GINZBURG, M.Ya.; AGALAROV, Ch.S.

Automatization of accounting operations in storage systems for petroleum products. Azerb. neft. khoz. 40 no.1:41-44 Ja '61. (MIRA 14:8)

(Machine accounting)
(Petroleum--Storage)

AGALAROV, Ch.S.; ALESKEROV, S.A.; GEL'MAN, M.M.; GINZBURG, M.Ya.; IBRAGIMOV, I.S.; ZUL'FUGARZADE, E.; MAMEDLI, E.M.

"Information converter for electronic digital computers" by E.I. Gitis. Reviewed by Ch.S. Agalurov and others. Izm.tekh. no.7: 64 Jl '62. (MIRA 15:6)

(Electronic digital computers)
(Gitis, E.I.)

S/119/63/000/002/002/014
A004/A127

AUTHOR: Ginzburg, M.Ya.

TITLE: On the problem of functional analog-discrete conversion in digital measuring systems

PERIODICAL: Priborostroyeniye, no. 2, 1963, 4 - 7

TEXT: The author presents an analysis of the functional analog-discrete conversion $N = \varphi(\tau) = F^{-1}\{f^{-1}(\tau)\}$ (1), where F^{-1} = function inverse to F, f^{-1} = function inverse to f. A graph shows the curves of arbitrary function $N = \varphi(\tau)$, the values of the links of the broken, approximating function $\varphi(\tau)$ and sign N. The block diagrams of converters of arbitrary function with time control and output control are given and the various systems analyzed. There are 6 Figures.

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AKIMOV, Vyacheslav Filippovich, inzh.; VINOGRADOV, Yuriy Ivanovich, inzh.; GINZBURG, Mark Yakovlevich, inzh.; KASPAR'YANTS, Konstantin Saakovich, inzh.; FRANKFURT, Yakov Mironovich, inzh.; MAMIKONOV, A.G., red.; NOVICHKOVA, M.M., ved. red.; VORONOVA, V.V., tekhn. red.

[Automation of field petroleum processing and gas transportation]Avtomatizatsiia promyslovoi podgotovki nefti i transporta gaza. [By]V.F.Akimov i dr. Moskva, Gostoptekhizdat, 1963. 166 p. (MIRA 16:3)

(Oil fields--Equipment and supplies) (Automation)
(Gas, Natural--Pipelines)

ABDULLAYEV, A.A.; GINZBURG, M.Ya.; VLADIMIRSKIY, A.I.; GEFTLER, L.M.

Expedient changes in the system of technological flow in gas-condensate wells. Gaz.prom. 5 no.3:10-13 Mr '60.
(MIRA 13:6)

(Condensate oil wells)

ABDULLAYEV, Asker Alekperovich; VLADIMIRSKIY, Abram Iosifovich;
GEFTLER, Leonid Mikhaylovich; GINZBURG, Mark Yakovlevich;
GUSEYNOV, Chingiz Saibovich; ZUBAREVA, Ye.I., ved. red.;
POLOSINA, A.S., tekhn. red.

[Automation of gas pipelines in foreign countries]Avtomatizatsiia magistral'nykh gazoprovodov za rubezhom. Moskva, Gostoptekhizdat, 1962. 109 p. (MIRA 16:3)
(Gas, Natural—Pipelines) (Automation)

AGALAROV, Ch.S.; GINZBURG, M.Ya.; MELIKOV, S.G.

Automatic control of shut-off and pumping equipment on tank farms. Transp. i khran. nefti no.8:9-16 '63. (MIRA 17:3)

1. Nauchno-issledovatel'skiy institut po kompleksnoy avtomatizatsii proizvodstvennykh protsessov v neftyanoy i khimicheskoy promyshlennosti.

GINZBURG, M.Ye., dotsent, kand.tekhn.nauk; KUPRITS, Ya.N., prof.-doktor, red.; GEL'MAN, D.Ya.; KEYZER, V.A.; SAVEL'YEVA, Z.A., tekhn.red.

[Groats production technology] Tekhnologiia krupianogo proizvodstva. Izd.2., perer. i dop. Pod red. IA.N.Kupritsa. Moskva, Izd-vo tekhn. i ekon.lit-ry po voprosam mukomol'no-krupianoi, kombikormovoi promyshl. i elevatorno-skladskogo khoz., 1959. 263 p. (MIRA 12:12)
(Grain milling)

SOKOLOV, Aleksandr Yakovlevich, doktor tekhn. nauk, prof.; ZHISLIN, Ya.M., kand. tekhn. nauk; KOTLYAR, L.I., kand. tekhn. nauk; GINZBURG, M.Ya., kand. tekhn. nauk; FURER, G.L.; PARFENOV, K.A., kand. tekhn. nauk; RYZHOVA, L.P., inzh., red. izd-va; MODEL', B.I., tekhn. red.

[Machines for processing grain] Mashiny dlia pererabotki zerna. Moskva, Mashgiz, 1963. 346 p. (MIRA 16:6)

1. Glavnyy instruktor zavoda im. F.E.Dzerzhinskogo (for Furer).

(Grain--Handling machinery)

KUPRITS, Ya.N., prof. doktor tekhn. nauk; DEMIDOV, P.G., prof.; DEMIDOV, A.R., prof. doktor tekhn. nauk; GINZBURG, M.Ye., kand. tekhn. nauk, dots.; DROGALIN, K.V., kand. tekhn. nauk; NAUMOV, I.A., kand. tekhn. nauk; TSETSINOVSKIY, V.M., kand. tekhn. nauk; TRUNOV, A.F., inzh., retsenzent; KLEYMAN, L.M., red.

[Technology of grain processing; flour, groats and mixed feed industries] Tekhnologiia pererabotki zerna; mukomol'noe, krupianoe i kombikormovoe proizvodstvo. Moskva, Kolos, 1965. 504 p. (MIRA 18:12)

GINZBURG, M.Z., inzh.

Constructing building materials enterprises in the Krivoy Rog. Basin. Prom.stroi. 37 no.12:7-12 D '59. (MIRA 13:4)

1. Gosudarstvennyy proyektnyy institut Pridneprovskiy Promstroyproyekt.
(Krivoy Rog Basin--Building materials industry)

GINZBURG, N.B., podpolkovnik meditsinskoy sluzhby (Khar'kov)

Case of severe thrombophlebitis of the veins of the abdominal cavity caused by odontogenic infection. Vrach.delo no.12:1339 D '57.
(TEETH--DISEASES) (MIRA 11:2)
(THROMBOSIS)
(VEINS--DISEASES)

GINZBURG, N.B.; ZADOYANNYY, V.V. (Khar'kov)

Cerebral hemorrhage in acute nephritis. Klin.med. 35 no.6:122-123 Je '57. (MLRA 10:8)

(NEPHRITIS, compl.
cerebral hemorrh.)
(CEREBRAL HEMORRHAGE, etiol. and pathogen.
nephritis, acute)

GINZBURG, N.B., TER-AVAKOVA, N.M.

Use of reserpine in hypertension. Klin.med. 36 no.9:98-101 S'58
(MIRA 11:10)

(RESERPINE, ther. use
hyperension (Rus))

GINZBURG, N.B., podpolkovnik meditsinskoy sluzhby

Course of experimental myocardial infarct in acute radiation sickness in rabbits. Vrach.dlo no.12:1263-1265 D '59. (MIRA 13:5)

1. Kafedra normal'noy fiziologii (nach. - prof. I.T. Kurtsin) Voyenno-meditsinskoy ordena Lenina Akademii im. S.M. Kirova i Khar'kovskiy voyenno gospital'.
(HEART--INFARCTION) (RADIATION SICKNESS)

GINZBURG, N.B., podpolkovnik meditsinskoy sluzhby; KOSTIN, N.S., podpolkovnik meditsinskoy sluzhby, kand.meditsinskikh nauk

Diagnosis of hemorrhage into the pericardium in a closed injury of the thorax. Voen.-med. zhur. no. 6:50-62 Je '60.
(MIRA 13:7)

(CHEST—WOUNDS AND INJURIES) (HEMORRHAGE)

GINZBURG, N.B.

Features of the course of acute coronary insufficiency in irradiated animals. Med. rad. 5 no.9:83 S '60. (MIRA 13:12)
(CORONARY HEART DISEASE) (RADIATION SICKNESS)

GINZBURG, N.B., podpolkovnik meditsinskoy sluzhby

Course of acute coronary insufficiency in radiation sickness in dogs. Vrach. delo no. 3:50-55 Mr '61. (MIRA 14:4)

1. Khar'kovskiy voyennyy gospital'.
(RADIATION SICKNESS) (CORONARY VESSELS—DISEASES)

GINZBURG, N.B., kand. med. nauk (Khar'kov)

Visceral form of hemochromatosis (pigmentary liver cirrhosis). Vrach. delo no.12:128-130 D '63.
(MIRA 17:2)

GINZBURG, N. B. "The Course of Experimental Myocardial Infarction During Acute Radiation Sickness." The symptoms of myocardial infarction were more pronounced during radiation sickness in dogs and rabbits.

[illegible]

S/112/59/000/015/025/068
A052/A002

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1959, No. 15, p. 123, # 31817

AUTHOR: Ginzburg, N.G.

TITLE: High Frequency Heating of Ingots ✓

PERIODICAL: Byul, Tsentr, in-t inform, M-va tsvetn, metallurgii SSSR, 1957, No. 5, pp. 28-29

TEXT: The experience of the "Krasnyy Vyborzhets" plant in using h-f heating of cupronickel blanks before pressing pipes instead of heating in resistance furnaces is described. The latter method involves a high power consumption (about 500 kw hours per ton of pipes) and does not provide the necessary quality of heat treatment. The h-f heating reduced the power consumption by 1.7 times, cuts spoilage, reduces oxidation, etc, with the result that the efficiency of the press increased by 14%.

L.Ya.L.

Translator's note: This is the full translation of the original Russian abstract.

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SOV/136-59-6-16/24

AUTHORS: Butomo, D.G., Ginzburg, N.G., Zedin, N.I. and Sergeyev, L.N.

TITLE: Cracking of Aluminium Bronze During Tests in an Ammonia Atmosphere (Rastreskivaniye alyuminiyevoy bronzy pri ispytanii v ammiachnoy atmosfere)

PERIODICAL: Tsvetnyye metally, 1959, Nr 6, pp 84-85 (USSR)

ABSTRACT: Season cracking of brass in ammonia is due to preferential attack of zinc by NH_3. Practically no data are available on the possibility of failure of aluminium bronze products by the same method. However, some investigators note that aluminium bronze is inclined to crack as a result of corrosion in the presence of internal stresses (Ref 3). Aluminium bronze is comparable with brass both in structure and in behaviour in ammonia atmosphere. Aluminium, like zinc, must displace copper from its ammoniate solution. Thus, it can be concluded that stressed aluminium bronze products will crack in an ammonia atmosphere in the same way as brass. This assumption was verified with tubular

Card 1/4 specimens made from the alloy BrA5 containing 4.67% Al and

Cracking of Aluminium Bronze During Tests in an Ammonia Atmosphere

94.92% Cu. Tests were carried out by keeping the specimens, which had been degreased and etched, in an exsiccator, the bottom of which was covered with a 20% ammonia solution, for 24 hours. After the tests, transverse cracks formed on the tube surfaces, which are characteristic of residual tensile stresses along the rolling direction of the tube (Fig 1). Even more convincing were the results of experiments with elastically deformed loops made from a strip of BrA5 alloy, 0.7 mm thick. From twenty specimens cut out of this strip, ten were annealed at 600°C for one hour, the other ten were tested in the work-hardened condition. Tests were carried out for 24 and 72 hours. After 24 hours, 50% of the annealed loops and 90% of the work-hardened ones had failed. After 72 hours, all the loops failed. The microstructure of the specimens which had failed in the ammonia tests was studied (Fig 2a and b). As can be seen, the propagation of cracks in both cases

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is not along the grain boundaries. In this behaviour the alloy BrA5 differs from brass, in which failure is intercrystalline, particularly if the alloy is in the annealed condition. Experiments were carried out in which the chemical composition of the corrosion products of the tubes of the BrA5 alloy was analysed after ammonia tests. The results prove that selective solution of aluminium occurs during corrosion of the stressed BrA5 alloy, similar to the selective solution of zinc in brass. It is concluded that, in general, stressed articles made of copper alloys in which the alloying elements are capable of displacing copper from its ammoniate solutions and forming solid solutions with copper, will fail when exposed to ammonia atmospheres if the concentration of the solid solution and the magnitude of the tensile stresses are sufficiently great. There are

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Cracking of Aluminium Bronze During Tests in an Ammonia Atmosphere

2 figures and 3 references, 2 of which are Soviet and 1 English.

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GINZBURG, N.M.

Hygienic measures in cold storage warehouses. Veterinariia 33 no.8:54-57 Ag '56. (MLRA 9:9)

1.Glavnyy veterinarnyy vrach Glavmyasomaslotorga Ministerstva torgovli SSSR.
(Meat--Preservation) (Cold storage--Hygienic aspects)

GINZBURG, N. N.

Information. Zhur. mikrobiol., epid. i immun. 32 no.8:157-158
Ag '61. (MIRA 15:7)

(CHOLERA)

GINZBURG, N.S.

"Khakass Autonomous Province"; studies of the economic geography by L.A. Nikol'skaia. Reviewed by N.S. Ginsburg. Izv. Vses. geog. ob-va 93 no.4:360-361 Jl - Ag '61. (MIRA 14:7)
(Khakass Autonomous Province--Economic geography)
(Nikol'skaia, L.A.)

GINZBURG, N.S.

Reconstruction of the Volga-Baltic Waterway. Izv. Vses. geog. ob-va 94 no.3:209-220 My-Je '62. (MIRA 15:7)
(Mariinsk Canal System--Shipping)

GINZBURG. N. Ya.

MASHEVICH, Z.A., inzhener; MISHIN, A.N., inzhener, retsenzent [deceased]; GINZBURG, N.Ya., inzhener, retsenzent; USATOV, G.A., inzhener, retsenzent; KORSAKOV, V.S., dotsent, kandidat tekhnicheskikh nauk, redaktor; MODEL', B.I., tekhnicheskiy redaktor.

[Technology of steam engine construction] Tekhnologiia lokomobilestroeniia. Moskva, Gos.nauchno-tekhnicheskoe izd-vo mashinostroit. i sudostroit. lit-ry, 1953. 543 p. (MIRA 8:4)
(Steam engines—Construction)

BELYAKOV, Ye.P., otv. red.; GINZBURG, N.Ya., otv. red.; KRICHEVSKIY, Ya.M., otv. red.; MELIK-GAYKAZOV, V.I., otv. red.; TIKHONOVA, Ye.D., red.; SELEZNEV, P.I., tekhn. red.

[Rolling mills]Stany prokatnye. Moskva, TSINTImash, 1960. 137 p. (MIRA 15:11)

1. Russia (1923- U.S.S.R.)Gosudarstvennyy nauchno-tekhnicheskiy komitet.

(Rolling mills)

32819

[redacted] 2209

11.2214
11.2131

S/020/62/142/001/017/021
B103/B110

AUTHORS: Ginsburg, V. A., Yakubovich, A. Ya., Filatov, A. S., Shpanskiy, V. A., Vlasova, Ye. S., Zelenin, G. Ye.

TITLE: Production, pyrolysis, and photolysis of polyfluorinated azo compounds of the aliphatic series

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 142, no. 1, 1962, 88-91

TEXT: Further methods of synthesizing polyfluoro azoalkanes (PFAA) and their derivatives were elaborated. It was found that PFAA were formed: (a) when reducing azoxy compounds by PCl_3 vapor in the vapor phase and in N_2 atmosphere at 100-150°C: $R_fN{=}N(O)R_f \xrightarrow{PCl_3} R_fN{=}NR_f + POCl_3$; (b) when oxidizing hydrazo compounds containing R_fNH groups: ($R_f{=}CF_3$, CF_2H, and others); these compounds are synthesized by reducing azoxy compounds. Among others, the following were used as oxidizers of hydrazo derivatives: Cl_2, Br_2, nitric oxides, chromate mixtures, potassium permanganate in acetic acid; (c) when fluorinating linear or cyclic

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azines by CoF_3 in a carbon fluoride medium at 90-120°C, or by elementary F (diluted with N_2) at -10°C; (d) when fluorinating nitriles of polyfluoro carboxylic acids and HCN in the vapor phase on CoF_3 at 100-150°C. Some PFAA derivatives were synthesized: (e) by chlorinating in the vapor phase in ultraviolet light (UV) at 300°C, or by fluorinating hydrogenous azo compounds on CoF_3 at 50-80°C:

$R_f\text{-}NCH_3 \xrightarrow[UV]{Cl_2} R_fN\text{-}NCHCl_2$, or $R_fN\text{-}NCH_3 \xrightarrow{CoF_3} R_fN\text{-}NCHF_2$, and others;

(f) by the usual conversion of functional groups. The initial azo compounds used in reactions (e) and (f) were obtained by condensation of polyfluorinated nitroso alkanes with the corresponding amines. The constants of the substances obtained are tabulated. PFAA are yellow liquids or gases which explode when heated, but are much more stable than their non fluorine-containing analogs. Pyrolysis: It was found that hexafluoro azo methane was slowly pyrolyzed in a copper tube at 400°C: $CF_3N\text{=}NCF_3 \longrightarrow N_2 + CF_3 - CF_3$. Similarly polyfluorinated homologs of hexafluoro azo methane also decompose. This decomposition can be used as a method of synthesizing PFAA. At 600-700°C, tetrafluoro methane, tetra-

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Production, pyrolysis, and ...

fluoro ethylene, and lamp black are formed among others. This suggests the thermal decomposition of intermediate forming trifluoro methyl radicals. The low temperature coefficient, $E_{act} = \sim 5$ kcal/mole, proves the chain radical nature of the decomposing reaction in a high concentration of azo compounds. The free radical nature of the PFAA decomposition was also proved in their photolysis in UV: hexafluoro azo methane decomposes to form perfluoro tetramethyl, perfluoro hexamethyl hydrazine, and perfluoro hexamethyl tetrazine. Polyfluorinated hexaalkyl tetrazines are stable and do not decompose below 350-400°C: $(CF_3)_2N \cdot N(CF_3)N(CF_3) \cdot N(CF_3)_2 \rightarrow (CF_3)_2N \cdot N(CF_3)_2 + CF_3N=NCF_3$. When photolyzing trifluoro and pentafluoro azo methane, substituted hydrazines and tetrazines were isolated. Due to a mass-spectrometric investigation carried out by S. S. Dubov and A. M. Khokhlova, and due to chemical conversions, it was proved that the active free radical in asymmetrical azo compounds of the $CF_3N=NR$ type was predominantly accumulated on the N atom of the azo group next to the less electrophilic group. The free radical nature of the above PFAA conversions is proved by their reaction

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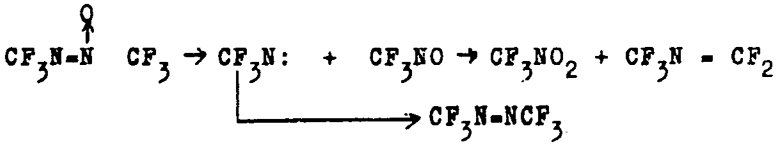
in UV in the presence of acceptors of free radicals. Thus, hexafluoro azo methane, in the presence of chlorine, changes into trifluoro chloro methane, when photolyzed, and into trifluoro nitroso methane in the presence of nitric oxide or methyl nitrite. The aliphatic-aromatic azo compounds of the $R_fN=NC_6H_5$ type are resistant to high temperatures and UV. Thus, PFAA show a general tendency toward homolytic dissociation into free polyfluorinated radicals and into an N_2 molecule. Thus, N_2^+ is produced in the case of an electronic impact. Pyrolytic decomposition of hexafluoro azoxy methane at 250-300°C, however, takes a different course:



$$CF_3N=\overset{\overset{O}{\uparrow}}{N}\;CF_3 \rightarrow CF_3N: + CF_3NO \rightarrow CF_3NO_2 + CF_3N=CF_2$$

$$CF_3N: \longrightarrow CF_3N=NCF_3$$

There are 2 tables and 5 references: 1 Soviet and 4 non-Soviet. The three references to English-language publications read as follows: Ref. 3: D. Clark, H. O. Pritshard, J. Chem. Soc., 1956, 2136; Ref. 4: J. R. Dacey, D. M. Young, J. Chem. Phys., 23, 1302 (1955); Ref. 5: J. O.

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S/020/62/142/001/017/021
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Production, pyrolysis, and ...

Pritshard, H. O. Pritshard, A. F. Trotman-Dickenson, Chem. and Ind., 1955, 564; Trans. Farad. Soc., 52, No. 6 (1956).

PRESENTED: June 1, 1961, by Academician I. L. Knunyants and M. I. Kabachnik

SUBMITTED: June 1, 1961

X

Card 5/5

57-28-5-19/36

AUTHORS: Ginzburg, N. I., Polyakov, A. M.

TITLE: Electrical Properties of Thin Iron, Nickel and Cobalt Films (Elektricheskiye svoystva tonkikh plenok zheleza, nikelya i kobal'ta)

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 5, pp. 1029-1031 (USSR)

ABSTRACT: The electrical properties of thin iron- and nickel films were investigated in the papers (Ref 1-3). In order to obtain more pure and homogeneous films, the authors employed the method of heating the evaporating metal by means of electronic impact. Thereby, the contamination by material from the crucible was excluded. The resistance of the film was measured at room temperature, at 78°K (liquid nitrogen), 20.4-14°K (liquid hydrogen) and from 4.2 to 1.65°K (liquid helium). For the measurement of the resistance of comparatively thick films a potentiometer with a high resistance was used. It was possible to measure the film resistance immediately during the condensation process, during which the evaporation conditions were kept as constant as possible. By means of the modification of the capacity which was sprayed by the evaporator, it was pos-

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Electrical Properties of Thin Iron, Nickel and Cobalt Films 57-28-5-19/36

sible within certain limits to measure the current intensity of the atoms condensing at the surface. Figure 1 shows the dependence of the quantity 1/R on the exposure period for cobalt at three different condensation conditions (I - III). The temperature dependence of the resistance of films with different thickness exhibiting a resistance varying from a few dozen ohms to several megaohms was investigated. Thinner films increased their resistance with a reduction of temperature (figure 2). The character of the modification of the film resistance was dependent upon the thickness of the film. It must be mentioned, that in the papers (Ref 1-3) all films without exception increased their resistance with a temperature reduction. In order to examine the assumption (Ref 5) on the possible occurrence of superconductivity in thin films of ferromagnetic metals the electric resistance of all produced films was measured down to 1.65°K inclusive. From the curves (figure 3) it can be seen, that the resistance of thick nickel films does not change at all in the temperature interval of from 4.2 - 1.65°K. Thinner films, however, increase their resistance with a temperature reduction. The authors are indebted to A.I.

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Electrical Properties of Thin Iron, Nickel and Cobalt Films 57-28-5-19/36

Shal'nikov for his attention paid to this work. There are 3 figures and 5 references, 2 of which are Soviet.

ASSOCIATION: MGU, Fizicheskiy fakul'tet, Kafedra fiziki nizkikh temperatur (Moscow State University, Physics Dept., Chair of Physics of Low Temperatures)

SUBMITTED: October 21, 1957

1. Thin films--Electrical properties

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24(8), 24(3) SOV/56-37-2-11/56

AUTHORS: Ginzburg, N. I., Shal'nikov, A. I.

TITLE: On the Problem of the Destruction of the Superconductivity of Thin Films by a Field and by a Current

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 2(8), pp 399-405 (USSR)

ABSTRACT: The authors investigated the rules governing the destruction of superconductivity in thin tin films (purity 99.998 %) with respect to an experimental verification of the Ginzburg-Landau theory. For this purpose they used cylindrical films of various thicknesses; the length of the cylinders was large compared to their diameter. (Such investigations were carried out without any special success on disk-shaped samples by Alekseyevskiy and Mikheyeva (Ref 1); cylindrical samples were investigated by Shal'nikov together with Feygin, and as results were satisfactory, the method was improved.) Carrying out the experiments is described in great detail (cf. Figs 1,2). Figures 3a and b show the results of a simultaneous measurement of the critical currents and fields of a series of films, figures 4 and 5 show the dependence of the critical field strengths on actual film

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On the Problem of the Destruction of the Superconductivity of Thin Films by a Field and by a Current

thickness at various distances to the critical temperature ΔT (for $\Delta T \leqslant 0.3^{\circ}$). Figure 6 shows the dependence of the critical field of the current H_{kI} on ΔT, and figure 6 the dependence of the critical field strength H_k on T. The ratio $H_k K_{kI} / \frac{8}{\xi} H_{km}^2$, which, according to Ginzburg, ought to be constant and equal to unity, was determined as amounting to $\leqslant 0.22 \pm 0.03$, the penetration depths as $\delta_{oo}^{H} = 1.9 \pm 0.3 . 10^{-5}$ cm and $\delta_{oo}^{I} = 9.3 \pm 1.5 . 10^{-5}$ cm, which considerably exceeds the value for massive tin of $\delta_{oo} = 5.10^{-6}$ cm. The endeavor is made to explain the deviation of the value found for $H_k H_{kI} / \frac{8'}{\xi} H_{km}^2$, as well as the deviation of the value of δ_{oo}^{H} (which differs by three times its amount from that found by Zavaritskiy (Ref 6)). Finally, experimental problems concerning film structure are discussed. The authors thank V. L. Ginzburg for his interest and valuable advice, D. I. Vasil'yev for his assistance in carrying out the experi-

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ments, and also I. S. Shapiro and I. A. Antonova. There are 8 figures and 6 references, 4 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: March 18, 1959

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S/056/60/039/006/014/063
B006/B056

24.2140 (1072, 1158, 1160)

AUTHORS: Brandt, N. B., Ginzburg, N. I.

TITLE: Superconductivity of Crystalline Bismuth Modifications

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 6(12), pp. 1554-1556

TEXT: The authors investigated the superconductivity of the bismuth modifications Bi II and Bi III and the stability of these modifications at helium temperatures. Bi III was known as a superconductor ($T_c = 7.25^{\circ}$K at $25,000 < p < 29,000$ atm); however, the critical temperature was not quite accurately known and was now determined with greater accuracy. Bi II was also found to be superconductive, the critical temperature was about $T_c = 3.93^{\circ}$K ($p = 25,000$ atm). $\partial T_c/\partial p$ amounted to about $-3.5 \cdot 10^{-5}$ deg/atm for Bi II and was for Bi III negligibly small. For investigating the stability of the superconductive modifications, experiments were carried out in which a pressure was applied at room temperature, lifted, and again applied at helium temperature. The Bi II modification,

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Superconductivity of Crystalline Bismuth Modifications

S/056/60/039/006/014/063
B006/B056

when pressure is lifted at helium temperature, changes completely into Bi I. Bi III, formed at compressions of a Bi-single crystal, when pressure is lifted at about $\sim 2.2^{\circ}$K, changes into the non-superconductive modification Bi I ($p \approx 20{,}0000$ atm), i.e., the transition at helium temperatures is characterized by a strong hysteresis. Repeated compression of one and the same specimen leads to the appearance of a finely dispersed crystalline structure. In this case, the superconductive modification remains conserved when pressure is lifted and changes into the non-superconductive Bi I at $6.5 - 7.5^{\circ}$K. It may therefore be assumed that the superconductivity of films deposited by evaporation at helium temperature is connected with the formation of a crystalline modification analogous to Bi III. Nor is it excluded that carbon deposited by evaporation on a diamond base, crystallizes at helium temperature with diamond structure. The authors thank A. I. Shal'nikov and N. Ye. Alekseyevskiy for their interest and S. G. Obruchnikov for highly qualified mechanical work. There are 3 figures and 7 references: 3 Soviet, 2 British, and 2 US.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: July 8, 1960

Card 2/2

BURZ, G. [BOORSE, H.]; GINZBURG, N.I. [translator]

Some experimental aspects of superconductivity [translated from the English]. Usp.fiz.nauk 72 no.1:99-115 S '60. (MIRA 13:8)
(Superconductivity)

KUPER, L. [Cooper, L.N.]; GINZBURG, N.I. [translator]

Theory of superconductivity [translated from the English]. Usp. fiz.nauk 72 no.1:117-131 S '60. (MIRA 13:8)
(Superconductivity)

24.2140 (1072,1164,1482)
1.6000

30789
S/181/61/003/011/032/056
B125/B138

AUTHORS: Brandt, N. B., and Ginzburg, N. I.

TITLE: Investigation of the crystalline modifications of bismuth and some problems of technique in obtaining high pressures at low temperatures

PERIODICAL: Fizika tverdogo tela, v. 3, no. 11, 1961, 3461-3472

TEXT: The authors worked out a technique for obtaining high, but very homogeneous, pressures up to 30,000-40,000 kg/cm at low temperatures down to 1.6°K. This technique, which is very similar to the Bridgeman method, is used to induce, and to investigate, the superconductivity properties of the crystalline modifications of BiII and Bi III. Unlike the Bridgeman method, the cylindrical sample 2 is here surrounded by a thin (~50 μ) layer of graphite lubricant. At low temperatures, the pressure acting on the piston 2 is created by a multiplier and by a press. With a multiplier high pressures can be created quickly and reliably at low temperatures, which is very useful for magnetic measurements of superconductors. With a press of the type developed by V. I. Khatkevich (Dokt. diss., Institut

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30789
Investigation of the crystalline... S/181/61/003/011/032/056
B125/B138

fizicheskikh problem AN SSSR, M. 1952) the load acting on the piston can be varied during the experiment. N. Ye. Alekseyevskiy is thanked for lending the press. The crystalline modifications of bismuth are shown in the phase diagram in Fig. 6. According to the measurements carried out on monocrystalline samples of bismuth of the Hilger-type (purity 99.998 %), the electrical resistivity decreased 160-200 times during cooling from 273 to 4.2°K. The trigonal axis of most of the samples coincided with their longitudinal axis. The results of the first series of experiments, in which pressure was created by a multiplier and the measurements were carried out at 20,000-29,000 kg/cm^2, are shown in Figs. 7, 8, and 9. The superconductivity of the modification Bi II is an unexpected result of the experiments. In the second series of experiments the pressure was created by means of a mechanical press at room and liquid nitrogen temperatures. Results of these experiments are shown in Figs. 10, 11, 12. The results of the investigations of Bi I, Bi II, and Bi III indicate the strong influence of crystal structure and of the energy spectrum of the electrons upon superconductivity. Hysteresis is intensified by the cooling of the sample. As the number of cycles increases the volume of the Bi III phase being transformed into Bi I decreases. This transformation always occurs

Card 2/~~6~~ 3

30789
S/181/61/003/011/032/056
B125/B138

Investigation of the crystalline...

independently of the number of cycles at the same pressure of 21,000 kg/cm^2. The superconductivity properties of Bi III under 27,000 kg/cm^2 do not depend on the number of compression cycles. The Bi III modification can also exist in the absence of external pressure. At nitrogen temperature, the hysteresis of the Bi I → Bi III transition is weaker than at helium temperature. At room temperature, there is hardly any hysteresis. No new low-temperature modification different from Bi III seems to exist. A. I. Shal'nikov is thanked for his interest in the present paper. There are 15 figures and 21 references: 9 Soviet and 12 non-Soviet. The three most recent references to English-language publications read as follows: L. D. Jennings, C. A. Swenson. Phys. Rev., 112, 31, 1958; D. H. Bowen, G. O. Jones. Proc. Roy. Soc., A254, no. 1279, 522, 1960; D. Pines. Phys. Rev., 109, 280, 1958.

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

SUBMITTED: June 19, 1961

Card 3/8 7

S/120/62/000/005/027/036
E039/E420

AUTHORS: Brandt, N.B., Ginzburg, N.I.

TITLE: A method of investigating the pressure-temperature phase diagrams at low temperatures

PERIODICAL: Pribory i tekhnika eksperimenta, no.5, 1962, 161-164

TEXT: Samples of bismuth and cerium (1.9 mm diameter and 3 to 4 mm long) are compressed between two pistons of steel or tungsten carbide inside a solid ring of beryllium bronze with an internal diameter of 2 mm and thickness 7 to 8 mm and an external diameter of 30 to 40 mm. The pressure is measured by means of БФ-2 (BF-2) strain gauges mounted on the outside of the ring. A screw device is used to apply pressure to the pistons and the whole apparatus is mounted inside a double Dewar flask. Temperatures of 1.7 to 4.2°K are obtained using liquid helium and 60 to 77°K using liquid nitrogen. A pressure calibration is obtained using a superconducting tin manometer at liquid helium temperatures and, because the elastic constants of beryllium bronze change very little in the temperature range 4.2 to 300°K, the calibration at room temperature differs very little from that

Card 1/2

A method of investigating ...

S/120/62/000/005/027/036
E039/E420

at 4.2°K. The change in volume of the sample during compression and at a phase change is determined from the number of turns of the screw mechanism which moves the pistons. In order to check the method the pressure at which the phase change in cerium occurs was measured at temperatures of 373, 293 and 77°K and shown to agree well with the results obtained by other workers using a different method. The phase changes BiI to BiII and BiII to BiIII are also observed to occur at pressures of 25.3 and 27 k atm at 300°K which is in good agreement with the results of Bridgeman. In order to avoid hysteresis effects data should be obtained on the first compression cycle. The results obtained testify to the reliability of the method for obtaining phase diagrams at low temperatures and for pressures up to 39 k atm. There are 5 figures.

ASSOCIATION: Fizicheskiy fakul'tet MGU (Physics Faculty MGU)

SUBMITTED: October 30, 1961

Card 2/2

S/056/63/044/002/014/065
B102/B186

AUTHORS: Brandt, N. B., Ginzburg, N. I.

TITLE: The critical fields in the crystalline modifications Bi II and Bi III

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44, no. 2, 1963, 478-480

TEXT: The modifications Bi II and Bi III forming at room temperature under a pressure of 25 tons/cm^2 show superconductivity at $T < T_{cr} = 3.916^\circ K$ (25 t/cm^2) and $T \leq T_{cr} \approx 7^\circ K$ (27-30 t/cm^2). The critical fields (H_{cr}) were measured for these modifications (purity 99.999%). Superconductivity was measured with constant temperature and slowly increasing field strength (Bi II), and with constant field strength and slowly increasing temperature (Bi III). H_{cr} was determined in the usual way by extrapolating the linear sections of the curves. The values obtained for transverse and longitudinal fields agreed within the experimental limits of error. From

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The critical fields in the ... S/056/63/044/002/014/065
B102/B186

the $H_{cr}(T)$ curves it can be seen that Bi II is a "soft" superconductor whose critical-field curve resembles that of tin. Bi III is a "hard" one $\left(\partial H_{cr}/\partial T\right)_{T=T_{cr}} \approx 2600$ oe/deg, this value being almost independent of pressure in the interval 28÷30 t/cm^2. There are 3 figures.

ASSOCIATION: Moskovskiy gosudarstvenny universitet (Moscow State University)

SUBMITTED: September 11, 1962

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S/056/63/044/003/011/053

70

68

L 17606-63 EWT(1)/EPF(n)-2/EWP(q)/

EWT(m)/BDS AFFTC/ASD/SSD Pu-4 WW/JD/JG

AUTHOR: Brandt, N. B. and Ginzburg, N. I.

18

TITLE: Effect of antimony and lead impurities on phase transitions in bismuth

PERIODICAL: Zhurnal eksperimental"noy i tekhnicheskoy fiziki, v. 44, no. 3, 1963, 848-851

TEXT: One of the authors investigated earlier, Ref. 1 (N. B. Brandt and M. V. Razumeyenko, ZhETF, 39, 276, 1960) and Ref. 2 (N. B. Brandt and V. V. Shchekochikhina, ZhETF, 41, 1412, 1961), the effect of Sb and Pb impurities on the energy spectrum of electrons in Bi and proceeded then with the study of effects these same impurities (0-2.5 wt.% of Bi, 0-1.2 wt.% of Pb) have on the pressure-temperature phase diagram of Bi. The phase transitions were investigated following a method described by the authors in an earlier paper (Ref. 3: PTE, 5, 161, 1962). It is found that with increase of the concentration the region of existence of the Bi II modification becomes narrower in the phase diagram and apparently disappears completely for Sb concentrations exceeding 0.8 wt. %.

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L 17606-63 S/056/63/044/003/011/053

2

Effect of antimony and lead impurities...

Pb impurities do not appreciably affect the nature of the phase diagram. A comparison with the energy spectrum effects shows that while Pb impurities cause strong changes in the electron part of the Fermi surface, they do not appreciably change the characteristics of the phase transition in the Pb phase diagram. The Sb impurities act exactly in an opposite fashion. Consequently, at helium temperatures the phase diagram is quite insensitive to the changes in the electron part of the Fermi surface and depends very much on the changes within the crystalline lattice, which prove to be more involved than the mere change in impurity concentration. There are 2 figures.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: October 4, 1962

Card 2/2

L 9877-63 EWT(1)/EWP(q)/EWT(m)/BDS/
EEC(b)-2--AFFTC/ASD/ESD-3--GG/JD/IJP(C)/K

ACCESSION NR: AP3003115 S/0056/63/044/006/1876/1883 67 64

AUTHOR: Brandt, N. B.; Ginzburg, N. I.

TITLE: Study of the effect of high pressure on superconductivity in cadmium 16 21 27

SOURCE: Zhurnal eksper. i teor. fiziki, v. 44, no. 6, 1963, 1876-1883

TOPIC TAGS: superconductivty in cadmium, pressure-dependent superconductivity

ABSTRACT: The ratio of the critical temperature gradient to the pressure gradient in the critical field curve of cadmium is investigated within a wide range of pressures, furthering the investigations of N. Ye. Alekseyevskiy and Yu. P. Gaydukov (Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 29, 1955, p. 898), who found the ratio to be negative and its absolute value to be close to that of tin- and indium-type superconductors. Spectrally pure polycrystalline cadmium cylinders 2 to 3 mm in diameter and 2.5 to 3.4 mm long were tested. The effect of pressures up to 27,000 atm on the critical field curves and critical temperature for the superconductive transition in the 0.08 + or - 0.5K temperature range was investigated. A large relative change in critical temperature, about 80% at 26,400 atm, was obtained. The critical temperature changed 4.4 times within the pressure interval from zero to 26,400 atm. The investigation indicates the

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L 9877-63
ACCESSION NR: AP3003115

3

possibility of transferring cadmium to the nonsuperconducting state at unchanged crystal modification. This possibility is analyzed to some extent. "In conclusion, we take the opportunity to thank V. L. Ginzburg for his discussion of the results, and A. I. Shal'nikov for his interest in the work." Orig. art. has: 5 figures and 1 table.

ASSOCIATION: Moskovskiy gosudarstvenny*y universitet (Moscow State University)

SUBMITTED: 13Feb63 DATE ACQ: 23Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 004 OTHER: 010

Card 2/2

ACCESSION NR: AP4031141 S/0056/64/0046/004/1216/1219

AUTHORS: Brandt, N. B.; Ginzburg, N. I.

TITLE: Effect of high pressure on the superconducting properties of zirconium

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 4, 1964, 1216-1219

TOPIC TAGS: zirconium, superconductivity, critical temperature, critical field, pressure effect, hydrostatic compression effect, annealing effect

ABSTRACT: Earlier work on the effect of hydrostatic compression on the superconductivity (ZhETF v. 44, 1876, 1963) is extended from cadmium to zirconium. Pressures up to 24000 atm and a temperature range 0.08--0.8K were employed. Hydrostatic compression is shown to cause a considerable increase in the critical temperature, which reaches 70% at 24000 atm, and in the temperature gradient of the

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ACCESSION NR: AP4031141

critical field, amounting on the average to 20--25% as the pressure is changed from 0 to 20000 atm. Both annealed and unannealed samples were tested, and a stronger increase in the critical temperature was observed in annealed samples. The results are interpreted in light of the plastic deformation which can arise in the sample as a result of the method used in the experiment to produce high pressure. Results obtained with other metals and alloys are compared. "In conclusion we thank V. L. Ginzburg for a discussion of the results and N. N. Mikhaylov for graciously supplying the zirconium." Orig. art. has: 3 figures and 1 formula.

ASSOCIATION: Moskovskiy gosudarstvenny*y universitet (Moscow State University)

SUBMITTED: 24Oct63 DATE ACQ: 07May64 ENCL: 03

SUB CODE: PH NO REF SOV: 005 OTHER: 004

Card 2/5

L 62230-65 EPA(s)-2/EWA(h)/EWP(k)/EWA(c)/EWT(l)/EWT(m)/EWP(b)/EWA(d)/EWP(t) IJP(c)
GG/JD/HW/JG

ACCESSION NR: AP5019219 UR/0056/65/049/001/0085/0089
44
48

AUTHOR: Brandt, N. B.; Ginzburg, N. I.; Ignat'yeva, T. A.; Lazarev, B. G.; Lazareva, L. S.; Makarov, V. I.

TITLE: Influence of impurities on the pressure effect in thallium 21

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 1, 1965, 85-89

TOPIC TAGS: thallium, mercury, mercury impurity, impurity effect, pressure effect, Fermi surface, high pressure research

ABSTRACT: This is a continuation of an earlier study (ZhETF v. 48, 1065, 1965) of the influence of impurities on the superconducting transition temperature of thallium under pressure. In the present study, to check on some of the hypotheses advanced in the earlier paper, the authors extended the pressure range to 28,000 atm, and measured the pressure effect in both pure and mercury-bearing thallium, using the same thallium-mercury alloys as in the earlier work. Cylindrical samples of 2.5 mm diameter and 3—4 mm length were used, and the superconducting transition was measured with a tin manometer and recorded by an induction method. The apparatus and procedure employed were the same as described in detail elsewhere (PTE no. 2, 131, 1960; FTT v. 3, 3461, 1961), apart from slight modifications. It was

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L 62230-65

ACCESSION NR: AP5019219 2

found that at high pressures (20,000—28,000 atm) the dependence of the transition temperature (T_c) on the pressure (P) was similar for the mercury-bearing and pure thallium, but different at low pressures (up to approximately 7000 atm), with the sign of the effect reversing at a concentration ~ 0.9% Th. It is suggested that this behavior of thallium and its alloys is related to the characteristic features of the pressure dependence of the density of states on the Fermi surface. In particular, the results confirm hypotheses advanced in the earlier paper, that thallium has two components in the pressure dependence of T_c, linear and nonlinear, and that the impurity content affects mainly the nonlinear component. It is possible that the impurity dependence affects the Fermi-surface topology of thallium. Orig. art. has: 3 figures. [02]

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University); Fiziko-tekhnicheskiy institut Akademii nauk UkrSSR (Physicotechnical Institute, Academy of Sciences, UkrSSR)

SUBMITTED: 05Feb65	ENCL: 00	SUB CODE: MM,SS
NO REF SOV: 005	OTHER: 002	ATD PRESS: 4075

Card 2/2

L 3467-66 EWT(1)/EPA(s)-2/EWT(m)/EWP(w)/EPF(n)-2/T/EWP(t)/EWP(b)/EWA(h)/EWA(c)
IJP(c) JD/WW/JG/GG
ACCESSION NR: AP5009069 UR/0053/65/085/003/0485/0521

AUTHOR: Brandt, N. B.; Ginzburg, N. I. 55 44 55 44

21.44.55 71 64 B

TITLE: Effect of high pressure on the superconducting properties of metals 18

SOURCE: Uspekhi fizicheskikh nauk, v. 85, no. 3, 1965, 485-521

TOPIC TAGS: superconductivity, pressure effect, hydrostatic pressure, high pressure, metal physical property

ABSTRACT: This is a review paper dealing with the advances made in the study of the superconducting properties of metals at high pressures, and particularly the developments not treated in a 1960 review paper by C. A. Swenson. The sections heading are: I. Introduction. II. Methods of obtaining high pressures at low temperatures. 1. Production of "frozen-in" pressures using an intermediate medium. 2. Production of "frozen-in" pressures without the use of a transmitting medium. 3. Production of pressures directly at low temperatures using an intermediate medium. 4. Production of pressures directly at low temperatures without an in-

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L 3467-66 //

ACCESSION NR: AP5009069

termediate medium. III. Effect of pressure on the properties of superconductors. 1. Tin and indium. 2. Tantalum. 3. Mercury. 4. Thallium. 5. Cadmium. 6. Aluminum. 7. Zirconium and titanium. 8. Alloys. 9. Superconductivity of crystalline modification. 10. Investigation of the stability of superconducting modifications. IV. Influence of pressure and microscopic theory of superconductivity. V. Some remarks on the prospects of further research. Orig. art. has: 38 figures, 18 formulas, and 2 tables.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: GP

NR REF SOV: 030 OTHER: 052

Card 2/2

BRANDT, N.B.; GINZBURG, N.I.

Effect of hydrostatic pressure and plastic deformation on the superconducting properties of titanium. Zhur.eksp. i teor.fiz. 49 no.6:1706-1714 D '65. (MIRA 19:1)

1. Moskovskiy gosudarstvennyy universitet. Submitted June 16, 1965.

L 25694-66 EWT(1)/EWT(m)/EPF(n)-2/EWP(t)/EWP(k) IJP(c) JD/WW/HW/GG

ACC NR: AP6002707 SOURCE CODE: UR/0056/65/049/006/1706/1714

91

AUTHOR: Brandt, N. B.; Ginzburg, N. I.

89

ORG: Moscow State University (Moskovskiy gosudarstvennyy universitet)

13

TITLE: Investigation of the effect of hydrostatic pressure and plastic deformation on the superconducting properties of titanium 27

18

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 6, 1965, 1706-1714

TOPIC TAGS: titanium, superconductivity, pressure effect, critical point, plastic deformation, critical magnetic field, hydrostatic pressure, single crystal

ABSTRACT: This is a continuation of earlier work by the authors dealing with the effect of pressure on the superconducting transition (ZhETF v. 46, 1216, 1964), and is aimed at checking on the hypothesis that the superconducting transition temperature increases under pressure. The superconducting properties of samples of 99.99% pure titanium iodide were investigated in the 0.06--0.6K region, and the effects of plastic deformation and hydrostatic pressures up to 26,000 atm were studied. The experimental setup and measuring technique were described in detail elsewhere (ZhETF v. 44, 1876, 1963). The results show that plastic deformation and the surface states of samples strongly affect the superconducting transition temperature and the critical field of titanium. Nearly-hydrostatic pressures up to approximately 14,000 atm either produce no effect or cause a very small reversible increase in the critical tempera-

2

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L 25694-66

ACC NR: AP6002707 2

ture and field in single-crystal plastically-deformed or lathe-turned titanium samples, regardless of their superconducting parameters. Between 14,000 and 26,000 atm, reversible increases of the field and temperature are observed in plastically deformed samples, at an average rate of ~0.7 x 10^{-5} deg/atm. The increase in the superconducting transition temperature of titanium under pressure confirms the hypothesis advanced in the earlier work. Differences between the behavior of titanium and zirconium are described and explained, and the superconducting transition temperatures of different titanium samples are compared with the corresponding densities of the states at the Fermi surface. Authors thank L. N. Fedotov for providing the pure titanium. Orig. art. has: 6 figures and 2 formulas. 18

SUB CODE: 20/ SUBM DATE: 16Jun65/ ORIG REF: 006/ OTH REF: 007

Card 2/2

L 36460-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD

ACC NR: AP6018804 SOURCE CODE: UR/0056/66/050/005/1260/1264

37
B

AUTHOR: Brandt, N. B.; Ginzburg, N. I.

ORG: Moscow State University (Moskovskiy gosudarstvennyy universitet)

TITLE: Temperature-pressure dependence of the superconducting transition in zinc

SOURCE: Zh eksper i teor fiz, v. 50, no. 5, 1966, 1260-1264

TOPIC TAGS: zinc, temperature dependence, pressure effect, superconducting transition

ABSTRACT: The effect of uniform pressure on the superconducting transition temperature T_k in zinc has been investigated at pressures up to 26,000 atm. The superconducting transition temperature at 26,000 atm is reduced by a factor of 2.7. It has been shown that an exponential function most satisfactorily describes the dependence of T_k on pressure. The possibility of transferring a superconductor to the normal state by subjecting it to pressure has been described. Orig. art. has: 2 figures, 7 formulas, and 1 table. [Based on authors' abstract] [NT]

SUB CODE: 20/ SUBM DATE: 30Dec65/ ORIG REF: 005/ OTH REF: 006

Card 1/1

L 45330-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6024864 SOURCE CODE: UR/0056/66/051/001/0059/0061

55
53
B

AUTHOR: Brandt, N. B.; Ginzburg, N. I.

ORG: Moscow State University (Moskovskiy gosudarstvennyy universitet)

TITLE: Effect of high pressure on the superconducting transition temperature of the $Mo_{90}Re_{10}$ and $Nb_{75}Mo_{25}$ alloys

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 51, no. 1, 1966, 59-61

TOPIC TAGS: molybdenum alloy, niobium alloy, temperature dependence, pressure effect, molybdenum rhenium alloy, niobium molybdenum alloy

ABSTRACT: The effect of pressures up to 28,000 atm on the superconducting transition temperature of $Mo_{90}Re_{10}$ and $Nb_{75}Mo_{25}$ alloys has been investigated. It was found that the transition temperature in $Nb_{75}Mo_{25}$ alloy decreases with hydrostatic pressure whereas it increases in $Mo_{90}Re_{10}$. The results obtained

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L 45330-66

ACC NR: AP6024864

2

were compared with the variation of the density of states on the Fermi surface N(O) during compression. The original article offers curves showing the N(O) density of states dependence on the number of valence electrons, the superconducting transition of the $Nb_{75}Mo_{25}$ alloy at various pressures, and the superconducting transition temperature dependence of the $Mo_{90}Re_{10}$ and $Nb_{75}Mo_{25}$ alloys on pressure. The authors thank V. V. Baron, Institute of Metallurgy, Academy of Sciences SSSR for making available high quality alloys for the experiment. Orig. art. has: 3 figures and 1 formula. [Based on authors' abstract] [KP]

SUB CODE: 20/ SUBM DATE: 11Feb66/ ORIG REF: 004/ OTH REF: 004/

Card 2/2 ZC

32839

S-3610 2209

11.2214

S/020/62/142/002/020/029
B106/B101

AUTHORS: Ginsburg, V. A., Yakubovich, A. Ya., Filatov, A. S., Zelenin, G. Ye., Makarov, S. P., Shpanskiy, V. A., Kotel'nikova, G. P., Sergiyenko, L. F., and Martynova, L. L.

TITLE: Heterolytic transformations of polyfluorinated azoalkanes

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 142, no. 2, 1962, 354-357

TEXT: A number of heterolytic transformations of polyfluorinated azoalkanes was discovered for the first time. The said azoalkanes, while being highly resistant to oxidizing agents, easily react with reducers (HI, H_2S, H_3P) in polar media (ether, methanol) at low temperatures, whereby the azo group is converted into the hydrazo group. Hexafluoro hydrazomethane presents acid properties and is relatively stable in the solvate form in ether or acetone. The etherate reacts with ketene, and the normal diacyl derivative is formed as a result. Hydrogen fluoride is readily separated from hexafluoro hydrazomethane under the action of bases:

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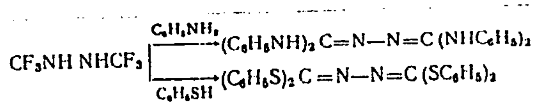
B106/B101

Heterolytic transformations of...

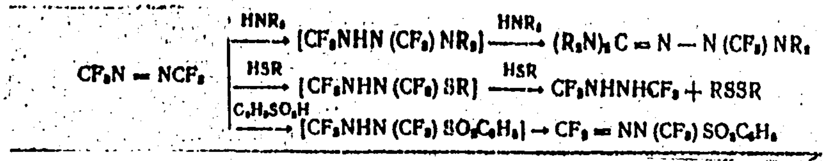


$$CF_3NH\,NHCF_3 \begin{cases} \xrightarrow{C_6H_5NH_2} (C_6H_5NH)_2C{=}N{-}N{=}C(NHC_6H_5)_2 \\ \xrightarrow[C_6H_5SH]{} (C_6H_5S)_2C{=}N{-}N{=}C(SC_6H_5)_2 \end{cases}$$

Hexafluoro hydrazomethane reacts with aluminum chloride to form the dimer of tetrafluoro formazine, and, if oxidized in anhydrous media ($KMnO_4$ + CH_3COOH), it passes over to the intensively yellow cis-form of hexafluorazo methane, which readily takes the almost colorless trans-form under the action of light, alkali lyes, or metals. In the reduction of azoalkanes which contain the groups CF_2Cl or R_fCF_2, the corresponding hydrazo compounds cannot be isolated, due to hydrolysis. The compound $CF_3NHNHC_6H_5$ can be distilled in vacuo (b.p.56°C/1 mm Hg), and passes over to indazole under the action of hydrogen iodide. Under the action of strong acids, the azo group of polyfluorazo alkanes is able to add one proton which, in the case of asymmetric azoalkanes, is added to the nitrogen atom adjoining the more electronegative substituent. These reactions take place most readily in anhydrous hydrofluoric acid, whereby polyfluorazo alkanes are dimerized into benzidine derivatives. Poly-

Card 2/7

fluorinated azo compounds are particularly sensitive to nucleophilic reagents. The reaction rate with amines grows with the amine basicity, and the reactivity in azo compounds of the type $CF_3N=NR$ drops in the sequence $R=CF_3 > CF_2H > CH_3$. With secondary amines, mercaptans, and sulfinic acids, the azo compounds react as follows:



$$CF_3N=NCF_3 \begin{cases} \xrightarrow{HNR_2} [CF_3NHN(CF_3)NR_2] \xrightarrow{HNR_2} (R_2N)_2C=N-N(CF_3)NR_2 \\ \xrightarrow{HSR} [CF_3NHN(CF_3)SR] \xrightarrow{HSR} CF_3NHNHCF_3 + RSSR \\ \xrightarrow{C_6H_5SO_2H} [CF_3NHN(CF_3)SO_2C_6H_5] \rightarrow CF_2=NN(CF_3)SO_2C_6H_5 \end{cases}$$

(A)

These conversions probably begin with the formation of a transition complex of the type of a π-complex, e. g., $CF_3\underset{\underset{\ddot{H}NR_2}{\uparrow}}{N=N}CF_3$. This assumption is backed by the fact that the transition complex, in the reaction of hexafluorazo methane with trialkyl phosphites, can be isolated under mild

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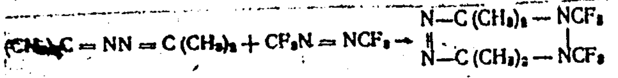
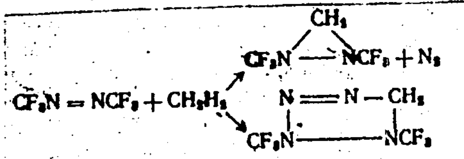
conditions (cooling with dry ice). On heating, the adduct decomposes to nitrogen, tetrafluoro ethylene, diethyl ether, ethyl fluoride, diethyl fluoro phosphite, and diethyl ethane phosphinate. In analogy to azodicarboxylic acid esters, hexafluorazo methane with dienes readily yields the Diels-Alder addition, reacts with azines according to the scheme



$$(CH_3)_2C=NN=C(CH_3)_2 + CF_3N=NCF_3 \rightarrow \begin{array}{l} N-C(CH_3)_2-NCF_3 \\ \| \qquad\qquad\qquad\quad | \\ N-C(CH_3)_2-NCF_3 \end{array}$$

and with diazomethane as follows:



Hexafluorazo methane reacts smoothly with organo-magnesium compounds at low temperatures and forms the hitherto unknown acid fluorides of

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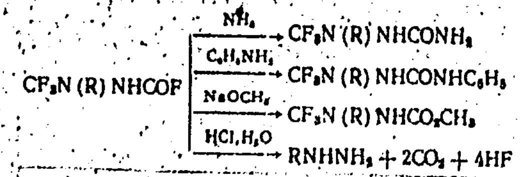
Heterolytic transformations of... S/020/62/142/002/020/029
B106/B101

polyfluoro alkyl-(aryl)-hydrazine carboxylic acids $CF_3N(R)NHCOF$, from which a number of further derivatives was obtained:



$$CF_3N(R)NHCOF \xrightarrow{NH_3} CF_3N(R)NHCONH_2$$
$$CF_3N(R)NHCOF \xrightarrow{C_6H_5NH_2} CF_3N(R)NHCONHC_6H_5$$
$$CF_3N(R)NHCOF \xrightarrow{NaOCH_3} CF_3N(R)NHCO_2CH_3$$
$$CF_3N(R)NHCOF \xrightarrow{HCl, H_2O} RNHNH_2 + 2CO_2 + 4HF$$

There are 1 table and 3 references: 2 Soviet and 1 non-Soviet.

PRESENTED: June 1, 1961, by I. L. Knunyants, Academician, and M. I. Kabachnik, Academician

SUBMITTED: June 1, 1961

Table 1. Compounds synthesized for the first time.
Legend: (a) compound; (b) boiling point; (c) melting point; (d) does not melt below 300 °C.

Card 5/7

GINTSBURG, B.Ya., doktor tekhn.nauk; ADAMOVICH, A.V., kand.tekhn.nauk;
TIKHOMIROV, Ya.V.

Selecting the length of the connecting rod of autombile and tractor engines. Avt. prom. no. 1:13-17 Ja '61. (MIRA 14:4)

1. Vsesoyuznyy sel'skokhozyaystvennyy institut zaochnogo obrazovaniya, i Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut.

(Tractors—Engines) (Automobiles—Engines)
(Connecting rods)

GINZBURG, O.E.

"On the Disociaton of the Ttiaryl Carbinols." J. Gem. Chem. USSR, 23, (1953), 9, 1504-1509.

So: Translation-2524467, 30 Apr 1954.

PORAY-KOSHITS, A. Ye., PORAY-KOSHITS, B.A., and GINZBURG, O.F.

Mbr. Lab. of Dyestuffs, Leningrad Chemical and Technological Inst. -1945-

"Dyes with Anti-Pyrene Nuclei." Dok. AN, 56, No. 1, 1947

"On Dyes with Antipyrene Nuclei and on a Special Case of Dehydrogentaion." Dok. AN, 47, No. 6, 1945.

1ST AND 2ND ORDERS

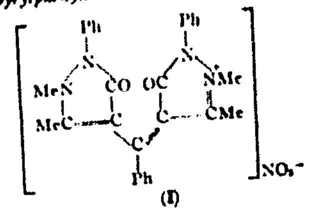
PROCESSES AND PROPERTIES INDEX

GINZBURG, O.F.

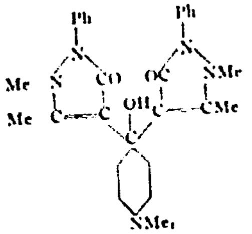
10

CA

Dyes with antipyrine nuclei. A. E. Poral-Koshits, O. F. Ginzburg, and B. A. Poral-Koshits (Leningrad Technol. Inst.). *J. Gen. Chem.* (U.S.S.R.) 17, 1752-7 (1947)(in Russian); cf. *C.A.* 42, 300g.—*Di-4-antipyrylphenylmethane-HCl*, m. 152°, was prepd. in 83-4% yield according to Knorr (*Ann.* 238, 160(1887)); *picrate* m. 215° (from alc.). The HCl salt (2 g.) in 50 ml. hot 4% HCl was treated hot with 0.8 ml. HNO_3 (d. 1.4), heated 10 min. until soln. was obtained, the warm soln. made alk. by NH_4OH and filtered, and the filtrate acidified to Congo red by HNO_3, giving 35% dye (I), m. 252° (from 5% HNO_3). A 3% HCl soln. of I treated dropwise with 20% NaOH until strongly alk. lost color and pptd. *di-4-antipyrylphenylcarbinol*, m. 172-3° (from ligroin-



(I)



(II)

benzene). This (0.2 g.) in 40 ml. 2% HCl treated hot with a little Zn dust until colorless, the filtered soln. cooled, and the pptd. needles dissolved in hot water and made alk. with NaOH, gave a white ppt. of the *methane deriv.*, which was converted in alc. to *di-4-antipyrylphenylmethane picrate*, m. 215°. Antipyrine (7.52 g.) in 10 ml. concd. HCl treated with 2.08 g. *p*-$Me_2NC_6H_4$-CHO in 5 ml. HCl, followed by 10 ml. H_2O after 15 min., and let stand overnight gave 94% *di-4-antipyryl(p-dimethylaminophenyl)methane-2HCl*, decomp. 178° (from 5% HCl); *picrate* m. 181-2° (from EtOH). The di-HCl salt (5 g.) in 100 ml. 10% $FeCl_3$ was heated 1.5 hrs. to 80-5°, cooled, freed of Fe by addn. of NaOH, filtered,

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION and made alk. with 20% NaOH until the red color vanished and the dye pptd. as the *carbinol* (II), m. 135-6° (from ligroin); picrate m. 143-4° (from water). Reduction of the carbinol by Zn-HCl as described above gave di-4-antipyryl(*p*-dimethylaminophenyl)methane.2HCl, decomp. 178° (from 5% HCl); picrate, m. 181-2°. Potentiometric titration curves of I and II are given, which show a typical "slow neutralization" of triphenylmethane dyes. I and II are dyes of red shades. G. M. Kosolapoff

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

~~GINZBURG, O.F.~~

CA

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Imidazole derivatives. I. Mechanism of formation of benzimidazole derivatives and the role of hydrochloric acid in this reaction B. A. Porai Koshits, O. F. Ginzburg, and L. S. Efros (Leningrad Technol. Inst.). *J. Gen. Chem.* (U.S.S.R.) 17, 1768-73(1947)(in Russian).—Many derivs. of benzimidazole can be prepd. by heating an *o*-diamine with carboxylic acids in the presence of HCl under pressure. The free diamine, resulting from hydrolysis of the HCl salt, is responsible for the reaction, as the HCl salt is incapable of reaction. The catalytic action of HCl is explained by activation of the CO_2H group by addn. of a proton to O, forming a cation of the acid with electron deficiency at the C atom. The intermediate in the reaction is the product of addn. formed as the result of entry of the unshared electron pair of one N of the diamine into the electron-deficient cation of the acid radical. *o*-$C_6H_4(NH_2)_2$ (0.01 mol.) and 0.01 mol. acid in 10 ml. HCl were heated in sealed tubes at 180-5°; after addn. of NH_4OH the products were filtered off and dried. The following *benzimidazoles* were prepd.: *2-Me*, m. 175° (from H_2O), in 70.5% yield after 40 min. reaction using 5% HCl (*HCl salt*, m. 293°); *2-benzyl*, m. 187° (from benzene) (*HCl salt*, m. 92-4°), in 98% yield from $PhCH_2CO_2H$, using 10% HCl, duration 40 min.; *2-Ph*, m. 290° (from 30% alc.) (*HCl salt*, m. 300°), in 95% yield from BzOH, using 25% HCl, duration 40 min.; *2-(3-pyridyl)*, m. 246-7° (from water) (*HCl salt*, m. 296-8°), from nicotinic acid in 40% yield, using 10% HCl, duration 2 hrs.; *2-naphthyl*, m. 280-2° (from 30% alc.), from 1-$C_{10}H_7CO_2H$, using 15% HCl, duration 40 min.; *2-(p-aminobenzyl)*, m. 211-13° (from alc.), from *p*-$H_2NC_6H_4CO_2H$ (*HCl salt*, m. 310-12° (from EtOH-Et_2O)); *2-benzhydryl*, m. 218-19° (from 60% EtOH), from Ph_2CHCO_2H in 44% yield, using 10% HCl, duration 2 hrs. [*HCl salt*, m. 233-8° (from alc. HCl)]. Heating 0.01 mol. *o*-$C_6H_4(NH_2)_2$ and 0.01 mol. BzOH 40 min. to 180-5° in a sealed tube gave 65% 2-phenylbenzimidazole; repetition using *o*-$C_6H_4(NH_2)_2.2HCl$ gave 0% yield; addn. of 0.5 ml. H_2O to the latter mixt. gave 30% 2-phenylbenzimidazole. Heating an equimol. mixt. of the diamine and BzOH in ligroin 40 min. to 180° gave a 48% yield, while replacement of the ligroin by H_2O decreased the yield to 7%. Heating an equimol. (0.01 mol.) mixt. of the diamine and BzOH in 10 ml. HCl of various concns. 40 min. to 180-5° gave the following yields of 2-phenylbenzimidazole: 5% acid, 10.3%; 10% acid, 21.7%; 20% acid, 71.7%; 25% acid, 100%; 35% acid, 48% yield.

G. M. Kosolapoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

GINZBERG, O. F.

Aug 1949

USSR/Chemistry - Synthesis, Dyes Imidazole Derivatives

"Research in the Field of Imidazole Derivatives. Synthesis of Several New Phenyl- and Alkyo-Phenyl-Derivatives of Benzimidazole," B. A. Poray-Koshits, L. S. Efros, O. F. Ginzberg, Lab of Technol of Org Dyes, Leningrad Tech Inst, 7pp

Zhur Obshch Khim, Vol 19, No 8,

o-Diamines of benzene series, both with grater and lesser basicities than that of o-phenylenediamine, have bonsiderably lower tendency toward condensation with carboxylic acids in an aquous hydrochloric acid medium of optimum concentration under pressure. Nevertheless, this method can still be used in preparing benzimidzaole derivatives except in cases where oxidation of o-diamine prevents its entering into condenstation. In these cases derivatives in question may be prepared by melting reagents at 180°C in absence of oxygen. Examples of condensation of 3,4-toluylenediamine and 3,4-diaminochlorobenzene with benzoic acid confirm earlier conclusions on the mechanism of formation of derivatives of benzimidazole in anacidic medium and explain effect of basicity of original amine in course of this reaction. Submitted 27 Mar 1948

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CA

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Dyes with antipyrine nuclei. II. O. F. Ginzburg and B. A. Porai-Koshits (Leningrad Technol. Inst.). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 22, 718-26(1952); cf. C.A. 42, 6150d.—In aq. soln. the ionization of carbinol derivs. formed by the action of alkali on triarylmethane-type dyes is accompanied by cleavage of hydroxyl ion and formation of colored org. cations. The basicity constant of *diantipyrylphenylcarbinol* (I) at 17° is 10^{-14} as detd. potentiometrically. Two inflection points are found in the titration curve: 1st at pH about 9.5 at the end of titration of free NaOH and the 2nd at pH about 8 at the end of titration of I.
G. M. Kosolapoff

GINZBURG, O.F.

CZECH

✓Reaction of ethers of carbinol bases of triphenylmethane dyes with organomagnesium compounds. O. F. Ginsburg, A. S. Sopova, and B. Ya. Shvarts (Lensovet Technol. Inst., Leningrad). *Sbornik Statei Obshchei Khim.* 2, 1100-2(1953).—Treatment of Me ether of crystal violet carbinol base with MeMgI (25% excess) gave crystal violet HI salt; similarly Me ether of malachite green carbinol base and MeMgI gave malachite green HI salt; Me ether of crystal violet carbinol base with EtMgBr gave crystal violet HBr salt, while Me ether of malachite green carbinol base and EtMgBr gave malachite green HBr salt. The reactions were run 16 hrs. at room temp., after which the mixts. were quenched in H_2O and AcOH added. To boiling soln. of 2 g. crystal violet carbinol base Me ether in Et_2O-C_6H_6 was slowly added 60 ml. of Et_2O soln. of MeMgI from 3.54 g. MeI; the addn. made over 4.5 hrs., followed by heating 13 hrs. gave after aq. treatment 0.81 g. $(p\text{-}Me_2NC_6H_4)_3CMe$, m. 209-10° (from MeOH). Similarly $PhCH_2MgCl$ gave $(p\text{-}Me_2NC_6H_4)_3CCH_2Ph$, m. 180-1°. malachite green carbinol base Me ether and MeMgI similarly gave $(p\text{-}Me_2NC_6H_4)_2CPhMe$, m. 134° (from MeOH), and $(p\text{-}Me_2NC_6H_4)_2CPhCH_2Ph$, m. 119° (from MeOH).

G. M. Kosolapoff

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Products of condensation of triarylcarbinols with 1-phenyl-3-methyl-5-pyrazolone. [illegible] and V. R. Terushkin (Lensovet Technol. Inst., Leningrad). *Zhur. Obshchei Khim.* 23, 1049-54(1953).—*p*-Dimethylamino-substituted-di- and triphenylcarbinols and their Me ethers condense with 1-phenyl-3-methyl-2-pyrazolin-5-one (I), yielding products which in polar solvents dissoc. into the same cations that are formed on soln. of the corresponding dyes in the same solvents. To 7.5 g. I in MeOH was added 5.g. $(p\text{-}Me_2NC_6H_4)_2C(OMe)Ph$ and the mixt. boiled 4 hrs., yielding 91.4% $Ph(p\text{-}Me_2NC_6H_4)_2C\overline{CH.CMe:N.NPh.CO}$ (A), decomp. 162-5°, also formed in 66.3% yield from I and the corresponding carbinol, absorption max. 635 mμ, the same as the HI salt of malachite green with nearly the same extinction coeff. Periodic examns. of solns. in $PhNO_2$ for absorption showed a progressive increase of dissocn. (10% in 20 hrs.). Similar boiling of I with $p\text{-}Me_2NC_6H_4\text{-}C(OH)Ph_2$ gave 77.5% $Ph_2(p\text{-}Me_2NC_6H_4)C\overline{CH.CMe:N.\text{-}NPh.CO}$ (B), m. 179-80°, whose absorption coeff. at 500 mμ was about 2.50; in $PhNO_2$ soln. this slowly dissoc. (4.50% in 4.5 days). $(p\text{-}Me_2NC_6H_4)_2CHOH$ and I similarly heated in MeOH gave product C, m. 193-4° (decompn.), identified as *bis(p - dimethylaminophenyl)(1 - phenyl - 3-methyl-2-pyrazolin-5-on-4-yl)methane* (cf. Kehlstadt, *C.A.* 39, 1642[1]). The polar ionization of A, B, and C occurs at the tertiary C atoms of the carbinol fragment which forms the pos. ion. I and $(p\text{-}Me_2NC_6H_4)_3COH$ in MeOH give only a soln. colored violet and do not form a ppt. of a condensation product.

G. M. Kosolapoff

11-5-54

GINZBURG, O. F.

Chemical Abst.
Vol. 48 No. 4
Feb. 25, 1954
General and Physical Chemistry

Chem ②

Dissociation of triarylcarbinols. O. F. Ginzburg (Lensovet Technol. Inst., Leningrad). *Zhur. Obshchei Khim.* 23, 1604-9(1953).—The carbinol analogs of triarylmethane dyes are capable of dissocn. with cleavage of HO groups and formation of dye cations. The phenomenon occurs not only in H_2O but also in other solvents. The values of pH actually observed and those calcd. with the aid of ionization consts. (cf. Goldacre and Phillips, *C.A.* 44, 7063b) agreed excellently for several dyes: malachite green HBr salt (4.95 and 4.86); malachite green HI salt (5.02 and 4.94), crystal violet HBr salt (6.40 and 6.25); crystal violet HI salt (6.35 and 6.19). The dissocn. const. of $(p\text{-}Me_2NC_6H_4)_2\text{-}PhCOH$ is 9.24×10^{-6}, and that of $(p\text{-}Me_2NC_6H_4)_3\text{-}COH$ is 3.76×10^{-6} (at 19°). The hydrolysis consts. of salts of several dyes were detd. in aq. Me_2CO, by detn. of pH of solns. of equimolar compn. of the carbinols and the salts. The pK values found were (in H_2O and aq. 60% Me_2CO): $(p\text{-}Me_2NC_6H_4)_2HCOH$, 5.61 and 4.70; diantipyrylphenylcarbinol 6.56 and 5.50; $(p\text{-}Me_2NC_6H_4)_2\text{-}PhCOH$ 7.07 and 6.05; 10-methyl-9-phenyl-9-hydroxy-9,10-dihydroacridine 9.58 and 8.55, resp. A plot of pK in H_2O in aq. Me_2CO against that in H_2O gave a straight line, as expected, with slope 1.0. Abs. spectra were detd. for the HI salt of malachite green and the carbinol, as well as of the HI salt of crystal violet and its carbinol. Detn. of optical d. at 600, 620, 630, 635, 640, and 650 mμ in the 1st instance showed that the carbinol is 70% dissocd. in $PhNO_2$ soln. Similar detn. with crystal violet showed that the optical d. at 550, 590, 600, 605, 610, and 620 mμ indicates 90% dissocn. of carbinol in $PhNO_2$.

G. M. Kosolapoff

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3W

GINZBURG, O. F.

4

Dyes with antipyrine nuclei. III. O. F. Ginzburg (Leningrad Technol. Inst.). *Zhur. Obshchei Khim.* 23, 1677-82(1953); cf. C.A. 48, 1776g, 2031b. [illegible] of Cl or NO_2 group into the *p*-position, in respect to the central C atom, of diantipyrylphenylcarbinol reduces the dissocn. [illegible] of the OH group. Hydrolysis of antipyryl dyes in 60% aq. Me_2CO is some 10 times as extensive as in aq. soln. To [illegible] g. antipyrine and 1.51 g. *p*-$O_2NC_6H_4CHO$ in 15 ml. [illegible] added 8 ml. concd. HCl, the mixt. [illegible] after [illegible] with [illegible] ml. H_2O, heated, the EtOH distd. off, and the residue dild. the next day with 1 vol. H_2O and allowed to stand, yielding 59% *diantipyryl(p-nitrophenyl)methane* (I), m. 214-15° (from MePh); *HCl salt*, decomp. 125-8°; *picrate* of the base, m. 163-4° (from EtOH). Similarly were prepd. 97% *diantipyryl(m-nitrophenyl)methane* (II), m. 214° (from MePh) (*HCl salt*, decomp. 178-80°; *picrate*, m. [illegible] (from EtOH)) and 92.6% *diantipyryl(1-naphthyl)methane* (III), m. 234° (from MePh or EtOH). To [illegible] g. antipyrine in 30 ml. concd. HCl was added 4 [illegible] g. [illegible]C_6H_4CHO in 15 ml. EtOH, the ppt. sepd. the next day, the [illegible] dild. with 30 ml. H_2O and the EtOH distd. off, yielding a ppt. which, combined with the 1st crop and treated with dil. NaOH, gave 74.6% *diantipyryl(p-nitrophenyl)methane* (IV), m. 232° (from EtOH), *HCl salt*, decomp. 218-21°, *picrate*, m. 245-9° (from EtOH). Similarly was prepd. 60.3% *diantipyryl(p-chlorophenyl)methane* (V), m. 160° (from ligroine-MePh); *HCl salt*, decomp. 201-3°; *picrate*, m. 218-20° (from EtOH). To 5.76 g. antipyrine in 15 ml. HCl was added 1.52 g. vanillin and, after 0.5 hr., 15 ml. H_2O, and the ppt. sepd. the next day [illegible] hot H_2O, and treated with 20 ml. 20% NaOAc, yielding [illegible] *diantipyryl(3-methoxy-4-hydroxyphenyl)methane* (VI), m. 146-8° (from aq. EtOH); *HCl salt*, decomp. 125-6°; *picrate*, m. 208-9° (from EtOH). When 0.05 g. leuco base in 1.2 ml. hot 15% HCl was treated with a little $NaNO_2$ the soln. acquired an intense orange color; such formation of the dyes was observed with I, II, IV, V, VI, and III, as well as diantipyrylphenylmethane. IV HCl (5 g.) in 50 ml. hot concd. H[illegible] treated in 3-4 min. with 0.5 g. $NaNO_2$ and over 15 min. with [illegible] HNO_3 (d. 1.4), the mixt. heated 5-8 min., [illegible] with [illegible] ml. H_2O, the filtered orange soln. treated with [illegible]% NaOH until a ppt. formed, 2% NaOH added over 1 hr. until the soln. was alk. to phenolphthalein, the mixt. allowed to stand overnight, heated to boiling, cooled, and the ppt. sepd. yielded 2.95 g. *diantipyryl(p-nitrophenyl)carbinol*, m. 180-1° (from C_6H_6-petr. ether); *picrate*, m. 130-3° (from EtOH). The carbinol (0.1502 g.) in a few ml. 0.1*N* HCl was dild. to 200 ml. and the soln. treated with 0.1*N* NaOH in the amt. necessary to convert the dye into the carbinol base; the soln. which slowly [illegible] color was titrated after [illegible] and the pH detd. 4-5 min. after the addn. of the [illegible]; at the equivalence point of the dye and the carbinol the soln. had pH 4.32; the hydrolysis const. was calcd. to be [illegible] × 10[illegible]; in 60% aq. Me_2CO the const. was 1.98 × 10[illegible]. Similarly V was oxidized to the corresponding carbinol, m. 137-9°, whose hydrolysis const. was 7.95×10^{-7}. The dissocn. consts. of the 2 carbinols were found potentiometrically after treatment of the HCl soln. with an equiv. amt. of NaOH: for the *p*-Cl deriv. the const. was 1.11 × 10[illegible], for the *p*-O_2N deriv. 3.16 × 10[illegible]. In 60% aq. Me_2CO the hydrolysis const. of the *p*-Cl deriv. was 8.92 × 10[illegible]. Similar oxidation of III gave the crude undescribed *carbinol*; *picrate*, m. 235-6°.

G. M. Kosolapoff

GINZBURG, O.F.

[redacted]

Reaction of aminotriarylcarbinols with organomagnesium compounds. O. F. Ginzburg (Leningrad Technol. Inst.). *Zhur. Obshchei Khim.* 23, 1662-5(1953); cf. Freund, *et al.*,
Ber. 37, 4670(1904); 38, 517(1905).—Aminotriphenylcar-
binols with Grignard reagents yield, besides the hydrocar-
bons, some quantities of dyes. The latter form also in the
reaction of Grignard reagents with amino bases of the Ph_3CH
series. MeMgI and $(p\text{-}Me_2NC_6H_4)_3COH$ in EtOPh gave 80%
CH_4 and a violet soln. of crystal violet. $(p\text{-}Me_2NC_6H_4)_2$-
$C(OH)Ph$ similarly gave some 95% CH_4 and a green soln.
of malachite green. Diantipyrylphenylcarbinol similarly
gave CH_4 and an orange soln. of the dye; 9-phenyl-9-
hydroxy-1-methyl-9,10-dihydroacridine gave CH_4 and a
brown soln. of the dye. The use of excess MeMgI results
in the reaction of the initially formed dye ion with the re-
agent to give the corresponding ethane deriv.; thus 2.24 g.
$(p\text{-}Me_2NC_6H_4)_2C(OH)Ph$ in Et_2O-MePh treated at reflux
with MeMgI from 4.00 g. MeI over 3.2 hrs. in 3 stages, the
mixt. refluxed 12 hrs. longer, treated with ice, the org. layer
extd. with 1% HCl, and satd. NaOAc added to the ext. gave
1 g. *$(p\text{-}Me_2NC_6H_4)_2CPhMe$*, m. 134°; the same material
formed on similar reaction of $(p\text{-}Me_2NC_6H_4)_2CPhNHPh$;
the latter gives a green color initially but no CH_4 with Me-
MgI. The ethane deriv. could not be oxidized to a dye with
PbO_2. $(p\text{-}Me_2NC_6H_4)_3COH$ with excess MeMgI, as de-
scribed above, gave *$(p\text{-}Me_2NC_6H_4)_3CMe$* (I), m. 209-10°.
MeMgI with $(p\text{-}Me_2NC_6H_4)_3CNH_2$ gave 90% CH_4 and a
violet color of crystal violet; $(p\text{-}Me_2NC_6H_4)_3CNHPh$
gave no CH_4, but did give the violet color. I could not be
oxidized to the dye with PbO_2. G. M. Kosolapoff

Ginzburg, O.F.

Products of condensation of triphenylcarbinols with phenyl-3-methyl-2-pyrazolin-5-one. II. O. F. Ginzburg (Lensovet Technol. Inst., Leningrad). Zh. n. 23, 1890-2(1953). (1.05 g.) and 1.6 g. *1-phenyl-3-methyl-2-pyrazolin-5-one* (I) in 10 ml. AcOH and 3 drops concd. HCl were refluxed 3 hrs. and cooled; the resulting ppt. was extd. with 10 ml. hot EtOH leaving behind 0.95 g. product, m. 208-10°. This purified by soln. in alc. KOH and pptn. with HCl m. 209-11°, identified as *1-phenyl-3-methyl-4-(triphenylmethyl)-2-pyrazolin-5-one* (II). A similar reaction run in Ac_2O with a trace of concd. HCl gave 88.4% *1-phenyl-3-methyl-4-triphenylmethyl-5-acetoxypyrazole*, m. 230° (from EtOH), the condensation being run 4 hrs. at 150-60°. [illegible] product formed on heating II with Ac_2O and a trace of [illegible]. Refluxing 0.87 g. I and 1.43 g. *9-phenyl-9-hydroxy-10-methyl-9,10-dihydroacridine* (IIa) in EtOH 20 min. gave 88.7% *1-phenyl-3-methyl-4-(9-phenyl-10-methyl-9,10-dihydro-9-acridyl)-5-pyrazolone* (III), m. 188° (from EtOH); this (0.44 g.) in 12 ml. AcOH and 1 g. AcONa treated with 5 ml. 0.2*M* p-$O_2NC_6H_4N_2Cl$ (IV) gave 0.25 g. [illegible] dye, m. 198°, identical with that formed from I and the IV; the [illegible] treated with KOH gave IIa. IV reacts similarly with II and its analogs, by displacement of the trityl group. Refluxing I with 4,4',4''-tris(dimethylamino)triphenylcarbinyl Me ether in C_6H_6 1 hr. gave *1-phenyl-3-methyl-4-[4,4',4''-tris(dimethylamino)triphenylmethyl]-2-pyrazolin-5-one*, m. 154-6° (from C_6H_6-petr. ether). III is colorless, but in solns. in polar solvents, the substance dissociates into ions as a result of rupture of the link at 9-acridyl position. AcOH solns. are yellow; $PhNO_2$ solns. are orange. G. M. K.

GINZBURG, O.F

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Dyes with antipyrine nuclei. IV. Acid-base properties of the dyes. O. F. Ginzburg, D. V. Ioffe, and N. S. Mel'nikova (Lensovet Technol. Inst., Leningrad). *Zhur. Obshchei Khim.* 25, 358-62; *J. Gen. Chem. U.S.S.R.* 25, 330-41(1955)(Engl. translation); cf. *C.A.* 42, 6380d; 48, 13086g.—The following hydrolysis equil. consts. for antipyrine dyes R_2CHAr(R = antipyryl) (I) (Ar shown) were calcd. from the optical densities at 17° of their solns. in Me_2CO in buffers at various pH levels: *p*-$Me_2NC_6H_4$, 1.38 × 10^{-11}; *3,4-*$(MeO)_2C_6H_3$, 1.24 × 10^{-6}; *1-*$C_{10}H_7$, 3.1 × 10^{-6}; *m-*$MeOC_6H_4$, 1.78 × 10^{-7}; *Ph*, 2.5 × 10^{-7}; *m-*$O_2NC_6H_4$, 9.7 × 10^{-6}; *p-*$O_2NC_6H_4$, 1.77 × 10^{-6}. Letting 15 g. antipyrine and 5.45 g. *m*-$MeOC_6H_4CHO$ stand overnight in EtOH contg. 30 ml. concd. HCl gave 80% *diantipyryl(m-methoxyphenyl)methane*, m. 186°; *di-HCl salt*, decomp. 141-2°; *picrate*, m. 195°. Similarly was obtained 95% *diantipyryl(3,4-dimethoxyphenyl)methane*, m. 200° (*di-HCl salt*, decomp. 176-7°; monopicrate, m. 160°). Oxidation of diantipyryl-(*m*-nitrophenyl)methane with $NaNO_2$-HNO_3, finally at reflux 5-6 min. gave *diantipyryl(m-nitrophenyl)carbinol* (*picrate*, m. 148-51°, absorption max. 490 mμ, pK_a 7.42-7.43). Similarly were prepd. the following *diantipyrylarylcarbinols* (*aryl* shown): *m-*$MeOC_6H_4$ (*picrate*, m. 111-13°, max. 490 mμ, pK_a 9.16); *3,4-*$(MeO)_2C_6H_3$ (*picrate*, m. 118-20°, max. 500 mμ, pK_a 6.26); *p-*$Me_2NC_6H_4$, m. 135-6°, max. 550 mμ, pK_a 3.30; *1-*$C_{10}H_7$ (*picrate*, m. 235-6°, max. 470 mμ, pK_a 6.51); *Ph*, m. 172-3°, max. 480 mμ, pK_a 7.56-7.57; *p-*$O_2NC_6H_4$, m. 180-1°, max. 500 mμ, pK_a 9.44-9.47.

G. M. Kosolapoff

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GINZBURG, O. F.

GINZBURG,O.F.; MEL'NIKOVA,N.S.

On aminotriaryl carbinols. Zhur.ob.khim.25 no.6:1156-1160 Je '55. (MLRA8:12)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta (Methanol)

GINZBURG, O. F.

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61557

Author: Ginzburg, O. F., Ioffe, D. V.

Institution: None

Title: On Dyes Containing Antipyrine Nuclei. V. Hydrolysis of Dyes with Substituents in Ortho-position

Original Periodical: Zh. obshch. khimii, 1955, 25, No 9, 1739-1743

Abstract: By condensation of antipyrine (2 mols) with o-chlor-, o-methoxy-, o-sulfo- and p-sulfobenzaldehyde in alcohol in the presence of HCl (~20°, 12 hours) and subsequent treatment with 10% NaOH were prepared diantipyryl phenylmethanes ([illegible]) substituted in the phenyl nucleus (below are listed substituent, yield in %, MP of bases and salts in ° C): o-methoxy, 66, 216-217° (from benzene-gasoline), hydrochloride, 184-185° (decomposes); picrate 165-166°; o-chlor, 70, 260-261°, picrate 199-200°; o-sulfo (from Na-salt in water, 73, temperature of decomposition 288-290°; p-sulfo (from Na-salt

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USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61557

Abstract: in water) 93, temperature of decomposition 300-302° (from alcohol).
By oxidation of the prepared I (2 g) and also of the o-nitro-
derivative (Communication IV, see Referat Zhur - Khimiya, 1956,
54304) with 0.5 ml HNO_3 (added in 20 minutes) in 20 ml boiling
HCl (d 1.17) in the presence of 0.2 g $NaNO_2$ with subsequent alka-
linization with a solution of NaOH and boiling, there have been
prepared the corresponding substituted diantipyrylphenylcarbinols,
converted by heating with picric acid (II) to the diantipyrylphenyl-
methane dyestuffs of the general formula [illegible]$N(C_6H_5)N(CH_3) = C(CH_3)C =$
$C(C_6H_4R)$ $C = C(CH\ )N(CH\ )N(C\ H\ )CO]^+X^-$, wherein R = H (III), o-Cl
(IV), o-NO_2 (V), o-SO_3^- (VI), p-SO_3^- (VII), o-OCH_3 (VIII), and X^- is
anion II. Dyes VI and VII were obtained direc[illegible] corresponding
I on oxidation and are betaines. Determined was the hydrolysis
constant (K_1) of the [illegible] to the corresponding carbinol by the method
described in communication IV. Below are listed MP, K_1 of dyes (in
parentheses is shown K_1 of corresponding para-isomers): III, $2.5 \cdot$
10^{-7}; IV, [illegible]-112°, $1.4 \cdot 10^{-7}$ (8.0[illegible]0^{-7}); V, 130-132°, $5.6 \cdot 10^{-8}$ ($1.8 \cdot$
10^{-5}; VI, --, $2.5 \cdot 10^{-11}$; VII, --, $2.4 \cdot 10^{-6}$; VIII, 134-136, ---. Com-
parison shows that negative substituents in para-position of phenyl

Card 2/3

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61557

Abstract: nucleus enhance the hydrolysis of dyes while in ortho-position they decrease it. This fact is explained by shielding action of the substituents in relation to the central C atom located next thereto.

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GINZBURG, O.F.

2

Hydrolysis of triphenylmethane dyes. O. F. Ginzburg and N. S. M[illegible]. Zhur. [illegible] (1960); cf. C.A. 50, 2862a. The change [illegible] phenylmethane dyes follow the mass law [illegible] present in [illegible] hydrolysis const. [illegible] 50 [illegible] of values of [illegible] these dyes [illegible] wide [illegible] for their utilization in the detn. of pH [illegible] illustrations of the procedure are given. L. [illegible]

Math

GINZBURG, O.F.

Hydrolysis of triphenylmethane dyes. O. F. Ginzburg and N. S. Mel'nikov. [illegible]

2

GINZBURG, O. F. Doc Chem Sci -- (diss) "~~Basic-acidity~~ Acid-base properties of arylcarbinols." Len, 1957. 22 pp (Min of Higher Education USSR. Len Order of Labor Red Banner Technological Inst im Lensovet), 100 copies (Bibliography: pp 21-22 (24 titles)) (KL, 43-57, 86)

GINZBURG, O. F.

79-2-29/58

AUTHORS: Ginzburg, O. F.; Poray-Koshits, B. A.; Krylova, M. I.; Lotareychik, S. M.

TITLE: Synthesis of Benzimidazole Compounds Containing Bis-(Beta-Ethyl Chloride)-Amino Group (Sintez benzimidazol'nykh soyedineniy soderzhashchikh bis-(beta-khloretil)-aminogruppu).

PERIODICAL: Zhurnal Obshchey Khimii, 1957, vol 27, No 2, pp. 411-414 (U.S.S.R.)

ABSTRACT: Investigation was made to determine the physiological activity of substances in which the bis-(beta-ethyl chloride)-amino group is bound with the benzimidazole grouping. It was established that the phsiological activity of such compounds depends to a large extent upon the nature of the radicals in the compounds. 2-bis-(beta-ethyl chloride)-aminomethylbenzimidazole and 1-beta-ethyl chloride-2-bis(beta-ethyl chloride)-aminomethylbenzimidazole respectively were synthesized from 2-bis-(beta-oxethyl)-aminomethylbenzimidazole and 1-beta-oxethyl-2-bis-(beta-oxethyl)-aminomethylbenzimidazole during reaction with thionyl chloride. It is explained that the latter two compounds can be derived as a result of condensation of diethanolamine with 2-chloromethylbenzimidazole and 1-beta-oxethyl-2-chloromethylbenzimidazole. The condensation of 2-

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79-2-29/58

Synthesis of Benzimidazole Compounds Containing Bis-(Beta-Ethyl Chloride)-Amino Group.

chloromethylbenzimidazole with diethanolamine was realized in an acetone medium in presence of sodium acetate or by heating the 2-chloromethylbenzimidazole in a surplus of diethanolamine.

No references.

ASSOCIATION: Leningrad Technological Institute imeni Lensovet

PRESENTED BY:

SUBMITTED: February 24, 1956

AVAILABLE: Library of Congress

Card 2/2

GINZBURG, O.F.; ZAVLIN, P.M.

Hydrolysis of malachite green derivatives containing methyl and sulfo groups. Zhur. ob. khim. 27 no.3:678-681 Mr '57. (MLRA 10:6)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Malachite green)

GINZBORG, O. F.

4
1- 4E3d
1- 4E4k

The problem of transformations of indicators. O. F. Ginzburg and B. A. Porai-Koshits (Lensovet Technol. Inst., Leningrad). *Zhur. Obshchei Khim.* 27, 989-92(1957).—The literature on the nature of transformations during color change in indicators is reviewed and the Hantzsch concept of pseudoelectrolytes (*Ber.* 32, 3109(1899); *C.A.* 22, 4319) is shown to be untenable while the colored-ion concept introduced by Ostwald is defended. In indicators existing in 2 tautomeric forms the apparent ionization const. of the substance characterizes the less ionized form. In selection of an indicator for a given purpose the ionization const. must be supplemented with the knowledge of the rate of establishment of equil. among the tautomers or dissocd.-undissocd. forms.

G. M. Kosolapoff

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