L 39951-65
ACCESSION NR: AP4007909

A new method is suggested for determining molybdenum and tungsten traces in the single crystals of cadmium sulfide and lithium fluoride. Orig. art. has: 1 figure, 4 tables 3 formulas

ASSOCIATION: Vsesoyuznyy Nauchno-issledovatel'skiy institut monokristallov, Stsintillyatsionnykh materialov i osobo chistykh khimicheskikh veshchestv, Khar'kov (All-Union Scientific Research Institute of Monocrystals, Scintillating Materials and Highly Pure Chemical Substances)

SUBMITTED: 14Mar63 ENCL: 00

SUB CODE: SS, GC NO REF SOV: 005 OTHER: 002

Card 3/3

BULGAKOVA, A.P.

Metacolloid siderite in the weathering surface of crystalline rock of the Lebedi deposit in the Kursk Magnetic Anomaly. Kora vyvetr. no.6:58-66 '63. (MIRA 17:9)

1. Nauchno-issledovatel'skiy institut po problemam Kurskoy magnitnoy anomalii.

ILLYUTOVICH, A.Yu.; BUDYLINA, V.V.; MAKHLINOVSKIY, L.I.; BULGAKOVA, A.S.

Seroprophylaxis of tetanus. Zhur. mikrobiol. epid. i immun. 32 no.7: 70-73 Je '61. (MIRA 15:5)

1. Iz Stavropol'skogo instituta vaktsin i syvorotok i gorodskogo travmatologicheskogo kabineta.
(TETANUS)

BULGAKOVA, A. V.

25034 Bulgakova, A. V. Voprosu Olecheniia Abtsessov Legkikh. Sbornik Nauch. Rabot Lecheb. Uchrezhdeniy Mosk. Voen. OKR. Gor'kiy, 1948, S. 43-50

SO: Letopis' Zhurnal Statey, No. 30, Moscow, 1948

L 26357-66 EWT(m)/ETC(f)/EWG(m)/EWP(j)/T/ETC(m)-6 DS/JD/WW/HW/RM

ACC NR: AP6013383 SOURCE CODE: UR/0195/66/007/002/0332/0335

AUTHOR: Bulgakova, G. M.; Mayzus, Z. K.; Skibida, I. P.

ORG: Institute of Chemical Physics, AN SSSR (Institut khimicheskoy fiziki AN SSSR)

TITLE: Mechanism of chain branching during catalyzed oxidation of n-decane in the presence of cobalt stearate

SOURCE: Kinetika i kataliz, v. 7, no. 2, 1966, 332-335

TOPIC TAGS: decane, cobalt compound, catalysis, hydroperoxide, free radical

ABSTRACT: The catalyzed decomposition of n-decyl hydroperoxide (ROOH) in a nitrogen atmosphere was studied at 60°-100°C in order to determine the mechanism of chain branching during the catalytic oxidation of n-decane with cobalt stearate $CoSt_2$ as the catalyst. The chain branching rate W was found to increase with the hydroperoxide concentration up to a certain value $[ROOH] = [ROOH]_{max}$ above which the rate of consumption of the hydroperoxide remains constant, indicating that the formation of radicals (produced by the decomposition of the hydroperoxide) is preceded by the formation of a complex. Kinetic data showed that the complex had the composition $[St_2Co \cdot ROOH]$. The rate constant of the formation of radicals as a result of the reaction of this complex with cobalt stearate was calculated to be $k_3 = 2 \cdot 10^{17} \exp(-24500/RT)$ l/mol sec.

UDC: 541.128-14

Card 1/2

L 26357-66

ACC NR: AP6013383

and the equilibrium constant for the formation of the complex $K = 6 \cdot 10^{-5} \exp(1000/RT)$ ℓ/mol. The results indicate that the great effectiveness of cobalt salts as a catalysts is due to the high value of the rate constant of decomposition of the hydroperoxide into radicals, which is almost 10^3 times greater than the rate constant of radical decomposition in the absence of catalyst. Orig. art. has: 3 figures, 10 formulas.

SUB CODE: 07/ SUBM DATE: 04Dec64/ ORIG REF: 003/ OTH REF: 003

Card 2/2

ZAGORETS, P.A.; BULGAKOVA, G.P. (Moscow)

Shifts of absorption bands of hydrated ions under the effect of addition of perchlorates. Zhur.fiz.khim. 36 no.10:2132-2137 O '62. (MIRA 17:4)

1. Khimiko-tekhnologicheskiy institut imeni Mendeleyeva, Moskva.

ZAGORETS, P.A.; BULGAKOVA, G.P.

Shift of the absorption spectrum bands of hydrated ions under the effect of added perchlorates. Part 1. Zhur. fiz. khim. 39 no.2: 289-293 F '65. (MIRA 18:4)

1. Khimiko-tekhnologicheskiy institut imeni Mendeleyeva.

L 19444-63 EPF(c)/EWP(j)/EWT(m)/BDS ASD/ESD-3 Pc-4/Pr-4 RM/WW/MAY
ACCESSION NR: AP3006747 S/0190/63/005/009/1288/1291

AUTHOR: Korshak, V. V.; Sladkov, A. M.; Luneva, L. K.; Bulgakova, I. A.

TITLE: Study in the field of coordination polymers. 16. Synthesis of polymers based on orthotitanates and bis-(Beta-diketones)

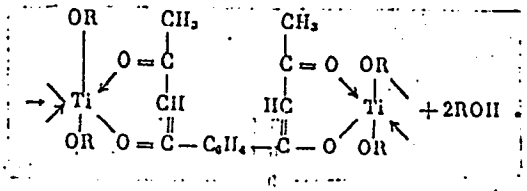
SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 5, no. 9, 1963, 1288-1291

TOPIC TAGS: polymers, coordination polymers, soluble coordination polymers, soluble coordination polymer synthesis, synthesis, acetoacetic acid. 2.2'-terephthaloyldi-. ethyl ester, copper acetate, acetic acid. copper salt, copper, nickel, cobalt, magnesium, mercury, 1.3-butanedione. 1-phenyldi-, 2-propanedione. 1-terephthaloyldi-; H_4TiO_4. alkyl ester, H_4TiO_4. tetraethyl ester, 2.4-pentanedione, 1.3-butanedione. 1-phenyl-, complex, H_4TiO_4. tetra-tert-butyl ester, hydrolysis, coordination polymer property, property

Card 1/4

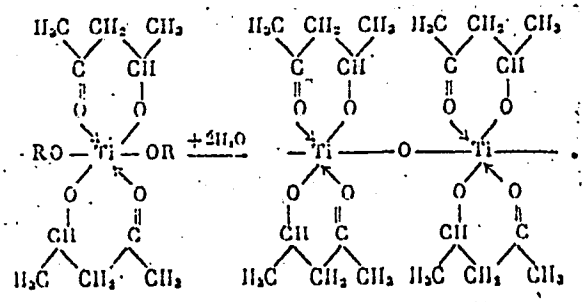
L 19444-63
ACCESSION NR: AP3006747

ABSTRACT: Soluble coordination polymers have been prepared by the following methods: 1) Use of addenda with polar substituents. Heating of a 5% alcohol solution of ethyl 2,2'-terephthaloyldiacetoacetate with an excess of a saturated alcohol solution of copper acetate yielded a coordination polymer in the form of a green precipitate. The polymer withstands heating to 200C, is readily soluble in diethylformamide, and is slightly soluble in alcohol, benzene, and acetic acid. Similar products were prepared using Ni, Co, Mg, and Hg. 2) Synthesis of complexes of diketones with metals having the coordination number 6. Heating of terephthaloyldiacetone with tetraethyl or tetra-tert-butyl orthotitanate in dry xylene, with stripping off of the theoretical amount of alcohol, yielded products fully soluble in xylene and having the general formula (as confirmed by elemental analysis),



2/9

By addition of petroleum ether, these products can be precipitated from xylene solution as a yellow fine crystalline substance partly soluble in benzene and dimethylformamide. The molecular weight of the product prepared with tert-butyl titanate was determined by the cryoscopic method to be 800, corresponding to that of the dimer. 3) Synthesis of acetylacetonate or benzoylacetonate complexes with tetra-tert-butyl titanate and their hydrolysis with the theoretical amount of water:



L 19444-63
ACCESSION NR: AP3006747

The acetylacetonate complex yielded a polymer with molecular weight 12,000 which melts at about 120C and is hydrolyzed in air to form a brittle insoluble product. The benzoylacetonate complex yielded a polymer with molecular weight 900 which is soluble in methyl alcohol, benzene, acetone, and dimethylformamide. Orig. art. has: 4 formulas.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Institute of Organoelemental Compounds, AN SSSR)

SUBMITTED: 23Dec61 DATE ACQ: 30Sep63 ENCL: 00

SUB CODE: CH NO REF SOV: 003 OTHER: 000

4/4

Card 4/4

L 40810-66 EWT(m)/EWP(j)/T IJP(c) WW/RM

ACC NR: AP6025623 SOURCE CODE: UR/0413/66/000/013/0077/0078

AUTHORS: Korshak, V. V.; Vinogradova, S. V.; Lebedeva, A. S.; Bulgakova, I. A.

ORG: none

TITLE: Preparative method for polyarylates. Class 39, No. 183386 announced by Institute of Heteroorganic Compounds, AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 13, 1966, 77-78

TOPIC TAGS: polyarylate plastic, dicarboxylic acid, polycondensation

ABSTRACT: This Author Certificate presents a method for preparing polyarylates by polycondensation of dicarbonyl chlorides with bisphenols. To broaden the assortment of polyarylates having high thermal stability, either bis(hydroxyphenyl)pyromellitimide or bis(hydroxyphenyl)pyromellitamic acid is used as the bisphenol. [04]

SUB CODE: 07/ SUBM DATE: 05Jul65/ ATD PRESS: 5059

Card 1/1 UDC: 678.673'52'52

ACC NR: AP7004548 SOURCE CODE: UR/0011/66/000/006/0063/0071

AUTHOR: Baginskaya, Ye. N.; Nesmeyanov, D. V.; Bulgakova, I. A.; Goyev, V. I.; Khakimov, M. Yu.

ORG: NILNEFTEGAZ, Moscow

TITLE: New data on the structure of the eastern part of Cis-Caucasia on the basis of regional geophysical work

SOURCE: AN SSSR. Izvestiya. Seriya geologicheskaya, no. 6, 1966, 63-71

TOPIC TAGS: telluric current, geophysics

ABSTRACT: The deep structure of Cis-Caucasia was studied in 1962-1964 by geophysical investigations along three regional profiles which cut across the principal structural elements of that region. The greater part of the article is a detailed description of work along each of these profiles. The objectives were tracing the surface of the basement and the underlying sedimentary deposits of the Mesozoic; wherever possible discontinuities in the sedimentary strata also were traced. A wide variety of methods were combined: the refracted waves method, electrical exploration methods (magnetotelluric profiling and sounding and telluric currents methods), as well as gravimetric and magnetometer work. The results are incorporated in Fig. 1, a map of relief of the basement and distribution of local uplifts in the sedimentary strata, and in Figures 2 and 3, which are detailed geophysical cross sections along different profiles. The work was effective in detecting areas most promising for further geological prospecting work, especially for petroleum and gas. Orig. art. has: 3 figures. [JPRS: 38,460]

SUB CODE: 08 / SUBM DATE: 13Apr65

Card 1/1 UDC: 550.81+530.3(471.6)

0926 1376

BULGAKOVA, I.I

KORZHETSKIY, V.P.; MARKYEVA, V.N.; BULGAKOVA, I.I.

Skip used for feeding sand into the hoppers of mixing units. Rats. i izobr. predl. v stroi. no.3:51-53 '57. (MIRA 11:1)
(Concrete mixers)

BULGAKOVA, K. I., Cand of Tech Sci -- (diss) "The obtention of iodine from borax waters after the extraction of bromine." Leningrad, 1957, 16 pp (State Institute of Applied Chemistry), 60 copies (KL, 37-57, 103)

TSEYTLIN, A.S., kandidat tekhnicheskikh nauk; BULGAKOVA, L.M., starshiy tekhnik.

Rapid method for determining the moisture content of soils used in earthworks. Gidr. i mel. 8 no.9:58-60 S '56.

(MLRA 9:10)

(Soil moisture)

SOV-3-58-10-17/23

AUTHOR: Bulgakova, L.M., Docent, Candidate of Philological Sciences

TITLE: More Variety in Instructional Literature (Bol'she raznoobraznoy uchebnoy literatury)

PERIODICAL: Vestnik vysshey shkoly, 1958, Nr 10, pp 81 - 84 (USSR)

ABSTRACT: The programs approved by the USSR Ministry of Higher Education in 1958 provide that 1) the student must be able to translate (with a dictionary) literature of his specialty, and a public-political text, 2) he must have some colloquial skill. The respective chair of the Leningrad Institute of RR Engineers admits the second point to be of great importance, but states that under present circumstances it is an unrealistic demand. The author proves this by the insufficient number of hours devoted to this subject in school and at home and the fact that factory men enrolled have forgotten their knowledge to a considerable extent. For this reason the principle task of vuz chairs is to teach the students to translate literature of their specialty. The

Card 1/2

chair applied a method of instruction which deviated from the vuz textbook and made special teaching aids necessary. The author indicates the kind of books required for the 1st and 2nd course and for the optional exercises. These books are not available, but the chair is now composing them. The author gives some information on their contents. There is 1 Soviet reference.

ASSOCIATION: Leningradskiy institut inzhenerov zheleznodorozhnogo transporta imeni akademika V.N. Obraztsova (Leningrad Institute of RR Engineers imeni the Academician V.N. Obraztsov)

POROSHIN, K.T., akademik; DAVIDYANTS, S.B.; BURICHENKO, V.K.; BULGAKOVA, L.V.

Synthesis of alkaloid-peptide compounds. Dokl. AN SSSR 156 no. 5:1118-1120 Je '64. (MIRA 17:6)

1. Institut khimii AN TadzhSSR. 2. AN TadzhSSR (for Poroshin).

BULGAKOVA, M.

On new course. Rabotnitsa 37 no.3:28-29 Mr '59. (MIRA 12:4)
(Moscow--Technical education)

ANDRIANOV, V.N.; BULGAKOVA, M.D.

Middle Carboniferous age in boundary layers of the Tiks and Verkhoyansk series of the Kharaulakh Mountains in the lower Lena Valley. Dokl. AN SSSR 162 no.1:155-157 My '65. (MIRA 18:5)

1. Institut geologii Yakutskogo filiala Sibirskogo otdeleniya AN SSSR. Submitted January 9, 1965.

BULGAKOVA, M.D.

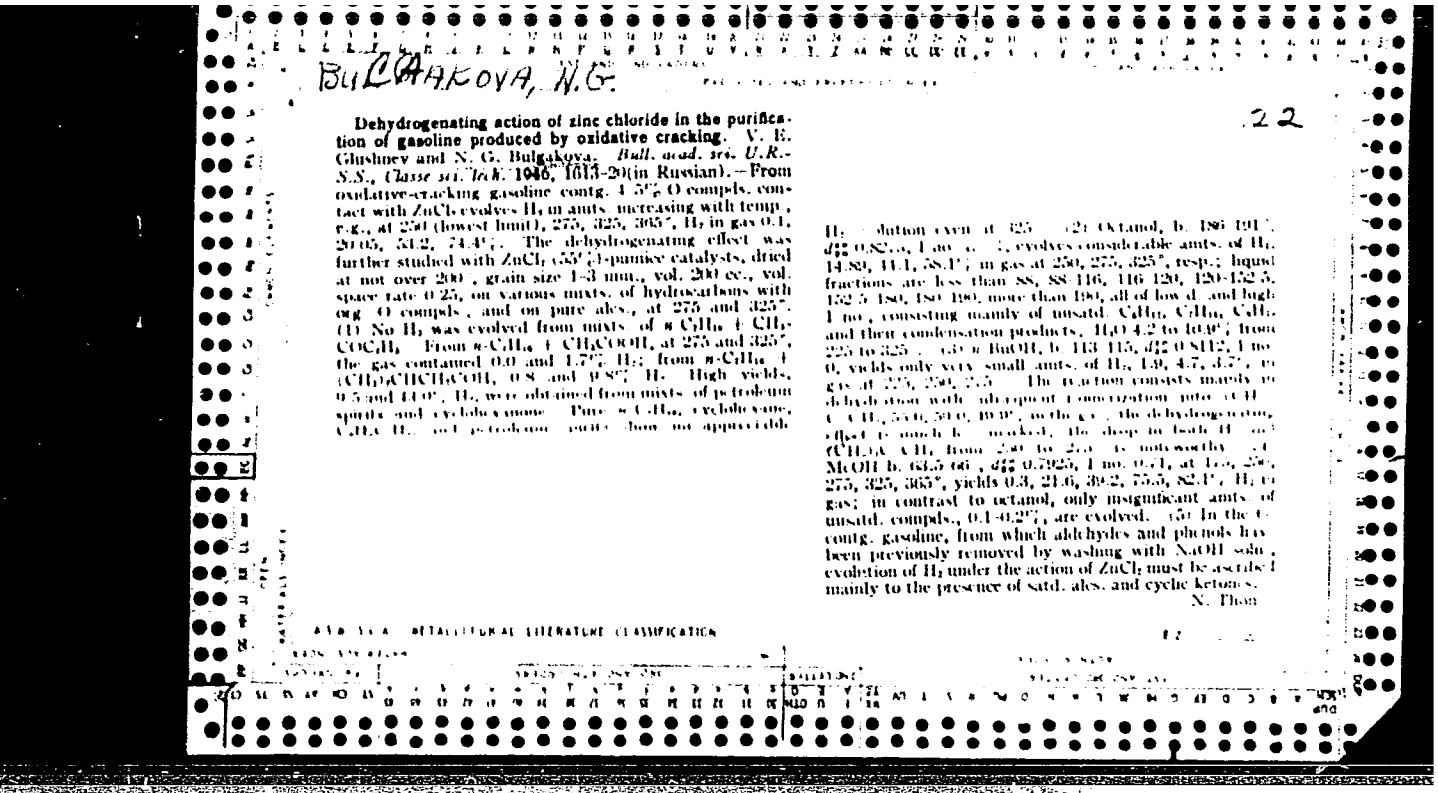
Presence of clastic cinnabar and ludwigite in the Upper Paleozoic rocks of the northern Kharaulakh Range. Dokl. AN SSSR 162 no.4:911-912 Je '65. (MIRA 18:5)

1. Institut geologii Yakutskogo filiala Sibirskogo otdeleniya AN SSSR. Submitted January 13, 1965.

APRANOVICH, E.I.; ZORKAL'TSEVA, Ye.N.; BULGAKOVA, N.A.

Correlation between the average diameter of erythrocytes and the percentage of macrocytes. Lab.delo 6 no.3:10-12 My-Je '60.

1. Kafedra patologicheskoy fiziologii (zav. - prof. D.I. Gol'dberg) Tomskogo meditsinskogo instituta.
(ERYTHROCYTES)

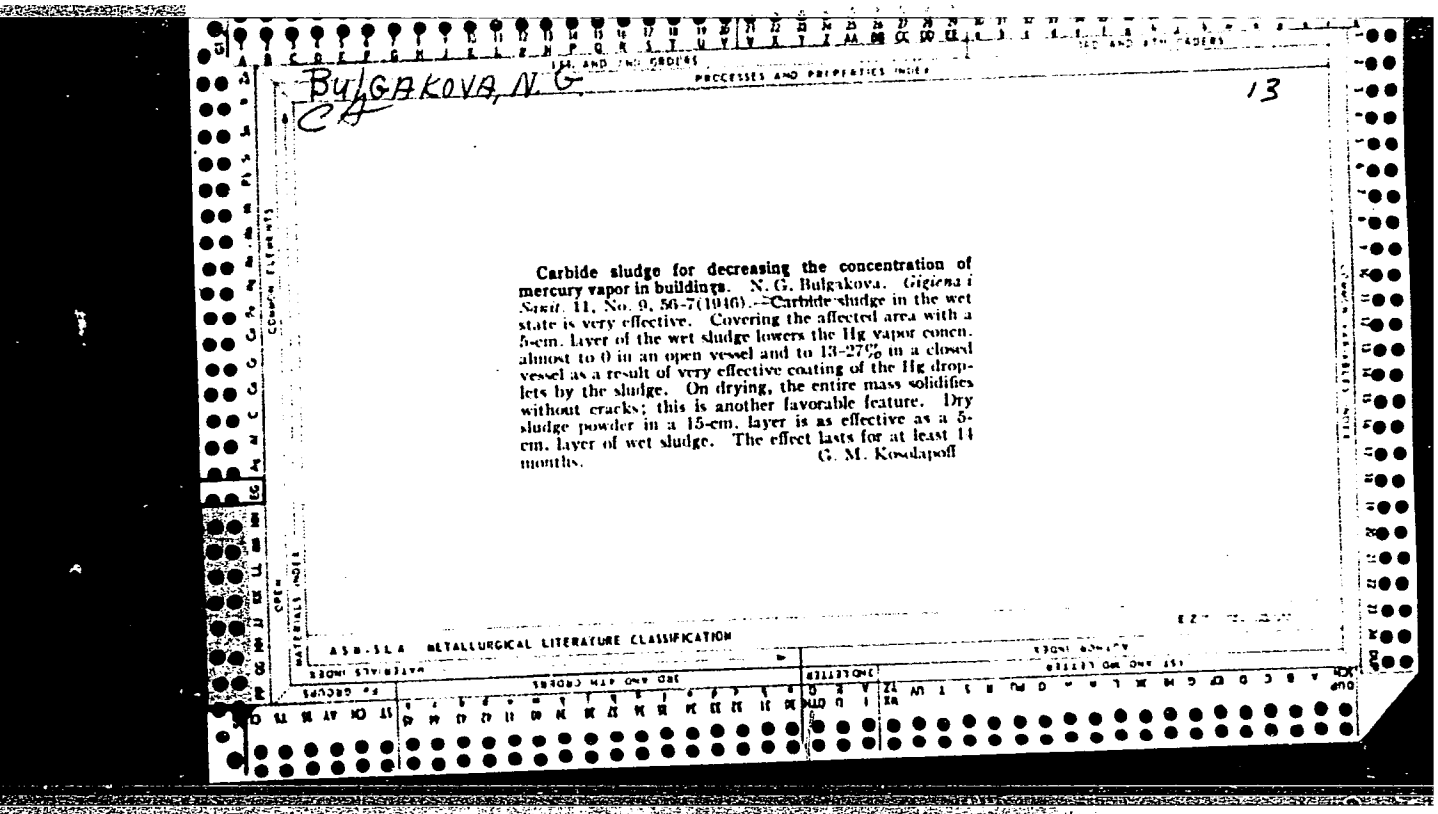


BULGAKOVA, N.G.

22

Dehydrogenating action of zinc chloride in the purification of gasoline produced by oxidative cracking. V. E. Glushnev and N. G. Bulgakova. *Bull. acad. sci. U.R.S.S., Classe sci. tech.* 1946, 1013-20 (in Russian).—From oxidative-cracking gasoline contg. 4.5% O compds. contact with $ZnCl_2$ evolves H_2 in amts. increasing with temp., e.g., at 250 (lowest limit), 275, 325, 365°, H_2 in gas 0.1, 20.05, 51.2, 74.4%. The dehydrogenating effect was further studied with $ZnCl_2$ (55%)-pumice catalysts, dried at not over 200°, grain size 1-3 mm., vol. 200 cc., vol. space rate 0.25, on various mixts. of hydrocarbons with and w/o O compds., and on pure alcs., at 275 and 325°. (1) No H_2 was evolved from mixts. of n-C_7H_{16} + $CH_3COC_2H_5$. From n-C_7H_{16} + CH_3COOH, at 275 and 325°, the gas contained 0.0 and 1.7% H_2; from n-C_7H_{16} + $(CH_3)_2CHCH_2COH$, 0.8 and 9.8% H_2. High yields, 0.5 and 44.0%, H_2, were obtained from mixts. of petroleum spirits and cyclohexanone. Pure n-C_7H_{16}, cyclohexane, C_6H_{12}, and petroleum spirits show not appreciable H_2 evolution even at 325°. (2) Octanol, b. 186-191°, d_4^{15} 0.827, n_D 1.4, evolves considerable amts. of H_2, 14.80, 44.1, 58.1%, in gas at 250, 275, 325°, resp.; liquid fractions are: less than 88, 88-116, 116-120, 120-132.5, 132.5-180, 180-190, more than 190, all of low d. and high n_D, consisting mainly of unsatd. C_8H_{16}, C_8H_{14}, C_8H_{12}, and their condensation products. H_2O 4.2 to 10.0%. From 225 to 325°, 65% n-BuOH, b. 113-115, d_4^{15} 0.812, n_D 1.4, 0, yields only very small amts. of H_2, 1.9, 4.7, 4.7%, in gas at 225, 250, 275. The reaction consists mainly in dehydration with subsequent isomerization into C_8H_{16}, C_8H_{14}, 50.0, 80.0%, in the gas; the dehydrogenation effect is much less marked, the drop in both H_2 and $(CH_3)_2CH$ from 2.40 to 2.00 is noteworthy. (3) MeOH b. 65.5-66°, d_4^{15} 0.7925, n_D 1.3, at 225, 250, 275, 325, 365°, yields 0.3, 21.6, 39.2, 75.5, 82.1% H_2 in gas; in contrast to octanol, only insignificant amts. of unsatd. compds., 0.1-0.2%, are evolved. (4) In the O-contg. gasoline, from which aldehydes and phenols have been previously removed by washing with NaOH soln., evolution of H_2 under the action of $ZnCl_2$ must be ascribed mainly to the presence of satd. alcs. and cyclic ketones.

N. Thon

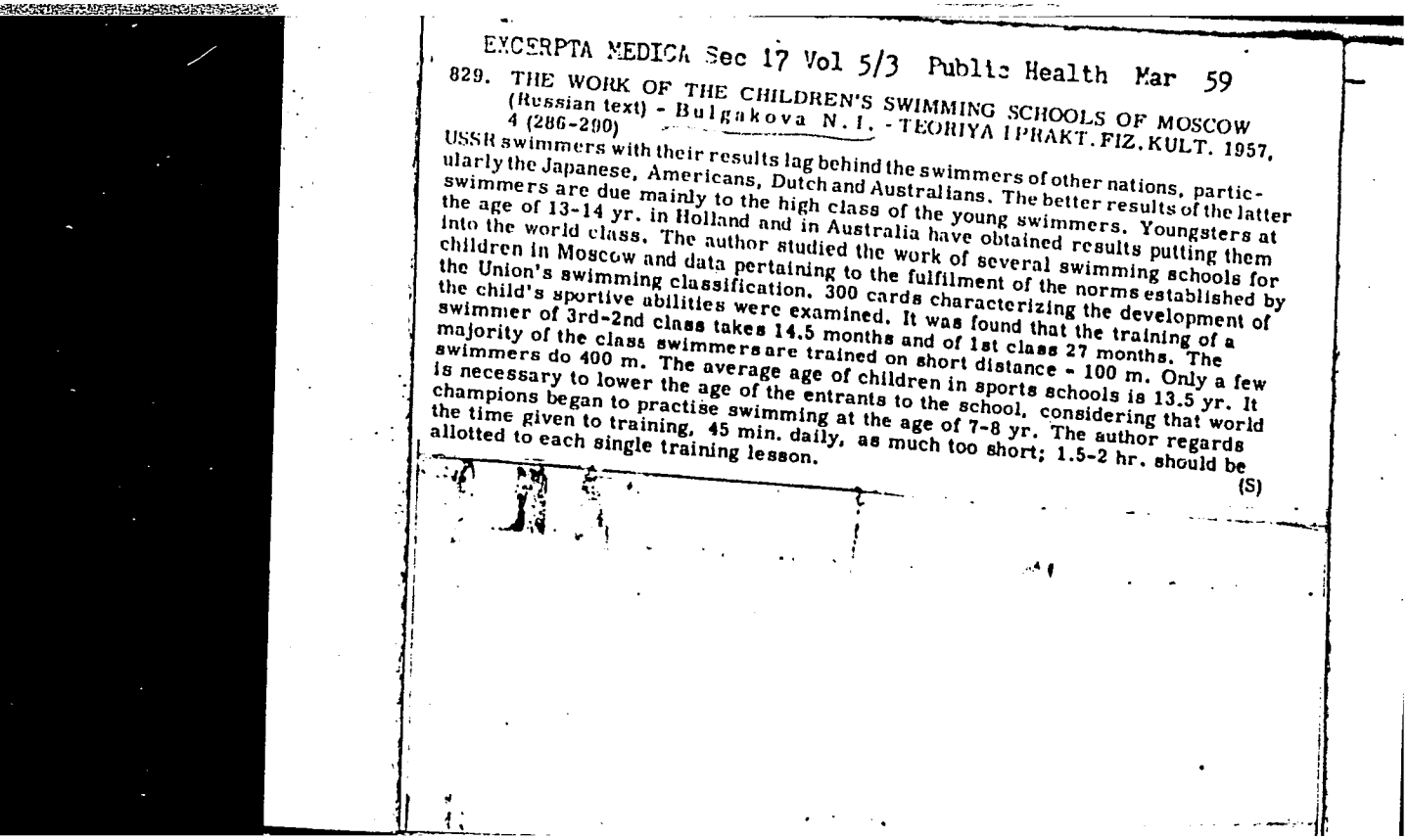


BULGAKOVA, N. G.
CA

13

Carbide sludge for decreasing the concentration of mercury vapor in buildings. N. G. Bulgakova. *Gigiena i Sanit.* 11, No. 9, 56-7(1946).—Carbide sludge in the wet state is very effective. Covering the affected area with a 5-cm. layer of the wet sludge lowers the Hg vapor concn. almost to 0 in an open vessel and to 13–27% in a closed vessel as a result of very effective coating of the Hg droplets by the sludge. On drying, the entire mass solidifies without cracks; this is another favorable feature. Dry sludge powder in a 15-cm. layer is as effective as a 5-cm. layer of wet sludge. The effect lasts for at least 14 months.
G. M. Kosolapoff

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



EXCERPTA MEDICA Sec 17 Vol 5/3 Public Health Mar 59

829. THE WORK OF THE CHILDREN'S SWIMMING SCHOOLS OF MOSCOW (Russian text) - Bulgakova N. I. - TEORIYA I PRAKT. FIZ. KULT. 1957, 4 (286-290)

USSR swimmers with their results lag behind the swimmers of other nations, particularly the Japanese, Americans, Dutch and Australians. The better results of the latter swimmers are due mainly to the high class of the young swimmers. Youngsters at the age of 13-14 yr. in Holland and in Australia have obtained results putting them into the world class. The author studied the work of several swimming schools for children in Moscow and data pertaining to the fulfilment of the norms established by the Union's swimming classification. 300 cards characterizing the development of the child's sportive abilities were examined. It was found that the training of a swimmer of 3rd-2nd class takes 14.5 months and of 1st class 27 months. The majority of the class swimmers are trained on short distance - 100 m. Only a few swimmers do 400 m. The average age of children in sports schools is 13.5 yr. It is necessary to lower the age of the entrants to the school, considering that world champions began to practise swimming at the age of 7-8 yr. The author regards the time given to training, 45 min. daily, as much too short; 1.5-2 hr. should be allotted to each single training lesson.

(S)

BULGAKOVA, N. V. Engr., RAKOV, K. A., KROL, L. B., PANASENKO, M. D. (Master of Science)

"Experiemental Boiler Plant with 'Once Through' Boiler for Very High Steam Parameters (300 ata 600° C)," paper presented at the 5th World Power Conference, Vienna, 1956.

In Branch # 5

BULGAKOVA, N. V.

AID P - 4953

Subject : USSR/Engineering

Card 1/ Pub. 110-a - 2/21

Authors : Kostrikin, Yu. M., Yu. O. Novi, K. A. Rakov, Kandidats of Tech. Sci., G. I. Aleynikov, N. V. Bulgakova, V. A. Taratuta, Engineers.

Title : Results of thermal and chemical tests of a once-through boiler of 215 and 300 atmospheres.

Periodical : Teploenergetika, 8, 10-13, Ag 1956

Abstract : Data are given on the quality of steam supplied by an once-through boiler operating at 215 and 300 atmospheres. The boiler is fed by the turbine condensate mixed with the cooling calcium-bicarbonate water. The design and performance of boilers of near critical and super critical pressures are discussed, and various related problems are examined. 4 diagrams. 3 references.

AID P - 4953

Teploenergetika, 8, 10-13, Ag 1956

Card 2/2 Pub. 110-a - 2/21

Institution : VTI (All-Union Heat Engineering Institute) and TsKTI (Central Institute for Boilers and Turbines), Moscow Branch.

Submitted : No date

BULGAKOVA, N V

AID P - 4955

Subject : USSR/Engineering

Card 1/1 Pub. 110-a - 4/21

Authors : Bulgakova, N. V., Z. V. Deyeva, and A. M. Prokhorova, Engineers.

Title : Thermal and chemical tests of a high-pressure once-through boiler fed by salt-free water.

Periodical : Teploenergetika, 8, 17-18, Ag 1956

Abstract : Tests with the above boilers, performed in the All-Union Heat Engineering Institute in February-March 1956, are described. The results of these tests show that the quality of the salt-free water is not worse than the quality of the condensate, and that accordingly the steam supplied by a boiler fed by salt-free water is equal in quality to the steam from a boiler using condensate.

Institution : All-Union Heat Engineering Institute

Submitted : No date

BULGAKOVA, N.V.

2

523. VTI EXPERIMENTAL BOILER INSTALLATION AT 300 ATM AND 600°C. [illegible] and Bulgakova, N.V. (Teploenergetika (Heat Pwr Engng, Moscow), Feb. 1957, 7-12). An account of the construction of an experimental boiler installation, using a once-through boiler, for 300 atm pressure and 600°C is given. Special reference is made to the steels used in its design. (b)

RAKOV, K.A., kandidat tekhnicheskikh nauk; BULGAKOVA, N.V., inzhener .

Results obtained from the VII experimental continuous-operation boiler at 300 atm.and 600°C. Teploenergetika 4 no.3:22-26 Mr '57. (MLRA 10:3)

1. Vsesoyuznyy teplotekhnicheskiy institut.
(Boilers)

Bulgakova, N.V.

254

AUTHORS: Rakov, K. A. (Cand. Tech. Sc.) and Bulgakova, N.V. (Eng.) (All-Union Thermotechnical Institute).

TITLE: Investigation of the working process of a uniflow boiler of the heat and electric power station of the All-Union Thermotechnical Institute with super-critical and super-high pressures. (Issledovaniye rabochego prosessa pryamotochnogo kotla TETs VTI pri sverkhkriticheskikh ei sverkhvysokikh davleniyakh).

PERIODICAL: "Teploenergetika" (Thermal Power), 1957, Vol.4, No.4, April, pp. 21-28 (U.S.S.R.)

ABSTRACT: Internal processes in uniflow boilers operating under super-critical conditions display a number of special features due to the physical properties of water and steam. At a pressure of 300 atm. and a steam temperature of 600°C the specific volume of the working fluid only increases by a factor of ten in the boiler. Because the medium is in a single phase there is no zone of evaporation and the specific heat of the medium is greater than when conditions are sub-critical. Therefore, in boilers operating at super-critical pressure there are no pulsations of output at the coils. Measurements were made of the temperature, pressure and specific heat of the medium in the experimental boiler of the Thermotechnical Institute. Measurements were also made of the thermal loading of the surfaces and of the metal temperature and the hydrodynamics of the medium were

Investigation of the working process of a uniflow boiler of the heat and electric power station of the All-Union Thermotechnical Institute with super-critical and super-high pressures. (Cont.)

investigated in particular parts of the boiler. The distribution of heat absorption between different parts of the boiler was investigated when burning fuel oil and coal dust. The results are presented in the form of graphs for different rates of steaming. When burning fuel-oil, 65 to 70% of the heat is applied to the radiation economiser, this proportion drops to 35 to 40% when coal dust is burned and that of the radiation super-heater increases to 28-33%. The heat transfer of the convective super-heater increases from 6 to 12% when burning fuel oil to 20 to 28% when burning dust. With constant feed water temperature (100°C) and super-heated steam temperature (600°C) intermediate temperatures in the boiler change markedly with change of load because of the increase in the quantity of heat transmitted by radiation in the furnace when the load is reduced. With rapid changes in load there are corresponding changes in the weight of substance within the boiler which leads to the boiler coils being filled with excess of steam or feed water so that even when the delivery of feed water is synchronised with the offtake of steam there are variations in temperature. Displacement of the point of phase transfer is most marked when the proportion of

Investigation of the working process of a uniflow boiler of the heat and electric power station of the All-Union Thermotechnical Institute with super-critical and super-high pressures. (Cont.)

heat transmission in the radiation economiser is high. This is partly due to the characteristics of the boiler used, in industrial boilers for super-critical pressure with a feed water temperature of 275-300°C heat transfer in the radiation economiser will apparently not exceed 20% and, therefore, the displacement of the point of phase transfer will be relatively small. An essential question for the reliable operation of uniflow boilers is to ensure that variations of temperature in the coils caused by unequal heating and non-uniform distribution of the medium are small. These temperature variations must be less at super-critical than at sub-critical pressures. This question was investigated and the results are presented in the form of graphs. In the period immediately before running the experimental boiler at a pressure of 300 atm. the possibility was suggested that there might be considerable deterioration in the heat transfer at super-critical pressure. It was, therefore, of interest to determine the external temperatures of the metal of the heating surface in the region of phase transfer. Altogether 53 series of

Investigation of the working process of a uniflow boiler of the heat and electric power station of the All-Union Thermotechnical Institute with super-critical and super-high pressures. (Cont.)

measurements were made at pressures from 180 to 300 atm, super-heat temperatures of 540-600°C and loads of 6 to 12 tons/hour. The results are presented in the form of graphs and are discussed. The main conclusion is that the measurements of metal temperature show that heat transfer in the boiler is good enough and that the selected brands of steel operate within permitted temperature limits. The hydro-dynamics of the experimental boiler were investigated. Determinations were made of the rate of flow of the medium in the tube of the upper radiation section and of the transitional zone. At sub-critical pressures these parts of the boiler work wholly or partially on a steam water mixture. The results are presented in the form of graphs. There were no pulsations of flow in any part of the boiler over the pressure range of 180 to 300 atm. with either constant or variable load or during starting or stopping of the boiler. The non-uniformity of distribution of water between tubes of the radiation economiser was from 4 to 18% when burning fuel oil. The water distribution in the upper radiation section improved with reduction in the load and the uniformity was then better. This improvement

Investigation of the working process of a uniflow boiler of the heat and electric power station of the All-Union Thermotechnical Institute with super-critical and super-high pressures. (Cont.)

was caused by considerable increase in the mean specific volumes in the coils of the upper radiation parts with reduction in load and increase in the resistance of the tubes relative to the collectors. The hydraulic resistance of the boiler was quite small when burning coal but somewhat greater when burning oil because the point of phase transfer was displaced. The water flow through a single coil of diameter 32 x 6 mm was 1000 to 1200 kg/hour. In large boilers when the flow through such a coil is 2 to 3 tons/hour the resistance of the boiler should increase to 30 to 40 atm. With increase in load the increase in boiler resistance was almost linear. The resistance of the economiser and the upper radiation part was practically independent of pressure, the resistance of the transitional zone increased with pressure. The experiments on the experimental uniflow boiler showed that uniflow boilers at super-critical pressure are most reliable steam generators. They are more reliable than uniflow boilers working at lower pressures since they work on a single phase medium free from pulsation, stratification and non-uniform distribution of a two-phase medium. With

254

Investigation of the working process of a uniflow boiler of the heat and electric power station of the All-Union Thermotechnical Institute with super-critical and super-high pressures. (Cont.)

identical super-heat temperatures the operating temperatures of the metal in them are closer to the mean designed temperature because of improved heat transmission and smaller temperature variations which improves the operating conditions of the metal.
14 figures, no literature references.

BULGAKOVA, N.V., inzh.; DEYEVA, Z.V., inzh.; KOT, A.A, kand.tekhn.nauk; RAKOV, K.A. kand.tekhn.nauk

Using chemically desalted feed water in high-pressure and super-pressure once-through boilers. Elek.sta. 29 no.3:8-12 Mr '58. (MIRA 11:5)
(Feed water)

PETROSYAN, R.A., kand. tekhn. nauk; SHVARTS, A.L., kand. tekhn. nauk; BULGAKOVA, N.V., inzh.; SHMUKLER, B.I., inzh.; DEMB, E.P., inzh.

Study of the sliding start conditions of a cold PK-33 once-through type boiler unit with nondraining shield-type superheater. Teploenergetika 10 no.9:19-25 S '63. (MIRA 16:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy teplotekhnicheskiy institut im. Dzerzhinskogo i zavod imeni Ordzhonikidze. (Boilers)

PUDOVIK, A.N.; TARASOVA, R.I.; BULGAKOVA, R.A.

Reactions of sodium diethyl thiophosphite with haloallyl compounds. Zhur. ob. khim. 33 no.8:2560-2563 Ag '63. (MIRA 16:11)

1. Kazanskiy gosudarstvennyy universitet.

KHLOPLYANKINA, M.S.; LUKOVNIKOV, A.F.; LEVIN, P.I.; Prinimali uchastiye: VASIL'YEVA, A.G.; BULGAKOVA, T.A.

Increased affectiveness of the combined action of antioxidants (synergism). Part 2: Basic manifestations of the effect of antioxidant mixtures. Vysokom.soed. 5 no.2:195-200 F '63. (MIRA 16:2)

1. Institut khimicheskoy fiziki AN SSSR.
(Antioxidants)

ACCESSION NO: AP4017630

S/0190/64/006/002/0201/0205

AUTHORS: Lukovnikov, A. F.; Fedorov, B. P.; Stoyanovich, F. M.; Bulgakova, T. A.; Levin, P. I.

TITLE: Arylamines of the thiophene series with a thioether group as antioxidants

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 2, 1964, 201-205

TOPIC TAGS: antioxidant, polypropylene, polypropylene antioxidant, thiophene, thenyl compound, thioether group, arylamine, stabilization, functional stabilizing group, phenyl compound, Neozone, sulfide, oxidation, p phenolamine, induction period

ABSTRACT: The performance of sulfides of the thiophene series containing an arylamine group as inhibitors of polypropylene oxidation was studied at 200C in an atmosphere of oxygen. It was found that the arylamines of the thiophene series are generally equal (in some instances even superior) as antioxidants to the commercial Neozones. It was also observed that the presence of a thenyl or a benzyl radical in the arylamine molecule had a favorable effect on the effectiveness of the compound. The sulfides of the thiophene series as such do not possess any anti-oxidative properties in respect to polypropylene. It was also shown that the

Card 1/2

ACCESSION NO: AP4017630

thioether group does not enhance the effectiveness of arylamine either when added separately or when the thioether group forms a part of the amine molecule. The presence of a thioether group in p-aminophenol derivatives results in increased effectiveness of the compounds as antioxidants, especially where the sulfide sulfur is directly bound to the thiophene group. Orig. art. has: 1 table and 3 charts.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo AN SSSR, (Institute of Organic Chemistry AN SSSR); Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics AN SSSR)

SUBMITTED: 19Jul62 DATE ACQ: 23Mar64 ENCL: 00

SUB CODE: CH NO REF SOV: 003 OTHER: 004

Card 2/2

LUKOVNIKOV, A.F.; FEDOROV, B.P.; STOYANOVICH, F.M.; BULGAKOVA, T.A.; LEVIN, P.I.

Inhibiting action of arylamines of the thiophene with a thioether group. Vysokom.soed. 6 no.2:201-205 F '64. (MIRA 17:2)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR i Institut khimicheskoy fiziki AN SSSR.

LEVIN, P.I.; BULGAKOVA, T.A.

Mutual strengthening (synergism) of antioxidants. Part 4: Increased effectiveness in mixtures containing esters of pyrocatecholphosphorous acid. Vysokom soed. 6 no.4:700-705 Ap '64. (MIRA 17:6)

1. Institut khimicheskoy fiziki AN SSSR.

L 10795-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 ASD(p)-3/AMD/Pb-4/RAEM(i)
RM
ACCESSION NR: AP4032570 S/0190/64/006/004/0700/0705

AUTHORS: Levin, P. I.; Bulgakova, T. A.

TITLE: Mutual strengthening (synergism) of antioxidants. 4. Increased efficiency in mixtures containing esters of pyrocatecholphosphorous acid

SOURCE: Vy*sokomolek. soyedin., v. 6, no. 4, 1964, 700-705

TOPIC TAGS: antioxidant, polypropylene antioxidant, pyrocatecholphosphorous acid ester, phosphite ester, alkyl acyl antioxidant, mercaptan additive, sulfide additive, disulfide additive, synergism, oxidation induction period/ SaO 6 additive, DiSaO 6 additive, Santonox

ABSTRACT: It was shown in an earlier publication by P. I. Levin and associates (Vy*sokomolek. soyed. 5, 1152, 1963) that the antioxidant effect of pyrocatecholphosphorous acid esters was substantially enhanced by the addition of 2,2'-thio-bis-(6-tert. butyl-4-methylphenol)(SaO-6). The present study deals with the effects of pyrocatecholphosphorous acid esters on the structure of the radical and with the enhancing effects of phenolsulfides, disulfides, and mercaptans. The performance of these antioxidants was studied on isotactic molten polypropylene at 200C and an oxygen pressure of 200 mm Hg. The list of antioxidants included

Card 1/3

L 10295-63
ACCESSION NR: AP4032570

6

pyrocatecholphosphoric acid (PCPA), phenyl pyrocatecholphosphite (PPCP), p-methylphenyl pyrocatecholphosphite (MPPCP), p-tert.butylphenyl pyrocatecholphosphite (BPPCP), 2,4,6-tri-tert.butylphenyl pyrocatecholphosphite (2,4,6-BPPCP), 2,2'-thio-bis-(6-tert.butyl-4-methylphenol)(SaO-6), 2,2'-dithio-bis-(6-tert.butyl-4-methylphenol)(DiSaO-6), 4,4'-thio-bis-2-(tert.butyl-5-methylphenol)(Santonox), and mercaptobenzimidazole (MBIA). It was determined that at concentrations within the 0-0.05 mole/kg range the induction period changed in proportion to the concentration of the antioxidants. The highest effectiveness was shown by 2,4,6-BPPCP and the lowest by PCPA, with PPCP and BPPCP occupying intermediate positions. Individual enhancing of PCPA, PPCP, MPPCP and BPPCP with SaO-6 had a synergistic effect. Thus, while a 0.01 mole/kg concentration of SaO-6 alone called for an induction period of 160 minutes, and a 0.04 mole/kg concentration of PCPA alone called for an induction period of 30 minutes, the combined effect of both antioxidants in these concentrations caused the induction period to expand to 240 minutes. Tests with a combination of 2,4,6-BPPCP and Santonox also revealed (at a summary concentration of 1%) a pronounced synergistic effect on the performance of these antioxidants. On the other hand, a combination of 2,6-di-tert.butyl-4-methylphenyl-PCPA with MBIA had the opposite effect. The theoretical aspects of these phenomena are discussed at length. Thanks for the preparation of reagents are given to P. A. Kirpichnikov, N. A. Mukmeneva, L. M. Popova, G. Ya. Richmond, A. Ye. Grenberg, and T. A. Frishman.

Card 2/3

L 10795-65
ACCESSION NR: AP4032570

Orig. art. has: 4 charts and 8 formulas.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AN SSSR)

SUBMITTED: 03May63

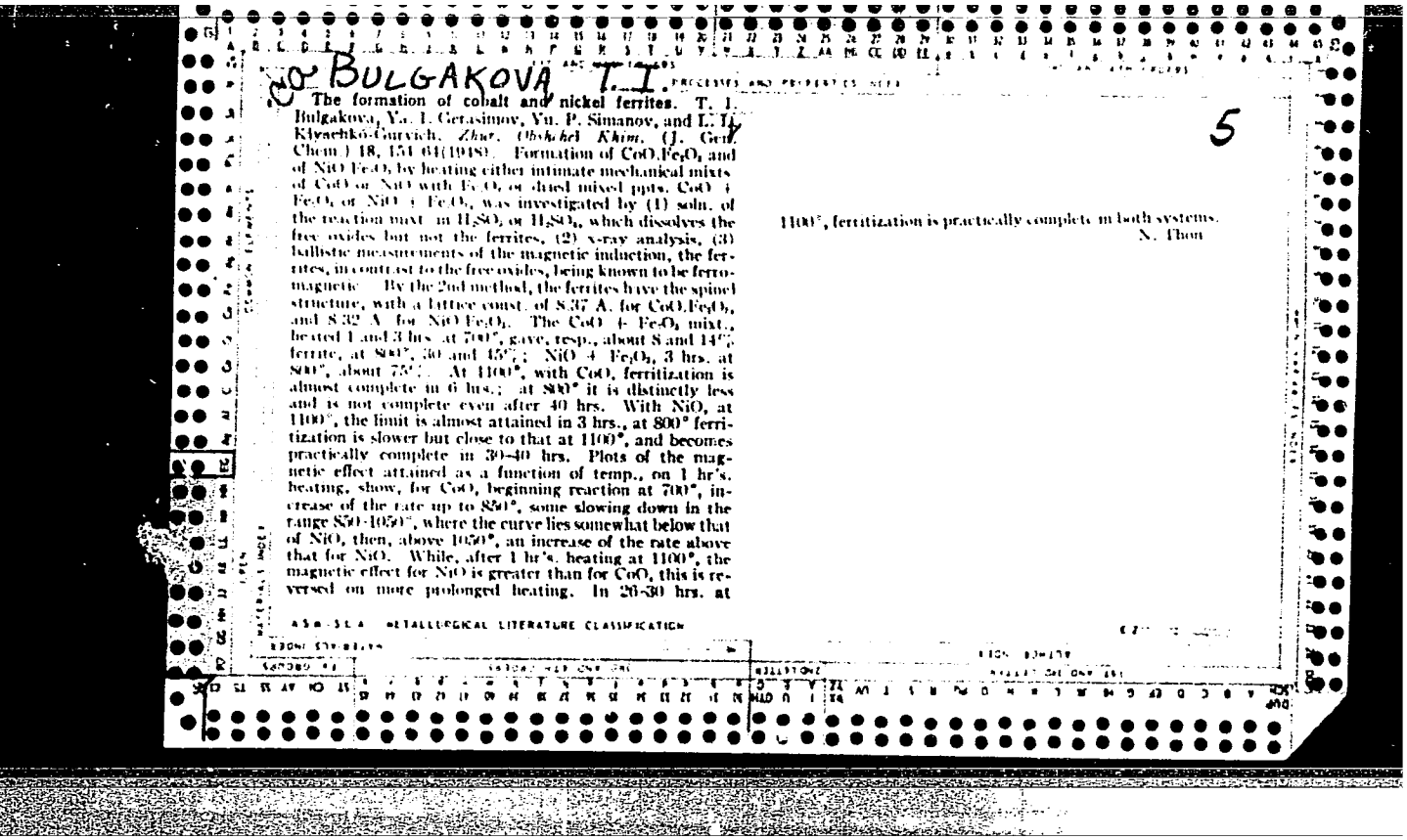
SUB CODE: OC, GC

NO REF SOV: 002

ENCL: 00

OTHER: 006

Card 3/3



BULGAKOVA T. I.

5

The formation of cobalt and nickel ferrites. T. I. Bulgakova, Ya. I. Gerasimov, Yu. P. Simanov, and L. I. Klyachko-Gurvich. *Zhur. Obshchei Khim.* (*J. Gen. Chem.*) 18, 151-64 (1948). Formation of $CoO.Fe_2O_3$ and of $NiO.Fe_2O_3$ by heating either intimate mechanical mixts. of CoO or NiO with Fe_2O_3 or dried mixed ppts. CoO + Fe_2O_3 or NiO + Fe_2O_3, was investigated by (1) soln. of the reaction mixt. in H_2SO_4 or H_2SO_4, which dissolves the free oxides but not the ferrites, (2) x-ray analysis, (3) ballistic measurements of the magnetic induction, the ferrites, in contrast to the free oxides, being known to be ferromagnetic. By the 2nd method, the ferrites have the spinel structure, with a lattice const. of 8.37 A. for $CoO.Fe_2O_3$, and 8.32 A. for $NiO.Fe_2O_3$. The CoO + Fe_2O_3 mixt., heated 1 and 3 hrs. at 700°, gave, resp., about 8 and 14% ferrite, at 800°, 30 and 45%; NiO + Fe_2O_3, 3 hrs. at 800°, about 75%. At 1100°, with CoO, ferritization is almost complete in 6 hrs.; at 800° it is distinctly less and is not complete even after 40 hrs. With NiO, at 1100°, the limit is almost attained in 3 hrs., at 800° ferritization is slower but close to that at 1100°, and becomes practically complete in 30-40 hrs. Plots of the magnetic effect attained as a function of temp., on 1 hr's. heating, show, for CoO, beginning reaction at 700°, increase of the rate up to 850°, some slowing down in the range 850-1050°, where the curve lies somewhat below that of NiO, then, above 1050°, an increase of the rate above that for NiO. While, after 1 hr's. heating at 1100°, the magnetic effect for NiO is greater than for CoO, this is reversed on more prolonged heating. In 20-30 hrs. at 1100°, ferritization is practically complete in both systems.

N. Thon

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

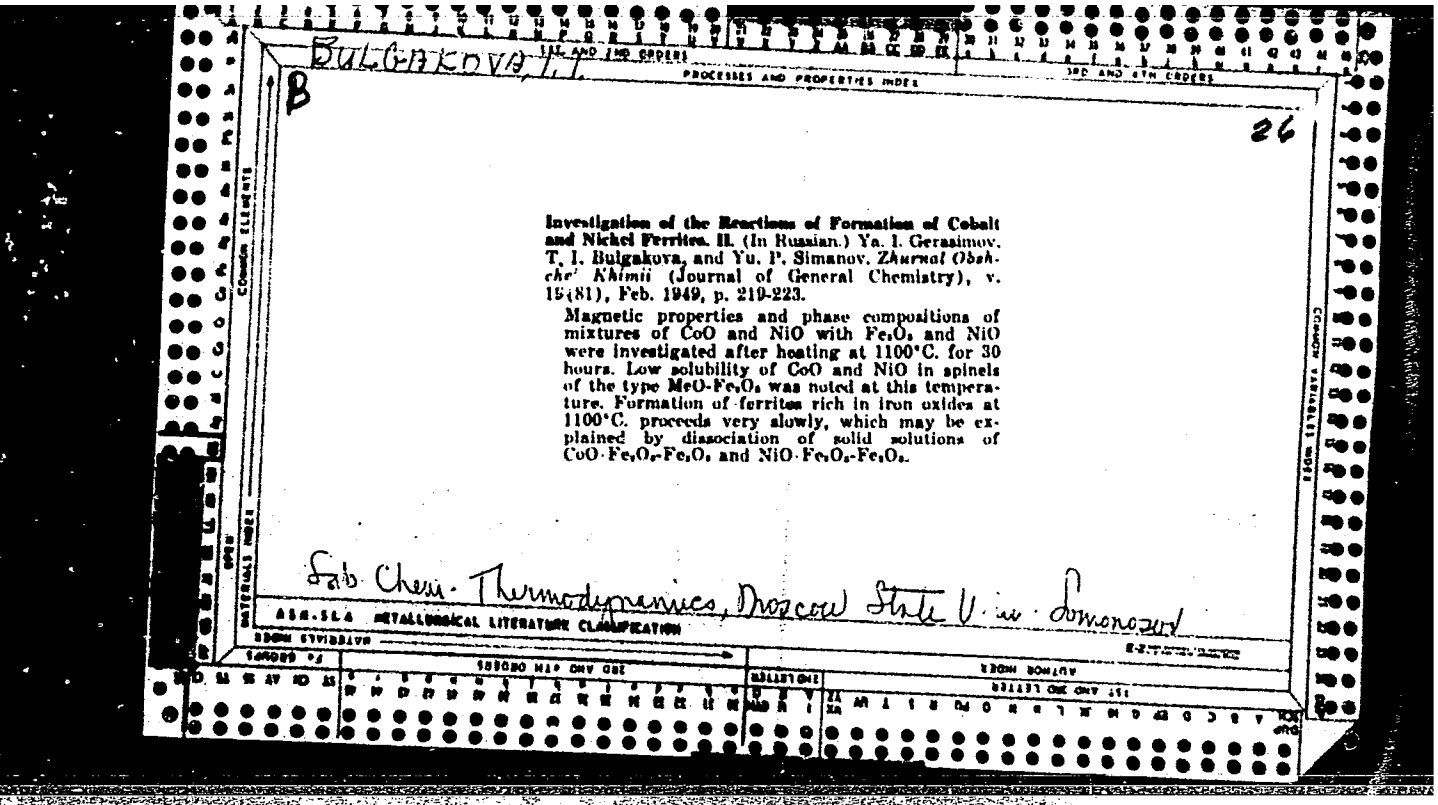
[redacted], I. I.

I. I. Vlasenko-[illegible]ch, T. I. Bolgakova and Ia. I. [illegible], The reaction of th[illegible] oxide with the oxides of sulfur. P. 1510.

In this work pictures of CO_2 and air [illegible] attention was paid to the character of the sulfating [illegible] tion of the sulfating gas and also to the influence of a [illegible] including the various additions to the sulfating oxide.

Lab. of Chem. Thermodynamics Moscow State University
November 19, 1941

SO: Journal of General Chemistry (USSR) 23, (73) No. 9 (1953)



BULGAKOVA, T. I.

B

26

Investigation of the Reactions of Formation of Cobalt and Nickel Ferrites. II. (In Russian.) Ya. I. Gerasimov, T. I. Bulgakova, and Yu. P. Simanov. *Zhurnal Obshchei Khimii* (Journal of General Chemistry), v. 15(81), Feb. 1949, p. 219-223.

Magnetic properties and phase compositions of mixtures of CoO and NiO with Fe_2O_3 and NiO were investigated after heating at 1100°C. for 30 hours. Low solubility of CoO and NiO in spinels of the type $MeO\text{-}Fe_2O_3$ was noted at this temperature. Formation of ferrites rich in iron oxides at 1100°C. proceeds very slowly, which may be explained by dissociation of solid solutions of $CoO\cdot Fe_2O_3\text{-}Fe_2O_3$ and $NiO\cdot Fe_2O_3\text{-}Fe_2O_3$.

Lab. Chem. Thermodynamics, Moscow State U. im. Lomonosov

BULGAKOVA, T.I.; BITSIYEVA, I.P.; MIKHAYLOV, V.M.

Study of nickel and zinc ferrite mixtures. Vest. Mosk. un. Ser. mat., mekh., astron., fiz. khim., 12 no.5:199-204 '57. (MIRA 11:9)

1.Kafedra obshchey khimii Moskovskogo gosudarstvennogo universiteta.
(Nickel ferrates) (Zinc ferrates)

BULGAKOVA, T. I.

PHASE I BOOK EXPLOITATION SOV/4893

Vsesoyuznoye soveshchaniye po fizike, fiziko-khimicheskim svoyetvam ferritov i fizicheskim osnovam ikh primeneniya. 3d, Minsk, 1959

Ferrity; fizicheskiye i fiziko-khimicheskiye svoystva. Doklady (Ferrites; Physical and Physicochemical Properties. Reports) Minsk, Izd-vo AN BSSR, 1960. 655 p. Errata slip inserted. 4,000 copies printed.

Sponsoring Agencies: Nauchnyy sovet po magnetizmu AN SSSR. Otdel fiziki tverdogo tela i poluprovodnikov AN BSSR.

Editorial Board: Resp. Ed.: N. N. Sirota, Academician of the Academy of Sciences BSSR; K. P. Belov, Professor; Ye. I. Kondorskiy, Professor; K. M. Polivanov, Professor; R. V. Telesnin, Professor; G. A. Smolenskiy, Professor; M. M. Sholts, Candidate of Physical and Mathematical Sciences; G. M. Smolyarenko; and L. A. Bashkirov; Ed. of Publishing House: S. Kholyavskiy; Tech. Ed.: I. Volokhanovich.

PURPOSE: This book is intended for physicists, physical chemists, radio electronics engineers, and technical personnel engaged in the production and use of ferromagnetic materials. It may also be used by students in advanced courses in radio electronics, physics, and physical chemistry.

COVERAGE: The book contains reports presented at the Third All-Union Conference on Ferrites held in Minsk, Belorussian SSR. The reports deal with magnetic transformations, electrical and galvanomagnetic properties of ferrites, studies of the growth of ferrite single crystals, problems in the chemical and physicochemical analysis of ferrites, studies of ferrites having rectangular hysteresis loops and multicomponent ferrite systems exhibiting spontaneous rectangularity, problems in magnetic attraction, highly coercive ferrites, magnetic spectroscopy, ferromagnetic resonance, magneto-optics, physical principles of using ferrite components in electrical circuits, anisotropy of electrical and magnetic properties, etc. The Committee on Magnetism, AS USSR (S. V. Vonsovskiy, Chairman) organized the conference. References accompany individual articles.

Ferrites (Cont.) SOV/4893

Card 6/18

Card 4/18

15 2660

29033
S/081/61/000/018/004/027
B104/B101

AUTHORS: Bulgakova, T. I., Guzey, L. S.

TITLE: Magneto-chemical investigation of cobalt-nickel ferrites

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 18, 1961, 34, abstract 18B222 (Sb. "Ferrity. Fiz. i fiz.-khim. svoystva". Minsk, AN BSSR, 1960, 137-141)

TEXT: The phase composition of Co-Ni ferrites was investigated by magnetic and x-ray diffraction studies. The formation of solid solutions of Co and Ni ferrites was established. A constant Curie temperature and an anomaly of the curve of coercive force in the range of 20 - 50 mole% of $CoFe_2O_4$ were found. [Abstracter's note: Complete translation.]

Card 1/1

43259
S/189/62/000/006/004/006
D214/D307

24.2200

AUTHORS: Bulgakova, T.I. and Guzey, L.S.

TITLE: A study of the hysteresis curves of cobalt-nickel ferrites

PERIODICAL: Moscow. Universitet. Vestnik. Seriya II. Khimiya, no. 6, 1962, 58-60

TEXT: The influence was studied of the composition and heat and magnetic treatments of cobalt-nickel ferrites $Co_xNi_{1-x}Fe_2O_4$ (x = 0.1-0.8) on the shapes of the corresponding hysteresis curves. Quenched specimens gave curves with B_r/B_s = 0.3-0.4 (B_r - remanent induction, B_s - maximum induction) where B_r/B_s rises slightly as x increases. Specimens reheated to 900°C after quenching and cooled at 50°C/hr gave curves with $B_r/B_s \leq 0.5$ (normal curves) for x = 0.1, 0.2, 0.7 and 0.8. Under the same treatment, specimens with x = 0.3, 0.4, 0.5 and 0.6 gave straight lines (H = 85 oersted), which, at higher field strengths, gave thin hysteresis curves. Cooling rates of 25° and 100°C/hr resulted in normal curves

Card 1/2

A study of the hysteresis ... S/189/62/000/006/004/006
D214/D307

only. Specimens heated to 700-750°C in a magnetic field and cooled at 300-350°C/hr, gave curves with B_r/B_s = 0.5-0.7. There are 2 figures and 1 table.

ASSOCIATION: Kafedra obshchey khimii (Department of General Chemistry)

SUBMITTED: December 29, 1961

Card 2/2

BULGAKOVA, T. I.; GUZEY, L. S.

Hysteresis loop of cobalt-nickel ferrites. Vest. Mosk. un. Ser. 2: Khim. 16 [i.e.17], no.6:58-60 N-D '62. (MIRA 16:1)

1. Kafedra obshchey khimii Moskovskogo universiteta.

(Ferrates) (Hysteresis)

S/189/63/000/002/010/010
A057/A126

AUTHORS: Zaytsev, O.S., Bulgakova, T.I.

TITLE: Saturator for the preparation of steam-gas mixtures

PERIODICAL: Vestnik Moskovskogo universiteta, Seriya II, Khimiya, no. 2, 1963, 60 - 62

TEXT: In order to prepare mixtures of a gas and vapors of a liquid with known partial vapor pressure a saturator was constructed for the saturation of an inert gas with steam. The device works on the principle of a saturation "on top" at the boiling point of water. This method was already described in literature. Distilled water flows from a container into a flask, where it is heated to boiling point. The inert gas enters through a glass tube into the boiling water and the gas steam mixture rises to a reflux condenser, which is cooled by water from a thermostate. The excess water condenses in the cooler, while the gas-steam mixture with a partial pressure corresponding to the temperature of the cooler emerges through a heated outlet. The mixture thus has a temperature of 120 - 150°C and is passed to the reaction vessel. The partial pressure is calculated

Saturator for the preparation of steam-gas mixtures

from:

$$P_{H_2O} = P_{atm} \frac{n_{H_2O}}{n_{H_2O} + n_{gas}},$$

where P_{atm} = atmospheric pressure, n_{H_2O} and n_{gas} moles of water and gas respectively in the mixture. The saturation effect of the device was tested with argon - water mixtures at different flow rates and temperatures. The correspondence of experimental and literature data proved that in the interval 23.4 - 85.5°C at a flow rate of 4.32 - 0.78 l/h a saturation of argon with water vapor is attained for n_{H_2O}/n_{gas} = 0.0282 - 1.38. There are 1 figure and 1 table.

ASSOCIATION: Kafedra obshchey khimii (Department of General Chemistry)

SUBMITTED: July 4, 1962

Card 2/2

L 9973-65 EWG(j)/EWT(m)/EPF(c)/EPR/EWP(b) Pr-4/Pad/Ps-4 RAEM(a)/ESD(dp)/
ASD(d)/RAEM(t) JD/HW/MLK S/0000/63/000/000/0253/0258
ACCESSION NR: AT4046218

AUTHOR: Bulgakova, T. I. (Moscow); Zaytsev, O. S. (Moscow)

TITLE: A study of the formation of a nickel-magnesium ferrite

SOURCE: Yubileynaya konferentsiya po fiziko-khimicheskomu analizu. Novosibirsk, 1960. Fiziko-khimicheskiy analiz (Physicochemical analysis); trudy* konferentsii. Novosibirsk, Izd-vo Sib. otd. AN SSSR, 1963, 253-258

TOPIC TAGS: ferrite, nickel magnesium ferrite, nickel alloy, magnesium alloy, ferrite formation, magnetization, coercive force

ABSTRACT: The authors studied the interaction of nickel oxides with MgO and Fe_2O_3 during formation of the ferrite $Ni_{0.5}Mg_{0.5}Fe_2O_4$ by heating the oxides in argon for 3 hours at temperatures up to 900C. In addition to magnetic and X-ray phase analysis, they used the method of continuous weighing, the technique of which is described in detail. The preparation of the nickel oxides is also discussed. The results of continuous weighing on a special balance showed that the excess oxygen above that corresponding to NiO is liberated from the nickel oxides during ferrite formation. The rate of ferrite formation decreases with an increase in the temperature of formation of the nickel oxides (from 100 to 1000C), as does the magnetization; the latter is probably due to a decrease in the ferrite content

Card 1/2

L 9973-65
ACCESSION NR: AT4046218

from 51 to 35% as shown by X-ray analysis. The coercive force, however, is not significantly affected by the temperature of NiO formation. In all cases, sintering in air for 6 hours at 1000C increased the magnetization 4-7 fold, due to an increase in the ferrite content, and decreased the coercive force by a factor of 5-6. Orig. art. has: 3 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 10Sep63 ENCL: 00 SUB CODE: MM, IC

NO REF SOV: 006 OTHER: 002

Card 2/2

ZAYTSEV, O.S.; BULGAKOVA, T.I.

Determination of the partial pressure of hydrogen by the electromotive force method. Zhur. fiz. khim. 38 no 4:1056-1057 Ap '64. (MIRA 17:6)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.

L 57074-65 EWT(1)/EED-2

ACCESSION NR: AP5011854 UR/0189/65/000/002/0063/0068

13
12
B

AUTHORS: Zaytsev, O. S.; Bulgakova, T.I.

TITLE: The cooling of ferrites in an equilibrium gaseous medium

21

SOURCE: Moscow. Universitet. Vestnik. Seriya 2, Khimiya, no. 2, 1965, 63-68

TOPIC TAGS: ferrite, gas phase, cooling

ABSTRACT: In order to prevent decomposition and/or damage to the surface of ferrites during cooling, the latter must be cooled in an atmosphere such that the partial pressure of oxygen in it corresponds to the equilibrium oxygen dissociation pressure of the ferrite. The purpose of the present investigation was the determination of an equilibrium gas phase composition consisting of H_2O/H_2 for the ferrite $MnFe_2O_4$ which would insure at all times during cooling an oxygen pressure equal to the equilibrium oxygen pressure of the ferrite. Using the data of G. Economos (J. Am. Ceram. Soc., 38, 241, 1956) values for the ratio P_{H_2O}/P_{H_2} for a given P_{H_2} were calculated which corresponded to oxygen pressures equal

Card 1/4

to the dissociation pressures of the ferrite. In order to achieve higher values for the ratio P_{H_2O}/P_{H_2}, the hydrogen gas was diluted with Ar gas, 1:100, prior to its saturation with water vapor. In this case, the required water vapor pressure for an initial hydrogen pressure of 7.6 cm Hg was calculated by equation

$$P_{H_2O} = \frac{\left(\frac{P_{H_2O}}{P_{H_2}}\right) \cdot P'_{H_2} \cdot P_{atm}}{\left(\frac{P_{H_2O}}{P_{H_2}}\right) \cdot P'_{H_2} + P_{atm}}.$$

Here P'_{H2} is the initial pressure of hydrogen and P_{atm} is the atmospheric pressure. Figure 1 shows the graph for lowering of the thermostat and furnace temperatures. Figure 2 shows schematic of the installation. Orig. art. has: 1 table, 2 graphs, and 21 equations.

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

SUBMITTED: 18Jul64 ENCL: 02 SUB CODE: GC

NO REF SOV: 006 OTHER: 003

L 57074-65
ACCESSION NR: AP5011854

ENCLOSURE: 01

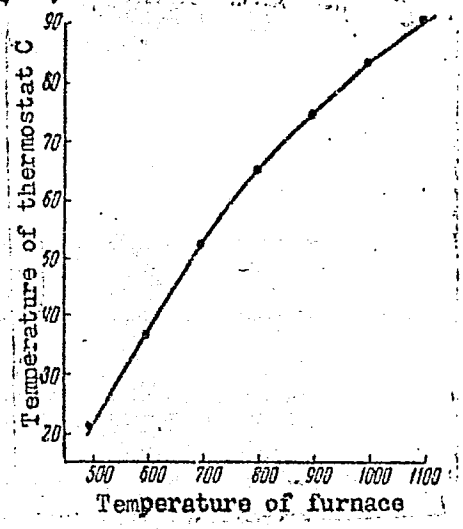


Fig. 1. Graph for lowering of the thermostat and furnace temperatures respectively.

Card 3/4

L 57074-65
ACCESSION NR: AP5011854 ENCLOSURE: 02

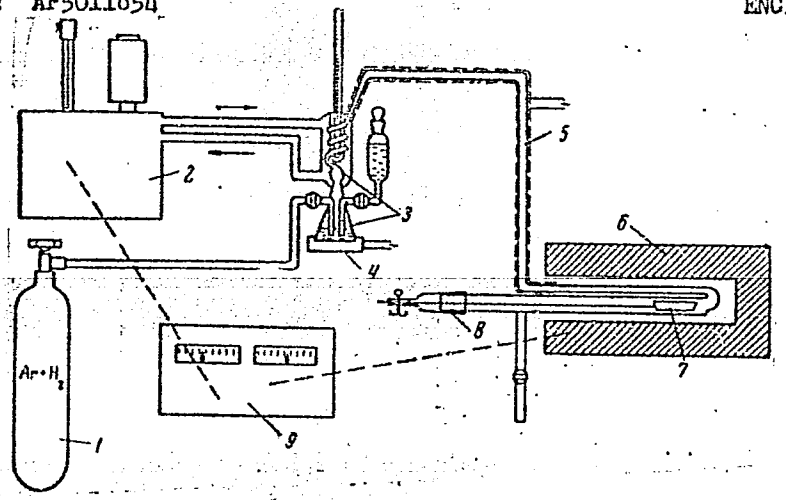


Fig. 2. Schematic of the installation for cooling of ferrites in an equilibrium gaseous medium. 1- hydrogen-argon mixture tank; 2- water thermostat; 3- saturator; 4- heater; 5- heater pipes; 6- furnace; 7- boat with ferrite; 8- ground glass cover with rubber tube and clamp. A Pt wire passes through the tube by means of which the boat may be moved about; 9- semiautomatic programming device for lowering of temperature of the thermostat and furnace

Card 4/4

L 54028-65 EWT(1)/EED-2

ACCESSION NR: AP5013526 UR/0076/65/039/005/1253/1256
541.11

AUTHOR: Bulgakova, T. I.; Zaytsev, O. S. 10 9 8

TITLE: Study of the equilibrium of ferrites with the gaseous phase H_2-H_2O. Part 1. Iron ferrite 21

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 5, 1965, 1253-1256

TOPIC TAGS: iron ferrite, water vapor, hydrogen reduction, ferric oxide, ferrous oxide

ABSTRACT: The dynamic method was used for studying the equilibrium $FeFe_2O_4 + H_2 \rightleftarrows 3FeO + H_2O$ at 977°C. A mixture of H_2 and H_2O was passed through the reaction vessel, the partial pressures of both components being known. The water: hydrogen pressure ratio varied from 0.008 to 4, and higher values were obtained by diluting H_2 with argon. The equipment is described in detail. The results are shown in fig. 1 of the Enclosure. As the oxygen content of the solid phase is reduced in the range $x = 1.500$-1.290, the water: hydrogen pressure ratio has high values for very slight changes in composition (part 1 of curve). In the range $x = 1.290$-1.106,

Card 1/3

L 54028-65

ACCESSION NR: AP5013526

a horizontal segment 2 appears which is attributed to the two solid phases $FeFe_2O_4$ and FeO; here the vapor pressure ratio is independent of the composition. The sloping portion 3 of the curve indicates the appearance of a solid phase of variable composition for which the vapor pressure ratio changes with the composition. The results were used for calculating the free energy change ΔG^0 for the reduction of $FeFe_2O_4$ and its dissociation pressure P_{ox} at 1250°K; the data are in good agreement with those in the literature. Orig. art. has: 3 figures and 1 table.

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

SUBMITTED: 18Jul64 ENCL: 01 SUB CODE: GC

NO REF SOV: 006 OTHER: 001

Card 2/3

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ACCESSION NR: AP5013526 ENCLOSURE: 01

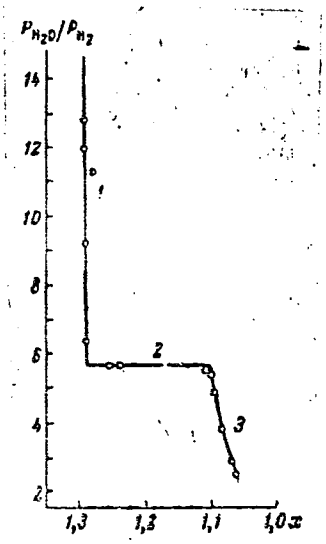

Fig. 1. Equilibrium in the system FeO_x-H_2-H_2O at 977°C

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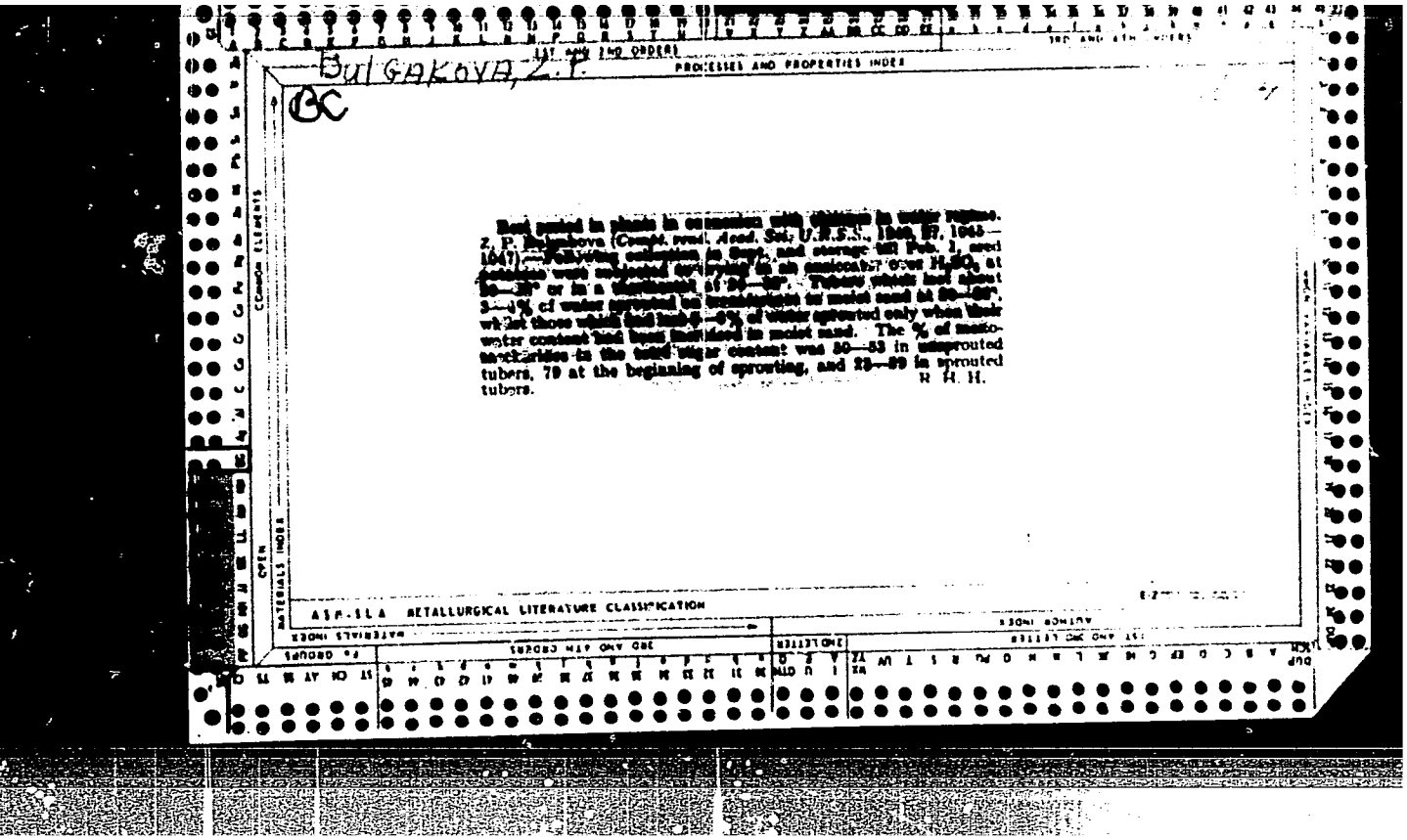

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Orig Pub : Sad. i ogorod, 1958, No 1, 63-64

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