

SOV/46-5-1-18/24

AUTHORS: Blitshteyn, N.I., Glazov, G.I. and Yakhimovich, D.F. (Moscow)

TITLE: A New Ultrasonic Machine Tool (Model 4770) (Novyy ul'trazvukovoy stanok [Model] 4770)

PERIODICAL: Akusticheskiy Zhurnal, 1959, Vol 5, Nr 1, pp 117-118 (USSR)

ABSTRACT: A universal ultrasonic machine tool (drill) was developed by a special design bureau of the Experimental Scientific-Research Institute of Metal-Cutting Lathes (ENIMS) and by the Ultrasonics Laboratory of the Acoustics Institute of the Academy of Sciences of the U.S.S.R. (director Dr. of Tech. Sci. L.D. Rozenberg). This drill can be used to produce slots, circular and shaped holes and cavities in various brittle materials such as glass, ceramics, ferrites, germanium, etc. A table model of this drill was produced (Fig 1). The drill head has a two-rod magnetostriction nickel transducer (1 in Fig 2). The vibrating system is attached by a quarter-wave thin-walled support 2. Stepped or exponential concentrators 3 are screwed to the vibrating system. A separate oscillator assembly is used (Fig 3) in which the master oscillator is based on a RC circuit. A power amplifier uses GU-50 valves. The rate of drilling glass is about 300 mm³/min and for the alloy T15K6 the rate is 8 mm³/min. The drill can be used to produce holes

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A New Ultrasonic Machine Tool (Model 4770)

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of 0.1-10 mm diameter and 1 diameter depth. The working frequency is 18 kc/s, the oscillator power consumption is 0.25 kW and the total power consumption is 0.55 kW. The dimensions of the drill are 498 x 377 x 648 mm and its total weight is 155 kg.

SUBMITTED: September 23, 1958

Card 3/3

YAKHIMOVICH, D.F.; BLITSHTAYN, N.I.; GLAZOV, G.I.

The 4770-type ultrasonic metal-cutting machine. Biul.tekh.-ekon.
inform. no.1:33-34 '59. (MIRA 12:2)
(Ultrasonic waves--Industrial Applications) (Metal cutting)

BLITSHTSEYN, M.I.; GLAZOV, G.I.; YAKHIMOVICH, D.F. (Moskva)

New ultrasonic tool (model 4770). Akust.zhur. 5 no.1:117-118 '59.
(MIRA 12:4)

(Ultrasonic waves--Industrial applications)
(Drilling and boring machinery)

15(2)

SOV/72-59-1-12/16

AUTHORS: Blitsman, B. D., Kudrina, T. I.

TITLE: Introduction of New Techniques (Vnedreniye novoy tekhniki)

PERIODICAL: Steklo i keramika, 1959, Nr 1, pp 36-40 (USSR)

ABSTRACT: The Baranovskiy farforovyy zavod (Baranovskiy China Works) has recently introduced new equipment and modern working methods as follows: An improved vibration sieve (Figs 1 and 2); a device for the pulverization of paints and glues has been developed by N. A. Orel, D. F. Kovalenko, rationalization experts of the Works; a vacuum plant was established in order to improve the slime quality (Figs 3 and 4); imported semi-automatic machines for the molding of plates were re-constructed and improved, as suggested by Kul'bashevskiy, rationalization expert of the Works (Figs 5, 6, 7, and 8); a mechanical conveyor belt in the control department, the scheme of which is shown in figure 9; a heat-utilization plant for the heating of departments (Fig 10). Due to these measures manufacture has been increased and considerable savings have been attained. There are 10 figures.

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Introduction of New Techniques

SOV/72-59-1-12/16

ASSOCIATION: Baranovskiy farforovyy zavod
(Baranovskiy Porcelain Works)

Card 2/2

BLITZ, E.; ANDREI, A.

Great achievements of constructors in the period of ten years since the nationalization. p. 297.

REVISTA CONSTRUCTIILOR SI A MATERIALELOR DE CONSTRUCTII. (Asociatia Stiintifica a Inginerilor si Technicienilor din Romania si Ministerul Constructiilor si al Materialelor de Constructii) Bucuresti, Romania. Vol. 10, no. 6, June 1958.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, no. 6, June 1959

Uncl.

BLITZ, Ema. conf. ing.

New classification of polluted waters and watercourses. Meteorologia hidrol gosp 6 no.1:49-52 '61.

BLITZ, Em., conf. ing.

Proposal for a regulation on the exploitation of mechanical
purification stations (to a maximum runoff of 5000 m³/day).
Meteorologia hidrol gosp 6 no.2:159-161 '61.

BLITZ, Emanuel, prof. ing., candidat in stiinte tehnice

Standard P.28-64 for the design of mechanical treatment station
of municipal waste water. Hidroteh apele mteor 10 no.2:87-91
F '65.

USSR/Human and Animal Physiology - Reproduction.

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Abs Jour : Ref Zhur Biol., No 3, 1959, 13120

Author : Bliudziute, E., Karazijsaite, L.

Inst : ~~XXXXXXXXXXXX~~

Title : Study and Treatment of Sterile Woman

Orig Pub : Sveikatos apsauga, 1957, No 3, 25-28

Abstract : No abstract.

Card 1/1

BLIUGER, A.; Kalberg, V.

Scientific session dedicated to the memory of Professor E. M. Burtnieks.
In Russian. p. 163.

LATVIJAS PSR ZINATNU AKADEMIJA. VESTIS. RIGA, LATVIA. No. 3, 1959

Monthly List of East European Accessions. (EEAI) LC, Vol. 9, no. 2,
Feb. 1960 Uncl.

BLIVIS, J., inzh.-mekhanik; GULBIS, V., inzh.-mekhanik; JULA, E.,
red.; FREIMANIS, V., tekhn. red.

[Tractors and motor vehicles] Traktori un automobili.
Riga, Latvijas Valsts izdevnieciba, 1963. 540 p.

(MIRA 16:4)

(Tractors) (Motor vehicles)

BLIYEDNYKH, A. H.; PRYMAK, A. Ya.; CHEBOTAR'OV, R. S.

Coal-Tar Products

Using primary brown coal tar products to combat the parasites of farm animals.
Visnyk AN URSP ~~24~~, No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

BLIYER, B. M.

Some problems in the theory and calculations dealing with intermittent moisture absorption machines. Odessa, 1937. 92 p.

BLIVER, B. M., Prof., BURGAFT, A. V.

Fishery Products - Preservation

Choosing an efficient model of refrigeration machinery for fishing industry enterprises.
Ryb. khoz. 28 no. 8, 1952.

9. Monthly List of Russian Accessions, Library of Congress, November 1958, ¹/₂ Unclassified.

BLIYER, B.M.

Determining the cooling surface dimension and water consumption
in generator absorbers. Izv.vys.ucheb.zav.; pishch.tekh. no.5:
133-138 '63. (MIRA 16:12)

1. Astrakhanskiy tekhnicheskiy institut ybnoy promyshlennosti i
khozyaystva, kafedra kholodil'nykh mashin.

BLIYER, B.M., doktor tekhn. nauk, prof.; GAYDIN, Z.Z., inzh.

Cycles of resorptive and adsorptive refrigerating machines.
Izv. vys. ucheb. zav.; energ. 6 no.11:88-94 N'63.

(MIRA 17:2)

1. Astrakhanskiy tekhnicheskii institut rybnoy promyshlennosti
i khozyaystva. Predstavlena kafedroy kholodil'nykh mashin.

BLIYEV, N.

On the existence of analytical solutions to a degenerating
elliptic system. Vest. AN Kazakh SSR 21 no.4:74-79 Ap '65.
(MIRA 18:5)

BLIYEV, N.K.

Existence of an analytical solution for an elliptical system
degenerating into a zero. Vest. AN Kazakh. SSR 20 no.12:
64-67 D '64 (MIRA 18:2)

BLIYEV, N.K.

Existence of an analytical solution to an elliptic system degenerate
in a point. Izv. AN Kazakh. SSR. Ser. fiz.-mat. nauk 3 no.1:96-104
Ja-Ap '65. (MIRA 18:5)

1 24766-66 EWT(d)/EWP(1) IJP(c)

ACC NR: AP6015528

SOURCE CODE: UR/0361/65/000/001/0096/0104

AUTHOR: Bliyev, N. K.

ORG: none

TITLE: Existence of an analytic solution to an elliptic system which degenerates in a point

SOURCE: AN KazSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 1, 1965, 96-104

TOPIC TAGS: analytic function, polynomial, elliptic function

ABSTRACT: The article considers whether an elliptic system in the complex expression

$$z \frac{\partial W}{\partial z} = a(z, \bar{z}) W + b(z, \bar{z}) \bar{W}$$

may have nontrivial analytic solutions in the neighborhood of zero, where Z and $\bar{W}$ are complex conjugate quantities, and $a(Z, \bar{Z})$ and $b(Z, \bar{Z})$ are analytic functions in the neighborhood of the point $Z=0$ of the plane $Z = x + iy$, $\bar{Z} = \frac{1}{2}(\frac{\partial}{\partial x} + i\frac{\partial}{\partial y})$. Assuming that a and b of system (1) are constant and $D_n(a, b)$ is the Jacobian, the author formulates Theorem 1: If the coefficients a and b satisfy the condition $D_n(a, b) \neq 0$, then there exists an analytic solution to system (1) in the neighborhood of zero at least in the form of a homogeneous polynomial of the n th degree with respect to Z and $\bar{Z}$; conversely, if there exists a solution in the form of a homogeneous polynomial of the n th degree with respect to Z and $\bar{Z}$, then $D_n(a, b) = 0$.

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ACC NR: AP6015528

The author considers the following case, which is more general than that considered by G. NAZIROV: Assume that in a certain neighborhood of zero $|z| < R$, where $R_1 > 0$ is constant, the coefficients $a(z, \bar{z})$ and $b(z, \bar{z})$ of system (1) are expressed in the form of double series

$$a(z, \bar{z}) = \sum_{k, l=0}^{\infty} a_{kl} z^k \bar{z}^l, \quad b(z, \bar{z}) = \sum_{k, l=0}^{\infty} b_{kl} z^k \bar{z}^l.$$

There follows Theorem 2: If $b(z, \bar{z}) = 0$, then system (1) cannot have a nontrivial analytic solution in the neighborhood of zero.

Also formulated is Theorem 3: If $a(z, \bar{z})$ and $b(z, \bar{z})$ are such that a_{00} and b_{00} satisfy the conditions $D_m(a_{00}, b_{00}) = 0$, $D_n(a_{00}, b_{00}) \neq 0$ for $n > m$ (m being a nonnegative integer) and there occurs the inequality

$$|a_{k, l}| < \frac{M}{(k+l) \cdot R^{k+l}}, \quad |b_{k, l}| < \frac{M}{(k+l) \cdot R^{k+l}}$$

with respect to $a_{k, l}$ and $b_{k, l}$ for a sufficiently large $k+l$, then system (1) has an analytic solution in the neighborhood of zero in the form

$$W(z, \bar{z}) = \sum_{k+l \geq m} c_{kl} z^k \bar{z}^l = \sum_{n=m}^{\infty} \sum_{l=0}^n c_{n-l, l} z^{n-l} \bar{z}^l,$$

Orig. art. has: 30 formulas. [JPRS]

SUB CODE: 12 / SUBM DATE: none / ORIG REF: 005

Card 2/2

UUR

BLIZANKOV, Georgi, prof.

Chemical science making headway. Priroda Bulg 13 no.4:16-
20 '64.

KARAPETROV, Gr.; BLIZAKOV, Khr.

Dimensions of various parts of the body and visceral weight in
35 stillborn newborn boys at term. Folia med. (Plovdiv) 6
no.1:8-11 '64

1. Institut de Hautes Etudes Medicales "I.P. Pavlov" de Plovdiv,
Bulgarie, Chaire d'Anatomie (Directeur: prof. D. Stanichev).

ESSEL', A.Ye., starshiy nauchnyy sotrudnik, kand.biol.nauk; NOVOKROSHCHENOV,
B.V., starshiy nauchnyy sotrudnik, kand.med.nauk, otv.red.;
BLIZEYEV, V.I., kand.med.nauk, red.; KOZLOV, V.A., dotsent, red.;
RASKIN, M.M., starshiy nauchnyy sotrudnik, kand.med.nauk, red.

[Problems in the biology of the causative agent of diphtheria]
Voprosy biologii возбуdivitel'ia difterii. Chita, 1959. 189 p.
(Chita. Institut epidemiologii, mikrobiologii i gigeny. Nauchnye
zapiski, no.5). (MIRA 15:1)

(CORYNEBACTERIUM DIPHTHERIAE)

BLIZHEYEV, V.I., kand.med.nauk; KHAFIZOVA, L.M., mladshiy nauchnyy sotrudnik

Sanitary and hygienic characteristics of the water supply of Chita.
Gig. i san. 26 no.6:74-75 Je '61. (MIRA 15:5)

1. Iz Chitinskogo nauchno-issledovatel'skogo instituta epidemiologii,
mikrobiologii i gigiyeny.

(CHITA--WATER SUPPLY--HYGIENIC ASPECTS)

BLIZEYEV, V.I.; MALYSHEVA, V.V.; KHAYMOVICH, M.Ye.

Angarsk Section of the All-Union Society of Hygienists and
Sanitary Physicians. Gig. i san. 26 no.7:121 J1 '61. (MIRA 15:6)
(ANGARSK—PUBLIC HEALTH SOCIETIES)

BLIZHEVSKIY, L.A.; KORBOV, M.M.; SERGEYEV, A.V.; STRUZHESTRAKH, Ye.I.,
~~dozent, redaktor~~; SOKOLOVA, T.P., tekhnicheskiy redaktor

[Handbook on the establishment of machine tool work norms for
unit and small scale production] Spravochnik po normirovaniu
stanochnykh rabot v edinichnom i melkoseriinom proizvodstve. Mo-
skva, Gos. nauchno-tekhn. izd-vo mashinostroitel'noi lit-ry, 1955.
458 p. (MLRA 8:6)

(Machine-shop practice)

PHASE I BOOK EXPLOITATION

603

Blizhevskiy, Lev Abramovich; Korbov, Meyer Moyseyevich; and Sergeyev, Aleksandr Vladimirovich

Spravochnik po normirovaniyu stanochnykh rabot v yedinichnom i melkoseriynom proizvodstve (Handbook on Setting of Standards for Machine-tool Operation Involving Single-unit and Small-lot Production) 2d ed., rev. and enl. Moscow, Mashgiz, 1958. 23,000 copies printed.

Ed.: Struzhestakh, Ye. I., Engineer; Ed. of Publishing House: Barykova, G. I.; Tech. Ed.: Tikhanov, A. Ya.; Managing Ed. for literature on the economics and organization of production (Mashgiz): Saksaganskiy, T. D.

PURPOSE: This handbook is intended for technologists, standard setters, and foremen.

COVERAGE: The handbook contains consolidated time standards for operating cutoff power saws, boring machines, milling machines, grinding machines, planers, slotters, gear cutters, and lathes. Recommended time standards are calculated for conditions prevailing in single-unit production and in small-lot production,

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Handbook on Setting of Standards (Cont.)

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where universal equipment, standard cutting tools, standard measuring instruments, and other universal devices are commonly used. Standards assembled in this handbook are intended for establishing time standards for operations carried out in mechanical maintenance and tool shops of machine-building and metal-working enterprises, as well as in principal machine shops engaged in production on a single-unit and small-lot basis. There are no references.

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~~BLIZHEVSKIY, V.I.~~

BLIZHEVSKIY, Lev Abramovich; KORBOV, Meyer Moyseyevich; SERGEYEV, Aleksandr Vladimirovich; STRUZHESTRAKH, Ye.I., inzh., red.; BARYKOVA, G.I., red.izd-va; TIKHANOV, A.Ya., tekhn.red.

[Handbook on the establishment of machine tool work norms for piece and small lot production] Spravochnik po normirovaniu stanochnykh rabot v edinichnom i melkoseriinom proizvodstve. Pod. red. E.I.Struzhestrakha. Izd. 2-oe, perer. i dop. Moskva, Gos. nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1958. 727 p. (MIRA 11:3)

(Machine shops--Production standards)

SHAPIRO, I.I.; MIKHAYLOV, D.V.; MOSINA, T.S., inzh.; YEVLAMPIYEVA, V.M., inzh.; KASHINTSEVA, L.M., inzh., red.; BLIZHEVSKIY, L.A., inzh., red.; SEREBRYAKOV, V.M., inzh., red.; KHARITONOV, A.B., inzh., red.; GLINKA, N.T., inzh., red.; KHISIN, R.I., inzh., red.; SOROKINA, G.Ye., tekhn.red.

[General engineering norms for cutting conditions and time for use in the technical standardization of machining on lathes; lot production] Obshchemashinostroit'nye normativy rezhimov rezaniya i vremeni dlya tekhnicheskogo normirovaniya rabot na tokarnykh stankakh; seriinoye proizvodstvo. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 224 p. (MIRA 13:12)

1. Moscow. Nauchno-issledovatel'skiy institut truda. TSentral'noye byuro promyshlennykh normativov po trudu. 2. Zaveduyushchiy otdelom mashinostroyeniya TSentral'nogo byuro promyshlennykh normativov po trudu pri Nauchno-issledovatel'skom institute truda (for Shapiro).
3. TSentral'noye byuro promyshlennykh normativov po trudu pri Nauchno-issledovatel'skom institute truda (for Mikhaylov, Mosina, Yevlampiyeva).
4. Nauchno-issledovatel'skoye byuro tekhnicheskikh normativov (for Kashintseva, Blizhevskiy).
5. Stankozavod im. S.Ordzhonikidze (for Serbryakov).
6. Moskovskiy stankostroitel'nyy zavod (for Kharitonov).
7. Vsesoyuznyy proyektno-tekhnologicheskoye byuro Tyazhmash (for Glinka).

(Metal cutting)

(Lathes)

ASHURKOV, L.M., spets. mashinstr.; BLIZHEVSKIY, L.A., spets. mashinst.;
VASIL'YEVA, Ye.N., spets. mashinstr.; KOVAL'SKIY, N.N., spets.
mashinstr.; MOKIN, M.I., spets. mashinstr.; SMIRNOV, V.P.,
spets. mashinstr.; BOBKOV, L.S., retsenzent; VETUKHNOVSKIY, Z.B.,
retsenzent; MAKSIMYAK, G.P., retsenzent; MIKHAYLOVSKIY, V.I.,
retsenzent; SHVIRYAYEV, G.K., retsenzent; VALETOV, V.V., red.;
RADAYEVA, Z.A., red. izd-va; TIKHANOV, A.Ya., tekhn. red.

[Norms for the consumption of materials in the manufacture of
machinery; a handbook] Normirovanie raskhoda materialov v ma-
shinostroenii; spravochnik. Pod red. V.V.Valetova. Moskva, Gos.
nauchno-tekhn.izd-vo mashinostroit.lit-ry. Vol.2. 1961. 479 p.
(MIRA 15:2)

(Machinery industry)

BLIZINSKI, S.

"Impressions from travel in the Soviet Union", p. 13 (GOSPODARKA RYBNA Vol. 5, No. 3, Mar. 1953 Warszawa, Poland)

"Hydrobiological Conference in Gizycko", p. 14 (GOSPODARKA RYBNA Vol. 5, No. 3, Mar. 1953 Warszawa, Poland)

SO: Monthly list of East European Accessions, L.C., Vol. 3, No. 4, April 1954

KOCAK, Augustin; BLIZKOVSKY, Milan

Remarks on the qualitative interpretation of the map of Bouguer anomalies in the northern part of the Tisza Lowland with regard to its geological structure. Prace Ust naft 19 no.84/91:105-114 '62.

1. Ceskoslovenske naftove doly, n.p., zavod Geofyzika Brno.

BLIZNAKOV, A.

Championship in motorboating. Voen.znan. 32 no.10:11
0 '56.

(MLRA 10:2)

(Motorboat racing)

BLIZNAKOV, A.

BLIZNAKOV, A.

Who is the most skilful? Voen.znan.31 no.4:3 Ap '55. (MLRA 8:10)
(Ship models)

BLIZNAKOV, A.
BLIZNAKOV, A.

At the "Model Engineer" exhibition. Voen.znan.33 no.11:32 N '57.

(MIRA 10:12)

(London--Mechanical models--Exhibitions)

BLIZNAKOV, Em.

NIKOLOV, Ch.; BLIZNAKOV, Em.; ISAKOV, B.

Epidemic of benign leptospirosis in the Pirdop region. *Suvrem. med.*
Sofia 5 no.2:39-47 1954.

1. Iz Okoliiskata sanitarno-epidemiologichna stantsiia gr. Pirdop
(gl. lekar: Em. Bliznakov) i Okoliiskata bolnitsa gr. Pirdop
(gl. lekar V. Velchev).
(LEPTOSPIROSIS, epidemiology,
*Bulgaria)

Bliznakov, Em.

NIKOLOV, Ch.; BLIZNAKOV, Em.

Case of benign leptospirosis type mitis. Suvrem.med., Sofia
6 no.2:106-110 1955.

1. Iz Okoliiskata sanitarno-epidemiologichna stantsia - Pirdon
(gl. lekar: Em.Bliznakov) i Okoliiskata obedinena bolnitsa -
Pirdey (gl.lekar: V.Velchev).
(LEPTOSPIROSIS,
mitis, case report)

***Initial Stages of the Electrolytic Deposition of Metals.**
 --II. A. Sheludko and G. Bliznakov (*Novi Bulg. Akad. Nauk, 1951, 11(12), 2, 228-234*). Summary in *Chem. Abstr.* 46:10000 (1956).
 --2 In Bulgarian. Cf. *ibid.*, 1950, 11(11), 2, 195-200.
 Relation between the time of appearance of the first crystalline nucleus and the polarization of the electrode is measured. The time of appearance of the first crystalline nucleus is measured from the moment of appearance of the first crystalline nucleus on the electrode. The electrode is immersed in the electrolyte. The time of appearance of the first crystalline nucleus is measured under the normal conditions. The time of appearance of the first crystalline nucleus was observed only in the case of the first crystalline nucleus. The method consists of passing a constant current through the electrolyte. The voltage and duration, after which the potential of the electrode of the cathode was lowered to a value which permitted the growth of the first crystalline nucleus. The time of appearance of new ones. It was found that the time of appearance of the first crystalline nucleus is a function of the potential of the electrode. The expression $K_1 e^{E/E_0}$ deduced theoretically, representing the factorially the experimental relation between K_1 and E .

*On the Mechanism of Electrodeposition of Metals (Silver and Lead). A. Shalodko and G. Dzhakov (Izv. Bulg. Akad. Nauk, 1951, [Fiz.], 2, 230-250 (German summary, 253-254)).—[In Bulgarian].

The mechanism of electrodeposition of metals was studied in connection with the rate of growth of Ag and Pb single crystals at const. p.d. Formulae were evolved for three different cases; for the case approached under experimental conditions $t \sim r^2$, $r_0 = 0$, and $E_{1/2} = 1/2\pi r_0$, where i_0 and r_0 are the resp. current and radius of the crystal at the time t , E is the p.d. between the electrodes, κ the concentration polarization, and γ the elect. conductivity of the soln. The values of E/i_0 obtained for single crystals with $r > 3 \times 10^{-3}$ cm. were 10-20% higher than those calculated from theory, the difference being attributed to the existence of a residual concentration polarization. The conclusion reached was that the rate of electrodeposition of Ag and Pb is determined by the resistance of the soln. in the absence of passivity phenomena.—S. K. L.

Initial stages of electrodeposition of metals. II. A. Shchulko and G. Bilzhakov (Phys. Inst., Bulgarian Acad. Sci.), *Izv. Bulg. Akad. Nauk, Otd. Fiz.-Mat. i Tekh. Nauk, Ser. Fiz.* 2, 227-34 (Russian summary, 235-6; German summary, 238-7) (1952).—Electrodeposition of Pb and Ag from their nitrate solns. on Pt microelectrodes under sudden d.-c. impulses was studied at room temp. The Pt electrode was constructed by mounting 7×10^{-3} cm. diam. wire in glass tubing and exposing only the end section of the wire to solns. The circuit was designed to deliver sudden impulses of controlled potential φ (I) and duration τ (II) (10^{-3} to 1 sec.), and then to decrease the potential to a chosen lower value (III). For each II, there existed a value of I at which the first single nucleus of the metal was electrodeposited. Some difficulties were encountered with adjustment of III to a level low enough to prevent addnl. nucleation but high enough to permit the first nucleus to grow without passivation. The crit. I was equal to the potential necessary to reach the overvoltage at which Pt would assume the equil. potential of the metal to be deposited. At crit. I, only one nucleus was formed. It was possible to attain satisfactory reproducibility only with Pb and Ag. I and II were related in accordance with a previously derived equation: $\tau = A_1 \exp(K_2/\eta^2)$, where K_1 and K_2 were consts. For Pb and Ag, K_1 was of similar magnitude, but K_2 for Ag was much larger than for Pb, indicating that the energy requirement for nucleation of Pb on Pt was less than for Ag on Pt. Andrew Davnieks.

5078. Influence of adsorption on the equilibrium form and the work of nucleation of crystals

The problem is treated from a thermodynamic view point and based on the assumption of a small crystallite. It is found that the pressure of a small crystallite. It is found that two crystallites of the same size may have different vapour pressures according to the quantity of adsorbed substance adsorbed. If the adsorption on a crystal which may differ for every crystallite, are considered, the Gibbs-Wulff relation is derived for equilibrium form of a crystal. The influence of adsorption on the work of nucleation is derived for surface energy superlattice model. Surface properties of a crystal are derived. The influence of adsorption on the work of nucleation of a quadrupole in cubic nucleus is derived. The relation between the work of nucleation and the dynamic-statistical method of Sitnick is discussed, and the fact that the latter must yield the same results is stressed.

BLIZNAKOV, G.

BULG.

Initial stages of electrolytic deposition of metals. I. R. Kalchev, A. Stoyanov, and G. Bliznakov. *Chem. Ind. USSR*, 1968, No. 1, 1-4 (Russian) (German summary); cf. C.A. 49, 8714f. — Nucleation of Ag in electrolytic deposition on a Pt microelectrode (10^{-4} sq. cm.) from AgNO_3 soln. at 90° was investigated by recording oscillographically the applied voltage while the electrode was polarized by a square wave a.c. Value of applied potential φ at which the first nucleus of Ag deposited was detectable from sudden decrease of potential owing to beginning of the electrodeposition current. This φ was considered equal, after a slight correction, to the overpotential, since the steady-state potentials of Pt and Ag in AgNO_3 soln. differed only by 4 mV., and the opposite electrode was 8 sq. cm. Pt. The duration of the const. potential impulses was 5×10^{-3} to 5×10^{-4} sec. It was found that φ and τ , where τ was the time which passed before the nucleus formed, were related by equation $\tau = A_1 \exp (A_2/\varphi^2)$, as expected from the fluctuation theory of nucleation. In the present case, A_1 was 5.03-5.91 and A_2 0.045-0.104. Both were sensitive to the electrode prep. Andrew Drazavsky

M 82

BLIZNAKOV - G

208

P.H. ✓ The significance of deformations and residual strains in the sintering of crystal powders. G. Bliznakov. *Compt. rend. acad. bulgare sci.* 7, No. 2, 33-8 (1964) (German summary).—The crystallites in a compressed block of polycryst. material are nonhomogeneously deformed. Strains may arise in the block owing to nonhomogeneous thermal expansion of the crystallites on warming. With each homogeneously deformed region of a crystallite can be assoc. a certain individual thermodynamic potential. Expressions are derived for the rates of forced surface and vol. diffusion. Vol. diffusion appears to play the decisive role in some sintering expts. J. M. W.

Simos

Forms of crystal growth and the effect of adsorption on the
rate of linear crystallization. Georgy D. Stetsko

1. INTRODUCTION
2. EFFECT OF THE ADSORPTION OF MOLECULES ON THE
RATE OF LINEAR CRYSTALLIZATION
3. EXPERIMENTAL
4. DISCUSSION
5. CONCLUSIONS
6. REFERENCES

The rate of growth of P.V. Nyl. is determined by the
fact that its mol. can act as crystal centers for new crystal
planes. I. R. L. L. L.

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

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 344

Abstract: lead to the formula $V = V_0 - (V_0 - V_{\infty}) \cdot C_a / (C_a - B)$, where V_0 is the rate of growth of the planes in the pure solution, V_{∞} is the rate of growth of the planes at maximum adsorption on the planes, C_a is the concentration of the additives in the solution, and B is a constant. In the second series of experiments at small concentrations, an increase in the rate occurs, leading to a maximum, followed by an asymptotic approach to zero.

Card 2/2

BLIZNAKOV, G.

BULGARIA / Physical Chemistry - Electrochemistry.

B-12

Abs Jour : Referat. Zhurnal Khimiya, No.1, 1958, 584.

Author : G. Bliznakov, Sv. Raycheva, Tsv. Mutaftchiyev.

Inst : Institute of Chemistry and Technology, Bulgaria.

Title : Influence of Some Ions in Current Intensity at Electrolysis with Mercury Microcathode.

Orig Pub : Godishnik Khim.-tekhrol. in-t, 1955 (1956), 2, No.2, 33-40.

Abstract : The influence of the addition of saturated solutions of Hg_2Cl_2 , Hg_2Br_2 , Hg_2I_2 and Hg_2SCl_4 on the current intensity at the electrolysis of $\text{Hg}_2(\text{NO}_3)_2$ (I) (the concentration of I was two times lower than the concentration of the saturated solution of I) was studied with a stationary Hg drop-microcathode and a large Hg-anode. Electrolysis was carried out at a small constant voltage (5 nv). A drop of Hg (10^{-2}

Card: 1/2

BULGARIA / Physical Chemistry - Electrochemistry.

B-12

Abs Jour : Referat, Zhurnal Khimiya, No.1, 1958, 584.

Abstract : cm in dia) was received on the butt of a Pt wire by electro-
lizing the solution of $\text{Hg}_2(\text{NO}_3)_2$. The influence of cations,
indifferent electrolyte and polarographic maxima was elimi-
nated under these conditions. At an addition of Cl^- , Br^- ,
 I^- and SO_4^{2-} ions, the less the solubility of the corres-
ponding Hg_2^{2+} salt is, the more the current strength drops.
The additivity of the simultaneous action of two additions
was established. These data are explained by the passiva-
tion taking place in the anion adsorption on the Hg surface.

Card: 2/2

BLIZNAKOV, G. ; KIRKOVA, E.

On inclusion of methylene blue in lead-nitrate crystals, In Russian, p. 75

GODISHNIK, KHIMIYA. Sofia, Bulgaria, Vol. 50, No. 2, 1955/56 (published 1958)

Monthly List of East Accessions (EEAI) LC, Vol. 9, No. 1 January 1960

Uncl.

BLIZNAKOV, G.; PESHEV, O.

On the catalytic activity of silver after heating in the air atmosphere.
Godishnik khim 54 no.3:165-178 1969/60 (pub. '61)
(EEAI 10:9)

(Silver) (Catalysts) (Atmosphere)

BLIZNAKOV, G. M.

"certain cases of the adsorption influence in the crystallization on pads;
influence of the adsorption and solvent on direct crystallization (epitaxis)."

IZVESTIYA. SERIYA FIZICHESKA, Sofia, Bulgaria, Vol. 6, Jan./Dec. 1956
(published 1957).

Monthly List of East European Accessions Index (EEAI), The Library of
Congress, Volume 8, No. 8, August 1959.

Unclassified

Bliznakov G. M.
AUTHORS: Bliznakov, G. M., Kirkova, Ye. N.

78-2-38/43

TITLE: On the Inclusions of Methylene Blue in the Crystals of Lead Nitrate (O vkluchenii metilenovogo golubogo v kristally azotnokislogo svintsa)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 2, pp. 517-525 (USSR)

On the Inclusions of Methylene Blue in the Crystals of Lead Nitrate

78-2-38/43

methylene blue are especially strongly absorbed. The concentration of the dimeric form and the aggregate form increases with increasing concentration of dye. The aggregates absorb at the surface of the crystals. During the growth of the crystals the aggregates are most easily absorbed and thereby incorporated into the crystal. The aggregates of dye are most easily absorbed on the active center of the crystals. Investigations on the absorption of methylene blue were performed on standard absorbents of lead-nitrate octahedral crystals with a grain size of 0,3- - 0,75 mm with different concentrations of methylene blue at 17°C. Different crystals of lead nitrate occur during the slow crystallization of slightly supersaturated solutions of lead nitrate in dependence on the concentration of the methylene-blue solutions. At a low concentration of methylene blue the crystals have an octahedral form and at a higher concentration of methylene blue the crystals are first cubic-octahedral and then cubic. With a temperature increase the absorption of methylene blue onto the lead-nitrate crystals is reduced, as the dimeric form of methylene blue is highly reduced with a temperature increase.

Card 2/4

On the Inclusions of Methylene Blue in the Crystals of Lead Nitrate 78-2-38/43

The investigations showed that the inclusions of methylene blue in lead-nitrate crystals mainly take place by absorption. The tests with highly supersaturated solutions show that the inclusions of methylene blue in lead-nitrate crystals rapidly decrease. The stirring effect was also taken into account in the crystallization and the tests showed a high reduction of co-crystallization during intensive stirring. The investigations on the influence exerted by methylene blue upon the linear velocity of crystallization showed that the absorbed aggregates of methylene blue increase the linear velocity in growing crystals and that in other cases the absorbed aggregates reduce the linear velocity of crystallization. There are 6 figures and 13 references, 7 of which are Slavic.

ASSOCIATION: Sofia State University, Chair for Physical Chemistry
(Sofiyskiy gosudarstvennyy universitet, Kafedra fizicheskoy khimii)

SUBMITTED: February 5, 1957
Card 3/4

On the Inclusions of Methylene Blue in the Crystals of Lead
Nitrate

78-2-38/43

AVAILABLE: Library of Congress

Card 4/4

EAST GERMANY/Solid State Physics - Crystallization

E-7

Abs Jour : Ref Zhur - Fizika, No 5, 1959, No 10638

Author : Bliznakov G. M.

Inst : Mathematical-Physical Faculty, Sofia University, Sofia,
Bulgaria

Title : On the Theory of Oriented Overgrowth

Orig Pub : Festkorperphysik und Physik Deuchtstoffe, Berlin, Akad.-Verl.,
1958, 140-142

Abstract : Report at the Congress of the Physical Society of East Germany (Abstract 10513). It is known from experiment that the oriented selective crystallization can be realized only in those cases, when the parameters of the backing and of the selectively-grown crystals do not differ by more than 10 or 15%. To explain this circumstance the author formulates a theory of selective crystallization, obtained by the Dancoff method (Transactions of the Second Conference on Problems of Corrosion in 1939 (1934), 11, 121). The theory developed makes

Card : 1/2

BLIZNEV, G. M.

21
The inclusion of methylene blue in lead nitrate crystals. G. Bliznakov and R. Kirkova. *Gedobit. Sofskia. 11/12. 1958*. *Pub. Khas. 30, Pt. 1-2, 75-88(1958/59)* (Pub. 1958) (in Russian).—The effect of various factors on the inclusion of methylene blue (I) in lead nitrate (II) crystals during their growth was investigated. Increasing the concn. of I in the soln. increases the vol. concn. of dye included in the crystals (g./100 cc. crystal mass). There is a lower limit of concn. where no inclusion of I is observed. At very high concns. the quantity included becomes const.

4
Increasing the temp. decreases the adsorption of I. Inclusion of I decreases with increased supersatn. and stirring of the soln. In the preliminary stage of crystal the crystal adsorbs its own ions and also particles of the impurity. At high supersatn. the growing faces adsorb more II ion and thus decreases the adsorption of the impurity. When the soln. is stirred, the diffusion layer becomes thinner; this shows higher supersatn. near the growing surface.

Y. Himelblom

JP

Bliznakov, G.M.

Adsorption on the active centers of crystal growth.
Georgi Bliznakov (Ivan-Assenstrasse 85, Sofia, Bulgaria).
Z. physik. Chem. (Leipzig) 209, 372-5 (1958) (in English).
The effect of the adsorption of foreign substances on crystal growth was investigated and was discussed by aid of the adsorption of Na_2SO_4 on NaClO_4 crystals, and of borax on the growth of $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ crystals. In particular, the possibility of separate investigation of the adsorption of impurities on the active centers of crystal growth and on the inactive parts of the surface, resp., is discussed.

Friedrich Epstein

30
1/1

3

Op

COUNTRY	: BULGARIA	B
CATEGORY	: Physical Chemistry. Crystals	
ABS. JOUR.	: RZKhim., No. 1 1960, No.338	
AUTHOR	: <u>Bliznakov, G.</u> ; Kirkova, E.; Koceva, E.	
INST.	: Bulgarian AS	
TITLE	: Growth of KBr Crystals in the Presence of Phenol	
ORIG. PUB.	: Dokl. Bolg. AN, 1959, 12, No 2, 121-124	
ABSTRACT	: To verify the theoretical premises on the mechanism of the growth of crystals, expressed earlier by one of the authors (RZhKhim., No 22, 1959, No 77635), a quantitative study of the influence of additions of phenol upon the speed of growth of the faces (100) of the crystals of KBr at crystallization from aqueous solutions with supersaturation of 5.8% and temperature of 19.0° was effected. It was established that	
CARD:	1/3	B-22

COUNTRY :
CATEGORY :

B

ABS. JOUR. : RZKhim., No. 1 1960, No.338

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : the adsorbed molecules of phenol form a passive
cont'd resistance on the surface which impedes the
growth. In a number of cases, at a microscopi-
cal examination of the crystals, a spiraliform
front of the growth is observed, which experi-
mentally confirms the presence of dislocation
on the surface of the crystals.-- Ye. Slavnova

CARD: 3/3

B-23

KIRKOVA, E.; BLIZNAKOV, G.; DRAGANOVA, D.

Addition of potassium chromate to the potassium-sulfate crystals during crystallization. Godishnik khim 53 no.3:37-41 '58/'59 [publ. '59].

KIRKOVA, E.; BLIZNAKOV, G.; KOLEVA, M.

State of crystallization and its influence on the addition of phenol to the crystals of potassium chloride. Godishnik khim 53 no.3:43-50 '58/'59 [publ. '59].

BLIZNAKOV, G.; KUSHEVA-MARKOVA, N.

Influence of aluminum on zinc crystallization. Godishnik khim
53 no.3:51-60 '58/'59 [publ. '59].

41001

S/058/62/000/009/019/069
A006/A101

18.9500

AUTHOR: Bliznakov, G.

TITLE: On the kinetic theory of epitaxy

PERIODICAL: Referativnyy zhurnal, Fizika, no. 9, 1962, 8, abstract 9E61
(In collection: "Rost kristallov. T. 3", Moscow, AN SSSR, 1961,
37 - 46, Discussion, 214 - 218)

TEXT: The author calculated the formation work of a deformed, two-dimensional crystal nucleus on a crystalline non-isomorphous backing and analyzed the criterion of possible oriented crystallization (epitaxy). A formula is obtained for the maximum difference of lattice constants of the backing and of the growing crystal $\Delta a_{\max}$, at which epitaxy is possible. The value $\Delta a_{\max}$ depends upon the properties of the growing crystal, the interaction of its particles with the backing particles, and also upon temperature and oversaturation. With higher crystallization temperature and oversaturation, $\Delta a_{\max}$ increases, and epitaxy is facilitated. If the given pair of crystals does not grow together regularly at low temperature and oversaturation, then their increase may yield

Card 1/2

On the kinetic theory of epitaxy

S/058/62/000/009/019/069
A006/A101

critical values, above which noticeable orientation takes place. Increased interaction between the particles of the ongrowing crystal inhibits epitaxy, and increased interaction with backing particles facilitates same. The derived relationship is qualitatively confirmed by experiments and must be quantitatively checked. f

Yu. Krishtal

[Abstracter's note: Complete translation]

Card 2/2

BLIZNAKOV, G.; LAZAROV, D.

Decomposition of hydrogen peroxide on silver surfaces modified
by treatment with chlorine ions. Kin. i kat. 2 no. 6:920-930 N-D
'61. (MIRA 14:12)

1. Sofiyskiy gosudarstvennyy universitet, Bolgariya.
(Hydrogen peroxide)
(Silver) (Chlorine)

DASKALOV, Khr., akad.; STOEV, Kun'o; BOGDANOV, Vasil, st. n. sutr.;
KHRISTOV, Metodi, st. n. sutr.; KHADZHILOV, Asen A., st. nauchen
sutrudnik; DECHEV, Georgi, ml. n. sutr.; BLIZNAKOV, Georgi, prof.;
PENKOV, Boian, ml. n. sutr.; POPOV, Rumen

Science on the offensive for progress. Nauka i tekhn. mladezh 15
no.7/8:6-10, 56-57. JI-Ag '63.

1. Zam. predsedatel na ASN (for Daskalov). 2. Glaven nauchen
sekreter na ASN (for Stoev). 3. Nauchen sekreter na ASN (for
Bogdanov). 4. Institut za mekhanizatsiia na selskogo stopanstvo
(for Khristov). 5. Direktor na Instituta po neorganicheska i obshta
khimii pri BAN (for Bliznakov). 6. Predsedatel na Komisiata za
nauka i tekhnicheski progres pri TsK na DKMS (for Popov).

VATEVA, E.; BLIZNAKOV, G.

Effect of some gases on the semiconductor properties of
iron-chromium catalyst. Doklady BAN 16 no. 4: 393-396
'63.

1. Submitted by Academician R. Kaishev.

BLIZNAKOV, G.; MEKHANDZHIEV, D.; BAKURDZHIEV, Iv.

Determining surfaces of the adsorbents and catalysts following the
BET method. Khim i industriia 23 no.6:186-190 '61.

BLIZNAKOV, G., prof.

Rare-earth elements. Biol i khim 4 no.3:1-8 '62.

1. Chlen na Redaktsionnata kolegia i redaktor, "Biologiya i khimiia".

BLIZNAKOV, G.; LAZAROV, D.

Adsorption of chloric ions on silver surfaces. Doklady BAN 15
no.1:57-59 '62.

1. Submitted by academician R. Kaishev.

BLIZNAKOV, G.; KARAMANOVA, Z. [Karamanova, Zh.]

Differential isotopic method in the study of adsorbent surfaces.
Doklady BAN 15 no.5:527-530 '62.

1. Submitted by Academician R. Kaishev.

BLIZNAKOV, G.; BAKURDZHIEV, Iv.; POLIKAROVA, R.

Adsorption properties of the silica gel modified surfaces. Pt. 1.
Izv Inst khim BAN no.8:165-175 '61.

BLIZNAKOV, G.; POLIKAROVA, R.; BAKYRDZHIYEV, I.

Adsorption of ammonia on methoxylated silica gel surfaces.
Dokl. AN SSSR 153 no.5:1097-1100 D '63. (MIRA 17:1)

1. Institut obshchey i neorganicheskoy khimii Bolgarskoy
Akademii nauk, Sofiya, Bolgariya.

BLIZNAKOV, G.; MEKHANDZHIYEV, D. [Mekhandzhiev, D.]; BAKYRDZHIYEV, I.
[Bakurdzhiev, I.]

Adsorption properties of methoxylated surfaces of powdered
silica gel. Doklady BAN 17 no.8:745-748 '64.

1. Predstavleno akad. R.Kaishevym.

SURNEV, L.; BLIZNAKOV, G.

Effect of oxygen and sulfur dioxide on some electric properties of polycrystal V_2O_5 specimens. Doklady BAN 17 no.12:1107-1110 '64.

1. Institute of Physics and Chemistry of the Bulgarian Academy of Sciences, Sofia. Submitted August 7, 1964.

CZECHOSLOVAKIA

ELIZNAKOV, G; JIRU, P; KLISSURSKI, D

Institute of General and Inorganic Chemistry, Bulgarian Academy of Sciences, (Institut für allgemeine und anorganische Chemie, Bulgarische Akademie der Wissenschaften), Sofia, Bulgaria - (for all; Permanent address Jiru; Institute of Physical Chemistry, Czechoslovak Academy of Sciences, Prague)

Prague, Collection of Czechoslovak Chemical Communications, No 7, July 1966, pp 2995-2997

"Contribution to the study of the kinetics of oxidation of methyl alcohols with MnO_2 - MoO_3 - as catalysts."

L 32211-66 EWP(j) RM

ACC NR: AP6020816

SOURCE CODE: BU/0011/65/018/006/0549/0552

AUTHOR: Klissourski, D.; Bliznakov, G.

ORG: Institute of General and Inorganic Chemistry, BAN

TITLE: Catalytic oxidation of methanol to formaldehyde, on MnO sub 2-MoO sub 3 catalysts 32

SOURCE: Bulgarska akademiya na naukite. Doklady, v. 18, no. 6, 1965, 549-552

TOPIC TAGS: molybdenum, manganese, methanol, formaldehyde, catalytic oxidation

ABSTRACT: Lately, new technological methods have been worked out for the production of formaldehyde in which methanol is oxidized to formaldehyde through a direct highly sensitive oxidation on oxide catalysts (see Chem. Week, 1964, August, 29, p. 83). The active catalyst used was the Fe_2O_3 - MoO_3 system. According to patents (U.S. Patent No. 593837; U.S. Patent No. 2519751) the MnO_2 - MoO_3 catalyst possesses also a very high activity. The patents descriptions deal chiefly with the ways and means of preparing the catalysts while in scientific literature there are no data on the main characteristics of this type of catalysts. Therefore, a systematic investigation of the MnO_2 - MoO_3 catalysts for the oxidation of methanol to formaldehyde was made. The paper contains a description of experimental procedures (which included testing of the separate MoO_3 and MnO_2 activities) together with the presentation and discussion of the preliminary results which indicate that the MnO_2 - MoO_3 activity is indeed close to the activity of industrial Fe_2O_3 - MoO_3 catalyst. This paper was presented by Academician R. Kaishev on 12 December 1964. The authors thank Dr. P. Jiru for his interest and M. Raubichlova for her valuable assistance. Orig. art. has: 3 figures. [Orig. art. in Eng.] [JPRS]

SUB CODE: 07/ SUBM DATE: 12Dec64/ OTH REF: 004

Card 1/1

4 42777-00 T/EWP(1)/ET1 IJR(c) JD/JG

ACC NR: AP6031810

SOURCE CODE: BU/0011/65/018/009/0857/0860

AUTHOR: Surnev, L.; Bliznakov, G.

ORG: Institute of General and Inorganic Chemistry, BAN

TITLE: Changes in the conductivity and work function of the electron upon adsorption of oxygen and sulfur dioxide on V sub 2 O sub 5 layers

SOURCE: Bulgarska akademiya na naukite. Doklady, v. 18, no. 9, 1965, 857-860

TOPIC TAGS: gas adsorption, oxygen, sulfur compound, vanadium compound, oxidation, desorption, crystal lattice, electric conductivity, evaporation

ABSTRACT: Despite numerous investigations of catalysts prepared on the basis of V_2O_5 and active in the oxidation of SO_2 to SO_3 , the mechanism of their action has not been fully explained yet. The present paper is a continuation of earlier work (Compt. rend. Acad. bulg. Sci., 17, 1964, 1107) during which the authors were not able to obtain measurable changes in the conductivity of pressed V_2O_5 tablets subjected to different external gas media. Consequently, the present measurements were carried out on $\sim 1 \mu$ thick V_2O_5 layers obtained by vacuum evaporation of vanadium and its subsequent oxidation in air at 400 °C. Results in the form of graphs show the changes in the resistance and contact potential difference upon absorption and desorption of O_2 and SO_2 at room, 280, 300, and 350 °C. An analysis of the results show that above 300 °C the chemisorbed oxygen begins to penetrate

rapidly into the V_2O_5 crystal lattice, and this effect is followed by a decrease in the work function. The article concludes with a discussion of the possible explanations of the effects observed. This paper was presented by Corresponding Member BAN S. Hristov on 13 May 1965. Orig. art. has: 4 figures. [Orig. art. in Eng.]
 JPRS: 34,518
 SUB CODE: 07, 20, 09 / SUBM DATE: 13May65 / ORIG REF: 001 / SOV REF: 001 / OTH REF: 001
 Card 1/1-2

09M 058

L 00912-67 EWP(t)/ETI IJP(c) WB/JD

ACC NR: AP6035444

SOURCE CODE: BU/0011/66/019/001/0045/0048

MAHANDJIEV, D., BLIZNAKOV, G., Institute of General and Inorganic Chemistry,
Bulgarian Academy of Sciences

"Catalytic Activity and Magnetic Properties of Nickel Oxide with Additives
of Lithium Chromium in Oxidation of CO to CO₂" 27 27

Sofia, Doklady Bolgarskoy Akademii Nauk, Vol 19, No 1, 1966, pp 45-48

Abstract: [English article] Papers dealing with the catalytic oxidation of CO to CO₂ on nickel oxide doped with various additives contain numerous mutually contradictory assertions. Consequently, to contribute to the clarification of the problem, the authors carried out experiments earlier which showed that when nickel oxide passes from the antiferromagnetic into the paramagnetic state as a result of the increase of oxygen in excess of the stoichiometric amount, E_a of the reaction $CO + 1/2 O_2 \rightarrow CO_2$ increases sharply. Such an effect was also to be expected at Neel's temperature when a specimen passes from the antiferromagnetic into the paramagnetic state. The present paper deals with the catalytic activity of nickel oxide containing lithium and chromium additives, above and below Neel's temperature. Results of new experiments indicate that during the interpretation of the catalytic activity of nickel oxide one should take into account 1) the magnetic state of the catalyst, and 2) its electronic state. The article presents a survey of the past view on the subject, and a discussion of the newly acquired data.

This paper was presented by Academician R. Kaishev on November 11, 1965.

Cord 1/2

0921 2160

L 00912-67

ACC NR: AP6035444

Orig. art. has: 2 figures. [JPRS: 36,862]

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