KLIMENKO, Konstantin Ivanovich; KHOMYAKOV, A.I., red.

[Economic problems of technological progress in the machinery industry of the U.S.S.R.] Ekonomicheskie problemy tekhnicheskogo progressa v mashinostroenii SSSR. Moskva, Nauka, 1965. 222 p. (MIRA 18:10)

KHOMYAKOV, A. M., MALININ, A. I., ADO, A. D. and BOGOVAROV, V. M.

"On Modification of the Water-Binding Properties of Skeletal Muscles Upon Sensibilization of the Organism to a Foreign Protein," Mater. k Patol. Fiziol, Allerg. Reaktsiy, Kazan', p 223, 1947.

KHOMYAKOV, A.M. [deceased]; MENDELEVICH, M.M.; GONIN, S.L.

Role of dehelmintization as a factor stimulating immunogenesis in horses producing antitoxic sera; preliminary report. Zhur.mikrobiol. epid. i immun. 28 no.1:110-114 Ja '57. (MLRA 10:3)

1. Iz Kazanskogo nauchno-issledovatel'skogo instituta vaktsin i syvorotok.

(HELMINTH INFECTIONS, therapy,
in horses prod. immune sera, role in immunogenesis (Rus))
(IMMUNE SERUMS,
eff. of ther. of helminth infect. in horses prod.serums
on immunogenesis (Rus))

BUZHINSKIY, I. M.; KHOMYAKOV, A. N.; SABAYEVA, Ye. M. 2

"Investigation of structural changes in glasses and glass-ceramic materials by various methods."

report submitted for 4th All-Union Conf on Structure of Glass, Leningrad, 16-21 Mar 64.

ACCESSION NR: AT4019302 S/0000/63/003/001/0127/0137

AUTHOR: Buzhinskiy, I. M.; Sabayeva, Ye. I.; Khomyakov, A. N.

TITLE: Variation in the physical properties of glasses of the lithium oxide - alumina - silica system mineralized with titanium dioxide during thermal treatment.

SOURCE: Simpozium po stekloobraznomu sostoyaniyu. Leningrad, 1962. Stekloobraznoye sostoyaniye, vy*p. 1: Katalizirovannaya kristallizatsiya stekla (vitreous state, no. 1: Catalyzing crystallization of glass); Trudy* simpoziuma, v. 3, no. 1. Moscow, Izd-vo AN SSSR, 1963. 127-137, insert between p. 128-129

TOPIC TAGS: glass, glass physical property, thermal treatment, eucryptite, spodumene, glass crystallization, titanium dioxide

ABSTRACT: Glasses having different compositions in the spodumene range were subjected to thermal treatment over a temperature range of 550-900C for a period of 1-500 hours. The optical properties, the coefficients of thermal expansion and elongation, and for some glasses, the volumetric resistance, dielectric loss, glass transition temperature, softening temperature and chemical stability were determined by different instruments. The processes in glasses mineralized with titanium dioxide are explained in detail on the basis of the experimental data obtained. During the thermal treatment all processes in these glasses

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ACCESSION NR: AT4019302

are divided into three periods and two narrow transition zones separating these periods from one another. Period I is characterized by the fact that the crystalline phase is missing, but the glass separates into two phases with the formation and growth of minute glass droplets of the composition which the crystals formed subsequently in the transition region will have. Structural changes also occur in titanium oxide and other elements of varying valency. In the first transition zone the liquefied glass droplets crystallize. In Period II, the material consists of glass and β-eucryptite crystals. Their growth and the structural changes in the titanium compounds continue. In the second transition zone, the β-eucryptite and spodumene crystals are rearranged due to the glassy silica with a corresponding increase in the total percentage of crystalline phase. In Period III the material consists of spodumene and a small amount of glass. The complex crystallization processes are now practically terminated. Orig. art. has: 12 figures and 1 formula.

ASSOCIATION: none

SUBMITTED: 17May63 DATE ACQ: 21Nov63 ENCL: 00

SUB CODE: MT NO REF SOV: 008 OTHER: 006

Card 2/2

L 44685-66 EWT(d)/EWP(k)/EWP(h)/EWP(v)/EWP(l) BC

ACC NR: AP6005376 (N) SOURCE CODE: UR/0413/66/000/001/0121/0121

AUTHORS: Khomyakov, A. N.; Liseyenko, Yu. I.

54
B

ORG: none

TITLE: Two-stage pressure reducer. Class 47, No. 177723

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 1, 1966, 121

TOPIC TAGS: pressure regulator, pressure valve, pneumatic device, pneumatic control, pneumatic drive

ABSTRACT: This Author Certificate presents a two-stage pressure reducer. A measuring valve, an adjustable spring, and a piston are built into its body. The piston is connected to the adjusting screw of the spring and moves under the influence of the air present in the main conduit. To provide for an automatic remote control switching of the exhaust pressure from one setting to another, the mechanism is provided with a pneumatic drive operating the piston (see Fig. 1).

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Card 1/2

UDC: 621.646.4--85

L 44685-66

ACC NR: AP6005376

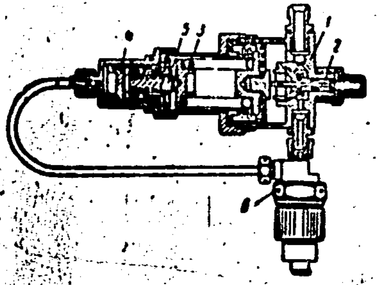

Fig. 1. 1 - casing; 2 - measuring valve; 3 - spring; 4 - piston; 5 - adjusting screw; 6 - pneumatic drive

Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 12Dec63

hs

Card 2/2

L 11845-66 EWP(e)/EWT(m)/EWP(b) GS/WH

ACC NR: AT6000505 SOURCE CODE: UR/0000/65/000/000/0360/0365

44 44 44 44

AUTHOR: Buzhinskiy, I. M.; Khomyakov, A. N.; Sabayeva, Ye. I.; Kirillova, I. I.

ORG: None

35
33
BH

TITLE: The study of structural changes in glasses and glass-crystalline materials by means of various methods

44

SOURCE: Vsesoyuznoye soveshchaniye po stekloobraznomu sostoyaniyu. 4th, Leningrad, 1964. Stekloobraznoye sostoyaniye (Vitreous state); trudy soveshchaniya, Leningrad, Izd-vo Nauka, 1965, 360-365

TOPIC TAGS: lithium glass, silicate glass, aluminum silicate, catalyzed crystallization, glass property

ABSTRACT: It was shown that during the precrystallization period and during the transition to the glassceramic state significant changes are observed in the linear expansion coefficient, index of refraction, mean dispersion, density, light transmission, and other properties of glasses. The present authors discussed additional experimental data with the aim of making the changes in the quantities listed above more precise. The article covers the changes in the refraction coefficient, specific dispersion, and light transmission as a function

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2

L 11845-66
ACC NR: AT6000505

2

of the temperature and duration of processing. These results indicate that the precrystallization processes consist of a continuous stratification of the glass base into two or more components, one of which represents the nucleus of the future crystalline phase. The size of the particles during the stratification is determined by the temperature, time, glass composition, and the quantity of mineralizer. The stratification is accompanied by changes in all of the physico-chemical properties, and the processes, causing the changes of these properties, continue to exist during the crystallization process. Orig. art. has: 4 figures and 1 table.

16,44

SUB CODE: 11, 20 / SUBM DATE: 22May63 / ORIG REF: 010 / OTH REF: 004

HW

Card 2/2

SEMENOV, Ye.I.; KHOMYAKOV, A.P.; BYKOVA, A.V.

New mineral "magbasite." Dokl. AN SSSR 163 no.3:718-719 Jl '65.
(MIRA 18:7)

1. Institut mineralogii, geokhimii i kristallokhimii redkikh elementov. Submitted November 18, 1964.

KHOMYAKOV, A.P.

Content-composition ratio of rare earths in minerals. Geokhimiia no.2:115-121 F '63. (MIRA 16:9)

1. Institute of Mineralogy, Geochemistry and Crustal Chemistry of Rare Elements, Moscow.

KHOMYAKOV, A.P.; STEPANOV, V.I.; MOLEVA, V.A.; PUDOVKINA, Z.V.

New mineral "tikhonenkovite" $SrAlF_4(OH) \cdot H_2O$. Dokl. AN SSSR 156 no. 2:345-347 My '64. (MIRA 17:7)

1. Predstavleno akdemikom N.V.Belovym.

SEMENOV, Ye.I.; KHOMYAKOV, A.P.; BYKOVA, A.V.

Hypergenetic bastnaesite in the weathering crust of the alkali massif. Trudy min. muz. no.11:202-204 '61. (MIRA 16:7)

(Bastnaesite)

KHOMYAKOV, B.

Adminstrator of State Plan USSR, Sverdlovsk (1949)
"Utilize Peat More Widely in the Enterprises of the Urals." (Summary) Pravda, 1949.

Current Digest of the Soviet Press, Vol. I, No. 8, page 48, 1949 (In CIA Library)

KHOMYAKOV, B.F.

Experience in the construction of KBTsSh semiautomatic block systems. Avtom., telem. i sviaz' 7 no.10:28-30 0 '63.
(MIRA 16:11)

1. Glavnyy inzh. sluzhby signalizatsii i svyazi Severnoy dorogi.

KHOMYAKOV, B.F.; PETUKHOV, M.S.

Designing an electric interlocking system and placing it in operation at the main Yaroslavl station. Avtom. telem. i sviaz' 4 no.9: 32-34 S '60. (MIRA 13:9)

1. Glavnyy inzhener sluzhby signalizatsii i svyazi Severnoy dorogi (for Khomyakov). 2. Starshiy inzhener Yaroslavskoy distantsii signalizatsii i svyazi Severnoy dorogi (for Petukhov).
(Yaroslavl--Railroads--Signaling)

KHOMYAKOV, D., inzhener-elektrik

Electric drive of the sliders of grain conduits. Muk.-elev. prom.
30 no.3:21-24 Mr '64. (MIRA 17:4)

GERSHENOVICH, A.I.; KHOMYAKOV, D.G.; BALAKIREV, Ye.S.

Acid chlorides of kerosine-fraction sulfonates. Patent U.S.S.R. 78,377,
Dec.31, 1949.
(CA 47 no.19:10215 '53)

GERSHENOVICH, A.I.; KHOMYAKOV, D.G.; BALAKIREV, Ye.S.

Saponification of acid chloride sulfonates of kerosine fractions. Patent U.S.S.R. 78,378, Dec.31, 1949.
(CA 47 no.19:10215 '53)

KHOMYAKOV, D.G.

[redacted]

Development of apparatus for automatic titration (From: The Chemical Age Je 1954). Zav.lab.21 no.12:1444-1445 '55. (MLRA 9:4)
(Volumetric apparatus)

L 38094-65 EWT(m)/EPA(w)-2/EWA(m)-2 Pab-10/Pt-10 IJP(c)

ACCESSION NR: AP5005906 S/0185/65/010/002/0123/0127

45 B

AUTHOR: Kalinichenko, S. S.; Krasnykov, O. A. (Krasnikov, A. A.); Khomyakov, H. K. (Khomyakov, G. K.)

TITLE: Investigation of neutron and Gamma radiation following a current pulse in a 70 MeV linear electron accelerator 19

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 2, 1965, 123-127

TOPIC TAGS: particle accelerator, electron accelerator, neutron background, Gamma background, shielding

ABSTRACT: The investigation was made to check on the frequently made assumption that the background due to slow neutrons and captured gamma quanta in the vicinity of an accelerator disappears upon cessation of the accelerator current pulse. The measurements were made behind a one-meter concrete shield of the 70-MeV linear electronic accelerator of the Fizyko-tekhnichnyy instytut AN URSR (Physicotechnical Institute, AN UkrSSR). The current pulse was 2.5 μsec in duration, and the repetition frequency was 50 cps. The experimental test set-up is shown in Fig. 1 of the Enclosure. The gamma radiation was monitored with an ionization chamber

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L 38094-65
ACCESSION NR: AP5005906

and measured with an FEU-24 photomultiplier with NaI single crystal. A Faraday cup was used to measure the average current and to serve as a neutron source. The character of decrease in the gamma radiation and in the neutron background following the stopping of the current pulse in the accelerator were similar. The results show that appreciable background exists up to 7 msec following the pulse, regardless of the length of the pulse. The lifetime of the slow neutrons and of the gamma-active isotopes produced as a result of capture of slow neutrons by different elements of the equipment and of the shielding is approximately 3.5 msec. The maximum gamma-quantum energy is approximately 8 MeV. Orig. art. has: 3 figures.

ASSOCIATION: Fizyko-tekhnichnyy instytut AN URSR, Khar'kov (Physicotechnical Institute AN UkrSSR)

SUBMITTED: 07May64 ENCL: 01 SUB CODE: NP

NR REF SOV: 003 OTHER: 003

Card 2/3

KHOMYAKOV I. A.

COUNTRY : USSR
CATEGORY : Forestry. Forest Cultures. K

ABS. JOUR. : RZhBiol., No. 14 1958, No. 63237

AUTHOR : Khomyakov, ~~I. A.~~
INST. : All-Union Scientific-Research Institute of Forestry*
TITLE : Preparation of 2,4-D for the Care of Coniferous Cultures

ORIG. PUB. : Byul. nauchno-tekhn. inform. Vses. n.-i. in-t lesovodstva i mekhaniz. lesn. kh-va, 1957, No. 4, 22-26

ABSTRACT : In the Zagorskiy tree farm of Moskovskaya oblast in 1956 experiments were carried out on 1-3-year-old pine and spruce cultures vigorously overgrown with herbaceous vegetation, on 2-year-old pine and spruce cultures vigorously overgrown with three-year-old growth of deciduous species and grass, and on cleared land overgrown with a year-old growth of deciduous species and grass. On these areas a sprinkling of 2,4-D in doses of 0.5-4 kg/hectare was applied at once, and at two fixed times. It is found that 1-3-year-old ordinary pine [P. silvestris L.] and ordinary spruce

*and Mechanication of Forest Management

Card: 1/2

KHomyAKov, I.A.

USSR / Forestry. Forest Crops. K-3

Abs Jour: Ref Zhur-Biol., No 6, 1958, 24910.

Author : Khomyakov, I. A.
Inst : ~~Not given.~~
Title : Experiment with the Creation of Shelter-Belt Forest Zones with Large Stock.

Orig Pub: Lesn. kh-vo, 1957, No 9, 44-49.

Abstract: Described is the practice of laying experimental forest belts with stock of Canadian poplar, Norway maple, black locust, green ash, and the small-leaf elm in the Krasnodarsk and Stavropol' lands and the Kamenskaya oblast in semiarid steppe conditions. The agrotechnics of the planting are

Card 1/2

KHOMYAKOV, I.P.

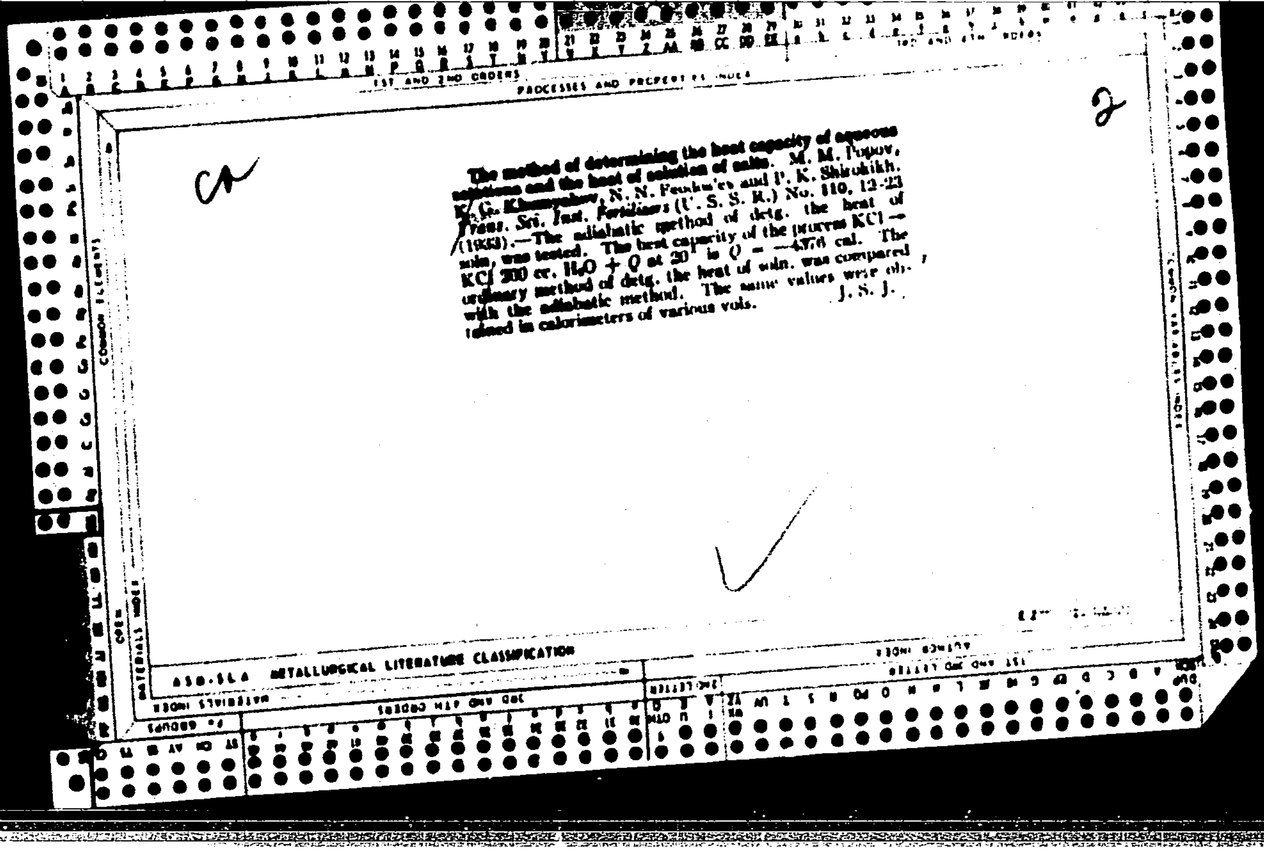
Gamasid mites of some rodents and entomophagous mammals in Bryansk Province. Nauch.dokl. vys. shkoly; biol. nauki no.4: 17-19 '63. (MIRA 16:11)

1. Rekomendovana kafedroy entomologii Moskovskogo gosudarstvennogo universiteta im. M.V.Lomonosova.

*

GLEYZER, M.D., inzh.; TARTAKOVSKIY, M.L., inzh.; KHOMYAKOV, K.A., inzh.

Construction of electric power transmission lines in mountainous
areas. Elek.sta. 33 no.1:74-76 Ja '62. (MIRA 15:3)
(Electric lines--Overhead)

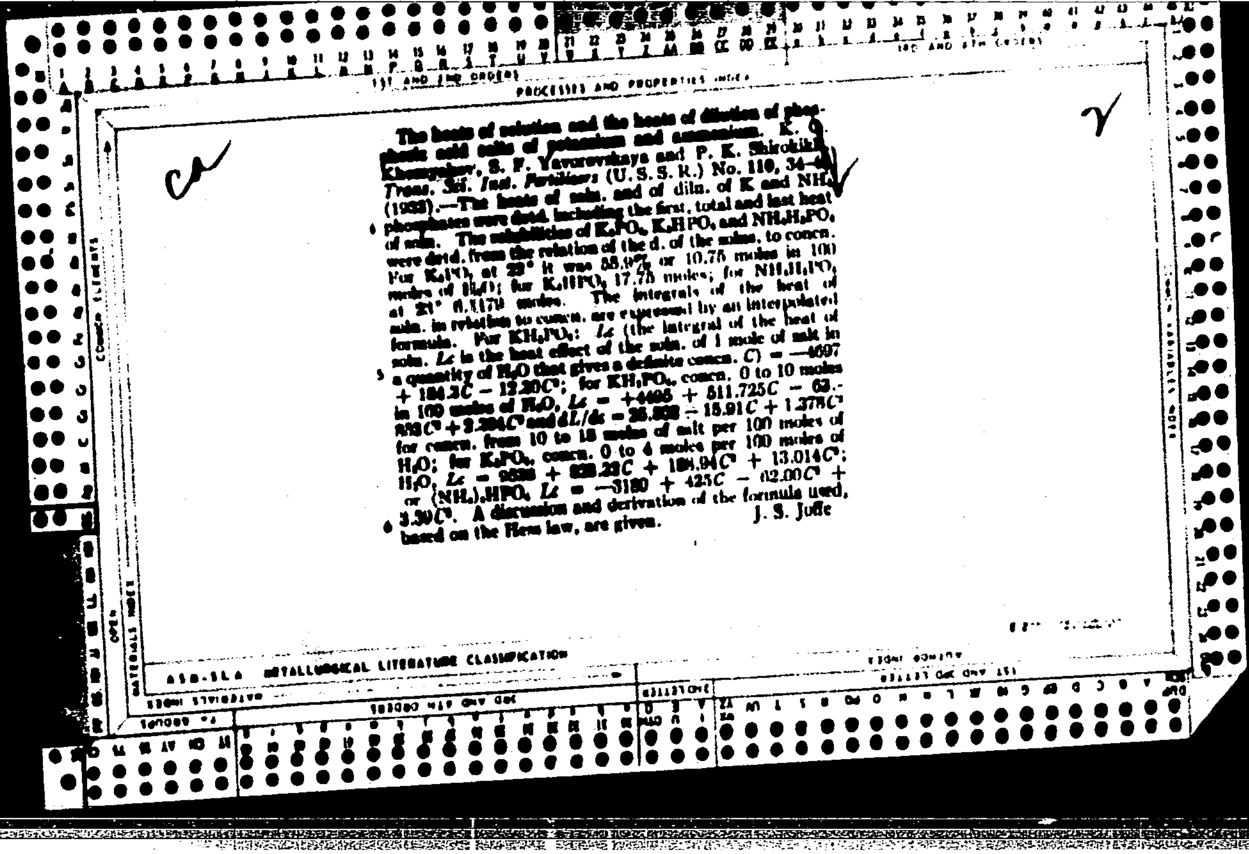


ca

2

The method of determining the heat capacity of aqueous solutions and the heat of solution of salts. M. M. Popov, K. G. Khomyakov, N. N. Feodos'ev and P. K. Shirokikh. *Trans. Sci. Inst. Fertilizers* (U. S. S. R.) No. 110, 12-23 (1933).—The adiabatic method of detg. the heat of soln. was tested. The heat capacity of the process KCl → KCl 200 cc. $H_2O + Q$ at 20° is $Q = -4376$ cal. The ordinary method of detg. the heat of soln. was compared with the adiabatic method. The same values were obtained in calorimeters of various vols. J. S. J.

✓



1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

ca

γ

The heats of solution and the heats of dilution of phosphoric acid salts of potassium and ammonium. K. G. Khomyakov, S. F. Yavorovskaya and P. K. Shirokikh. *Trans. Sci. Inst. Fertilizers* (U.S.S.R.) No. 110, 34-41 (1933).—The heats of soln. and of diln. of K and NH_4 phosphates were detd. including the first, total and last heat of soln. The solubilities of K_3PO_4, K_2HPO_4 and $NH_4H_2PO_4$ were detd. from the relation of the d. of the solns. to concn. For K_3PO_4 at 25° it was 58.9% or 10.75 moles in 100 moles of H_2O; for K_2HPO_4 17.75 moles; for $NH_4H_2PO_4$ at 21° 6.1178 moles. The integrals of the heat of soln. in relation to concn. are expressed by an interpolated formula. For KH_2PO_4: L_c (the integral of the heat of soln. L_c is the heat effect of the soln. of 1 mole of salt in a quantity of H_2O that gives a definite concn. C) = $-4697 + 184.3C - 12.20C^2$; for KH_2PO_4, concn. 0 to 10 moles in 100 moles of H_2O, $L_c = +4406 + 511.725C - 63.893C^2 + 2.394C^3$ and $dL/dc = 25.808 - 15.91C + 1.378C^2$ for concn. from 10 to 18 moles of salt per 100 moles of H_2O; for K_3PO_4, concn. 0 to 4 moles per 100 moles of H_2O, $L_c = 9838 + 828.23C + 184.94C^2 + 13.014C^3$; for $(NH_4)_2HPO_4$ $L_c = -3180 + 425C - 62.00C^2 + 3.30C^3$. A discussion and derivation of the formula used, based on the Hess law, are given.

J. S. Joffe

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

2

Velocity of dissociation of carbonates. K. G. Khomyakov, S. F. Yavorovskaya and V. A. Arbuzov. *Sci. Repts. Moscow State Univ.* **1936**, No. 6, 77-87.—The velocity v of dissocn. of $CaCO_3$ at 750-815°, or of $CdCO_3$ at 375-86°, in a stream of N is given by $k(a-x)^{2/3}$. Three periods are distinguished in the process of calcination of carbonates, e. g., an induction period, for which $v = k_1x^{2/3}$, terminated when the surface layer of the particles consists of oxides only, a period of max. velocity, for which $v = k(a-x)^{2/3}$, during which the partial CO_2 pressures at the surfaces and in the gaseous phase are identical, in view of the thinness of the oxide layer and a terminal period, characterised by formation of thick layers of oxide, and for which $v = k(a-x)^{1.1}$.

B. C. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

2

The formation of labile phases during the dehydration of crystallohydrates. K. G. Khomyakov. *J. Phys. Chem.* (U. S. S. R.) 11, 905-17(1938).—Attempts were made to observe and to measure the energy changes taking place during the process of dehydration, and at any moment immediately following it. A Cu differential calorimeter suspended in a vessel under a vacuum pump was constructed. The vessel was kept in a thermostat whose temp. was const. to 0.005°. The crystallohydrate was 9 placed in one part of the calorimeter, which was heated with an elec. current keeping the temp. const. The heats of dehydration of the "fresh" and the partly dehydrated crystals of $CuSO_4.5H_2O$ at 45° were detd. The heat of dehydration of the "fresh" crystals of the monohydrate was 4810 cal./mol. higher than that of the partly dehydrated crystals, and this value did not depend on the degree of dehydration. Below 55° $CuSO_4.5H_2O$ loses in 3 vacuum four mol. of water, forming the monohydrate. The exptl. results obtained in the differential calorimeter were −12510 cal./mol., as compared with −12500 cal./mol. given by Thomsen [*Thermich. Unter.* III(1883)]. Immediately after the partial dehydration process of the "fresh" crystals of $CuSO_4.5H_2O$ heat is evolved which is proportional to the amt. of the dehydrated salt, and is 5018 cal./mol. of the monohydrate. The observed heat effect is qualitatively explained by an arbitrary trans- 4 formation of the newly formed solid phase into a stable state. Similar phenomena were observed with expts. on the hydrated sulfates of Zn, Mn and Fe. $BaCl_2.2H_2O$ shows no heat effect following its partial dehydration. The heat of dehydration obtained in the Cu calorimeter was 6948 cal., and it compared favorably with 7000 cal. obtained by Thomsen by the usual methods from the heat of soln.

W. R. Henn

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

C

Theory of the technological process for the production of gypsum. K. G. KHOMYAKOV. *Prom. Stroitel. Material.*, 1941, No. 2, pp. 21-24; *Khim. Referat. Zhur.*, 4 [9] 111 (1941); *Chem. Abstracts*, 38, 1330 (1944).—On the basis of Van't Hoff studies, Kh. proves that gypsum can be dehydrated in an atmosphere of saturated steam at temperatures above 107°C.

COMMON ELEMENTS

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KHOMYAKOV, K.G.

CA

2

Curves of the true heat capacities of intermetallic compounds in the system magnesium-cadmium. K. G. [illegible]makov, V. A. Kholler, and V. A. Troshkina (Moscow [illegible]). [illegible] 5, No. 6, Ser. [illegible] 43-[illegible] (1950). — High-accuracy [illegible] were made by a [illegible] heating with the aid of an [illegible] in the interior of the cylindrical sample, [illegible] method of M[illegible] 31, 601[illegible] and of Sykes [illegible] samples of MgCd, one of the [illegible] the other of the [illegible] and, at the [illegible] very close to the [illegible] with increasing temp., c increases [illegible] shaped curve attaining c [illegible] consequently, the transi[illegible] heat of transition of 5.3 [illegible] heat of transition [illegible] atom. Hence [illegible] of MgCd from the elements [illegible] atom (Biltz and Hohorst, [illegible] transition point is 4.6 [illegible] Annealing I for 5 hrs. at 200° did not [illegible] the shape of the curve or the position of the transition point. Quenching I from 2 hrs. at 300° to 0 or −17° resulted in a lowering of the values of c at low temps., with a min. at 83 and 64°, resp. By the criterion of the existence of a latent heat, the transition of MgCd at 251° is a transition of the 1st kind. On the other hand, the anomaly of c [illegible] of the curve, would [illegible] kind. Further [illegible] the [illegible] point at [illegible] existence of a peak of the elec[illegible] MgCd (Grube and Schiedt, [illegible] and the magnitude of ΔH = 5.97, corre[illegible] the formation of a [illegible] the latter is taken = [illegible] higher than [illegible] 2 [illegible] sample of MgCd, of the [illegible] Mg [illegible] and [illegible] Mg [illegible] transition [illegible] tive value over the whole temp. range 35–155° [illegible] Thon cA

2

Simple realization of the flow method of determination of the relative heat capacities of gases. *M. I. Lapshina and K. O. Khomyakov* (Moscow State Univ.). *Vestnik Moskov. Univ.* 6, No. 3, *Ser. Fiz.-Mat. i Estestven. Nauk* No. 2, 35-48(1951).—The method of Blackett, *et al.* (*C.A.* 26, 2360; Henry, *C.A.* 26, 580) is simplified and its error reduced to ± 0.2% through the use of displacement of gas by a liquid under a small const. overpressure, which permits accurate control (within 0.016%) and automatic regulation of the rate of flow. An iron tube 100 mm. long, inner diam. 1.096 mm., is heated with a high-frequency elec. current to a temp. θ_m in the center of the tube, with the ends kept at const. temp.; the temp. distribution in the absence of a flowing gas is $\theta = \theta_m s/l$, where θ is the temp. at a distance s from the end of the tube, and l the half-length. The temp. difference $\Delta\theta$ between 2 points symmetrically located with regard to the center is zero. With a gas of the vol. heat capacity c flowing through the tube at the vol. velocity q, then $\theta = \theta_m(1 - e^{as})/(1 - e^{al})$, where $a = cq/2KA$, with K = heat cond. of the tube, and A = its cross section. Development of the exponentials gives, for low q, the 1st approxn. $\theta = \theta_m(2 + al)/4$, i.e., between 2 sym. points, $\Delta\theta = \theta_m al/4$, or $\Delta\theta_m = ceq$, where $e = 1/8KA$ is an app. const. In 2nd approxn., at greater q, there is an addnl. term in q^2. The detn. consists in measuring, with the aid of thermocouples, $\Delta\theta$ between 2 sym. points with a gas of known c (air), and with the gas of unknown c. With Eucken and Lüde's (*C.A.* 24, 291) data for air as standard, the heat capacities of CO_2, at 19.5, 110.8, 203.3°, were detd. to be C_p = 8.890, 9.117, 9.769 cal./mole; for CH_4, at 28.1, 49.4, 72.5, 94.0, 117.3, 138.4, 159.0, C_p = 8.664, 8.883, 9.203, 9.476, 10.078, 10.420, 10.952 cal./mole. The 2nd approxn. is not necessary with flow rates of the order of 5-9 cc./min.

N. Thon

KHOMYAKOV, K.G.

✓ True heat capacity of the phenol-water system in the region of critical temperature. K. G. Khomyakov, V. A. Kholler, and M. A. Nekrashevich (M. V. Lomonosov State Univ., Moscow). *Zhur. Fiz. Khim.* 25, 1469–74(1951); cf. *C.A.* 45, 7862e.—The true heat capacity (C) of a mixt. of phenol and water was measured calorimetrically at various temps. between 60 and 70°, including the consolute temp. (θ_c). The value of C increases rapidly as θ_c is approached from above or below, becoming infinite at θ_c. This type of temp. dependence is characteristic of second-order phase transitions; this indicates that C is anomalous at temps. above, as well as below, θ_c. The θ_c of systems contg. 27, 32, 34, and 41% phenol is 65.2, 65.4, 65.7, and 64.5° resp.

J. W. Loweberg, Jr.

2

CA

The initial stages of the interaction of carbon monoxide and hydrogen with the nickel catalyst at the temperatures of synthesis of gasoline. I. A. Zaidenman and K. O. Khomyakov. *Doklady Akad. Nauk S.S.S.R.* 78, 901-4(1951).—The heat evolved on contact between CO or a mixt. 1 CO:1 H_2 and a skeleton Ni catalyst (by leaching Ni-Al) reduced by H_2 2-4 hrs. at 190-200° was detd. in an Al calorimeter with a Pt resistance thermometer (accuracy 0.0005-0.001°) in expts. at 180-185° in both flow and circulation systems. With the aid of simultaneous measurements of the change of pressure, the heat was referred to 1 mole gas disappeared. First contact of CO with a freshly prepd. Ni catalyst evolved over 85 kcal./mole gas disappeared. This is considerably higher than the heat effects (per 1 mole gas disappearing) of any of the 5 possible reactions (I) $2\ CO \rightarrow C + CO_2$, 42.9; (II) $2\ CO + 3\ Ni \rightarrow Ni_3C + CO_2$, 31.7; (III) $2\ CO + 2\ H_2 \rightarrow CH_4 + CO_2$, 30.15; (IV) $CO + 3\ H_2 \rightarrow CH_4 + H_2O$, 16.9; (V) $3\ Ni + CO + H_2 \rightarrow Ni_3C + H_2O$, 11.1 kcal. The abnormally high initial heat effect of 85 kcal. can be attributed only to a change within the catalyst itself, specifically to partial recalescence. On consecutive admissions of CO, each time after reduction of the catalyst with H_2, the heat effect drops to and remains const. at about 34 kcal./mole gas disappeared. This corresponds to the carbide-formation reaction II; reaction V is excluded, as there is no H_2O formation with CO alone. The rate of reaction II passes through a max. within the 1st few min. Its activation energy in the range 165-195° is 15.8 kcal./mole. The same heat effect, 34 kcal./mole gas disappeared, is found in contact with a 1 CO:1 H_2 mixt., on a catalyst previously exposed to CO. This again is evidence for the occurrence of reaction II; reaction III is out of the question, as in this instance one does observe formation of H_2O; furthermore, subsequent admission of H_2 alone produces hydrocarbons, which is proof that Ni carbide has been formed. On more prolonged contact with the gas mixt., the heat effect decreases gradually, which indicates beginning occurrence of reaction IV. However, in the *initial* stage, the preponderant reaction is II.

N. Thon

1951

KHOMYAKOV, K. G.: KHOLLER, V. A.: ZHVANKO, S. A.

Tin

Actual heat capacity of tin and cadmium near the melting point. Vest. Mosk. un 7 No. 3, 1952.

9. Monthly List of Russian Accessions, Library of Congress, October, 1952 [illegible] Unclassified.

232T3

USSR/Chemistry - Fuels 1 Jun 52

"The Beginning Stages of the Reaction Between Carbon Monoxide and Hydrogen With a Cobalt Catalyst at the Temperature of Benzene Synthesis," I. A. Zaydenman, K. G. Khomyakov

"Dok Ak Nauk SSSR" Vol 84, No 4, pp 705-707

Carbon monoxide reacts with a freshly prepd Co catalyst with a high heat effect, if the reaction is carried out to the point of conversion. This heat amounts to about 92 kkal per mole, which exceeds the heat effect of the interaction of CO

232T3

with cobalt considerably. In contrast to Ni catalyst, this heat effect is reversible. After every reduction (at 180°) of the cobalt with H_2 the fresh CO brings about an increased heat effect. This large heat effect indicates that the reaction is exothermic. One part of CO and 2 parts of H_2 react with a Co catalyst with an immediate heat effect of 13.6±0.3 kkal per mole. This corresponds to water formation in satd hydrocarbon synthesis. The reaction of 1:2 mixt of CO and H_2 at 180° with a Co catalyst begins with both gases participating immediatly, not just one (CO) as with a Ni catalyst.

232T3

<u>KHOMYAKOV, K. G.</u> Prof. and KHOLLER, V. A. Sr. Sci. Colleague

"On the Experimental Confirmation of the Theory of the Generalized Critical Phenomena of V. K. Semenchenko," a paper given at the All-University Scientific Conference "Lomonosov Lectures", Vest. Mosk. Un., No.8, 1953.

Translation U07895, 1 Mar 56

KHOMYAKOV, K.G.

On the history of the discovery of D.I.Mendeleev's periodic law. Vest.Mosk.un. 8 no.12:17-23 D '53. (MLRA 7:2)

1. Kafedra obshchey khimii. (Periodic law)

KHOMIAKOV, K. G.

260T8

USSR/Chemistry - Alloys

11 May 53

"Specific Heat of the Alloy Aluminum-Zinc in the Critical Region of the Separation of Solid Solutions," V. A. Kholler and K. G. Khomyakov, Moscow State

DAN SSSR, Vol 90, No 2, pp 199-200

Exptly proved that when metal alloys pass through the critical region, the specific heat curve displays a maximum and has a λ shaped appearance for equilibrium systems. Presented by Acad P. A. Rebinder 24 Feb 53.

260T8

KHOMYAKOV, K. G.
USSR/Chemistry

Card 1/1

Authors : Troshkina, V. A.; and Khomyakov, K. G.

Title : Structural changes in iron-nickel-aluminum alloys studied by the method of actual specific heat

Periodical : Zhur. Ob. Khim. 24, Ed. 5, 780 - 790, May 1954

Abstract : By studying the actual specific heat of annealed, hardened and high-coercive iron-nickel-aluminum alloys the authors established the structural changes in these alloys. The presence of three exothermal conversions was observed in the 300 - 450, 450 - 550, and 580 - 650° ranges. The conversion in the 580 - 650° range is connected with the magnetic hardening processes. The zone of dispersion hardening of Fe-Ni-Al-alloys was established at above 550°. The processes accompanied by low and medium temperature effects do not directly participate in the magnetic hardening of these alloys. Twelve references; 1 USSR since 1937. Tables, graphs.

institution : The M. V. Lomonosov State University, Moscow, USSR

Submitted : October 12, 1953

Evaluation B-81417

KHOMYAKOV, K.G.

USSR/ Physical Chemistry - Thermodynamics. Thermochemistry. Equilibrium. Physicochemical Analysis. Phase Transitions. B-8

Abs Jour : Referat Zhur - Khimiya, No 3, 1957, 7487

Author : Ozerova, M.I. and Khomyakov. K.G.
Inst : Moscow University
Title : Solubility of Salts in Aqueous H_2O_2 Solutions. Communication I. The Na_2SO_4-H_2O_2-H_2O System

Orig Pub : Vestn. Mosk. un-ta, 1955, No 10, 97-102

Abstract : The solubility (S) of Na_2SO_4 in the system Na_2SO_4 (I)-H_2O_2 (II)-H_2O (III) containing 4-56 wt percent II has been investigated at -10.0 and 20°. The S isotherm is characterized at 10° by the presence of the equilibrium solid phases I,10 III and I.7 III; at 0°, 1.10 III, 1.7 III, and I; and at 20°, I and I.0.5 II. The invariant points correspond to the following composition of the liquid phase (wt percent): at 10°, 13 I, 24.1 II and 62.9 III; at 0° 19.68 I, 22.72 II, and 57.6 III and 12.62

Card 1/2

USSR/ Physical Chemistry - Thermodynamics. Thermochemistry. Equilibrium. Physicochemical Analysis. Phase Transitions. B-8

Abs Jour : Referat Zhur - Khimiya, No 3, 1957, 7487

I, 17.41 II, and 69.97 III; at 20°, 13 I, 12.05 II, and 57.95 III. An increase in the dehydrating action of II is observed with increasing concentration and tempe-rature. It has been established that S of I increases with increasing concentration of II and at 20° a solution containing ·12 wt percent II shows the presence of a compound of composition I.0.5 II.

Card 2/2

KHOMYAKOV,

KHOMYAKOV, K.G

KHOMYAKOV, K.G., prof.; NOVOSELOVA, A.V., otv.red.

[Program in general chemistry; for the Physics Faculty] Programma po obshchei khimii (dlia fizicheskogo fakul'teta). 1956. 7 p. (MIRA 11:3)

1. Moscow. Universitet. 2. Chlen-korrespondent AN SSSR (for Novoselova)

(Chemistry--Study and teaching)

KHOMYAKOV, K.G.; STIKHOVNIN, A.M.; NEMIROVSKIY, E.I.; GUROV, P.G.

Branch conferences of production activists of the Main Administrations of the Ministry. Stroi.i dor.mashinostr. no.9:37-38 S '56.

(Machinery industry--Congresses) (MLRA 9:11)

KHOMYAKOV, Konstantin Grigor'yevich; KONDRASHKOVA, S.F., red.; YERMAKOV, M.S., tekhn.red.

[Lectures on general chemistry] Lektsii po obshchei khimii. [Moskva] Izd-vo Mosk.univ. Pt.1. 1957. 202 p. (MIRA 11:7)
(Chemistry)

SOV/137-58-9-19781

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 238 (USSR)

AUTHORS: Khomyakov, K.G., Kholler, V.A., Moiseyeva, Ye.I., ~~Reznitskiy~~, L.A., Levitin, I.Ya.

TITLE: Investigation of Alloys of Magnesium With Cadmium. Communication Nr 2. True Heat Capacity of Alloys of Magnesium With Cadmium Close to Mg_3Cd in Composition and Chemical Association (Issledovaniye splavov magniya s kadmiyem. Soobshcheniye 2. Istinnaya teployemkost' splavov magniya s kadmiyem, primykayushchikh po sostavu i khimicheskomu soyedineniyu Mg_3Cd)

PERIODICAL: Vestn. Mosk. un-ta. Ser. matem., mekhan., astron. fiz., khimii, 1957, Nr 1, pp 123-130

ABSTRACT: The true heat capacity c of Mg-Cd alloys with 61.8-79.7 atom·% Mg was determined at 45-210°C by the method of continuous adiabatic heating. In alloys close to Mg_3Cd in chemical association, the presence of two chemical transformations (70-81° and 145-159°) is noted, corresponding to the process of the disordering of the alloy. The integral heat of the transformations constitutes 0.33 and 0.35 cal/g-atom, respectively.

Card 1/2

AUTHORS: Kosmodem'yanskaya, G. V., SOV/156-58-3-6/52
Khomyakov, K. G.

TITLE: The Investigation of the Kinetics of the Decomposition of Solid Permolybdates (Izucheniye kinetiki raspada tverdykh permolibdatov)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 3, pp. 426-429 (USSR)

ABSTRACT: The authors devised a method to investigate the kinetics of the decomposition of the red permolybdate $Na_2MoO_8 \cdot 4H_2O$ under isothermal conditions. The decomposition of the red permolybdate can be classified to the type of reaction: solid 1 = solid 2 + gas. This reaction is governed by the rules deduced for topochemical reactions. It was shown that a decrease in the water of hydration in the permolybdate leads to its becoming more stable. Only 2 of the 4 molecules of water can be removed without liberating active oxygen. The kinetics of the decomposition of the yellow permolybdate $Na_2MoO_6 \cdot H_2O$ were investigated; it is assumed that the

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The Investigation of the Kinetics of the Decomposition of Solid Permolybdates SOV/156-58-3-6/52

decomposition of the yellow permolybdate takes place in two stages. The experiments were carried out in a calorimeter, which is shown in a scheme. The experimental arrangement is discussed. The active oxygen was determined volumetrically. The experimental results are shown in three diagrams. There are 4 figures and 7 references, 6 of which are Soviet.

ASSOCIATION: **Kafedra** obshchey khimii Moskovskogo gosudarstvennogo universiteta im. M. V. Lomonosova (Chair of General Chemistry of Moscow State University imeni M. V. Lomonosov)

SUBMITTED: October 29, 1957

Card 2/2

5(2),5(4)

AUTHORS: Khomyakov, K.G., Kholler, V.A., and Slavnova, G.K. SOV/55-58-4-29/31

TITLE: Investigation of Magnesium-Cadmium Alloys. Communication III. The Actual Thermal Capacity of the Magnesium-Cadmium Alloys, the Chemical Composition of Which is Little Different From $MgCd_3$ (Issledovaniye splavov magniya s kadmiyem. Soobshcheniye III. Istinnaya teployemkost' splavov magniya s kadmiyem, primykayushchikh po sostavu k khimicheskomu soyedineniyu $MgCd_3$)

PERIODICAL: Vestnik Moskovskogo universiteta, Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1958, Nr 4, pp 223-230 (USSR)

ABSTRACT: With the aid of a special calorimeter the authors obtained the curve $C_p = f(T)$ for four Mg-Cd-alloys (Cd-contents: 71.5; 73.0; 75.9; 77.2%) in the interval of temperatures from 27° to 125° C under a continuous adiabatic heating. In the neighborhood of the Curie-point all four curves show a characteristic maximum which for 71.5% and 73% Cd is ca. six times as large as the value calculated additively out from the components. There are 5 references, 2 of which are Soviet, and 3 American.

ASSOCIATION: Kafedra obshchey khimii (Chair of General Chemistry)

SUBMITTED: August 13, 1957

Card 1/1

5(4)

AUTHORS: Dyubakova, L.S., Kholler, V.A., Khomyakov, K.G. SOV/55-58-5-30/34

TITLE: Investigation of Magnesium - Cadmium Alloys. Note IV. Investigation of the Electric Resistance of the Magnesium-Cadmium Alloys in the Domain of the Chemical Compound $MgCd_3$ (Issledovaniye splavov magniya s kadmiyem. Soobshcheniye IV. Issledovaniye elektrosoprotivleniya splavov magniya s kadmiyem v oblasti khimicheskogo soyedineniya $MgCd_3$)

PERIODICAL: Vestnik Moskovskogo universiteta, Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1958, Nr 5, pp 193 - 200 (USSR)

ABSTRACT: The electric resistance of the Mg - Cd alloys with 77.2 - 71.5 % contents of Cd was measured in the temperature interval 20 - 120° C. The value $\frac{\Delta R}{\Delta t}$ (variable factor of the temperature coefficient $\alpha = \frac{1}{R_0} \cdot \frac{\Delta R}{\Delta t}$; the constant factor $\frac{1}{R_0}$ was not measured) was calculated in the domain of structural

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Investigation of Magnesium - Cadmium Alloys.Note IV. SOV/55-58-5-30/34
Investigation of the Electric Resistance of the Magnesium - Cadmium Alloys in the Domain of the Chemical Compound $MgCd_3$

change in intervals of 2 - 3°. The curve $\frac{\Delta R}{\Delta t}$ - t has λ - form (R is the resistance, t the temperature). The equilibrium temperatures were determined according to the maximum of the curves $\frac{\Delta R}{\Delta t}$ - t. The results are compared with the measurings of G.G. Urazov, I.I. Kornilov, K.G. Khomyakov, V.A. Kholler, and V.A. Troshkina.

There are 13 references, 6 of which are Soviet, 3 German, 2 English, 1 American, and 1 Japanese.

ASSOCIATION: Kafedra obshchey khimii (Chair of General Chemistry)
SUBMITTED: February 25, 1958

Card 2/2

Khomyakov, K. G.

AUTHORS: Reznitskiy, L. A., Khomyakov, K. G., Nekrasov, L. I., SKorokhodov, I. I. 76-1-13/32

TITLE: Concerning the Higher Peroxide of Hydrogen and Frozen Radicals I. Determination of the Decomposition Temperature of the Glassy Substances Produced in the Electric Discharge From Water Vapour (K voprosu o vysshey perikisi vodoroda i zamorozhennykh radikalov. I. Opredeleniye teploty razlozheniya steklovidnogo veshchestva, poluchennogo iz parov vody v elektricheskom razryade).

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1958, Vol. 32, Nr 1, pp. 87-92 (USSR)

ABSTRACT: The results of the calorimetric determination of heat effects are given, which accompany the decomposition of the glassy substance (obtained from dissociated steam with an electric discharge). The method of continuous heating on adiabatic conditions was used. This method makes possible the determination of heat effects in a relatively quick and realiable manner. A construction of the calorimetric investigation of the interaction at low temperature of vapour dissociated in an electric discharge was worked out. Three heat effects were determined which accompany the heating

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76-1-13/32

Concerning the Higher Perodixe of Hydrogen and Frozen Radicals
I. Determination of the Decomposition Temperature of the
Glassy Substances Produced in the Electric Discharge From
Water Vapour

process of the glassy substance. The authors show that at -115°C the first exothermic effect begins and that it is accompanied by a separation of O_2. At - 70°C the glassy substance begins to melt. This goes on till -55°C. At this temperature the endothermic process passes over to an exothermic one. This is accompanied by a turbulent separation. of O_2. It reaches its maximum in a liquid phase at -43°C. This exothermic effect takes place in the melting range of the eutectic of the H_2O-H_2O_2 system. In order to take this effect into account the heat of fusion of the eutectic was determined. It was 74,5 cal/g. When determining the real value of the second exothermic effect this quantity was taken into account. The authors stated that with the first effect, which began at -115°C and which was accompanied by a separation of gas a heat of 78,8 kcal/Mol O_2 was separated. The endothermic effect which is connected with the melting of the substance and which begins at -70° is also accompanied by a separation of

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76-1-13/32

Concerning the Higher Perodixe of Hydrogen and Frozen Radicals
I. Determination of the Decomposition Temperature of the Classy Substances Produced in the Electric Discharge From Water Vapour

gas. With this effect 100 cal/g H_2O_2 were recorded. The quantity of the second exothermic effect was 68,0 kcal/Mol of O_2. It is accompanied by a decomposition of H_2O_4. The data given here prove the process of the decomposition of glassy substances suggested earlier by one of the authors (Nekrasov) (ref. 6). The endothermic effect stated with this decomposition has not yet been clearly explained. According to the opinion of the authors this effect had to be attributed to a change of the state of aggregation with glassy substances, which would coincide with the explications in ref. 11.
The authors were advised by Professor N. I. Kobozev.
There are 2 figures, 2 tables, and 12 references, 2 of which are Slavic.

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76-1-13/32

Concerning the Higher Perodixe of Hydrogen and Frozen Radicals I. Determination of the Decomposition Temperature of the Classy Substances Produced in the Electric Discharge From Water Vapour

ASSOCIATION: Moscow State University imeni M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova)

SUBMITTED: October 3, 1956

AVAILABLE: Library of Congress

Card 4/4

7(0), 24(8) SOV/78-4-1-2/48

AUTHORS: Tret'yakov, Yu. D., Troshkina, V. A., Khomyakov, K. G.

TITLE: An Adiabatic Calorimeter **Operating on the Principle of Continuous** Heating (Adiabaticheskiy kalorimetr, rabotayushchiy po printsipu nepreryvnogo nagreva)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 1, pp 5-12 (USSR)

ABSTRACT: In order to investigate the structural change in magnetic alloys by the heat capacity method a new adiabatic calorimeter was constructed. The device is described in detail and the diagram shown in figures 1 and 2. The thermo-elements for the calorimetric system are indicated. By determining the real specific heat of cobalt and iron within long temperature ranges the calorimeter was tested. The specific heat c_p of cobalt changes suddenly within the temperature range 447-478°, iron shows a maximum of specific heat c_p within the temperature range 745-775° which corresponds to the transition from α-to β-phase. The c_p determination of cobalt was compared to data obtained fro-

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SOV/78-4-1-2/48

An Adiabatic Calorimeter **Operating on the Principle of Continuous Heating**

from publications and it was found that the maximum error of the adiabatic calorimeter is ± 1% at a heating rate of 0.3 to 1.0°/min. Heat capacity up to 850° can be measured by means of the new calorimeter. There are 7 figures, 2 tables, and 10 references.

SUBMITTED: October 7, 1957

Card 2/2

5(4), 18(4) SOV/78-4-1-3/48

AUTHORS: Tret'yakov, Yu. D., Khomyakov, K. G.

TITLE: The Specific Heat of the Intermetallic Compound CoAl After Various Thermal Treatments (Teployemkost' intermetallicheskogo soyedineniya CoAl posle razlichnykh termicheskikh obrabotok)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 1, pp 13-16 (USSR)

ABSTRACT: The real specific heat of the intermetallic compound CoAl of stoichiometric composition was investigated by the method of continuous adiabatic heating. For the production of the alloys CoAl electrolytically purest cobalt and aluminum (99.99%) were used. The real specific heat c_p was measured for the same sample in hardened and annealed state in dependence on temperature. The c_p value in the hardened samples rises slowly and shows a sudden rise at 740°. The sudden rise of the c_p value depends on the order and disorder in the CoAl structure. By hardening the samples at 1250° a greater disorder is caused than by hardening at 800°C. At temperatures above 800° all

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SOV/78-4-1-3/48

The Specific Heat of the Intermetallic Compound CoAl After Various Thermal Treatments

curves of the c_p value show a sudden drop. There are 2 figures and 13 references, 4 of which are Soviet.

SUBMITTED: October 7, 1957

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5(4)

AUTHORS: Tret'yakov, Yu. D., Khomyakov, ~~K. G.~~ SOV/78-4-3-23/34

TITLE: Specific Heat of the Alloys FeNiAl and FeCoAl (Teployemkost' splavov FeNiAl i FeCoAl)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 3, pp 645-650 (USSR)

ABSTRACT:

The true specific heat of the alloys FeNiAl and FeCoAl was investigated according to various methods of treatment of the alloys. For the production of the alloys electrolytic cobalt, nickel, Armco iron, and aluminum with a purity of 99.99 % were used. The melting of the alloys was carried out in the high-frequency furnace in argon atmosphere. The alloys were investigated as to their true specific heat and coercive force H_c. The curves of specific heat c_p of one and the same sample were plotted in softened state and after hardening at 800 and 1,250° and are shown in figures 1 and 2. The course of the c_p curve of the alloy FeCoAl shows a maximum at 700° and of the alloy FeNiAl at 730-735°. The coercive force of the softened alloys amounts in the case of FeCoAl to 250 oe and in the case of FeNiAl to 75 oe.

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In hardened alloys at 800° the H_c of FeCoAl ~1 oe and of FeNiAl = 63 oe. The c_p course in hardened samples (800°) is characterized by the occurrence of exothermic effects at low temperatures. The c_p course in samples hardened at 1,250° proceeds in a similar way. The limit of the exothermic effect is in the case of the alloy FeNiAl between 300-600° with a c_p minimum at 460° and in the case of FeCoAl at 400-640° and a c_p minimum at 560°. The nature of the exothermic effect at 300-640° could not clearly be determined, it is presumably based upon the orientation of the β and β_2 phase with a variation of the structural tension in the alloy. Alloys hardened at 1,250° have also an exothermic effect at 640 and 680°. The considerable temperature effect increases the coercive force H_c. There is no dependence between high-temperature transformation and magnetic hardening of the Fe-Ni-Al alloys. It was found that in the system Fe-Co-Al the magnetic hardening process proceeds slowly.

Specific Heat of the Alloys FeNiAl and FeCoAl SOV/78-4-3-23/34

At higher temperatures the c_p curve proceeds λ-shaped, independent of the thermal treatment of the alloys, with a maximum in FeCoAl at 700° and in FeNiAl at 730-735°. This variation in the c_p curve is connected with the occurrence of the magnetic transformation in the Curie point. There are 4 figures, 1 table, and 27 references, 19 of which are Soviet.

SUBMITTED: November 16, 1957

Card 3/3

5(2) SOV/78-4-10-11/40

AUTHORS: Kosmodem'yanskaya, G. V., Khomyakov, K. G.

TITLE: Determination of Dehydration Heat of Some Per-compounds and Crystal Hydrates of Molybdenum-6

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 10, pp 2242-2243 (USSR)

ABSTRACT: N. I. Kobozev and N. N. Sokolov (Ref 1) investigated the thermal efficiency of the decomposition of permolybdates in acid permanganate solution and assumed the heat of dehydration to be equal to zero. In order to check this assumption the dehydration heat was measured in the vacuum. This experiment is described in detail. The dehydration heats of $Na_2MoO_4 \cdot 2H_2O$ and $Na_2WO_4 \cdot 2H_2O$ at 65° were found to be 5.33 kcal and 5.04 kcal, respectively. The heat of dehydration of $Na_2MoO_8 \cdot 4H_2O$ had to be measured at 28°, since the permolybdate decomposes at higher temperature. This compound can give off only 2 moles H_2O without loss of active oxygen. The dihydrate $Na_2MoO_8 \cdot 2H_2O$ not yet described was obtained. The dehydration heat of the tetra-

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SOV/78-4-10-11/40

Determination of Dehydration Heat of Some Per-compounds and Crystal Hydrates of Molybdenum-6

hydrate was determined to be 2.4 kcal (on separation of 2 moles water). The permolybdate $Na_2MoO_8.2H_2O$ differs considerably from the tetrahydrate. At higher temperature the active oxygen is separated under explosion. The fact that the water cannot be completely removed from the permolybdate without destroying the molecule permits the conclusion that the compounds investigated really are perhydrates and not genuine peroxides. The yellow permolybdate $Na_2MoO_6.H_2O$ can be obtained by hydrolysis of the red $Na_2MoO_8.4H_2O$, but not from $Na_2MoO_8.2H_2O$. There are 2 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova, Khimicheskiy fakul'tet,Kafedra obshchey khimii (Moscow State University imeni M. V. Lomonosov, Chemical Department, Chair of General Chemistry)

SUBMITTED: February 20, 1958

Card 2/2

05850
SOV/78-4-11-3/50

5(2), 5(4)

AUTHORS: Kosmodem'yanskaya, G. V., Khomyakov, K. G.

TITLE: The Indirect Method of Determining the Decomposition Heat of Some Peroxide Compounds of Molybdenum

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 11, pp 2428-2431 (USSR)

ABSTRACT: N. I. Kobozev and N. N. Sokolov (Ref 1) dealt with the indirect determination of the thermal effect of the decomposition of permolybdates and have found that direct determination was not possible. The authors will soon describe the direct determination made by them. They also repeated Kobozev's and Sokolov's experiments, the calculation rendered more precise by taking account of the dehydration heat and other corrections, which forms the subject of this article. The calorimeter is described in which the permolybdates were decomposed by means of $KMnO_4$. The authors investigated the reaction $Na_2MoO_8 \cdot 4H_2O_{solid} = Na_2MoO_4{}_{dissolved} + 4H_2O_{liquid} + 2O_2{}_{gaseous} + Q_3$. Red permolybdate could not be prepared in pure state because of its

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SOV/78-4-11-3/50

The Indirect Method of Determining the Decomposition Heat of Some Peroxide Compounds of Molybdenum

instability. It decomposes into the ordinary molybdate so that experiments were made with a mixture of $Na_2MoO_8 \cdot 4H_2O$ and $Na_2MoO_4 \cdot 2H_2O$, the content of the individual components being unknown at first. The recalculation of the resultant thermal effects to pure permolybdate is demonstrated. Experimental results are listed in table 1. The authors determined the thermal effect Q_3 of the almost pure permolybdate with recalculation to the pure compound and consideration of the different water content and the thermal effect of decomposition of the yellow permolybdate (= 37.3 kcal). The value $Q_3 = 77.9$ kcal was obtained for red permolybdate. Figure 1 shows that the thermal effect of decomposition of red permolybdates is proportional to their oxygen content. There are 1 figure, 1 table, and 5 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova, Khimicheskiy Fakul'tet, Kafedra obshchey khimii (Moscow State

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05850
SOV/78-4-11-3/50

The Indirect Method of Determining the Decomposition Heat of Some Peroxide Compounds of Molybdenum

University imeni M. V. Lomonosov, Chemical Department, Chair of General Chemistry)

SUBMITTED: February 20, 1958

Card 3/3

05851

5(2), 5(4) SOV/78-4-11-4/50

AUTHORS: Kosmodem'yanskaya, G. V., Khomyakov, K. G.

TITLE: The Direct Method of Determining the Decomposition Heat of Some Peroxide Compounds of Molybdenum and Tungsten

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 11, pp 2432-2435 (USSR)

ABSTRACT: The authors underline the advantages of direct determination of the thermal effect over the indirect one. They describe the copper calorimeter in which the reaction was carried out and the temperature was measured by means of a thermocouple. Experimental data on red sodium permolybdate are listed in table 1. Decomposition heat is 45.70 kcal. Decomposition temperatures, reaction equations and thermal effects of $Na_2MoO_8.2H_2O$ (- 57.70 kcal), $Na_2MoO_6.H_2O$ (- 15.40 kcal), $Na_2WO_8.2H_2O$ (- 47.13 kcal), and $Na_2WO_6.H_2O$ (- 8.60 kcal) are given in table 2. Table 3 contains the bond energies of the ions MoO_4^{2-} and WO_4^{2-} with active oxygen atoms. The values of permolybdates

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The Direct Method of Determining the Decomposition Heat of Some Peroxide Compounds of Molybdenum and Tungsten

obtained by indirect determination are in good agreement with the values of the direct method. Experiments have shown that active oxygen was separated at a temperature which was the lower the higher was the oxygen- and water content of the peroxide. The effect of water may be attributed to hydrolysis. N. I. Kobozev's and N. N. Sokolov's assumption on the structural conditions of intramolecular recombination of active oxygen atoms (Ref 1) is supposed to be correct in principle. There are 3 tables and 7 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova, Khimicheskiy fakul'tet, Kafedra obshchey khimii (Moscow State University imeni M. V. Lomonosov, Chemical Department, Chair of General Chemistry)

SUBMITTED: February 20, 1958

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REZNITSKIY, L.A.; KHOMYAKOV, K.G.

Determining the melting point of $Na_2S_2O_7$ and $NaHSO_4$ from heating curves under adiabatic conditions. Vest Mosk. un. Ser. mat., mekh., astron., fiz., khim. 14 no.2:199-202 '59 (MIRA 13:3)

1. Kafedra obshchey khimii Moskovskogo gosuniversiteta.
(Sodium Sulfates--Thermal properties)
(Melting points)

REZNITSKIY, L.A.; KHOMYAKOV, K.G.

Calorimetric determination of the heat of reduction of ferrites by hydrogen. Part 1: Calorimeter. Reduction of iron oxide. Vest Mosk. un. Ser. mat., mekh., astron., fiz., khim. 14 no.2:217-224 '59
(MIRA 13:3)

1. Kafedra obshchey khimii Moskovskogo gosuniversiteta..
(Calorimeters) (Iron oxides)

5(4) SOV/76-33-9-32/37

AUTHORS: Skorokhodov, I. I., Nekrasov, L. I., Reznitskiy, L. A., Khomyakov, K. G., Kobozev, N. I.

TITLE: On the Problem of the Higher Hydrogen Peroxide and Frozen Radicals . II. Some Notes on the Thermochemistry of the Higher Peroxide H_2O_4 and the Radical HO_2

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 9, pp 2090-2095 (USSR)

ABSTRACT: In a previous paper (Ref 1), calorimetric investigations were described which dealt with the decomposition of the solid condensate (C) obtained by freezing out (at -196^0) the steam dissociated in an electric discharge (as a so-called vitreous substance). The two-stage decomposition took place with two exothermic reactions: $HO_2+HO_2 \rightarrow H_2O_2$ (solid)$+O_2$ (1) and H_2O_4(liquid) $\rightarrow H_2O_2$ (liquid)$+O_2$ (2). Detailed checking of the decomposition of (C) (obtained as mentioned above, as well as by a reaction of atomic hydrogen with liquid ozone) indicated that the resultant data need some correction. Visual observations and data obtained by the thermographic method (which

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On the Problem of the Higher Hydrogen Peroxide and Frozen SOV/76-33-9-32/37
Radicals. II. Some Notes on the Thermochemistry of the Higher Peroxide
H_2O_4 and the Radical HO_2

will be presented in a separate article) showed that on the decomposition of (C) the solid phase vanishes at -70 to -60°, the melting being an endothermic process. Livingstone, Ghormley, Zeldes (Ref 8), and A. I. Gorbanov, S. D. Kaytmazov, A. M. Prokhorov, and A. B. Tsentsiper (Ref 9) found that the concentration of the free HO_2-radicals frozen in the (C) amounts to 0.3 per cent by weight only. Hence, it results from (1) that the portion of hydrogen represents only 4% of the total amount of the formed hydrogen, and the first exothermic effect is to be ascribed to the thermal effects of reactions (1) and (2) as well as to the crystallization heat of the amorphous portion of the condensate. The authors analyzed experimental data on the first thermal effect (Table); the crystallization heat of the amorphous (C)-portion amounted to $\Delta H = -2.6$ kcal/mol H_2O_2, which is near the melting point of H_2O_2. It is therefore assumed that the devitrification of (C) is directly connected with the presence of H_2O_2 in the condensate.

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On the Problem of the higher Hydrogen Peroxide and Frozen SOV/76-33-9-32/37
Radicals. II. Some Notes on the Thermochemistry of the Higher Peroxide H_2O_4
and the Radical HO_2

The value $\Delta H = -39$ kcal/mol was obtained for the thermal effect of H_2O_4-decomposition in the liquid phase of O_2 and H_2O_2. Herefrom the authors calculated the formation heat for H_2O_4 (from the components) and the re-formation heat of the HO_2-radicals into H_2O_4. The respective values are $\Delta H = -6$kcal/mol and $\Delta H = -15$ kcal/mol H_2O_4. They are in good agreement with other thermochemical data. The structure H-O-O-O-O-H suggested by A. N. Bakh (Ref 15) is the most suitable for the data obtained. Calculation of the bond energy shows that the energy of the mean O-O bond is found within the range 11-43 kcal if the other bonds are contained in the H_2O_2 molecules according to the corresponding bonds. There are 1 table and 17 references, 8 of which are Soviet.

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On the Problem of the Higher Hydrogen Peroxide and Frozen SOV/76-33-9-32/37
Radicals. II. Some Notes on the Thermochemistry of the Higher Peroxide H_2O_4 and the Radical HO_2

ASSOCIATION: Gosudarstvennyy universitet im. M. V. Lomonosova, Moskva (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: March 28, 1958

Card 4/4

85753

9.4300 (3203, 1043, 1143)

S/189/60/000/003/007/013/XX
B003/B067

AUTHORS: Tret'yakov, Yu. D., Khomyakov, K. G.

TITLE: Study of the Physico-chemical Properties of Certain Ferrites Which Were Obtained by Different Methods. I. Production of the Ferrites of Manganese and Copper by Thermal Decomposition of Isomorphous Solid Solutions of the Sulfates

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya 2, khimiya, 1960, No. 3, pp. 31-36

TEXT: The authors point to the insufficiencies of the ceramically produced ferrites with respect to optimum electric and magnetic properties; the study of these properties is connected with great difficulties. The shortcomings are due to the type of preparation which in all cases leads only to homogeneous mixtures of the initial substances. The authors made the following experiments for producing completely homogeneous ferrites: 1) production of solid isomorphous solutions of Mn and Fe sulfate (double salt) as well as Mn-, Fe- and Cu-sulfate by

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S/189/60/000/003/007/013/XX
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Study of the Physico-chemical Properties of Certain Ferrites Which Were Obtained by Different Methods. I. Production of the Ferrites of Manganese and Copper by Thermal Decomposition of Isomorphous Solid Solutions of the Sulfates

isothermal evaporation with constant salt concentrations in the solutions to be evaporated. The apparatus used for this purpose is schematically shown in Fig. 2. The original paper contains detailed theoretical explanations (Fig. 1). An isomorphous mixture of the composition (1/3 Mn, 2/3 Fe) $SO_4 \cdot (NH_4)_2 SO_4 \cdot 6H_2O$ was necessary for preparing $MnFe_2O_4$. Mohr's salt, $(NH_4)_2SO_4$ and $CuSO_4$ (chemically pure) which were recrystallized from bidistilled water as well as $MnSO_4$ obtained by dissolving electrolytic - Mn (99.95%) in sulfuric acid (chemically pure) served as initial substances. The content of foreign admixtures of the purified substances (determined by spectrum analysis) was at the order of magnitude of 10^{-3} to 10^{-2} %(Table). 2) The thermal decomposition of the isomorphous mixtures was made on air at 800 and 900°C and in the CO_2- or N_2 current at 800°C. Fig. 2 shows the curves of the thermal decomposition

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Study of the Physico-chemical Properties of Certain Ferrites Which Were Obtained by Different Methods. I. Production of the Ferrites of Manganese and Copper by Thermal Decomposition of Isomorphous Solid Solutions of the Sulfates

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B003/B067

of the isomorphous Mn-Fe sulfates in the air current at 800 and 900°C (in the time - weight per cent diagram the weight of the mixtures mentioned first rapidly decreases, then remains constant) as well as $MnSO_4$ at 800°C (flat decrease of weight with time). In the case of thermal decomposition in the air current a completely nonmagnetic oxide mixture was obtained according to the composition $Fe_2O_3+Mn_2O_3$. A decomposition in the CO_2 current led to a strong magnetic mixture of the composition $MnO+Fe_2O_3(=MnFe_2O_4)$. Hence the changes of the valence states of the metal ions can be controlled and completely homogeneous products can be obtained by using an isomorphous mixture. There are 3 figures, 1 table, and 9 references: 5 Soviet, 1 US, 2 French, and 1 British.

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Study of the Physico-chemical Properties of Certain Ferrites Which Were Obtained by Different Methods. I. Production of the Ferrites of Manganese and Copper by Thermal Decomposition of Isomorphous Solid Solutions of the Sulfates

S/189/60/000/003/007/013/XX
B003/B067

ASSOCIATION: Moskovskiy universitet, Kafedra obshchey khimii (Moscow University, Chair of General Chemistry)

SUBMITTED: June 30, 1959

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S/189/60/000/005/004/006
B110/B217

AUTHORS: Tret'yakov, Yu. D. and Khomyakov, K. G.

TITLE: Study of the physico-chemical properties of some ferrites obtained by different methods. II. The isothermal lines of solubility of the system $(NH_4)_2SO_4$ - $MnSO_4$ - $FeSO_4$ - H_2O at 25, 40, and 55°C

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya 2, khimiya, no. 5, 1960, 51-55

TEXT: It is necessary to know the diagrams of solubility of the system $(NH_4)_2SO_4$ - $MnSO_4$ - $FeSO_4$ - H_2O at 25, 40, and 55°C to prepare manganese ferrite, which is chemically and physically of greatest interest, by the method suggested by the authors (Ref. 1: Vestn. Mosk. univers., ser. khimii, No 3, 31, 1960). Evaporation must be carried out with same concentration and at increased temperatures to produce isomorphic solid solutions. For this purpose, chemically pure Mohr's salt and $MnSO_4$ obtained from electrolytical manganese (99.95%) were used. The equilibrium between the liquid and solid

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phase was established by the method of isothermal elimination of the supersaturation (Ref. 2: B. G. Khlopin: Tr. Gosud. radiyevogo instit., 4, 34, 1938). (Ref. 3: G. I. Gorshteyn et al.: ZhOKh. 24, 29, 1954) within 4-8 hr. This was facilitated by means of the thermostat (Fig. 1). Exact temperature regulation (±0.05°C) was secured by Wobser's thermostat. The $Fe^{\cdot\cdot}$ concentration in the crystals and mother liquors was titrated with $KMnO_4$, the $Mn^{\cdot\cdot}$ concentration was determined by the perchlorate method. $Mn^{\cdot\cdot}$ was oxidized to MnO_2 which was dissolved in a certain amount of $(COOH)_2$. The acid excess was manganometrically back-titrated. The $Fe^{\cdot\cdot}$ and $Mn^{\cdot\cdot}$ concentrations were converted to the $6H_2O$ containing salts. Fig. 2, the diagram of the equilibrium composition, and the Table show the results obtained. In the Table $D_{eq(Mn, Fe)}$ denote the equilibrium coefficients of distribution of the individual components. For iron salts, the coefficient is the ratio of the relative concentration in the solid phase and in the mother liquor: $D_{eq(Fe, Mn)} = y_{Fe}/y_{Mn} : x_{Fe}/x_{Mn}$, where y = salt concentration in the solid phase, x = salt concentration in the mother liquor. At 25°C, the components of the system form a continuous series of solid solutions (Fig. 2), where

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B110/B217

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$D_{eq(Fe, Mn)}$ is constant = 2.04 (±3%). At 40°C (Table), the components are truly isomorphic and form a continuous series of solid solutions also in the entire range of concentration. Also here, $D_{eq(Fe, Mn)}$ is constant = 2.22 (±3%). The results obtained at 55°C (Table) are of special interest since the crystal hydrate $MnSO_4 \cdot (NH_4)_2SO_4 \cdot 6H_2O$ is unstable and decomposes at 40-50°C: $MnSO_4 \cdot (NH_4)_2SO_4 \cdot 6H_2O \longrightarrow (NH_4)_2SO_4 \cdot 2MnSO_4$ + solution. Accordingly, in the system $(NH_4)_2SO_4 - MnSO_4 - FeSO_4 - H_2O$ at >40°C, no continuous series of solid solutions should form since $(NH_4)_2SO_4 \cdot 2MnSO_4$ is not isomorphic to schoenites. However, the thermal stability of little stable crystal hydrates increases with the formation of isomorphic solid solutions with more stable crystal hydrates. Since Mohr's salt which is extremely stable has the schoenite lattice up to 120°C, in its range of concentration 20% - 100%, a continuous series of solid solutions with ideal distribution of components between liquid and solid phase ($D_{eq(Fe, Mn)}$ = 2.49 (±5%)), forms. There are 5 figures, 1 table, and 9 references: 6 Soviet-bloc and 3 non-Soviet-bloc.

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B110/B217

The reference to English-language publication reads as follows: Ref. 4: Hill, Durham, Ricci. J. Amer. Chem. Soc., 62, 2723, 1940.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova Kafedra obshchey khimii (Moscow State University imeni M. V. Lomonosov Department of General Chemistry)

SUBMITTED: June 30, 1959

S/189/60/000/006/003/004
B130/B229

AUTHORS: Reznitskiy, L. A., Khomyakov, K. G.

TITLE: Calorimetric determination of the heat of formation of ferrites. V. Heat of formation of manganese ferrite

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya 2, khimiya, no. 6, 1960, 24-25

TEXT: The heat of formation of manganese ferrite from oxides was calculated from the difference in the heats of solution between mixtures of manganese and iron oxides with a mixture of sulfuric and phosphoric acids at 140°C, on the one hand, and of ferrite mixed with the same acids, on the other. The manganese ferrite was produced at 1100°C in nitrogen from a potassium magnesium sulfate of the composition 1/3 $MnSO_4 \cdot 2/8\ FeSO_4 \cdot (NH_4)_2\ SO_4 \cdot 6\ H_2O$ by thermal decomposition. MnO was produced by a reduction of Mn_3O_4 with hydrogen at 700°C, Fe_2O_3 by decomposition of Mohr's Salt at 800°C. The heat of reaction of the oxide mixtures amounts to $\Delta H = -77.7 \pm 0.5$ kcal/mole, and that of ferrite amounts to $\Delta H = -73.7 \pm 0.7$ kcal/mole. Accordingly, the heat of

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formation of $MnFe_2O_4$ from the oxides amounts to $\Delta H = -4$kcal/mole at 413°K. From the heats of formation of the oxides at 298.2°K, mentioned in the literature, $\Delta H_{MnO} = -92.0$kcal/mole and $\Delta H_{Fe_2O_3} = -196$ kcal/mole, one obtains -292kcal/mole for the heats of formation of $MnFe_2O_4$ from the elements. According to H. Kedesdy and A. Tauber (J. Amer. Ceram. Soc., 39, 425, 1956), the formation of $MnFe_2O_4$, according to the equation $2Mn_3O_4 + 6\ Fe_2O_3 = 6\ MnFe_2O_4 + O_2$ starts only above 1000°K, preferably between 1150 and 1250°. An estimation of the oxygen pressure at 1300-1350°K gives:
$$\log P_{O_2} = -\frac{\Delta H_{298}}{4.575\ T} + \frac{\Delta S_{298}}{4.575} = 1.09.$$
P_{O_2} equals 0.12 atm at 1300°K, and 0.42 atm at 1350°K. According to V. G. Vlasov and V. A. Kozlov (ZhFKh, 32, 2608, 1958) who analyzed the dissociation pressure of the reaction $6\ Mn_2O_3 = 4\ Mn_3O_4 + O_2$, $\log P_{O_2} = -11040/T + 8.57$. At 1200°K, the O_2 pressure reaches atmospheric pressure. From this it can be concluded that

at a lower temperature than 1200°K, Mn_2O_3 is a more stable phase which gives a solid solution with Fe_2O_3, i.e., $Mn_2O_3 \cdot Fe_2O_3$. This is in accordance with data of Kedesdy and Tauber. There are 7 references: 4 Soviet-bloc.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet, Kafedra obshchey khimii (Moscow State University, Department of General Chemistry)

SUBMITTED: June 21, 1959

68233

~~5(2)~~ 18.1141

S/078/60/005/02/027/045
B004/B006

AUTHORS: Tret'yakov, Yu. D., Khomyakov, K. G.

TITLE: Investigation of the Structural Changes in Various Magnetic Alloys by the Method of Real Specific Heat

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol 5, Nr 2, pp 410-414 (USSR)

ABSTRACT: The authors investigated the industrial alloys ANKO-1 and ANKO-2. For ANKO-1, the authors found the approximate composition of 18% Ni, 10% Al, 12% Co, 6% Cu (rest: Fe), and for ANKO-2, 20% Ni, 9% Al, 15% Co, 4% Cu (rest: Fe). The authors determined the real specific heat c_p by continuous adiabatic heating in a calorimeter (Ref 11). The alloys were heated to 1250° in an argon atmosphere and then hardened in ice water. Hardening was controlled by measuring the coercivity H_c by the ballistic method. The values obtained for c_p are given in the figures 1,2, those of H_c are listed in a table. The findings were as follows: 1) tempering of hardened alloys at low temperatures is accompanied by an exothermic effect. 2) This effect is probably caused by the magnetic transformation of the weakly magnetic β_2-phase. On repeatedly heating the alloy, the effect

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Investigation of the Structural Changes in Various Magnetic Alloys by the Method of Real Specific Heat

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disappears, since meanwhile a separation of the β- and β_2-phase has occurred. 3) The exothermic effect occurring at 610 - 680° is caused by the magnetic hardening of the alloys, since it is accompanied by a sharp increase in H_c. The alloys ANKO-1 and ANKO-2 are distinguished from the alloy FeNiAl by their greater magnetic force. 4) The endothermic effect at 780° observed in the alloy ANKO-1 is probably due to the transformation at the Curie point. Similar effects were observed in FeCoAl (700°) and FeNiAl (735°). The transformation point of ANKO-2 is above 800° and thus beyond the range investigated. There are 2 figures, 1 table, and 12 references, 6 of which are Soviet.

SUBMITTED: October 26, 1958

Card 2/2

REZNITSKIY, L.A.; KHOMYAKOV, K.G.

Calorimetric determination of the heat of reduction of ferrites by hydrogen. Part 2: Reduction of zinc ferrite. Vest.Mosk.un.Ser 2: Khim. 15 no.1:41-43 '60. (MIRA 13:7)

1. Kafedra obshchey khimii Moskovskogo universiteta.
(Zinc ferrate) (Hydrogen)

REZNITSKIY, L.A., KHOMYAKOV, K.G.

Calorimetric determination of the heat of reduction of ferrites by hydrogen. Part 4: Reduction of magnesium ferrite. Determination of the heat of formation of magnesium ferrite. Vest. Mosk. un. Ser. 2: khim. 15 no.2:28-30 Mr-Ap '60. (MIRA 13:6)

1. Kafedra obshchey khimii Moskovskogo universiteta.
(Magnesium ferrate) (Heat of formation)

REZNITSKIY, L.A.; KHOMYAKOV, K.G.

Calorimetric determination of the heat of reduction of ferrites with hydrogen. Part 3: Reduction of copper oxide and copper ferrite. Vest. Mosk un. Ser. 2: Khim. 15 no.4:40-42 Jl-Ag '60. (MIRA 13:9)

1. Kafedra obshchey khimii Moskovskogo universiteta.
(Heat of reduction) (Copper oxide) (Copper ferrate)

TROSHKINA, V.A.; KHOMYAKOV, K.G.

Study of the intermetallic compounds FeAl by the calorimetric method. Vest. Mosk. un. Ser. 2: Khim. 15 no.5:47-50 S-O '60.
(MIRA 13:11)

1. Moskovskiy gosudarstvennyy universitet, kafedra obshchey khimii.
(Iron compounds) (Aluminum compounds)

S/076/60/034/008/039/039/XX
B015/B063

AUTHORS: Pamfilov, A. V., Khomyakov, K. G., Kobozev, N. I.

TITLE: Yevgeniy Ivanovich Shpital'skiy (On the Occasion of the 80th Anniversary of His Birthday)

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 8, pp. 1887-1889

TEXT: The 80th anniversary of the birthday of the Soviet physicochemist Ye. I. Shpital'skiy was celebrated on October 12, 1959. Shpital'skiy, Professor of Moskovskiy universitet (Moscow University) and Corresponding Member of the Akademiya nauk SSSR (Academy of Sciences USSR), was a student of Professor I. A. Kablukov at the fiziko-matematicheskiy fakul'tet Moskovskogo universiteta (Department of Physics and Mathematics of Moscow University) where he acquired the right of holding academical lectures. He left Russia for some time to work in the field of catalysis at several foreign universities. Back to Moscow he was appointed assistant to the kafedra neorganicheskoy khimii (Chair of Inorganic Chemistry) where he held a practical course on physical chemistry. He was then a collaborator

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Yevgeniy Ivanovich Shpital'skiy (On the Occasion of the 80th Anniversary of His Birthday) S/076/60/034/008/039/039/XX B015/B063

of N. N. Petin, later Professor of Moscow University. It was at that time that Shpital'skiy began research work on homogeneous catalysis which was the principal field of his scientific work until his death. During the First World War he was engaged in the development of explosives and in the synthesis of phosgene, in cooperation with A. V. Pamfilov, K. G. Khomyakov, Ye. A. Shilov, V. V. Razumovskiy, E. F. Krauze, M. G. Stolitsa, V. S. Zaykov, Ye. F. Den'gin, and others. At that time Shpital'skiy closely cooperated with N. D. Zelinskiy. In 1923 he resumed his studies on homogeneous catalysis and worked at Moscow University together with his collaborators A. D. Funk, P. I. Sokolov, V. V. Monblanova, V. A. Komandin, B. A. Konovalova, Ye. I. Burova, Z. A. Ioffa, N. I. Kobozev, N. I. Nekrasov, M. Ya. Kagan, A. L. Shneyerson, V. V. Picheta, and others. In 1927 he published his principal work on the theory of catalytic intermediates. This work contains many exact and concise formulations which are still considered to be of fundamental importance in this field. Shpital'skiy also specialized in applied and theoretical electrochemistry. There is 1 figure.

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33732
S/656/61/000/000/002/007
D244/D304

21.2100

AUTHORS: Khomyakov, K.G., Spitsyn, V.I., and Zhvanko, S.A.

TITLE: True heat capacity of U_3O_8

SOURCE: Spitsyn, V.I., ed. Issledovaniya v oblasti khimii urana; sbornik statey (Moscow) 1961, 141 - 144

TEXT: The authors measured true heat capacities of U_3O_8 up to 1000°C. A method depending on the constant heat flow at a given temperature was used. Accuracy of the determinations was 1 - 2 % up to 600°C and 2 - 3 % up to 1000°C. U_3O_8 was prepared by heating chemically pure ammonium uranate at $\sim$ 800°C. Before a sample was placed in the calorimeter it was heated slowly to 600°C and then slowly cooled to eliminate strains. It was found that U_3O_8 undergoes two phase changes, one at 770°C and the other at 940°C. Thus U_3O_8 can exist in the form of 3 phases: α, stable up to 770°C, β (770° - 940°C) and γ (above 940°C). The heat capacities are given in the table. The heats of the phase changes observed were calculated from the measured heat capacities by comparing areas (I) enclo-

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True heat capacity of U_3O_8

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sed by the experimental curve of true heat capacity, temperature axis and two ordinates at the beginning and the end of a transformation and (II) another area calculated from area I bounded by the same ordinates, temperature axis and a heat capacity curve that would exist in the absence of the phase change. The heats were 265 ± 5 cal/mole for the $\alpha \longrightarrow \beta$ transformation and 1105 ± 15 cal/mole for the $\beta \longrightarrow \gamma$ transformation. Secondary heat effects were also observed to take place before the first and the second phase changes (25 and 65 cal/mole respectively) which were due to transformations of the supercooled phases. There are 1 figure, 1 table and 7 references: 1 Soviet-bloc and 6 non-Soviet-bloc. The 4 references to the English-language publications read as follows: J. Dewar, Proc. Roy. Soc., 89A, 158, 1913; G.E. Moore and K.K. Kelly, J. Amer. Chem. Soc. 69, 2105, 1947; A. Southard, ibid., 63, 3142, 1942; C.S. Smith Met. techn., 6, 6, 1939.

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X

KHOMYAKOV, K.G.; PAVLOVA-VEREVKINA, A.I.

Composite proportional temperature regulator for precise thermostating at high temperatures. Vest. Mosk. un. Ser. 2:75-76 Ja-F '61.
(MIRA 14:4)

(Temperature regulators)

TROSHKINA, V.A.; KHOMYAKOV, K.G.

Heat capacity of the NiAl intermetallic compound after different thermal treatment. Zhur.neorg.khim. 5 no.11:2433-2435 '61. (MIRA 14:10)

(Intermetallic compounds—Thermal properties)

S/078/61/006/011/002/013
B101/B147

AUTHORS: Troshkina, V. A., Khomyakov, K. G.

TITLE: Specific heat of the intermetallic compound NiAl after different thermal treatments

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 11, 1961, 2433- 2435

TEXT: The authors deal with the problem of energetic characterization of highly coercive intermetallic compounds on NiAl (FeAl) and CoAl basis. The specific heat of the compound NiAl was tested on two samples melted from the electrolytic metals in argon atmosphere. Sample 1 had a stoichiometric composition (68.6 ± 0.5% by weight of Ni), the second contained an excess of Al (67.7 ± 0.5% by weight of Ni) to study the influence of Al. The samples were heated at different temperatures (600 - 1300°C) and then quenched in ice water. The curve $c_p = f(t)$ was obtained by means of a calorimeter described by the authors in Zh. obshch. khimii, 24, 1954. Fig. 1 shows the results for sample 1. Sample 2 shows no essential differences. An exothermic effect takes place between 550 and 650°C. In consideration of roentgenographic data of I. Isaychev,

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