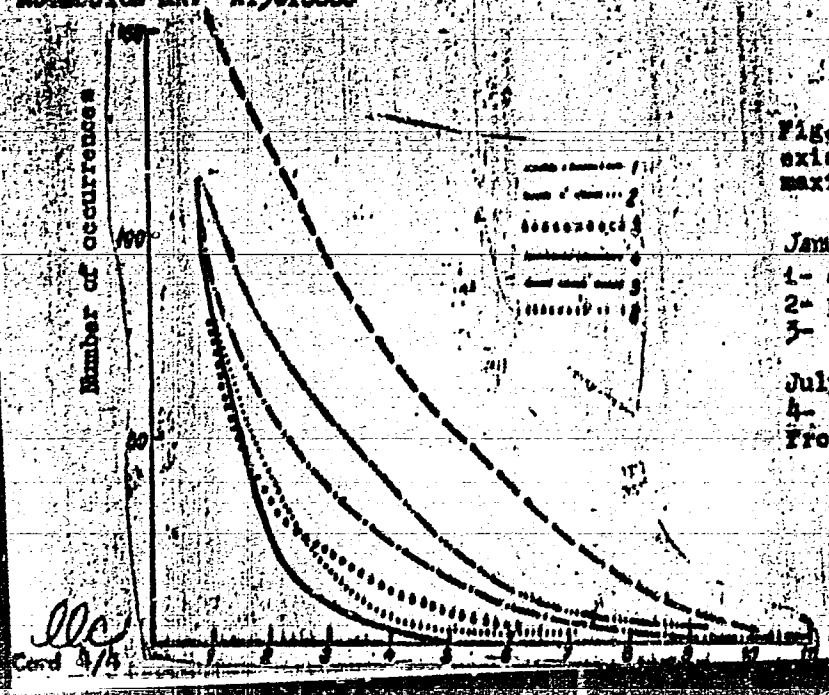

Fig. 1. Duration of existence of isotach maxima in periods

January, jet stream:
1- arctic front;
2- polar front;
3- subtropical.

July, jet stream:
4- arctic front; 5- polar front; 6- subtropical

Card 4/4

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

MOROZOVA, M.I.; SMIRNOV, Yu.N.

Floor boards made from short-cut wood waste. Der. prom. 14 no.9:30-31 S '65. (MIRA 18:12)

1. Uralpromstroyniiproyekt.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

PETRI, V.N., doktor sel'skokhozyaystvennykh nauk; ALEKSEYEVA, A.V., inzhener. BERSENEV, A.P., inzhener; MOROZOVA, M.I., inzhener; LUKOYANOV, I.D.

Strip parquetry with birchwood facing. Der.prom. 6 no.6:6-7 Je '57. (MLRA 10:8)

(Parquetry)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

LUKOYANOV, I.D., inzh.; PETRI, V.N., doktor sel'skokhozyaystvennykh nauk prof.; BERSENEV, A.P., inzh.; ALEKSEYEVA, A.V., inzh.; MOROZOVA, M.I., inzh.

Experience in plant manufacture of sheet parquetry made of "improved" birch. Stroi.prom. 35 no.9:38-40 S '57. (MIRA 10:10)

1.Sverdlovskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta po pererabotle slantsev, trest Tagilstroy.
(Parquetry)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

MOROZOVA, M.I.; TSISARZH, V.Ya.

Manufacture of nonwoven fabrics. Leh.prom. no.1:36-48 Ja-Mr '62. (MIRA 15:9)

1. Ukrainskiy nauchno-issledovatel'skiy institut tekstil'noy promyshlennosti.

(Ukraine—Nonwoven fabrics)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

PHASE I BOOK EXPLOITATION SOV/[illegible]

Metody polucheniya i izmereniya radioaktivnykh preparatov; sbornik statey (Methods for the Production and Measurement of Radioactive Preparations; Collection of Articles) Moscow, Atomizdat, 1960. 307 p. Errata slip inserted. 6,000 copies printed.

General Ed.: Valeriy Viktorovich Bochkarev; Ed.: N.A. Sagaro. Tech. Ed.: N.A. Vlasova.

PURPOSE: This collection of articles is intended for scientific and technical personnel working in the production of radioactive isotopes.

COVERAGE: The collection contains original studies on methods of obtaining and measuring radioactive preparations. According to the foreword, the articles contain new data, and are of theoretical or practical interest to the extent that they discuss methods or give process information. In addition to several survey articles the collection contains discussions on the production of radioactive isotopes and inorganic radioactive preparations, including a number of carrier-free isotopes and several colloidal and other therapeutic preparations. Also discussed are methods for preparing a number of tagged organic compounds, problems in the analysis of tagged organic compounds, the absolute and relative measurement of activity, and the radiometric analysis of preparations. New instruments and equipment are described and instructions concerning measurement methods and technique are included. V.I. Levin, Candidate of Chemical Sciences, V.P. Shishkov, Candidate of Technical Sciences, I.N. Bukharov, Candidate of Biological Sciences, and V.I. Shostak, Candidate of Chemical Sciences, are mentioned as having helped directly in the selection and preparation of the material for publication. References accompany each article.

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APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

MOROZOVA, M.M.

Clinical course of typhus fever; based on hospital material for 1954-1956 Mr '58. (MIRA 11:4)

1. Iz Moskovskoy gorodskoy infektsionnoy klinicheskoy bol'nitsy No.2.
(TYPHUS FEVER)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

MOROZOVA, M.M., studentka VI kursa; SURINA, M.N., studentka V kursa

Tubercle of the jugular vein resulting in a very acute form of tuberculous sepsis. Probl.tub. 38 no.6:51-54 '60. (MIRA 13:11)

1. Iz kafedry patologicheskoy anatomii (zav. - chlen-korrespondent AMN SSSR prof. A.I. Strukov) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova.
(SEPTICEMIA) (JUGULAR VEIN--TUBERCULOSIS)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

TOCHILOV, K.S.; MOROZOVA, M.M.; OSIPOVA, O.V.; PAVLOVA, L.P.; UTKINA, N.S.; KHAVKINA, N N.

Physiological prerequisites for the working regime. Nerv. sist. no.4:176-178 '63. (MIRA 18:1)

1. Fiziologicheskiy institut Leningradskogo universiteta.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

KADEN, M.M.; TIMEN, Ya.Ye.; MOROZOVA, M.M.; SHIGANOVA, V.L.; BUTUZOVA, L.P.

Effect of antibiotic therapy on the clinical course and immunological reactivity of the organism of patients with typhoid and paratyphoid fevers. Antibiotiki 6 no.1:50-54 Ja '61. (MIRA 14:5)

1. Moskovskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok imeni I.I.Mechnikova i 2-ya klinicheskaya gorodskaya infektsionnaya bol'nitsa.
(CHLOROMYCETIN) (TYPHOID FEVER) (PARATYPHOID FEVERS)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

MOROZOVA, M.M., aspirant

Histochemistry of mast cells in rheumatic fever. Trudy 1-go MMI 22:67-77 '63 (MIRA 18:2)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

SOV/112-59-1-188

9 (0)

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 1, p 24 (USSR)

AUTHOR: Morozova, M. N.

TITLE: Influence of Ionic-Exchange Reactions Upon the Electric Properties of Capacitor Paper

PERIODICAL: Nauchn. tekhn. inform. byul. Leningr. Politekhn. in-t, 1957, Nr 11, pp 87-98

ABSTRACT: The ionic-exchange capability of a number of samples of capacitor paper was determined; variation of the ionic-exchange capability with oxidation of paper as a result of its heating in the air was studied. Influence of the cation added to the paper in the course of ionic exchange upon its specific resistance and tgδ was investigated. Monovalent cations tend to lower the specific resistance and to raise the tgδ of the paper within the positive-temperature range; the smaller the cation radius, the more pronounced is the effect. Bivalent cations, in the same temperature range, do not impair the

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

SOV/112-59-1-188

Influence of Ionic-Exchange Reactions Upon the Electric Properties of Capacitor . . .

electric properties of the paper; however, in the range of negative temperatures, they result in an appreciable rise of the dipole-radical maximum of tg δ. Bibliography: 8 items.

V.T.R.

Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

MOROZOVA, M.N. Cand Tech Sci -- (diss)."~~The~~ Study of the effect of ~~the~~ cation ~~interchange~~ exchange in ~~the~~ paper insulation ~~on the~~ upon the electrical properties." ~~of the same.~~" Len, 1958. 15 pp (Min Higher Educ USSR. Len Polytechn Inst im M.I. Kalinin). 150 copies. (KL, 37-58. 111).

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

AUTHORS: Renne, V. T., Professor, Doctor of Technical Sciences, Kalyazina, N. N., Candidate of Technical Sciences, Morozova, M. N., Engineer

SOV/105-58-9-10/24

TITLE: Dielectric Losses in Condenser Paper (Dielektricheskiye poteri v kondensatornoy bumage)

PERIODICAL: Elektrichestvo, 1958, Nr 9, pp 47 - 52 (USSR)

ABSTRACT: In recent years investigations of the dielectric losses in condenser paper were carried out at the Laboratoriya ispytaniya dielektrikov LPI (Laboratory for Testing Dielectrics at the Leningrad Polytechnical Institute) in collaboration with the scientific research institutions of paper industry (TsNIIB, UKRNIIB) and with the Kafedra khimii tsellyulozy Leningradskogo tekhnologicheskogo instituta (Chair of Cellulose Chemistry at the Leningrad Technological Institute). A special method of measuring loss angles operating with a simplified electrode system was developed (Ref 2). Paper samples are dried in vacuum and thus the development of an ionization in the paper is eliminated. This method was introduced into the Ukrainskiy nauchno-issledovatel'skiy institut bumagi

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Dielectric Losses in Condenser Paper SOV/[illegible]

(Ukrainian Scientific Research Institute of Paper), being also adopted with few alterations by the new GOST, which was recently officially authorized. This method not only permits to establish a preliminary standard for the tg δ of condenser paper but also to pool information on the functions of the loss angle versus a number of factors and to show ways and means to improve these principal functions. Summary: 1) The loss angle of dried condenser paper is an important criterion of paper quality. 2) A perfection of domestic sulfate cellulose tending to reduce the pentosane content does not enhance the loss-angle quality of condenser paper, but, on the contrary, leads to an increase of the loss angle. 3) Ash composition is one of the decisive factors governing the magnitude of the loss angle. Monovalent metals, sodium in particular, exert a distinctive detrimental influence. 4) A reduction of sodium content in the cellulose by electro-dialysis methods may lead to a reduction of the loss angle. 5) No sodium cationite filters are to be used in water purification plants employed in the production of insulation paper types. There are 11 figures and 10

Card 2/3

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

Dielectric Losses in Insulation Paper SOV/[illegible]

references, 6 of which are Soviet.

ASSOCIATION: Leningrad[illegible] Politekhnicheskiy institut im. Kalinina (Leningrad Polytechnical Institute imeni Kalinin)

SUBMITTED: December 12, [illegible]

Card 3/3

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

AUTHORS: Renne, V. T., Lerozova, M. N. 28 - 0

TITLE: **Effect** [illegible] the Type of Cation Added to Cell[illegible] [illegible] Ionic Exchange Reaction Upon the [illegible] in Condenser Paper (Vliyaniye tipa kationa, [illegible] k tsellyuloze v protsesse [illegible] elektricheskiye [illegible]

PUBLICATION: Zhurnal tekhnicheskoy fiziki, 1958, Vol 28, pp. 1[illegible]

ABSTRACT: This is an examination of the evidence provided by [illegible] (Cherch) (Ref 1). This investigation is not limited to a determination of the specific resistance. It also [illegible] an examination of the influence of the type of the attached cation upon the loss angle in condenser paper. Samples of standardized condenser sulfate pulp paper of the type KOH-II with a thickness of 8 μ were investigated for information bearing on this problem. The residual ash content after the treatment amounted to about 0,03 - 0,08 %. The spectral analysis of the residual ash which was carried out in the [illegible] under the supervision of I. I. Rodnikova showed that it consisted mainly of silicon-, aluminum-, [illegible] . From the evidence examined, the following conclusions may be drawn: 1) [illegible] which have become lodged in the cellulose during the ion exchange

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

Effect [illegible] the Type of Cation Added to Cellulose [illegible] -2 [illegible] 0 [illegible]
[illegible] reaction, from the [illegible] electric [illegible] [illegible]

reaction may have a considerable effect upon the electrical proper- [illegible] In the positive temperature range, bivalent cations have no effect on the loss angle in paper. [illegible]

[illegible] a [illegible]
fect. [illegible] of trivalent aluminum, [illegible]
the loss angle [illegible] than the cations of monovalent [illegible]
3. In the [illegible] very [illegible] temperature [illegible]
siderably increase the maximum [illegible]
role radical. The greater the radius of the [illegible]
higher its valence the more [illegible]
cations will [illegible]. The evidence [illegible] makes it possible to explain
the **deterioration** [illegible] the electric [illegible]
paper when instead of specially [illegible]
is used in the paper production. The [illegible]
[illegible] that, as a sodium cation filter [illegible]
purification the water was contaminated [illegible]

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

SOV/[illegible]-28-[illegible]

Effect [illegible] of the Type of Cation Added to Cellulose in [illegible] [illegible]
[illegible]ection Upon the Dielectric Losses in Condenser

Hence also the paper produced with this water [illegible]. The removal of these filters lead to a consid[illegible] of the specific resistance and to a reduction of [illegible] angle of the paper. There are 3 figures, 2 tables, and [illegible] erences, [illegible] of which are Soviet.

ASSOCIATION: Leningradskiy politekhnicheskiy institut im. M. I. [illegible] (Leningrad Polytechnical Institute imeni M. I. Kalinin)

SUBMITTED: December 23, 1957

Card 3/3

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

MOROZOVA, M. N., Cand Tech Sci (diss) -- "Investigation of the effect of cation exchange in paper insulation on its electrical properties". Leningrad, 1960. 16 pp (Min Higher and Inter Spec Educ RSFSR, Leningrad Polytech Inst im M. I. Kalinin), 150 copies (KL, No 12, 1960, 128)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

PONOMARENKO, Ye.D., assistent; MOROZOVA, M.N., inzhener; RENNE, V.T., prof., red.

[Concise laboratory manual on electric engineering materials] Kratkoe rukovodstvo po laboratorii elektromaterialovedeniia. Pod red. V.T.Renne. Leningrad, 1960. 34 p. (MIRA 13:11)

1. Leningrad. Politekhnicheskiy institut.
(Dielectrics) (Electric resistors)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

RENNE, V.T., prof., doktor tekhn.nauk; MOROZOVA, M.N., inzh.

Cation exchange in condenser paper located in a nonaqueous environment. Izv.vys.ucheb.zav.; energ. 3 no.5:65-69 My '60. (MIRA 13:6)

1. Leningradskiy politekhnicheskiy institut imeni M.I.Kalinina. Predstavlena kafedroy elektroizolyatsionnoy i kabel'noy tekhniki.
(Ion exchange) (Dielectrics)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

RENNE, V.T., prof.doktor tekhn.nauk; MOROZOVA, M.N., inzh.; KARPOVA, K.I., inzh.

Condenser paper with a small dielectric loss angle. Elektrichestvo no.7:72-77 Jl '60. (MIRA 13:8)
(Electric capacitors)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

RENNE, Vladimir Tikhonovich, doktor tekhn.nauk, prof. MOROZOVA, Mariya Nikolayevna, kand.tekhn.nauk, assistent RYSHAVYY, Aton, inzh.

Dielectric losses in Czechoslovakian condenser dielectric paper. Izv. vys. ucheb. zav.; elektromekh. 4 no.4:132-135 '61. (MIRA 14:7)

1. Zaveduyushchiy kafedroy elektroizolyatsionnoy i kabel'noy tekhniki Leningradskogo politekhnicheskogo instituta (for Renne). 2. Leningradskiy politekhnicheskiy institut (for Morzova). 3. Zavod "Elektropetse", Prage, Chekhozlovatskaya SSR (for Ryshavyy).

(Dielectrics)
(Electric capacitors)

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L 05206-67 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP7000758

SOURCE CODE: UR/0075/66/021/006/0754/0757

AUTHOR: Sotnikov, V. S. Korolev, N. V. Shumova, V. V. and Morozova, M. N.

ORG: none

33
B

TITLE: Use of an emission microspectral method in the analysis of alloys for semiconductor devices

SOURCE: Zhurnal analiticheskoy khimii, v. 21, no. 6, 1966, 754-757

TOPIC TAGS: emission spectrum, indium alloy, gallium alloy, gold alloy

ABSTRACT: A microspectral method for the analysis of the In - Au - Ga and other alloys in specimens weighing less than 0.5 mg is examined. Alloy specimens in tablets 50X150 microns in size were placed on a polished surface of a glass bar, and then the specimens were covered with a copper plate about 1 mm thick which was tapped lightly with a hammer so that the specimens were secured to the surface of the copper plate. Then tablets were secured to the surface layer of the plate. Pellets of standard alloys were similarly secured to a copper plate, and a microspectral analysis was made. Copper wire 0.4 mm in diameter with ends cut at a 130° angle served as the electrode. The distance between one of the electrodes from the surface of the specimen was 1 mm; the second electrode was connected to the copper plate. Orig. art. has: 2 figures and 1 table. [JPRS: 37,177]

SUB CODE: 11,20/ SUBM DATE: 02Jun65 ORIG REF: 002

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UDC: 543.42

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APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

MOROZOVA, M. P., Cand Med Sci (diss) -- "The morphology of hematopoietic in certain types of sepsis and traumatic cachexia". Perm', 195[illegible]. 1[illegible] pp (Perm' State Med Inst), 200 copies (KL, No 14, 1960, 138)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

MOROZOVA, M.P., master.

Drying brick clay in row-lock stockpiles. [Suggested by M.P.Morozova] Rats.i izobr.predl.v stroi.no.146:18-19 '56. (MLRA 10:2)

1. Sezonnyy kirpichnyy zavod "Kommunisticheskiy mayak," Mozdok.
(Brickmaking)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

The system platinum-oxygen. I. S. M. Ariya, M. P. Meronova, G. S. Markevich, and A. A. Relkhardt (Leningrad State Univ., Leningrad). *Sbornik Statei Ob. Obsch. Khim., Akad. Nauk S.S.S.R.* 76-82(1953). [illegible]

sponge prepd. by reduction of chloroplatinic acid with formaldehyde in an alkali medium and dried at 149° was heated in an atm. of O in the range 430-600° and 8.5-310 atm. The percentage of O taken up (from 7.8 to 9.4) was but slightly affected by the temp. or pressure. Treatment with aqua regia resulted in addnl. adsorption of O. The x-ray powder pattern of Pt sponge with low O content showed the 7 lines of Pt; as the O content increased, these lines vanished. The pattern of the completely oxidized sponge before and after treatment with aqua regia was different from that of metallic Pt and was the same within the range $PtO_{1.8}$–$PtO_{1.9}$. Pt sponge with 10.2% O was heated at 600° under reduced pressures, and the process was followed by x-ray analyses and d. detn. The results led to the conclusion that O in excess of $PtO_{1.8}$ was adsorbed and, [illegible]ally driven off above 450° even under high pressures [illegible]ms.) and that in the system Pt–O only 1 phase, ap[illegible]g the compn. of Pt_3O_4, was therm[illegible] and that under equil. pressures it decom[illegible] [illegible] reaction Pt_3O_4 = 3Pt + 3[illegible] X ray [illegible] strated a tetragonal crystal structure with [illegible] 7.98, c 5.4 A., and Z 4. Pycnometric d. (12[illegible] agreement with the value obtained from x-ray (12.37). This refutes the conclusion of Gall[illegible] (*C.A.* 36, 690°) that Pt_3O_4 has a body-centered cu[illegible] metry. The mol. magnetic susceptibility of $Pt_3O_{1.8}$ is $+170 \times 10^{-6}$. This and the elec. cond. eliminate the possibility of an ionic model for this substance. I. Beucowitz

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MOROZOVA, M. P.

USSR/Chemistry - Platinum Oxides Sep 53

"Investigation of the System Platinum-Oxygen. II. Enthalpy of the Formation of the Platinum Oxide Pt_3O_4," S.M. Ariya, M.P. Morozova and A.A. Rezkhardt, Chair of Inorg Chem, Leningrad State U.

Zhur Obshch Khim, Vol 23, No 9, pp 1455-1458

By means of a calorimetric detn of the enthalpy of the reaction $[PtO_{1.39}] + 1.39(H_2) = [Pt] + 1.39H_2O$, the magnitude of the enthalpy involved in the formation of platinum oxide was found: $\Delta H_f PtO_{1.39}$ = -13.6 ± 1.1 kcal. The indicated magnitude agrees

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with the results of an investigation into the equilibrium of the process of dissociation of platinum oxide.

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

MOROSOVA, M.P.

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 151 - 7/36

Authors : Ariya, S. M.; Morosova, M. P.; and Shneyder, L. A.

Title : Thermodynamics of oxide phases of various composition. Part 1.- On the thermodynamics of FeO

Periodical : Zhur. ob. khim. 24/1, 41-47, Jan 1954

Abstract : The equilibrium of the FeO reduction process with CO_2/CO mixtures was investigated at 1104 and 1182°K. The constant of the equilibrium process in the investigated temperature range was found to be practically independent from the temperature in zones of FeO homogeneity. It was established that the dependence of the equilibrium pressure of atomic oxygen upon the composition of the solid phase does not respond to the Henry law and that the entropy of FeO, computes per 1 g/atom, increases somewhat in accordance with the increase in oxygen content of that particular phase. The enthalpy values for the formation of various types FeO, at standard conditions, were determined. Six references: 3-USA; 2-German and 1-USSR (1922-1949). Tables; graphs.

Institution : The A. A. Zhdanov State University, Leningrad

Submitted : August 8, 1953

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

Scale formation on chrome steels EZh1, EZh2, and EZh4 in air. V. V. Inozov, M. P. Morozova, and V. V. [illegible]skaya. *Uchenye Zapiski Leningrad Gosudarst. Univ.* No 175, *Ser. Khim. Nauk* No. 14, 88-116(1954). - Oxidation rates were observed at 810-1140° in steels EZh1, EZh2, and EZh4 contg., resp., Cr 12.65, 12.88, 12.64; C 0.15, 0.20, 0.45; Mn 0.41, 0.44, 0.19; Si 0.43, 0.28, 0.33; S 0.012, 0.009, 0.014; P 0.024, —, 0.025; Ni —, —, 0.10%, in O and air-steam mixts. In all cases, below 1050°, oxidation is characterized by an induction period of 5-80 hrs., the shorter induction periods occurring at the higher temp. and at the higher P_{H_2O}. During the induction period the wt. gain equals $K \log(at + 1)$, where t is time. During this time a film of Fe_2O_3 forms, higher in Cr than is the basis metal. After the induction period the wt. gain follows the parabolic law ($g^2 = Kt$). The post-induction period is characterized by Cr concn. in the oxidized layer closest to the metal, while Mn concentrates in the outer layer. The Fe in the Cr-rich layer occurs as magnetite and FeO. The Mn-rich layer contains primarily Fe_2O_3. For EZh1, K (mg.^{2} cm.$^{-4}$ hrs.$^{-1}$) in the post-induction period varies from 0.28 at 850° to 14.9 at 1050°. As P_{H_2O} increases to 0.04 atm., K (at 850°) rises to 1.77. Further increase in P_{H_2O} to 0.20 atm. has no effect on K. For EZh2 in air, K is 0.74 at 880°, 17.2 at 1070°. For EZh4 in air, K is 0.75 at 8[illegible], 17.6 at 1070°.

C. H. Fuchsman

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

MOROZOVA M.P.

The oxidation of chrome steel EZh2 by water vapor and carbon dioxide gas. M. P. Morozova and V. V. Inat'ev. *Uchenye Zapiski Leningrad. Gosudarst. Univ.* No. 175, *Ser. Khim. Nauk* No. 14, 117-27(1954).—Water vapor and CO_2 oxidize EZh2 steel (12% Cr, 0.3% C) faster than does O and has only a negligible induction period (0.5 hrs. at 930° vs. 8 hrs. for O). Oxygen attacks the steel 3-4 times as fast as air. The oxidation film contains 3 layers, an outer one of Fe_2O_3, a middle one of $FeO + Fe_3O_4$, and an inner one of R_3O_4. The 2 outer layers contain no Cr. In the temp. range 880-1060°, empirical equations are developed for the temp. dependence of the rate const. for CO_2 and steam atm. C. H. Fuchman

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

MOROZOVA, M.P.

USSR/ Chemistry Synthesis methods

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

Authors : Shchukarev, S. A., Morozova, M. P., and Prokofyeva, E. A.

Title : Higher barium phosphides

Periodical : Zhur. ob. khim. 24/8, 1277 - 1278, August 1954

Abstract : The derivation of higher barium phosphides (BaP_2 and BaP_3) in a state of thermal equilibrium at low P-vapor pressures, is described. The thermodynamic stability of BaP_2, a compound analogous to barium nitride, was found to be much higher than in the case of N-compound. The fluctuations in the formation enthalpy, during transition from one element into another, are explained. Three USSR references (1945 and 1953). Table.

Institution : State University, Leningrad

Submitted : March 6, 1954

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

Morozova, M.P.

ENTHALPY OF FORMATION OF LITHIUM ANTIMONIDE. S. A. Shchukarev, E. Vol'f, and M. P. Morozova (Leningrad State Univ.). Zhur. Obshchei Khim. 24, 1291-8(1954) Nov. (In Russian)

Heat of formation of Li_3Sb at 25°C was found to be −77.8 kcal/mole. (G.Y.)

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

~~Morozova, M.P.~~

MOROZOVA, M.P

4

Enthalpy of formation of lithium antimonide. S. A. [illegible]
Shchukarev, E. Yu. [illegible], and M. P. Morozova. [illegible]
Chem. [illegible] 24, 1887 [illegible]
[illegible]

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

Morozova, M.P.

USSR

The enthalpy of formation of zinc phosphide, Zn_3P_2. S. A. Shchukarev, G. Gausman, and M. P. Morozova (Leningrad State Univ.). Zhur. Obshchei Khim. 26, 655-4(1956). --The enthalpy of formation of Zn_3P_2 from the elements was detd. calorimetrically and found to be equal to -98 ± 3 kcal./mole. The course of the value of the enthalpy of formation for the compds. of Zn with N, P, and As, follows the rule of secondary periodicity (cf. Biron, C.A. 9, 3000).

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MOROZOVA, M.P.

Enthalpy of formation of lower oxide of titanium as a function of its composition in the range of homogeneity. M. P. Morozova, E. Vol'f, and S. M. Ariya. *Vestnik Leningrad. Univ.* 11, No. 22, Ser. Fiz. i Khim. No. 4, 91-6 (1956).—Enthalpies of formation, ΔH, were calcd. from heats of combustion detd. in a special bomb calorimeter. Values of ΔH, calcd. on the basis of 1 g. atom of total reactants (e.g., for $TiO_{1.4}$, 0.4 g. atom Ti + 0.6 g. atom O), varied linearly with at. % O from −62.88 ± 0.02 kcal. for $TiO_{1.00}$ to −72.67 ± 0.00 for $TiO_{1.40}$ and were practically the same as those of mixts. of TiO and Ti_2O_3 of the same over-all compns. Below TiO, ΔH was linear down to −60.18 ± 0.12 for $TiO_{0.m}$, but the slope was different from that above TiO. It is likely that a change in slope of thermodynamic functions at the stoichiometric point is a general characteristic of compds. of variable compn.

J. D. Potter

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

MOROZOVA, M.P.

The enthalpy of formation for arsine. S. M. Arlya, M. P. Morozova, and Khuan Tsai-miao (Leningrad State Univ.). *Zhur. Obshchei Khim.* 26, 1813-16(1956).—The value of ΔH_f of AsH_3 was detd. by measuring the heats for the reaction Mg_3As_2 with dil. HCl and with dil. HCl contg. KI and HCl was also used. A 2nd method based on the reaction of Zn_3As_2 with dil. HCl was also used. $\Delta H_f = 18 \pm 1.6$ kcal./mole at 298°. The values of ΔH_f for the volatile hydrides of the Group V elements are a linear function of the at. no. Z. L. R. L.

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

Matveeva, M. P.

Chemistry of compounds with a variable composition. VII. The lattice energies of the oxides of the elements of the auxiliary subgroups. S. M. Ariya, R. Vol'f, G. Grossmann, and M. P. Matveeva. Leningrad State Univ. Zhur. Obshchei Khim. 19, 2097-102(1949); cf. C. A. 39, 7354g. The values of ΔH_f of the iron oxide having a variable compsn (I), calcd. for the assumption that there is a statistical, random shift of the free positions and the Fe^{+++} ions in the lattice, do not coincide with the exptl. values. This is attributed to an ordered shift. The ΔH_f of I is almost the same as the ΔH_f for a mixt. of FeO and Fe_2O_3. III. Compounds with a variable composition and the periodic law. S. M. Ariya, R. Vol'f, and G. Grossman. *Ibid.* 2102-6.—The areas of homogeneity (thermodynamic equil.) were studied for the oxides, sulfides, selenides, and tellurides of the 1st group of transition elements (elements of the 1st decade group). MnO has no region of homogeneity and this fact is related to its half-filled *d*-shell. IV. The tantalum-selenium system. S. M. Ariya, A. I. Zaslavskiĭ, and I. I. Matveeva. *Ibid.* 2373-5.—The extent of the homogeneous regions was detd. for the Ta-Se system. There is such a region (α phase) for $TaSe_{1.6}$-$TaSe_{2.4}$. No compds. were observed for the region Ta-$TaSe_{1.6}$. In addn. to the α-phase, higher selenides of Ta also exist. J. R. L.

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

Morozova, M. P.

The forms of mixed thermodynamically stable binary compounds of elements of complementary subgroups. S. M. Aziza, M. P. Morozova, E. Vol'I, and G. Grossmann. A. A. Zhdanov Univ. (Univ., Leningrad). *Zhur. Neorg. Khim.* 1, 1969-71(1956).—In compds. of apparent mixed valence, such as the oxides of Ti, V, Cr, Mn, Fe, Co, W, Pt, Ce, Pr, and Tb, the sulfides and selenides of Co, the bromides of Fe, and the chlorides of Nb, the empirical formula can always be resolved into a 1:1 ratio of the 2 normal oxides. C. H. Fuchsman

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

MOROZOVA, M.F.

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

Abs Jour : Referat Zhur - Khimiya, No 6, 1957, 18447

Author : S.A. Shchukarev, M.P. Morozova, Yu.P. Sapozhnikov.

Title : Enthalpy of Formation of Zinc Compounds with Antimony.

Orig Pub : Zh. obshch. khimii, 1956, 26, No 2, 304-307

Abstract : The enthalpies of formation of ZnSb (I) and Zn_3Sb_2 were determined by the calorimetric measurement of enthalpies of the interaction of compounds with hydrochloric acid at 25° in accordance with the previously described methods (RZhKhim, 1955, 34012). The samples were prepared by a protracted (8 to 10 hours) fusion of components in the atmosphere of pure argon at 900°. X-ray photographs pointed on individual structures of I and II; no lines of free components were present. Enthalpies (kilocal/g-formula weight) proved to be -17.8 ± 2.5 (I) and -48.0 ± 1.3 (II). The authors explain the difference between

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

Morozova, M.P.

USSR / Solid State Physics / Structure of Alloys and Other Systems E-5

Abs Jour : Ref Zhur - Fizika, No. 5, 1957 No. 11680.

Author : Shchukarev, S.A., Morozova, M. P., Kan Kho - Yn, Kokosh, G.V.

Inst : Leningrad University, USSR.

Title : The Strontium-Bismuth System.

Orig Pub : Zh. obshch. khimii, 1956, 26, No.6, 1525 - 1531.

Abstract : Physical-chemical analysis methods are used to study the Sr-Bi system. On the basis of the data of thermal analysis and of the course of the averaged gram-atomic volumes, the authors establish the existence of congruent-melting compounds Sr-Bi_3, Sr_3Bi_2, and Sr_2Bi, and of the incongruent-melting SrBi. The results of the microscopic investigation

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Morozova, N. P.

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Chemistry of compounds with a variable composition. VI. The titanium-oxygen system. S. M. Ariya, M. P. Morozova, and E. Vol'f. (State Univ., Leningrad) *Zhur. Neorg. Khim.* 2, 13-22(1957); cf. *C.A.* 51, 8194c.—The enthalpy of formation ΔH_f of the titanium oxides was studied as a function of compn. For the region TiO_x–$TiO_{1.5}$ ΔH_f is a linear function of compn. This is also true for the region $TiO_{1.5}$–TiO_2 except that the slope for this curve is greater. On the basis of the thermodynamic data that were obtained, a new model was proposed for the structure of compds. having a variable compn. **VII. The cobalt-tellurium system and the heat of formation of the cobalt tellurides.** S. M. Ariya, E. M. Kolbina, and M. S. Apurina. *Ibid.* 22-9.—A new method was described for detg. the limits of homogeneity for systems contg. a volatile component. The lower limit for the Co-Te system at 900° is close to the compn. $CoTe_{1.1}$ and the upper limit is at $CoTe_{1.6}$. The monotelluride does not exist. The ΔH_f of the cobalt tellurides was detd. as a function of compn. A max. was observed corresponding to the compn. $CoTe_{1.33}$ (Co_3Te_4) indicating that this compd. exists at low temps. This is further supported by data on the d of the Co-Te system. Further enthalpy data also indicates the existence of $CoTe_{1.5}$ (Co_2Te_3). Within the limits of homogeneity ΔH_f is a linear function of compn. J. Rovtar Learn

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

AUTHORS: Shchukarev, S. A.; Morozova, M. P.; Kan Kho Yn. 79-2-1/58

TITLE: The Enthalpy of Formation of Strontium Phosphide (Ental'piya obrazovaniya fosfida strontsiya)

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, No. 2, pp. 289-290 (U.S.S.R.)

ABSTRACT: Strontium phosphide (Sr_3P_2) was obtained during the reaction of phosphorus with metallic strontium. Both these substances were taken in a ratio corresponding to the chemical formula. Heating of the element up to 400 - 450° resulted in the absorption of the entire phosphorus by the strontium. The strontium phosphide obtained in such a way was in the form of a fine crystalline dark-grayish powder, unusually sensitive to atmospheric humidity. The enthalpy of the formation of strontium phosphide was established at -235.4, 233.8, -237.3, -237.5, -235.4, i. e., an average of -235.9 ± 2 kcal/g. These enthalpy magnitudes were established on the basis of enthalpy values observed during the reaction of Sr_3P_2 with diluted hydrochloric acid.

Card 1/2 There is one reference, which is Slavic.

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

The Enthalpy of Formation of Strontium Phosphide 79-2-1/58

ASSOCIATION: The Leningrad State University

PRESENTED BY:

SUBMITTED: March 24, 1956

AVAILABLE: Library of Congress

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APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

79-2-2/58

AUTHORS: Shchukarev, S. A.; Morozova, M. P.; Kan Kho Yn.; Sharov, V. T.

TITLE: The Enthalpy of Formation of Lithium and Barium Bismuthides (Ental'piya obrazovaniya vismutidov litiya i bariya)

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, No. 2, pp. 290-293 (U.S.S.R.)

ABSTRACT: Lithium bismuthide (Li_3Bi) was prepared by melting the components, taken in a stoichiometric ratio, in a hermetically sealed steel crucible at a temperature of 1200°. The compound obtained in such a manner was a coarse-crystalline dark-greenish substance. The enthalpy value for this compound was fixed at - 39.5 ± 0.5 kcal/g.

The barium bismuthide (Ba_3Bi_2) was prepared by melting the bismuth with the barium, obtained by the high vacuum aluminothermy method, in a steel crucible at a temperature of 1100°. The enthalpy of

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

The Enthalpy of Formation of Lithium and Barium Bismuthides 79-2-2/58

formation of this latter compound was fixed at - 128.1 ± 1.8 kcal/g. The bismuthides of both metals appear to be quite typical intermetallic compounds and the change in the heat of formation, resulting in the displacement of magnesium by barium, is subject to entirely different laws. The enthalpy values established were found to be different from the values established by Kubaschewski and Villa (6).

2 tables, 1 graph. There are 11 references, of which 7 are Slavic.

ASSOCIATION: The Leningrad State University

PRESENTED BY:

SUBMITTED: March 24, 1956

AVAILABLE: Library of Congress

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APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

79-2-3/58

AUTHORS: Ariya, S. M.; Morozova, M. P.; Khuan Tszi-Tao; Vol'f, E.

TITLE: The Enthalpy of Formation of Lithium, Magnesium and Zinc Arsenides (Ental'piya obrazovaniya arsenidov litiya, magniya i tsinka)

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, No. 2, pp. 293-295 (U.S.S.R.)

ABSTRACT: The formation enthalpies of lithium, magnesium and zinc arsenides were experimentally established at - 81.3 ± 2, -96 ± 3 and - 30.5 ± 3 kcal/g respectively. Numerous facts are cited indicating that the formation enthalpy value of arsine is in agreement with the data on the thermal stability of arsenides. Li_3As appears to be a somewhat more exothermal compound than Li_3Sb which is in conformity with the fact of displacing the Sb by As from the combination with Li.

Card 1/2

There are 7 references, of which 4 are Slavic.

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79-2-3/58

The Enthalpy of Formation of Lithium, Magnesium and Zinc Arsenides

ASSOCIATION: The Leningrad State University

PRESENTED BY:

SUBMITTED: March 24, 1956

AVAILABLE: Library of Congress

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APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

MOROZOVA M.P.

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

Abs Jour : Referat Zhur Khimiya, No , 1958, 352

Author : C.M. Ariya, M.P. Morozova, S.A. Shchukarev.
Inst : -
Title : Enthalpies of Formation of Binary Compounds of Elements of Main Subgroup of V Group. Phenomenon of Secondary Periodicity.

Orig Pub : Zh. obshch. khimii, 1957, 27, No 5, 1131-1136

Abstract : The phenomenon of the secondary periodicity (Biron Ye.V., Zh. Russk. khim. o-va, 1915, 47, 964) of properties of elements of the main subgroups of the periodical system was investigated on the example of the course of enthalpy formations ΔH of elements of the main subgroup of the V group. The course of the ΔH changes is periodical in some cases and monotonous in other. In connection with the above, the valency states of atoms and the

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

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 352

character of the chemical bond in compounds were investigated. In the opinion of the authors, the rule of the thermochemical logarithmic curve (Kapustinskiy A.F., Dokl. AN SSSR, 1951, 80, 755) is incopatible with the existence of the secondary periodicity.

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MOROZOVA, M.P.

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

Abs Jour: Referat. Zhurnal Khimiya, No 3, 1958, 7122.

Author : S.A. Shukarev, M.P. Morozova, Kan Kho-yn.
Inst :
Title : System Strontium - Antimony and Formation Heats of Strontium-Antimony Compounds.

Orig Pub: Zh. obshch. khimii, 1957, 27, No 7, 1737-1740.

Abstract: The existence of compounds $SrSb_3$, SrSb, Sr_3Sb_2 and Sr_2Sb was revealed at the study of density and microstructure of Sr and Sb alloys of various composition. The enthalpies of SrSb, Sr_3Sb_2 and Sr_2Sb formation were determined by measuring the solution heat of these compounds in 1 n. HCl (see themethods in RZhKhim, 1955, 34012) and they are correspondingly equal to -46.6 ± 2.3, -136.3 ± 1.2 and -78.0 ± 1.1 kcal per mole at 25^0.

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

AUTHORS: Ariya, S. M., Morozova, M. P. SOV/79-28-10-1/60

TITLE: Properties of Salt-Like Compounds of Variable Composition, and Ideas of Their Chemical Structures (Svoystva soleobraznykh soyedineniy peremennogo sostava i predstavleniya o ikh khimicheskom stroyenii)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 10, pp 2617 - 2623 (USSR)

ABSTRACT: One of the most important problems in general chemistry is whether a chemical compound has a constant or variable composition; which compounds represent considerable deviations from the stoichiometric composition, and how far these deviations are possible. The publications by N.S.Kurnakov exerted a considerable influence on the modern concept of the chemical structure. The rapid development of the x-ray structure analysis of solids made it possible to approach the rules proposed by Kurnakov. It was pointed out that the compounds of variable composition radiographically represent subtraction, affiliation or substitution lattices (Refs 1-8). Typical compounds of this type are FeO_{1+x}, TiO_{1+x} and VO_{1+x} which

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Properties of Salt-Like Compounds of Variable Composition, and Ideas of Their Chemical Structures SOV/[illegible]

are looked upon as defect structures of the NaCl type. The task of the present paper was to determine the dependence of some properties, first of all of the thermodynamic characteristic features, of the composition in some binary systems with compounds of variable composition. The investigation of the different types of dependences of some properties on the composition in these systems, as well as the thermodynamic investigation of the problem of the chemical structure of compounds of variable composition, lead to the conclusion that in the lattices of these compounds a segregation (of different power) of the atoms of the element of the substituting subgroup takes place with the atoms being in different states of valence. In part. The lattices of these variable compounds can have a submicro-unequal structure in different cases, i.e. remain monophase in the thermodynamical sense of the word. The part of the elements in this structure must depend on the nature of the compound on the temperature, as well as on the degree of deviation of these compounds

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Properties of Salt-Like Compounds of Variable Composition, and Ideas of Their Chemical Structures SOV/79-28-[illegible]

with respect to the stoichiometric composition. There are 5 figures and 20 references, [illegible] of which are Soviet.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: December 31, 1957

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APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

4/79-28-12-29/41

AUTHORS: Shchukarev, S. A., Morozova, M. P., Bel[illegible]va, M. M.

TITLE: Formation Enthalpy of Cadmium Compounds With Phosphorus, Arsenic and Antimony (Entel'piya obrazovaniya soyedineniy kadmiya s fosforom, mysh'yakom i sur'moy)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 12, pp 3289-3292 (USSR)

ABSTRACT: Earlier the authors (Ref 1) showed that the process of heat formation of the compounds of nitrogen, phosphorus, arsenic, antimony and bismuth with zinc, contrary to that of the compounds of these elements with magnesium or strontium, takes place according to the rule of secondary periodicity (Ref 1). The authors were interested in finding the magnitudes of the heat of formation of cadmium compounds with the elements of the main subgroup of group (V). With nitrogen cadmium forms the extremely unstable compound CdN_2 (Ref 2), with phosphorus Cd_3P_2, and apparently the unstable phosphide which probably possesses the formula CdP_2 (Ref 3). In the system cadmium-arsenic the compound Cd_3As_2 (Refs 3-5), and in the system cadmium-antimony the compounds CdSb and Cd_3Sb_2 were found. Compounds of

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SOV/79-28-12-29/41

Formation Enthalpy of Cadmium Compounds With Phosphorus, Arsenic and Antimony

cadmium with bismuth are not present, at least in the thermodynamical sense of the word. The elements that had been chemically purified and investigated by spectrum analysis were used for the syntheses of the preparations. The formation enthalpy constants of Cd_3P_2, Cd_3As_2, and Cd_3Sb_2 were determined. It turned out that in spite of the heats of formation of the similar zinc and cadmium compounds, which are very close to each other there exists a marked difference between the various formation heat constants of their compounds with the elements of the main subgroup of group (V). The substitution of cadmium for zinc in these compounds is accompanied by an abrupt decrease of the formation heats. The process of heat formation of the compounds of cadmium with the elements of the main subgroup of group (V) is obeying the rule of the secondary periodicity. There are 1 figure, 2 tables, and 14 references, 5 of which are Soviet

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5(2) SOV/54 59 1 10/25

AUTHORS: Morozova, M P Vol'f E Balova, T. P.

TITLE: The Chemistry of Compounds of Variable Composition (Khimiya soyedineniy peremennogo sostava). VIII Volume Relations Within the System Titanium Oxygen (VIII Ob"yemnyye soot nosheniya v sisteme titan-kislorod)

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii 1959 Nr 1 pp 78 83 (USSR)

ABSTRACT: In previous papers the authors stated that the formation enthalpy of substances located within the homogeneous range of salt-like compounds with variable composition virtually does not differ from the formation enthalpy of mixtures of corresponding stoichiometric compounds. These salt like compounds of variable composition are therefore assumed to be submicro-inhomogeneous systems The lattice of one compound includes small lattice ranges of another stoichiometric compound. In this paper the authors ascertained the course of the values of the grammformula volumes of the system titanium oxygen for the purpose of determining how far the volume relations of this system agree with the assumptions concerning the chemical structure of salt like compounds with variable

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SOV/54 59-1 10/25

The Chemistry of Compounds of Variable Composition. VIII. Volume Relations Within the System Titanium - Oxygen

composition. The grammformula volume was determined on the basis of pycnometric measurements of the density The results are listed in a table. From the dependence of the grammformula volume on the composition of oxides the following conclusions were drawn: the grammformula volumes of substances which are contained in that portion of the homogeneous range of titanium oxide ($TiO_{1.00}$ $TiO_{1.22}$) which is enriched with oxygen virtually do not differ from the volume of a mixture of $TiO_{1.00}$ and $TiO_{1.50}$ of the same gross composition. The same holds for the grammformula volumes of substances which are contained within the homogeneous ranges of titanium oxide poor in oxygen which do not differ from mixtures of equal gross composition This fact corresponds to the model assumed for the chemical structure of salt-like compounds with variable composition. Further the authors stated full agreement between the energy- and volume diagram of the system titanium - oxygen. There are 1 figure.

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The Chemistry of Compounds of Variable Composition. VIII. Volume Relations Within the System Titanium Oxygen

1 table, and 10 references 8 of which are Soviet.

SUBMITTED: June 10, 1958

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

5 (4)

AUTHORS: Morozova, M. P., Li Miao-hsiu, Golomolzina, M. V. SOV/54-59-2-12/24

TITLE: Formation Enthalpy of Strontium Compounds With Elements of the Principal Subgroup of the Fourth Group (Entalpiya obrazovaniya soyedineniy strontsiya s elementami glavnoy podgruppy IV gruppy)

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii, 1959, Nr 2, pp 83-86 (USSR)

ABSTRACT: It is the object of this investigation to ascertain whether the substances of the composition Sr_2Si, Sr_2Ge, Sr_2Sn and Sr_2Pb, which have almost not been investigated to date, prove to be individual chemical compounds. The silicides, germanides and plumbides of the strontium were prepared by heating the two components (melting) for several hours at temperatures about 1000° and subsequent rapid cooling. A chemical analysis of these preparations was carried out. The composition of the substances did not change due to the melting. X-ray investigations of Sr_2Si and Sr_2Pb (the X-ray

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pictures of the two other preparations did not succeed) showed no free components. The microphotographs of the polished sections showed homogeneous preparations. Comparative pictures of preparations containing by 10 at % strontium more or less than would correspond to the formula Sr_2E, showed the heterogeneous character of the latter. (Fig 1, dependence of the gramformula volume on the composition of substances). The interaction of various strontium compounds with 1 N HCl was used as calorimetric reaction. The following results were obtained for the four preparations:

$$2\ Sr_{cryst} + Si_{cryst} = Sr_2Si_{cryst} + 91 \pm 7\ \text{kcal/gramformula}$$

$$2\ Sr_{cryst} + Ge_{cryst} = Sr_2Ge_{cryst} + 74.9 \pm 0.5\ \text{kcal/gramformula}$$

$$2\ Sr_{cryst} + Sn_{cryst} = Sr_2Sn_{cryst} + 82.7 \pm 1\ \text{kcal/gramformula}$$

$$2\ Sr_{cryst} + Pb_{cryst} = Sr_2Pb_{cryst} + 80.1 \pm 1\ \text{kcal/gramformula}$$

Figure 2 shows the formation heat in dependence on the atomic number of the elements bound to Sr. The results obtained and the figure show that the formation heat in the series

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Formation Enthalpy of Strontium Compounds With Elements of the Principal Subgroup of the Fourth Group SOV/54-59-2-12/24

Sr_2Si - Sr_2Ge - Sr_2Sn - Sr_2Pb is subjected to the rule of secondary periodicity. The same statement was made by the authors in a previous paper (Ref 6) on compounds of the principal subgroup of the 5th group of the periodic system. There are 2 figures and 6 Soviet references.

SUBMITTED: July 10, 1958

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SOV/54-59-4-16/22

~~5(4)~~

AUTHORS: Morozova, M. P., Getskina, L. L.

TITLE: Enthalpy of Formation of WO_2 and $WO_{2.67}$

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii, 1959, Nr 4, pp 128-131 (USSR)

ABSTRACT: As the opinions expressed in publications concerning the homogeneity region of the γ-phase of tungsten oxide compounds are contradictory (Ref 1 and Ya. I. Gerasimov, Ref 2) the authors investigated at 1200°C the equilibrium of tungsten oxides with mixtures of CO_2/CO, which were similar to the former as to composition. According to reference 6 an equilibrium exists in the reaction $2WO_3 + CO \rightleftarrows W_2O_5 + CO_2$. The apparatus used for the investigation is described in reference 7. Equilibrium was brought about at an extremely slow rate and in the direction of reduction only. Therefrom, and from isotherm (Fig 1) the region of the γ-phase was found to be limited by the compounds $WO_{2.63_4}$ to $WO_{2.76_5}$. By the aid of the transfer method (Ref 8) it was even more precisely limited by the aid of the reaction of tungsten oxide with a mixture of H_2O/H_2. Results concerning

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Enthalpy of Formation of WO_2 and $WO_{2.67}$ SOV/54-59-4-16/22

this reaction, which is more closely dealt with, are compiled in table 1. The mentioned boundaries of the γ-phase were thus confirmed. The formation enthalpies of compounds WO_2 and $WO_{2.67}$ (W_3O_8) were determined on a precision vacuum calorimeter (Ref 9) by the addition of benzoylic acid. Combustion of both products to WO_3, heat of formation of WO_3 in table 2. Proceeding from these data, the formation enthalpies for WO_2 were determined as being -134.8 ± 1 kcal/g formula, and for $WO_{2.67}$ as being -175 ± 0.2 kcal/g formula. The dependence of the formation enthalpy on the composition of the oxides is shown in figure 2. It was found by a comparison of the formation enthalpies of mixture compounds (W_3O_8) and oxide mixtures (WO_2+WO_3) of the same gross composition that the heat of formation of the former is lower. This is indicative of the fact that the mixture compounds are thermodynamically stable only by the relatively high entropy of W_3O_8 with respect to the two components of the mixture. There are 2 figures, 2 tables, and 18 references, 9 of which are Soviet.

SUBMITTED: July 1, 1958

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

5(3) SOV/79-29-4-1/77

AUTHORS: Morozova, M. P., Getskina, L. L.

TITLE: Enthalpies of Formation of Niobium Oxides (Ental'pii obrazovaniya okislov niobiya)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 4, pp 1049-1052 (USSR)

ABSTRACT: From among the three compounds occurring in the system Nb-O only two, Nb_2O_5 and NbO_2, are thermochemically characterized, the formation enthalpy of NbO had not yet been determined by experiments (Ref 1). The formation enthalpies of niobium oxides were found by the authors by determination of the heats of combustion of metallic niobium, NbO, and NbO_2 in the precision vacuum calorimeter according to Magnus (Ref 2). All calorimetric determinations were carried out at 18°. The water equivalent of the calorimeter was established according to the heat of combustion of benzoic acid as calorimetric standard. The samples were produced by fusing together the mixtures of metallic niobium and Nb_2O_5 at 1400°. The metallic niobium had, according to the experimentator, the following composition in per cent: Nb 98.5; Ta 0.5; Ti 0.04; Fe 0.06; Si 0.04; Pb 0.15; C 0.12. Their total

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amount was 99.41%. The difference of 0.59% was assigned to the oxygen contained in the preparation. The calorimetric experiments were carried out at an oxygen pressure of 35 kg/cm^2. The niobium dioxide was oxidized to give Nb_2O_5 under these conditions. As to NbO and metallic niobium, they formed under these conditions a fused product which was not completely oxidized in the interior. A complete oxidation could not be achieved neither by changing the pressure nor by adding benzoic acid to these products. For this reason the niobium was burnt with Nb_2O_5 and the NbO with NbO_2. The results obtained on the combustion of metallic niobium are given in table 1. There, as well as in the other tables, the heat constants with all corrections are presented. The formation enthalpies of NbO, NbO_2, and Nb_2O_5 were accordingly: 108.8 ± 0.6 kcal, 199.3 ± 0.4 kcal, 236.3 ± 0.5 kcal (at 18°). There are 1 figure, 3 tables, and 8 references, 2 of which are Soviet.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: March 10, 1958

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5.(2)

AUTHORS: Shchukarev, S. A., Morozova, M. P., Li Miao-hsiu SOV/79-29-8-1/81

TITLE: The Formation Enthalpy of Titanium Compounds With the Elements of the Main Subgroup of Group V

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 8, pp 2465 - 2467 (USSR)

ABSTRACT: Among the titanium compounds only titanium nitride is investigated thermochemically (Ref 1). Metallic, spongy titanium (99% Ti), carefully purified red phosphorus, arsenic purified by distillation, and metallic antimony and bismuth with slight impurities of other elements were used as initial products. The preparation and the degree of purification of titanium phosphide, -antimonide, and -arsenide are described in detail. The X-ray photographs of the substances obtained, with the exception of titanium bismuthide, which could not be prepared, differed only slightly from those mentioned in publications (Table 1). The heats of formation were determined by the difference between the heats of combustion of the stoichiometric mixtures and of the above compounds under equal conditions. The heats of combustion are shown in table 2. The combustion

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products of the compounds and the corresponding mixtures were identical according to radiographic determination (the incomplete calorimetric combustion of titanium up to TiO_2 influenced the final result only slightly) (Figure). It may easily be seen that the process of heat formations is subject to the law of secondary periodicity (Refs 8,9). In connection with the results of previous papers (Ref 9) it was ascertained that among the compounds of the elements of the main subgroup of group V with metals, the dependence on the above law holds also for the heats of formation of the compounds with metals of side groups (Zn,Cd,Ti). The process of the heats of formation of the compounds of the elements of the main subgroup of group V on contact with the active metals of such main groups as Mg,Ca,Sr,Li is not typical of the secondary periodicity. There are 1 figure, 2 tables, and 9 references, 5 of which are Soviet.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: July 16, 1958

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SOV/79-29-9-71/76

5(2)

AUTHORS: Shchukarev, S. A., Morozova, M. P., Li Miao-hsiu

TITLE: Enthalpy of Formation of Calcium Compounds With the Elements the Main Subgroup of Group V

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 9, pp 3142 - 3144 (USSR)

ABSTRACT: The preparations Ca_3Sb_2 and Ca_3Bi_2 necessary for the investigation were produced by synthesizing the components taken in stoichiometric ratio. Initial products were metallic calcium, antimony, and bismuth distillated in high vacuum which, according to the data of spectrum analysis, contained small impurities of other metals. Calcium antimonide was produced in a corundum pot which was placed into a hermetically sealed steel cylinder at 1300°, and calcium bismutide in a hermetically sealed steel pot at 1000°. The free space in the pots was filled up with argon. Analysis of the compounds proved that the proportion of the components did not change in the synthesis, and that there are practically no iron and no other steel components present. Calcium phosphide and calcium arsenide were prepared by extended heating of the calcium in phosphorus vapors or,

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accordingly, in arsenic vapors. The excess of nonmetallic element was separated by heating the preparations in vacuum (data of analysis). The reaction of calcium phosphide (or -arsenide) with 1 n. hydrochloric acid was used as calorimetric reaction (in accordance with the method of reference 1). The reactions of calcium phosphide and -arsenide proceed quantitatively according to the general scheme

$$Ca_3E_{2\ solid} + 6HCl_{solution} = 3\ CaCl_{2\ solution} + 2\ EH_{3\ gas},$$

where E = phosphorus or arsenic. Calcium antimonide and calcium bismutide with hydrochloric acid react according to the general scheme

$$Ca_3E_{2\ solid} + 6\ HCl_{solution} = 3CaCl_{2\ solution} + 2E_{solid} + 3\ H_{2\ gas}.$$

Calcium antimonide was not dissolved in pure hydrochloric acid solution in the calorimeter, but in a solution in which a certain amount of calcium antimonide had been solved before. The suspended and fine-disperse antimony present in such a solution guarantees, as a catalyst in the decomposition of stibine (SbH_3),

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Enthalpy of Formation of Calcium Compounds With the Ele- SOV/79-29-9-71/76
ments of the Main Subgroup of Group V

practically a complete absence of the latter in the liberated hydrogen. The values of the heat of solution of the reactions investigated are listed in the table. On the basis of the known thermal values of the formation $HCl_{solution}$, $CaCl_2$ solution, PH_3 gas (Ref 3) and the thermal value of the formation of arsine recently determined (Ref 4), the above-mentioned values yield the enthalpies of the formation of calcium compounds with the elements of the main subgroup of group V which are mentioned on page 3143. The heats of formation of the calcium compounds in elements of main group V do not follow the rule of secondary periodicity. There are 2 figures, 1 table, and 11 references, 9 of which are Soviet.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: July 16, 1958

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

5(2)

AUTHORS: Morozova, M. P., Bol'shakova, G. A., Lukinykh, V. L.

SOV/79-29-9-72/76

TITLE: Formation Enthalpy of Sodium Compounds With the Elements of the Main Subgroup of Group V

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 9, pp 3144 - 3145 (USSR)

ABSTRACT: The preparations Na_3P, Na_3As, Na_3Sb, Na_3Bi were obtained by synthesizing the components taken in stoichiometric ratio in hermetically sealed steel pots in an argon atmosphere. The synthesis was made at the following temperatures: Na_3P at 500-550°, Na_3As at 700°, Na_3S at 856°, Na_3Bi at 775°. Na_3P is a black, pulverous compound, Na_3As forms brown-violet crystals, and Na_3Bi and Na_3Sb form fragile substances of faint metallic gloss and bluish grey color. Analysis of the preparations obtained proved that the proportion of the introduced components does not change in the synthesis. The iron produced in the pots passed over to the preparations in such low quantities that the accuracy of the thermodynamic data was completely maintained. The reaction of these compound with 1 n. hydrochloric acid

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

Formation Enthalpy of Sodium Compounds with the Elements of the Main Subgroup of Group V SOV/79-29-9-72/78

quantitatively proceeding in accordance with the equations listed in the table was used as calorimetric reaction (Ref 1) (Table). The enthalpy of formation of sodium phosphide apparently has not yet been determined. The enthalpy of formation of sodium arsenide agrees with the value suggested by F. Weibke and O. Kubaschewski (Ref 4). The enthalpies of formation of sodium antimonide and sodium bismutite (Ref 4) obtained by the same authors are close to those obtained by the authors of the present paper. The figure demonstrates that the process of formation enthalpies in the series Na_3P - Na_3As - Na_3Sb - Na_3Bi is not of monotonic character, but subjected to the rule of secondary periodicity. There are 1 figure, 1 table, and 4 references, 3 of which are Soviet.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: July 16, 1958

Card 2/2

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

5(2)

AUTHORS: Vol'f, E., Morozova, M. P. SOV/79-29-9-73/76

TITLE: Proportions by Volume Ratios in the System Vanadium - Oxygen

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 9, pp 3146 - 3148 (USSR)

ABSTRACT: Investigation of proportions by volume in binary systems is of great interest since it often furnishes sufficient detailed information on the limits of homogeneous ranges and also increases the knowledge of the actual nature of solid phases (Refs 1,2). The vanadium oxides necessary for the investigation were prepared by annealing compressed mixtures of hydrogenated vanadium powder and vanadium oxide (V_2O_3) in an electric furnace at 1600° within 3-4 hours. The vanadium used contained tenths of a per cent of cobalt; the vanadium oxide was produced by reducing vanadium pentoxide with hydrogen at 900°. The composition of the preparations was checked according to the increase in weight in the oxidation up to V_2O_5. The density was determined by a formerly found method (Ref 1). The densities and volumes of the vanadium oxides according to the gram-formula are listed in a table, and their course in the figure.

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Proportions by Volume Ratios in the System Vanadium - Oxygen

SOV/79-29-9-73/76

Therefore the vanadium- and titanium monoxide, according to the terminology of N. S. Kurnakov's school, are no berthollides (as usually assumed) but daltonides, if the form of dependence of the gram-formula-volumes and enthalpies of formation on the composition is taken into account. A distinct change in volume is visible in the formation of substances of the following composition: $VO_{1.00}$-$VO_{1.27}$ from $VO_{1.00}$ and $VO_{1.50}$. The course of gram-formula-volumes leads to $VO_{1.25}$-$VO_{1.28}$ as upper limit of the homogeneous range of vanadium oxide. A singular point on the curve composition-versus-gram-formula-volume corresponds to the composition $VO_{1.67}$, which agrees with the radiographic data on the existence of a compound of this composition. There are 1 figure, 1 table, and 8 references, 5 of which are Soviet.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: July 11, 1958

Card 2/2

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

S/054/60/000/02/20/021
B022/B007

AUTHORS: Morozova, M. P., Bol'shakova, G. B.

TITLE: Vanadium Dichloride as a Compound of Practically Constant Composition

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii, 1960, No. 2, pp. 160-161

TEXT: For the purpose of explaining the extension of vanadium dichloride along the axis of the composition, the equilibrium of the process of successive reduction of vanadium trichloride by hydrogen was investigated in the present paper by means of the circulation method. The Fig. shows an investigation of the dependence of $P_{HCl}/P_{H_2}^{1/2}$ (the value of this ratio is proportional to the chemical potential of chlorine in the gaseous phase) on the composition of the solid phase. It further shows that vanadium dichloride has no region of apparent homogeneity. There are 1 figure and 3 references, 1 of which is Soviet.

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

MOROZOVA, M.P.; KARLOVSKAYA, G.P.

Degree of iron oxidation as a factor affecting the enthalpy of formation of a solid solution of ferrous oxide in magnesium oxide. Vest. LGU 15 no.4:117-121 '60. (MIRA 13:2)
(Iron oxide) (Magnesium oxide)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

S/079/60/030/007/001/020
B001/B063

AUTHORS: Shchukarev, S. A., Morozova, M. P., Damen, Kh.

TITLE: The W - WS_2 System

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 7, pp. 2102-2104

TEXT: Contrary to the sulfides of the 3ds elements, which are homogeneous in a fairly wide range (Refs. 1,2,3,4,5), only little material is available on the ranges of homogeneity of the sulfides of the 4d5s and 5d6s elements. It was the purpose of the present paper to study the phases in the W-WS_2 system. The WSx preparations were produced by homogenizing pulverulent mixtures of pure metallic tungsten and pure sulfur in evacuated quartz ampoules at 800°C. Annealing took 500 h. The four preparations produced had the composition $WS_{0.91}$, $WS_{1.73}$, $WS_{1.98}$, and WS_2. In accordance with data published in the paper of Ref. 6, the X-ray analysis showed only the lines of tungsten and disulfide in the whole interval W-WS_2. Moreover, the two lattices showed no change. No homogeneous preparations were

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obtained by annealing the tungsten-sulfur mixtures. The quantity of sulfur was higher than is necessary for the formation of WS_2. The free sulfur found indicates that WS_2 has no range of homogeneity extending to a higher stoichiometric sulfur content. Thus, it was found that in the W - S system there is only the compound WS_2 which has no noticeable range of homogeneity. As compared to sulfur, tungsten is only tetravalent, whereas chromium shows the neighboring valences 2 and 3, and forms compounds with sulfur that are characterized by wide ranges of homogeneity. Finally, the authors discuss several rules concerning the change in the ranges of homogeneity of oxides and sulfides in the periodic system. It may be seen from the accompanying table that no transfer of sulfur from the sulfide $WS_{1.98}$ to metallic tungsten is observable, which is also the case with the pair $WS_{1.73}$ - $WS_{0.91}$. There are 1 table and 11 references: 3 Soviet, 5 German, 1 Belgian, and 2 British.

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

86497

S/073/60/030/011/001/026
B001/B066

5.4700 2209, 1018, 1043

AUTHORS: Morozova, M. P. and Yeger, G.

TITLE: Formation Enthalpy and Formula-weight Volumes of Low Vanadium Oxides

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 11, pp. 3514-3517

TEXT: The determination of the formation enthalpy of vanadium oxides meets with certain difficulties, since the only suitable calorimetric reaction, the oxidation, is not completed, and yields products of a phase composition which is not quite clear. Besides a microcalorimeter had to be used (Ref. 1). The present paper investigates low vanadium oxides. As initial products, vanadium iodide was used which had been carefully hydrogenated with purified hydrogen for better pulverization, and vanadium oxide which had been obtained by reduction of vanadium pentoxide. The thoroughly pulverized mixture was pressed to tablets which were annealed in a vacuum resistance furnace with tantalum heater for 2 hours at 1660°C. The composition of the preparations was established by determining

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Formation Enthalpy and Formula-weight Volumes of Low Vanadium Oxides

S/079/60/030/011/001/026
B001/B066

the increase in weight on their oxidation to vanadium pentoxide. The heats of combustion were determined in the vacuum microcalorimeter described in Ref. 1 (Table 1). Table 2 gives the formation enthalpies of vanadium oxides determined by various authors. The data obtained by the authors of the present paper agree with those of Refs. 1 and 2; the latter are given in the tables published by the American Office of Standards. The densities determined in the vacuum pycnometer and the formula-weight volumes of vanadium oxides calculated from them are presented in Table 3. The diagram shows the formation enthalpy and the formula-weight volume as a function of the oxide composition. It could not yet be determined what is represented by the composition $VO_{0.30}$. It must be noted that the formation enthalpy and the formula-weight volumes of the products, which lie within the homogeneous range of vanadous oxide poor in oxygen ($VO_{1.00}$ - $VO_{0.86}$), practically correspond to the values of formation enthalpy and formula-weight volumes of the mixtures of VO of the stoichiometric composition ($VO_{1.00}$), and to the oxide of the composition $VO_{0.33\pm0.03}$ (Ref. 8). The kind of dependence of the formation enthalpy

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86497

Formation Enthalpy and Formula-weight Volumes of Low Vanadium Oxides

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B001/B066

and the formula-weight volumes on the composition is thus determined for the range $V - VO_{1.142}$. There are 1 figure, 3 tables, and 9 references: 6 Soviet, 1 US, 1 Danish, and 1 German.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: January 3, 1960

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

S/079/60/030/011/026/026
B001/B055

AUTHORS: Morozova, M. P. and Stolyarova, T. A.

TITLE: On the Heat of Formation of Niobium Pentoxide

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 11, pp. 3848-3849

TEXT: The following values for the heat of formation of niobium pentoxide were formerly suggested: 463.2 ± 4 kcal/mole (G. Becker, W. A. Roth, Ref. 1) and 455.2 kcal/mole (G. L. Humpherey, Ref. 2). M. P. Morozova and L. L. Getskina (Ref. 3) determined the heat of formation at 472.6 ± 1.0 kcal/mole. The heat of formation of niobium dioxide is given in the same work as 37.0 ± 0.4 kcal/mole, which is in good agreement with the value found by A. D. Mah (Ref. 4), i.e. 36.67 ± 0.10 kcal/mole. This circumstance, and the fact that the values of the heats of formation of titanium (Ref. 5) and its oxides, found by the same procedure as was applied for niobium (Ref. 3), were in agreement with the values found by Humpherey (Ref. 6), convinced the authors that the difference between the value found by M. P. Morozova and L. L. Getskina (Ref. 3), and those found by

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On the Heat of Formation of Niobium Pentoxide

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B001/B055

F. G. Kusenko, P. V. Gel'd (Ref. 7), and G. L. Humpherey, was not due to the different calorimetric methods applied. Repeated calorimetric tests with the powdery niobium used for the investigation (Ref. 3) gave a value which was in fair agreement with the one found by M. P. Morozova and L. L. Getskina (Ref. 3), i.e. 473.2 ± 0.8 kcal/mole. The heat of formation of Nb_2O_5 from compact niobium containing 0.01% C and 0.5% Ta (for which corrections were made), however, was 454.8 ± 0.8 kcal/mole, a value which excellently fits the data published in Refs. 2 and 7. There are 7 references: 3 Soviet, 3 US, and 1 German.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: July 2, 1960

Card 2/2

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

SHCHUKAREV, S.A.; MOROZOVA, M.P.; STOLYAROVA, T.A.

Enthalpy of the formation of compounds of manganese with the elements of the main sub-group of group V. Zhur.ob.khim. 31 no.6:1773-1777 Je '61. (MIRA 14:6)

1. Leningradskiy gosudarstvennyy universitet imeni A.A.Zhdanova. (Manganese compounds) (Enthalpy)

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4

S/079/62/032/007/001/007
1032/1232

AUTHORS: Morozova, M. P., Khripun M. K. and Ariya, S. M.

TITLE: The enthalpy of carbides and oxycarbides of titanium

PERIODICAL: Zhurnal obshchei khimii, v. 32, no. 7, 1962, 2072-2076

TEXT: The enthalpy of three titanium carbides, ranging in composition from $TiC_{0.79}$ to $TiC_{1.00}$, and of six different titanium oxycarbides ranging between the compositions $TiC_{0.15}O_{0.006}$, $TiC_{0.4}O_{0.118}$ and $TiC_{0.74}O_{0.059}$, was calculated from the heat of combustion of these compounds, determined calorimetrically, and from the known enthalpies of TiO_2 and CO_2. The value of the enthalpy of formation of TiC is given as -55 ± 0.3 Kcalories per mole. This result is compared with that given by Humphry. The dependence of the enthalpy on the index at the C atom in the composition interval $TiC_{1.00} - TiC_{0.79}$ is found to be linear. The enthalpy of oxycarbides TiC_xO_y is found to be equal to the sum of the enthalpies of TiC_x and TiO_y. Hence it is inferred that the coexistence of Ti-C and Ti-O bonds in the lattice of oxycarbides has practically no effect on the energy of these bonds. There is 1 figure and 3 tables. English-language references read: K. K. Kelley, U. S. Bur. Mines Rept. Invest, No. 5316, 33 (1957). J. Humphry, J. Am. Chem. Soc., 73, 2261 (1951).

ASSOCIATION: Leningradskii gosudarstvennyy universitat (Leningrad State University)

SUBMITTED: July 10, 1961

Card 1/1

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135310003-4"

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L 25363-65 EWT(m)/EPF(c)/EPR/EWP(j)/EWP(t)/EWP(b) Pc-4/Pr-4/Ps-4/Pi-4 IJP(c)/
ACCESSION NR: AP4046737RPL RDW/JD/WW/JW/RM S/0054/64/000/003/0150/0153

AUTHOR: Morozova, M. P.; Stolyarova, T. A.

38
B

TITLE: Formation enthalpies of manganese selenide and telluride

27 27 27

SOURCE: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii, no. 3, 1964, 150-153

TOPIC TAGS: formation enthalpy, manganese selenide, manganese telluride, secondary periodicity rule

ABSTRACT: The authors measured the formation enthalpies of MnSe and MnTe. The parameters of the crystal lattices are in good agreement with the published data. The values for MnSe ΔH^{o}_{298} is $-(37.7 \pm 0.4)\frac{kcal}{mole}$ and for MnTe ΔH^{o}_{298} is $-(26.3 \pm 1.3)\frac{kcal}{mole}$. The formation enthalpies change monotonously with the ordinal number, and do not obey the rule of secondary periodicity which characterizes the components of other metals with oxygen and their analogues. Orig. art. has: 1 figure and 2 tables

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ACCESSION NR: AP4046737

ASSOCIATION: None

SUBMITTED: 10Apr64 ENCL: 00 SUB CODE: GC, SS

NR REF SOV: 002 OTHER: 010

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