IVANTSOV, V.A.

SOV/144-58-9-18/18

AUTHOR: Gikis, A. F., Candidate of Technical Sciences, Docent

TITLE: Inter-University Scientific Conference on Electric Measuring Instruments and Technical Means of Automation (Mezhvuzovskaya nauchnaya konferentsiya po elektroizmeritel'nym priboram i tekhnicheskim sredstvam avtomatiki)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Elektromekhanika, 1958, Nr 9, pp 130-135 (USSR)

ABSTRACT: The conference was held at the Leningradskiy elektrotekhnicheskiy institut imeni V. I. Ul'yanova (Lenina) (Leningrad Electro-technical Institute imeni V. I. Ul'yanov (Lenin)) on November 11-15, 1958. The representatives of eleven higher teaching establishments and three research institutes participated and a large number of specialists of various industrial undertakings were present.
Aspirant D. I. Malov (Novocherkassk Polytechnical Institute) presented the paper "High accuracy automatic d.c. bridge with numerical reading off".
Assistant V. A. Ivantsov (Novocherkassk Polytechnical Institute) presented the paper "Measuring element
Card 4/13 for accurate automatic comparison metering instruments

cont.

with numerical reading off"; the sensitivity threshold of such instruments must be of the order of 10 μV and 30 μV in a bridge-circuit in the case of an input resistance of at least 100 kOhm. The response time should be of the order of 5 msec. The design of the instrument described by him is based on an a.c. amplifier, whereby the d.c. voltage to be measured is transformed into a.c. by a vibrator with a noise level of the order of 1 μV. The instrument is phase sensitive and stability against overloads was achieved by using a 2-way diode limiter.
Docent B. M. Smolov (Leningrad Electro-Technical Institute) read the paper "Non-linear electronic voltage transformers with a numerical output", in which he considered two methods of transforming voltages into a numerical code.

IVANTSOV, V.A., assistent

Measuring element for precise automatic measuring instruments comparing direct current with digital readings. Izv. vys. ucheb. zav.; prib. no.2:24-27 '59. (MIRA 13:2)

1.Novocherkasskiy ordena Trudovogo Krasnogo Znameni politekhnicheskiy institut im. Sergo Ordzhonikidze. Rekomendovana orgkomitetom mezhvuzovskoy konferentsii po elektroizmeritel'nym priboram i tekhnicheskim sredstvam avtomatiki.
(Electronic instruments)

IVANISOV, V. A.

8(2), 9(6)
SOV/119-59-3-13/15

AUTHOR: Anisimov, V. I., Engineer

TITLE: The Inter-university Scientific Conference on Electrical Measuring Instruments and on the Technical Means of Automation (Mezhvuzovskaya nauchnaya konferentsiya po elektroizmeritel'nym priboram i tekhnicheskim sredstvam avtomatiki)

PERIODICAL: Priborostroyeniye, 1959, Nr 3, pp 30-31 (USSR)

ABSTRACT: This Conference was held at the Leningradskiy elektrotekhnicheskiy institut im. V. I. Ul'yanova (Lenina) (Leningrad Institute of Electrical Engineering imeni V. I. Ul'yanov (Lenin)) in November 1958. It was attended by more than 500 representatives of universities, scientific research institutes, of the OKB, the SKB (Special Design Office), of industries and other organizations. More than 30 lectures were delivered in the meetings of this Conference. In opening the conference N. P. Boroditskiy underlined the outstanding importance of automation and of measuring technique for the development of national economy. N. N. Shumilovskiy in his lecture reported on "The Trends in the Development of Methods of Radioactive Control of Production Data" and outlined the extensive

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possibilities of using radioactive methods in such control. Ye. G. Shramkov and S. A. Spektor reported on a new method of measuring heavy direct currents with the help of the nuclear magnetic resonance. M. A. Rozenblat investigated problems of the application of magnetic amplifiers in automation and in measuring technique. A. V. Fateyev reported on the present-day state on the prospects of automatic control technique. Ya. Z. Tsypkin investigated some peculiar features of and the prospects offered by automatic pulse systems. The lecture by N. G. Boldyrev dealt with problems of stability of discrete automatic systems. V. B. Ushakov discussed the main trends in the development of mathematical analog computers and of computers designed for industrial use. The report by V. S. Ryabyshkin deals with an electronic analog correlator for the calculation of correlation functions in the investigation of winds in the ionosphere. R. I. Yurgenson reported on the most important methods, which guarantee both an active and passive freedom from disturbances in

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discrete selective systems. Ya. V. Novosel'tsev discussed problems of averaging, differentiation, and balancing of time-dependent functions which can be represented by electric signals. V. P. Skuridin investigated new computing devices with polarized relays. A. V. Fremke and Ye. M. Dushin reported on instrument transformers for automatic instruments with automatic recording. V. B. Ushakov and K. M. Kopay-Gora reported on a computer for the automatic centralized control of production specifications. M. M. Fetisov discussed fundamental problems of the theory of automatic measuring instruments with an inverse conversion for the measurement of non-electric quantities. Ye. I. Tsvyakov dealt with problems of the construction of automatic d. c. potentiometers with high accuracy. D. I. Malov discussed a high-precision automatic d. c. bridge for digital computations. The participants in the Congress listed below discussed the following subjects (which, however, are not given by the exact wording of the titles): V. A. Ivanisov: The planning of measuring elements for

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The Inter-university Scientific Conference on Electrical Measuring Instruments and on the Technical Means of Automation

SOV/119-59-3-1/15

accurate automatic quotient-type meters in digital computations.
B. E. Kharchenko: Methods of determining the dynamic errors of a magnetic oscilloscope by simulation. F. P. Ornatskiy: Problems in measuring electric quantities at extremely low frequencies by electrical indicating instruments of various systems. L. F. Kulikovskiy: Novel types of a. c. compensators. A. S. Rozenkrantz: Automatic bridges and a. c. compensators suited for the control of the parameters of condensers in series production. L. I. Stolov: Some characteristics of midget induction motors which can be used in measuring technique and automation. D. A. Sorokayev: Ultrasonic pressure- and liquid level gages. Yu. A. Skripnik: The circuitry of a phase-sensitive commutation indicator for a. c. semi-equilibrium bridges. E. P. Suvid: The application of instruments with magnetic bridges, which permit considerable simplification of the design of the apparatus and the circuitry used in the measurement of non-electric quantities. V. A. Fersman: Method of increasing the sensitivity of oxygen gas analyzers. P. V. Sovinskiy: Design of apparatus for measuring vibration quantities. V. V. Polyakov: Main types of non-linear semiconductor resistors and possibilities of their application to circuitry in automation and measuring technique. G. E. Kotopakhovskiy: Development of measuring amplifiers with semiconductor triodes. Ya. V. Novosel'tsev, M. A. Zaitsev, Ye. Ye. Afanas'yev, Ya. P. Ugryumov: Precision semiconductor frequency meter operating according to the pulse-counting principle. P. G. Nikitin and A. Batukhtarkiy: Methods of measuring the magnetic field strength by means of bismuth resistors and transducers operating on the Hall effect principle. A resolution was adopted by the closing plenary meeting of the Conference, which indicates ways of improving and coordinating scientific research work in the field of automation, electric measuring- and computing technique.

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66542

9.6000 SOV/144-59-4-7/13

AUTHOR: Ivantsov, V.A., Assistant

TITLE: Operation of an Electronic Null-indicator Under Heavy Overload Conditions

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1959, Nr 4, pp 74 - 83 (USSR)

ABSTRACT: It is shown that unless the dynamic range of a typical null-indicator is increased in sympathy with the signal anomalous results are obtained. Recommendations for a limiter circuit are made. The indicator is given in Figure 1. A local oscillator drives a vibrating converter and also switches a phase-sensitive detector. The converter output is amplified and applied to the detector. The input may range between a few μV and several V. Figure 2 shows oscillograms of various stages in the amplifier and of the detector-controlled relay, when an overloading signal is switched on and then off. Figure 3 includes the behaviour of the phase-sensitive detector. Figure 4 shows how conditions established for a 20 μV level may be reversed when the input is increased to 0.1 V. This is explained by the anomalous amplitude

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Operation of an Electronic Null-Indicator Under Heavy Overload Conditions

characteristic of Figure 5. It is concluded that an effective method of limiting is needed. The grid-current limiting circuit of Figure 6 has been tested with the results in Figure 7. The anode-limiting circuit of Figure 8, performing as in Figure 9, is no more encouraging. The two-way diode clamp of Figure 10 has the characteristics of Figures 11 (a, б, в) and 12 (a, б, в). The preferred diodes are the vacuum types 6Kh2P and DGTs-8 with limiting resistance of 10 kΩ. Semiconductor diodes are not satisfactory since their parameters are so variable. Figure 13 is the circuit behaviour, stage-by-stage, with limiter, as in Figure 10. The amplitude characteristic of Figure 14 is no longer anomabus.
There are 14 figures and 1 Soviet reference.

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66542
SOV/144-59-4-7/13

Operation of an Electronic Null-indicator Under Heavy Overload Conditions

ASSOCIATION: Kafedra avtomaticheskikh i izmeritel'nykh ustroystv, Novocherkasskiy politekhnicheskiy institut (Chair of Automatic and Metering Equipment, Novocherkassk Polytechnical Institute)

SUBMITTED: March 3, 1959

4

Card 3/3

AUTHOR: Ivantsov, T.A., Aspirant SOV/144-59-11-19/21

TITLE: An All-Union Conference on Automatic Control and Methods of Electrical Measurement

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1959, Nr 11, pp 132-137 (USSR)

ABSTRACT: An All-Union Conference on automatic control and methods of electrical measurement was held in the Institute of Automatic and Electrical Measurements of the Siberian Division of the Academy of Sciences of the USSR in Novosibirsk from 29th September to 3rd October, 1959. The conference was attended by representatives of 114 organizations from 38 towns. The conference covered a wide range of problems concerned with instruments, bridge methods, tensimetry, instrument dynamics, new measuring circuits, instrument accuracy and problems of automation. The work of the conference was divided into the two main sections of Automatic Control and Electrical Methods of Measurement. The object of the conference was to exchange experience and to co-ordinate research and development work in automatic control and

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An All-Union Conference on Automatic Control and Methods of Electrical Measurement

measurement methods. Authors' names, titles and a brief statement of contents are given for more than 50 reports. The section on Automatic Control included reports on the following subjects: an automatic graphical recorder; automatic control in well-drilling; the measurement of non-sinusoidal low-frequency voltage vectors; the automatic testing of capacitors; an automatic gas analyser; the determination of torques during rolling; the measurement of complex impedances; the classification of digital instruments; a direct-reading digital phase-meter; a multi-range automatic digital volt-ampere meter; problems of digital ohmmeters; an electronic measuring device for automatic instruments; a digital electronic millivoltmeter; an automatic viscosity recorder for use with petroleum products, the use of strain gauges; the industrial application of gas analysers; dynamic errors of automatic control systems; the use of matrix grids for mathematical operations; and the measurement of the angle of twist

An All-Union Conference on Automatic Control and Methods of Electrical Measurement

of a rotating shaft. At the Electrical Measurements Section, reports were read on the following subjects: the development of equipment for accurate measurement of loss angle in capacitors and the time-constant of high-value resistors; the measurement of direct currents up to 75000 amps; the measurement of conductivity in the frequency range 1 to 250 Mc/s. using a twin-T circuit; reference measurements of loss angle at radio frequencies, the accurate measurement of a.c. power; measurement of the wave constants of electrical machine windings; aerial surveying methods, the location of receiver equipment for aerial surveys, measuring equipment for aerial surveys; the design of a.c. bridges for magnetic measurement at high frequencies; problems in the theory of electro-dynamic vector measuring devices; a thermistor bridge for use in an a.c. stabiliser; accurate measurements of the components of total conductivity of the elements of linear circuits; frequency errors of rectifier instruments; methods of damping high-speed

An All-Union Conference on Automatic Control and Methods of Electrical Measurement

recorders; the properties of phase-sensitive circuits; the application of a.c. potentiometers to high frequencies; methods of determining phase error and mutual inductance of coils at audio frequencies; reference testing of electrical instruments; a d.c. amplifier; a bridge for the measurement of complex impedances; a.c. self-compensating circuits; the accurate measurement of power; errors of d.c. transformers; compensation methods of measuring phase differences of sinusoidal signals; a high-accuracy galvanometric amplifier; an accurate comparator bridge for resistances in the range of 0,001 to 100000 ohms; and problems in the theory of electrical instruments. The conference noted that although notable successes had been achieved, there was inadequate co-ordination of scientific research work and inadequate exchange of experience. This was attributed to the absence of a specialised journal on this subject and it was decided to create a journal entitled "Automatic Control" at the Siberian Department of the Academy of

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An All-Union Conference on Automatic Control and Methods of Electrical Measurement

Sciences, USSR. It was considered that in some branches of automatic measurement, and particularly in the production of automatic digital instruments, the Soviet Union lagged behind foreign industry.

ASSOCIATION: Novocherkasskiy politekhnicheskiy institut (Novocherkassk Polytechnical Institute)

Card 5/5

S/144/62/000/005/004/005
D289/D308

9,6000

AUTHOR: Ivantsov, V.A., Assistant

TITLE: Relationships for signal delay and variation of effective voltage in non-synchronous and out-of-phase operation of two pulse elements

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Elektromekhanika, no. 5, 1962, 521 - 526

TEXT: The author gives relations determining maximum delay in the initiation of the change in frequency and maximum decrease of effective voltage. The case is considered where a single impulse of duration T is changed to a series of n pulses and intervals of duration t_1 where $T = t_1 n$. Three wave forms of the changed pulse are considered: rectangular, sinusoidal and a single pulse. The RMS voltage of rectangular pulse is

$$U_{out} = U \sqrt{\left(\frac{1}{n} - \frac{\varphi_1}{T}\right) + \left(\frac{A + B}{n}\right) + \left(\frac{n - q}{n}\right) + \left(\frac{\varphi_2}{T} - 1\right)}$$

Card 1/2

GIKIS, A.F.; TENYAKOV, Ye.I.; IVANTSOV, V.A.

A digital potentiometer. Trudy NPI 124:3-9 '62. (MIRA 15:11)
(Potentiometer) (Electronic measurements)
(Automatic control—Equipment and supplies)

IVANTSOV, V.A.

Relationship between the carrier and modulating frequency in electronic null indicators. Trudy NPI 124:31-40 '62. (MIRA 15:11)

(Electronic measurements)

IVANTSOV, Vladimir Antonovich, aspirant

Nonstationary processes at the input circuits of null indicators with contact modulators. Izv. vys. ucheb. zav.; elektromekh. 5 no.12:1385-1397 '62. (MIRA 16:6)

1. Kafedra avtomaticheskikh i izmeritel'nykh ustroystv Novocherkasskogo politekhnicheskogo instituta.
(Pulse circuits) (Electric measurements) (Counting devices)

IVANTSOV, V.G., inzh. (g.Stalino)

Take into account stresses in underground gas lines in mining areas. Stroi. truboprov. 5 no.7:24 Jl '60. (MIRA 13:9)
(Donets Basin--Gas, Natural--Pipelines)

IVANTSOV, V.G., inzh.

Let's improve the construction of urban gas systems. Stroi. truboprov. 6 no.3:27 Mr '61. (MIRA 14:3)

1. Trest Stalinspetsstroy, g.Stalino.
(Gaspipes)

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AUTHORS: Yesel'son, B. N., Ivantsov, V. G., Shvets, A. D.

TITLE: The λ-point of concentrated He^3-He^4 solutions

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 4, 1962, 944-948

TEXT: The authors continue earlier investigations (ZhETF, 20, 748, 1950; DAN SSSR, 111, 568, 1956; ZhETF, 31, 902, 1956; ZhETF, 34, 233, 1958) of the He I → He II transition point (T_λ) as dependent on the He^3 concentration (X). The $T_\lambda(X)$ dependences were then determined for higher He^3 concentrations (50.0, 59.6, 62.4%). T_λ of the He-solution with known He^3 content was determined from the particularities of the heating or cooling rate curves which were recorded by an ЭПП-09 (EPP-09) electronic potentiometer. The measurements were carried out in an apparatus consisting of several Dewar vessels in which temperatures below 1°K could be reached by pumping out the vapor above the liquid He^4 by an adsorption pump. For the above He^3 concentrations the T_λ values were 1.31 ± 0.01°K, 1.05 ± 0.01°K and 1.02 ± 0.03°K. For a solution with X = 66.1%, T_λ could

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not be determined. The values obtained are shown in a $T_\lambda(X)$ graph together with data of many other publications. The data fit a curve which is almost a straight line. Professor B. G. Lazarev is thanked for discussions and V. D. Krasnikov for assistance. There are 4 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk Ukrainskoy SSR (Physicotechnical Institute of the Academy of Sciences Ukrainskaya SSR)

SUBMITTED: September 20, 1961

S/056/63/044/002/016/065
B102/B186

AUTHORS: Yesel'son, B. N., Ivantsov, V. G., Shvets, A. D.

TITLE: The surface tension of He^3-He^4 solutions

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44, no. 2, 1963, 483-486

TEXT: The authors continue previous investigations (DAN SSSR, 99, 565, 1954) where they had measured the surface tension in an He^3-He^4 mixture up to 3% He^3; now they measured it up to 75% He^3. The experimental apparatus was the same as before, only some variations in size having been made. A temperature regulator kept the temperature constant with an accuracy of $5 \cdot 10^{-6}$ °K. The surface tension α was calculated with the relation $2\alpha(1/b_1 - 1/b_2) = (\varrho_1 - \varrho_v)gh$, where b_1 and b_2 are the radii of curvature of the lowest points of the menisci of the two capillaries (r_1 = 2.89 mm, r_2 = 0.12-0.22 mm), ϱ_1 and ϱ_v are the liquid vapor densities, g the gravity constant and h the distance between the lowest

Card 1/2

The surface tension of ...

points of the menisci. The errors in measurement were not above 4%, for He^3 concentrations up to 20% only about 1%. The $\alpha(T)$ curves were measured for 9.5, 15.0, 19.0, 50.0, and 75.7% He^3 between 1.3 and 4.2 °K; they lie lower, the higher the He^3 content, between the curves for the pure components. The results are compared with the theory of I. Prigogine (Nuovo Cim. Suppl., 9, 1, 347, 1958). Agreement is found only for He^3 concentrations up to about 10%. There are 4 figures.

SUBMITTED: September 12, 1962

Card 2/2

YESEL'SON, B.N.; IVANTSOV, V.G.; SHVETS, A.D.

Surface tension of He^3 - He^4 solutions. Zhur. eksp. i teor. fiz. 44 no.2:483-486 F '63. (MIRA 16:7)

IVANTSOV, V.V., gornyy inzhener-elektromekhanik; KHANOV, F.F., starshiy nauchnyy sotrudnik; BABAK, G.A., mladshiy nauchnyy sotrudnik; KOLYSHKIN, O.M., aspirant; IVANOV, G.V., kandidat tekhnicheskikh nauk; ZHUMAKHOV, I.M., dotsent.

Ways of improving pumping installations and main ventilation fans for the mining industry; discussion of I.M. Zhumakhov's article. Gor.zhur. no.12:36-40 D '56. (MLRA 10:1)

1. Unipromed (for Ivantsov). 2.Vsesoyuznyy ugol'nyy institut (for Khanov and Kolyshkin) 3. Institut gornogo dela Akademii nauk USSR (for Babak) 4.Molotovskiy gornyy institut (for Ivanov) 5.Moskovskiy gornyy institut (for Zhumakhov).
(Mine pumps) (Mine ventilation)

IVANTSOV, V.V.

Selecting an efficient method of cleaning and designing mine sumps. (MIRA 11:11)
Trudy Unipromedi no.2:130-142 '57.
(Mine drainage)

IVANTSOV, V.V.

Hydrostatic equipment for air purification. Lit. proizv. no.6: 41-42 Je '63. (MIRA 16:7)

(Dust collectors)

IVANTSOV, V.V.; POPOV, N.V., red.; SHENDAREVA, L.V., tekhn. red.; MILIKESOVA, I.F., tekhn. red.

[Simplified calculation of the intrashop pneumatic conveying of wood waste] Uproshchennyi raschet vnutritsekhovykh sistem pnevmotransporta drevesnykh otkhodov. Moskva, TSentr. in-t tekhn. informatsii i ekon. issled. po lesnoi, bumazhnoi i derevoobrabatyvaiushchei promyshl., 1962. 103 p. (MIRA 17:3)

1. Gosudarstvennyy institut po proyektirovaniyu predpriyatiy derevoobrabatyvayushchey promyshlennosti (for Ivantsov).

KOMLEV, V., insh.; LESHIN, Ye., inzh.; IVANTSOV, Yu., inzh.

Industrial installations on piles. Na stroi. Ros. 4 no.5:11 My '63. (MIRA 16:5)
(Bashkiria--Industrial buildings--Design and construction)
(Piling (Civil engineering))

IVANTSOV, Yu.P., gornyy inzh.; BESEDA, I., gornyy inzh.

High-speed drifting makes possible retreat longwall mining.
Ugol' 37 no.9:14-17 S '62. (MIRA 15:9)

1. Shakhtoupravleniye No.17-bis tresta Chistyakovantratsit Donetskogo soveta narodnogo khozyaystva.
(Donets Basin--Coal mines and mining)

IVANTSOV, Yu.P., gornyy inzh.

Cap sets in a longwall. Ugol' 38 no.1:60 Ja '63. (MIRA 18:3)

IVANTSOV, Yu.P., gornyy inzh.

Limiter for the reverse running of an OL-9-12 winch. Ugol' 38 no.8:49 Ag '63. (MIRA 17:11)

1. Shakhtoupravleniye No.17-bis tresta Chistyakovantratsit.

SOBINYAKOVA, N.M.; IVANTSOVA, G.A.; BALIKHINA, S.I.

Extraction of molybdenum from ores in alkali solutions using a catalyst. Min.syr'e no.9:49-57 '63. (MIRA 17:10)

IVANTSOVA, L. I. Cand. Tech. Sci.

Dissertation: "Physicochemical Properties of High-Alumina Glass and Influence of the Addition of Fluorides." All-Union Sci Research Inst of Glass, 19 Nov 47.

SO: Vechernyaya Moskva, Nov, 1947 (Project #17836)

OVEZMURADOV, S.O.; IVANTSOVA, M.A.

Collection and hybridization of Jerusalem artichoke. Izv. AN Turk. SSR. Ser. biol. nauk no.6:57-60 '64. (MIRA 18:4)

1. Institut botaniki AN Turkmenskoy SSR.

OVEZMURADOV, S.; IVANTSOVA, M.A.

Effect of light conditions on the controlled change in the heredity of some forage plants. Izv. AN Turk. SSR. Ser. biol. nauk no.2:31-38 '65. (MIRA 18:5)

1. Institut botaniki AN Turkmenskoy SSR.

Laboratory chemistry experiments in schools with small quantities of reagents. Moskva, Gos. uchebpedagog. izd-vo, 19[illegible]. 63 p.

4 QD - 34

LEVCHENKO, V.V., doktor khim.nauk, prof.; IVANTSOVA, M.A.; SOLOV'YEV, N.G.; FEL'DT, V.V.; BALEZIN, S.A., doktor khim.nauk, prof., red.; SERGEYENKOV, A.A., red.; MAKHOVA, N.N., tekhn.red.

[Chemistry; textbook for grades 8-10 of secondary schools] Khimiia; uchebnik dlia VIII-X klassov srednei shkoly. Pod red. S.A.Balezina. Izd.3. Moskva, Gos.uchebno-pedagog.izd-vo M-va prosv.RSFSR, 1950. 455 p. (MIRA 14:7)
(Chemistry)

L 26165-66 EWT(1)/T RO/JK

ACC NR: AP6017376 SOURCE CODE: UR/0296/65/000/002/0031/0038

27
B

AUTHOR: Ovezmuradov, S. O. (Candidate of sciences); Ivantsova, M. A.

ORG: Institute of Botany, TurkSSR (Institut botaniki AN Turkmenskoy SSR)

TITLE: Directed change in the heredity of some fodder plants through light conditions

SOURCE: AN TurkmSSR. Izvestiya. Seriya biologicheskikh nauk, no. 2, 1965, 31-38

TOPIC TAGS: agriculture crop, plant physiology

ABSTRACT: In growing corn, sorghum, and Jerusalem artichokes, a shortening of the light day accelerated the developmental phases of these crops and increased the seed yield. It also reduced the amount of foliage, height, and bushiness of the plants. The plants grown during a short light day produced more leaves, seeds, and tubers the next year (under normal light conditions) than did the control. Orig. art. has: 4 tables. [JPRS]

SUB CODE: 06, 02 / SUBM DATE: 10Sep64 / OTH REF: 002 / SOV REF: 007

Card 1/1 PB

2

CZECHOSLOVAKIA

KISOVA, L; TVARUZEK, P.

Institute of Theoretical and Physical Chemistry of Purkyne University (Institut fuer theoretische und physikalische Chemie, Purkyne-Universitaet), Brno (for both)

Prague, Collection of Czechoslovak Chemical Communications, No 12, 1969, pp 3565-3569

"Alternating current polarography of [illegible], 1-hydroxyl-chromium(III) ions."

IVANTSOVA, M. K.

USSR/Physics - Physical chemistry

Card 1/2 Pub. 22 - 28/52

Authors : Stromberg, A. G., and Ivantsova, M. K.

Title : Interchange current on an amalgam drop electrode and the composition of discharging complexes.

Periodical : Dok. AN SSSR 100/2, 303-306, Jan 11, 1955

Abstract : The definition of "interchange current" is given as the amount of electricity which participates in the electrode reaction per unit of time at an equilibrium potential. The interchange current on an amalgam drop electrode was computed by means of a certain equation by substituting in it the experimental data obtained during polarization measurements.

Institution : The A. M. Gorkiy Ural State University

Presented by : Academician A. N. Frumkin, July 15, 1954

Periodical : Dok. AN SSSR 100/2, 303-306, Jan 11, 1955

Card 2/2 Pub. 22 - 28/52

Abstract : If the discharge-ionization process is sufficiently slow the amalgam drop electrode shows a split anode-cathode wave which with a certain simplifying assumption can be satisfactorly described by an equation formulated on the basis of the retarded discharge-ionization theory. Six references: 4 USSR, 1 USA and 1 German (1940-1953). Graphs.

AUTHORS: Podchaynova, V. N., Ivantsova, M. K. 75-13-3-4/27

TITLE: The Polarographic Characteristic of the Copper Thiosemicarbazide Complex in Sulphuric and Hydrochloric Acid Solutions (Polyarograficheskaya kharakteristika tiosemikarbazidnogo kompleksa medi v sernokislom i solyanokislom rastvorakh)

PERIODICAL: Zhurnal Analiticheskoy Khimii, 1958, Vol 13, Nr 3, pp 284-288 (USSR)

ABSTRACT: Polarographic methods are successfully employed in the investigation of complex compounds of many cations (Ref 1). The chief condition for the applicability of polarographic methods in the determination of the stability constants of a complex (Ref 2) is the reversibility of the reduction process of ions at a dropping-mercury electrode. In reversible electrode processes the only process taking a slow course is the diffusion of ions to the surface of the electrode. All other stages of the process take a rapid course. The value of the electrode potential depends on the concentration of the ions present near the surface of the electrode. The equation for the cathode wave in reversible processes reads:

Card 1/4

$$E = E_{1/2} - \frac{0,059}{n} \log \frac{i}{i_d - i} .$$

Inirreversible electrode processes the displacement of the half-wave potential is not directly connected with the stability constants of the complex (Ref 3). The polarographic measurements were made on a visual polarograph of the type UFAN (Ural Branch AS USSR). A saturated calomel electrode served as anode, a dropping-mercury electrode as cathode. Exact details of the determination are given. Experiments showed that the reduction of the bivalent copper ion at a dropping-mercury electrode in 2n H_2SO_4 takes place in one step: $Cu^{2+} + 2e \rightarrow Cu^0$. The introduction of thiosemicarbazide into the solution causes a displacement of the half-wave potential to the negative side. This fact indicates the formation of a complex. The half-wave potential of the cathode-wave of the reduction of the copper thiosemicarbazide complex in 2n sulfuric acid amounts to -0,35 to -0,31 V. The investigations showed that the reduction of the copper thiosemicarbazide complex in a sulfuric acid solution belongs to the irreversible processes. Therefore a polarographic determination of

the stability constants of this complex is impossible. The copper thiosemicarbazide complex was also investigated in 1n hydrochloric acid as medium. It became evident that on this occasion the discharge of complex ions takes place in two stages. The half-wave potentials of the cathode-wave for the first stage are -0,02 to -0,04 V, and for the second stage -0,28 to -0,3 V. The second stage of the process is irreversible, therefore the stability constant of the complex cannot be polarographically determined in a hydrochloric acid solution either. A.G. Stromberg furnished valuable indications in relation to the present work. There are 6 figures and 4 references, 3 of which are Soviet.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S.M. Kirova, Sverdlovsk (Sverdlovsk, Ural' Polytechnic Institute imeni S.M. Kirov)

The Polarographic Characteristic of the Copper Thiosemicarbazide Complex in Sulphuric and Hydrochloric Acid Solutions

75-13-3-4/27

SUBMITTED: August 6, 1956

1. Complex ions--Polarographic analysis

Card 4/4

IVANTSOVA, N.P.

Economic effectiveness of the mechanization and automation of finishing operations in the manufacture of electric instruments. Priborostroenie no.9:23-24 S '63. (MIRA 16:9)
(Electric equipment industry--Management) (Automation)

IVANTSOVA, N.P.

Practice in the mechanization and automation of assembly and fitting work in the manufacture of electric instruments. Priborostronenie no.11:24-25 N '63. (MIRA 16:12)

IVANTSOVA,S.

We are promoting medical care. Sov. profsoiuzy 3 no.6:58-60 Je '55. (MLRA 8:8)

1. Predsedatel' mestnogo komiteta profsoyuza Kirovskoy oblastnoy bol'nitsy
(Kirov Province--Medical service employees)

ANDREYEV,P.F.; IVANTSOVA,V.V.; POLYAKOVA,N.N.; SILINA,N.P.

Properties and structure of the dispersed organic matter of sedimentray rock. Trudy VNIGRI no.83:171-187 '55.
(Geochemistry) (MIRA 8:10)

IVANTSOVA, V.V.

USSR/Chemical Technology - Chemical Products and Their Application. Treatment of Natural Gases and Petroleum. Motor and Jet Fuels. Lubricants. I-8

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2529

Author : Andreyev, P.F., Ivantsova, V.V.

Inst : All-Union Scientific Research Institute of Geological Petroleum Exploration.

Title : The Role of Sulfur in Natural Processes of Petroleum Transformatio Transformation.

Orig Pub : Tr. Vses. neft. n.-i. geologorazved. in-ta, 1957, No 105, 66-67

Abstract : The role of sulfur in processes of petroleum alteration under natural conditions consists in accelerating the processes of oxygen loss and hydrogen redistribution with formation of water, methane hydrocarbons and graphite. Concurrently

Card 1/2

NALIVKIN, V.D.; DEDEYEV, V.A.; IVANTSOVA, V.V.; KATS, Z.Ya.; KRUGLIKOV, N.M.; LAZAREV, V.S.; SVERCHKOV, G.P.; CHERNIKOV, K.A.; SHABLINSKAYA, N.V.; Prinimal uchastiye: ZHABREV, I.P.; ROZANOV, L.N.; SOFRONITSKIY, P.A.; KHAIN, V.Ye.; SIMONENKO, T.N.; SOKOLOV, V.N.; YAKOVLEV, O.N., gidrogeolog

[Comparative analysis of the oil and gas potential and the tectonics of the West Siberian and Turan-Scythian platforms.] Sravnitel'nyi analiz neftegazonosnosti i tektoniki Zapadno-Sibirskoi i Turano-Skifskoi plit. Leningrad; Nedra, 1965. 322 p. (Leningrad. Vsesoiuznyi neftianoi nauchno-issledovatel'skii geologorazvedochnyi institut. Trudy, no.236) (MIRA 18:6)

IVANT'YEV, V.G., mashinist-instruktor

Checking the disconnecting of a fast-acting circuit breaker. Elek. i tepl.tiaga 4 no.2:13 F '60. (MIRA 13:6)

1. Depo Yaroslavl'-Glavnyy.
(Electric cutouts)

IVANUS, Milivoje
IVANUS, Milivoj

Two-part stamped crowns and metal facets for prosthesis. Zobozdrav. vest., Ljubljana 8 no.6:226-230 1953.

1. Referat na sestanku Drustva zobozdravstvenikh delavcev Slovenije junija 1953.

(DENTAL PROSTHESIS
*two-part stamped crowns & metal facets for)
(CROWN AND BRIDGEWORK
*two-part stamped crowns & metal facets for dent. prosth.)

IVANUS, Milivoj, zobotehnik

Cooperation between dental technician and dentist. Zobozdrav.vest. , Ljubljana 9 no.4-6:211-214 1954.

1. Referat na strokovnem sestanku Drustva zobozdravstvenih delavcev Slovenije v Ljubljani septembra 1954.
(DENTISTRY
dent. technician & dentist, cooperation)

IVANUSHKIN, A.M., aspirant.

Gas turbine traction engines. [Trudy] MVTU no.64:90-101 '55.
(Gas turbine locomotives) (MLRA 9:8)

BOCHAROV, N.F., dotsent, kand.tekhn.nauk; DIDENKO, V.P., inzh.; IVANUSHKIN, A.M., starshiy prepodavatel'; TSVETKOV, S.I., inzh.

Interurban gas-turbine motorbus. Izv.vys.ucheb.zav.; mashinostr. no.3:12-19 '59. (MIRA 13:3)

1. Moskovskoye vysshaye tekhnicheskoye uchilishche imeni N.Ye. Baumana.

(Motorbuses)

IVANUSHKIN, Aleksandr Petrovich; SHEVELEVA, A., red.; YAKOVLEVA, Ye., tekhn.red.

[What is the meaning of absolute production volume and production per capita] Chto oznachaiut absoliutnyi ob"em proizvodstva i proizvodstvo produktsii na dushu naseleniia. Moskva, "Mosk. rabochii," 1959. 46 p. (MIRA 13:2)
(Russia--Economic policy)

IVANUSHKIN, Aleksandr Petrovich, kand. ekonom. nauk; PAVLOV, Tikhon Gavrilovich, kand. ekonom. nauk; LEONT'YEV, L.A., red.; MYASOYEDOV, B., red.; SHLYK, M., tekhn. red.

[Uncovering hidden potentialities for reducing production costs] Vyiavlenie rezervov snizheniia sebestoimosti produktsii. Pod obshchei red. L.A.Leont'eva. Moskva, Mosk. rabochii, 1961. 95 p. (MIRA 15:1)

1. Chlen-korrespondent Akademii nauk SSSR (for Leont'yev)
(Moscow--Costs, Industrial)

AUTHOR: Ivanushkin, B. S. 50-1-15/26

TITLE: **Additions** to the Suggestion by Ye. N. Tsykin Concerning the Regrinding of the Earth Borer БП-44 (Dopolneniya k predlozheniyu Ye. N. Tsykina po peretochke bura БП-44).

PERIODICAL: Meteorologiya i Gidrologiya 1958, Nr 1, pp. 50-51 (USSR)

ABSTRACT: The article by Ye. N. Tsykin "The Regrinding of the Earth Borer for Work on Hard-Frozen and Tightly Compressed Ground" was published in the periodical "Meteorology and Hydrology" no. 6, 1955. The earth borer БП-44 reground according to Tsykin' method in the practical tests on hard-frozen ground proved not to be very convenient. 1) Considerable physical efforts are necessary during the boring of hard-frozen ground. 2) A great expenditure of time is necessary for boring a bore hole to a depth of 1 m. An additional regrinding of the earth borer is suggested, according to which the work of one laborer is considerably facilitated and the expenditure of time diminished. The reground earth borer easily penetrates grounds of various consistency. Such an earth borer may be widely used in taking a soil-sample for moisture and in determining the freezing-through of the ground. There is 1 figure.

AVAILABLE: Library of Congress

Card 1/1 1. Soils-Moisture content 2. Drilling machines-Maintenance

SOV-125-58-8-8/16

AUTHORS: Kazimirov, A.A., Morgun, V.P., Olifer, G.O., Ivanushkin, G.Ya., Kapustyanov, Ye.V., Svinarenko, I.T. and Tyagun, A.A.

TITLE: Durability of Mass-produced Hatches of Railway Gondola Cars While Loading Under Pressure (Prochnost' seriynykh kryshek lyukov zheleznodorozhnykh poluvagonov pri udarnoy nagruzke)

PERIODICAL: Avtomaticheskaya svarka, 1958, Nr 8, pp 46-59 (USSR)

ABSTRACT: The existing hatches of gondola cars in the USSR are unsatisfactory and cause considerable losses of coal in railroad transport. Hatches of 60- and 93-ton cars produced by Uralvagonzavod and the Kryukov Car Building Plant were experimentally tested and deficiencies of their design were revealed. As a result of the experiments, new hatch designs were developed. Several variations are suggested composed of bent, thin-walled profiles. The proposed hatches are rigid, lighter, and more durable than the hatches presently in use. There are 6 diagrams, 5 graphs, 2 tables and 2 Soviet references.

Card 1/2

SOV-125-58-8-8/16

Durability of Mass-produced Hatches of Railway Gondola Cars While Loading Under Pressure

ASSOCIATIONS: Institut elektrosvarki imeni Ye.O. Patona, AN USSR (Institute of Electric Welding imeni Ye.O. Paton, AS UkrSSR) Kryukovskiy vagonostroitel'nyy zavod (Kryukov Car Building Plant)

SUBMITTED: May 12, 1958

1. Gondolas--Equipment 2. Hatches--Design

Card 2/2

IVANUSHKIN, I., inzh.-geodezist.

How to work with levels. Stroitel' no.12:28-29 D '59.
(MIRA 13:3)
(Level(Tool))

IVANUSHKIN, I.M.

Effect of dibazole on the leukocyte reaction. Zhur. mikrobiol., epid. i immun. 31 no. 4:120-123 Ap '60. (MIRA 13:10)

1. Iz kafedry farmakologii, farmatsii i farmakognozii Voyenno-meditsinskoy ordena Lenina akademii imeni Kirova.
(STAPHYLOCOCCAL INFECTIONS) (BENZIMIDAZOLE)
(LEUKOCYTES)

IVANOSHKIN, I.M.(Leningrad)

Present state of the increased resistance to phagocytosis produced by nonspecific means. Pat.fiziol.i eksp.terap. 4 no.2:41-44 Mr-Ap '60. (MIRA 14:5)

1. Iz kafedry farmakologii, farmatsii i farmakognozii (zav. - zasluzhennyy deyatel' nauki prof. N.V.Lazarev) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M.Kirova.
(PHAGOCYTOSIS) (PARASYMPATHOLYTICS)

IVANUSHKIN, Ivan Stepanovich; GUROV, Yu.S., red. izd-va; TSYVERMAN, F.M., tekhn. red.

[Staking out work for the construction of apartment houses and industrial buildings] Razbivochnye raboty pri stroitel'stve zhilykh i promyshlennykh zdanii. Moskva, Gos. izd-vo lit-ry po stroit., arkhit. i stroit. materialam, 1958. 154 p.(MIRA 11:7)
(Surveying)

IVANUSHKIN, P. F.

Ushirenie pri kovke pod ploskimi boikami. (Vestn. Mash., 1950, no. 7, p. 42-44)

(Widening during forging operations under the flat strikers of a hammer.)

DLC: TN4.V4

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

SOV/137-59-1-1639

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 217 (USSR)

AUTHOR: Ivanushkin, P. F.

TITLE: On Rates of Feed of Metal During Drawing Operations in a Press With Flat Heads (O podachakh pri vytyazhke mezhdu ploskimi boykami)

PERIODICAL: Izv. vyssh. uchebn. zavedeniy. Chern. metallurgiya, 1958, Nr 4, pp 127-131

ABSTRACT: On the strength of calculations and experimental results presented in previous works, the following recommendations are made: The determination of the press or the drop-hammer tonnage to be employed in drawing operations should be based on a ratio of feed-vs.-initial-width equal to 0.8 : 1.0; the rate of feed in each subsequent reduction must be so chosen as to ensure complete utilization of the capacity of the given machine

M. Ts.

Zhdanov Metallurgical Inst.

Card 1/1

IVANUSHKIN, P.F., dots., kand.tekhn.nauk

Calculating the number of ram strokes in forging between convex dies. Izv.vys.ucheb.zav.; chern.met. no.10:113-118 O '58.
(MIRA 11:12)

1. Zhdanovskiy metallurgicheskiy institut.
(Forging machinery)

IVANUSHKIN, P.F.; SOKOLOV, L.N.; ANDRYUSHCHENKO, P.P.; KIRITSEV, A.D.; KOSTYUCHENKO, N.T.

Ratio of the cross-sectional area of forged metal to that of the original blank following alternate deformation in different directions. Kuz.-shtam. proizv. 1 no.9:9-10 S '59. (MIRA 12:12)
(Forging)

IVANUSHKIN, P.F.

Improved calculations of the width of closed edger and fuller swaging dies. Kuz.-shtam. proizv. 4 no.1:14-15 Ja '62. (MIRA 17:3)

88587

S/123/61/000/002/006/017
A005/A001

1.1200

Translation from: Referativnyy zhurnal, Mashinostroyeniye, 1961, No. 2, pp. 4-5, # 2V35

AUTHOR: Ivanushkin, P. F.

TITLE: The Drawing Between Convex Heads

PERIODICAL: "Sb. nauchn. tr. Zhdanovsk. metallurg. in-t", 1960, No. 5, pp. 264-274

TEXT: Results are described of experiments on the determination of the ratios between the longitudinal and transverse deformations when drawing between convex heads. The experiments were conducted with specimens of steel СТ.5 (St.5) of the cross sections of 10 x 20, 20 x 20, and 50 x 100 mm between the heads with the convexity radii 5, 10, 15, and 25 mm, with 10-70% reduction and at 800 - 1,250° C, on a 50-t hydraulic press at a speed of 2 mm/sec. The longitudinal deformation decreases with increasing head convexity radius, and the cross deformation increases; hereat, the deformation change rate drops with the transition from heads with smaller convexity radius to greater ones. The longitudinal deformation coefficient decreases for reductions up to 30-35%. The effect of temperature on

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88587

The Drawing Between Convex Heads

S/123/61/000/002/006/017
A005/A001

the deformation ratio is very insignificant. The shape of the front and side faces of the specimens depends on the head convexity radii and the shrinkage. A method is presented for calculating the number of pushes for drawing between convex heads. - There are 15 figures.

S. Kolesnikov

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

Card 2/2

IVANUSHKIN, P.F.

Comparative evaluation of the efficiency of roughing dies with concave and smooth working areas. Kuz.-shtam. proizv. 5 no.11:17-20 N '63. (MIRA 17:1)

ACC NR: AP7005394 SOURCE CODE: UR/0148/67/000/001/0098/0103

AUTHOR: Ivanushkin, P. F.; Doroshko, V. I.

ORG: Zhdanov Metallurgical Institute (Zhdanovskiy metallurgicheskiy institut)

TITLE: On the problem of distribution of normal stresses on the contact surface during shortening of thin bodies

SOURCE: IVUZ. Chernaya metallurgiya, no. 1, 1967, 98-103

TOPIC TAGS: stress distribution, material deformation, lead, elastic deformation, plastic deformation

ABSTRACT: A 50 ton hydraulic press was used for an experimental investigation of the distribution of normal stresses on the contact surface during upsetting of thin bodies without widening. The deformation was done in a special die with 15 point-contact hydraulic dynamometers. The overall force of the deformation was measured by a hydraulic pressure gauge. A loop oscillograph was used for recording the readings of the dynamometers and pressure gauge. Lead specimens were used with a constant width of 7 mm, heights of 0.85, 1.55 and 4.7 mm and lengths varying from 100 to 270 mm. The contact surface of the die was finished to ∇8. During the upsetting process, the contact surfaces of specimen and die were dry, flooded with acetone or lubricated with machine oil. The resultant stress distribution curves for reduction of specimens with identical height show a single maximum for low initial ratio of length to height with two

Card 1/2 UDC: 621.735.531.781

ACC NR: AP7005394

maxima for longer specimens and an extended maximum for specimens of intermediate length. This transformation is explained as follows. Elastic compression of the entire specimen except for small sections at the edges takes place from application of the load to a certain moment. As the load increases, the edge sections subjected to plastic deformation increase. At this stage, the central sections are either elastically or elastoplastically deformed. Stresses in the edge sections are determined by existing solutions of the theory of plasticity. From a stress value of $1.155\sigma_s$ at the extreme point of contact, the stresses increase to a definite value at a point corresponding to the plastic deformation boundary. In the central sections, the stresses are distributed as for elastic compression. From some definite value at the point of contact corresponding to the geometric center of the compressed body, these stresses increase. At the point corresponding to the boundary of elastic and plastic deformation, the curves intersect and the distribution diagram has two maxima. With further propagation of plastic deformation toward the center as the compression force increases, the distribution diagram has a single extended maximum which decreases in length to become a point when plastic deformation of the entire specimen begins. The force at which plastic deformation takes place along the entire length of the specimen depends on the coefficient of friction and the ratio of length to height. Orig. art. has: 5 figures, 1 table, 1 formula.

SUB CODE: 20, 13/ SUBM DATE: 26Dec65/ ORIG REF: 06/ OTH REF: 01

Card 2/2

IVANUSHKIN, V.G., inzh.

Selecting a method of extracting flat seams in hydraulic mining depending on the size of the caved rock. Trudy VNNIGidrouglia no.1:55-57 '62. (MIRA 16:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut dobychi uglya gidravlicheskim sposobom.

IVANUSHKIN, V.G., inzh.; ZAPRYAGAYEV, A.P.

Investigating certain parameters of cold-pressed rod bolting. Trudy VNIIGidrouglia no.3:71-77 '63 (MIRA 18:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut dobychi gidravlicheskim sposobom (for Ivanushkin). 2. Leningradskiy gornyy institut (for Zapryagayev).

BUBLIK, F.I., kand. tekhn. nauk; ANTSIF'YEV, V.F., inzh.; [illegible], V.G., inzh.

Investigating the manifestation of rock pressure during the experimental mechanized hydraulic method of working the Polysaevo I seam at the Polysaevo-Severnaya Mine. Trudy VNIIOldrazgila no.3:78-84 '63 (MIRA 18:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy marksheyderskiy institut (for Bublik, Antsif'yev). 2. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut dobychi uglya gidravlicheskim sposobom (for Ivanushkin).

IVANUSHKIN, V.G., inzh.

Testing anchorless wooden rod bolting in hydraulic mine stopes. Trudy VNIIGidrouglia no.2:28-31 '63.

Ventilation of stopes by means of a general depression at the Polysaevo-Severnaya hydraulic mine. Ibid.:32-34

(MIRA 17:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut dobychi uglya gidravlicheskim sposobom.

LEONT'YEV, V.N.; KOVRIZHIN, A.K.; TSAY, T.N.; MURASHEV, V.I.; KUKSOV, N.I.; IVANUSHKIN, V.G.; IVANOV, V.V.; KOVACHEVICH, P.M.

Information of completed research and statements made by participants in the conference. Vop. gor. davl. no.18:114-120 '63. (MIRA 18:7)

1. Institut gornogo dela Sibirskogo otdeleniya AN SSSR (for Leont'yev). 2. Kuznetskiy nauchno-issledovatel'skiy ugol'nyy institut (for Kovrizhin). 3. Nauchno-issledovatel'skiy institut stroitel'stva ugol'nykh i gornorudnykh predpriyatiy, Kemerovo (for TSay). 4. Vostochnyy nauchno-issledovatel'skiy institut po bezopasnosti rabot v gornoy promyshlennosti (for Murashev). 5. Sibirskiy filial Vsesoyuznogo nauchno-issledovatel'skogo marksheyderskogo instituta (for Kuksov). 6. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut dobychi uglya gidravlicheskim sposobom (for Ivanushkin). 7. Kuzbasskiy sovet narodnogo khozyaystva (for Ivanov). 8. Kemerovskiy gornyy institut (for Kovachevich).

LOBANOV, D.P.; IVANUSHKIN, V.I.

Mining the Mirgalimsay deposit with use of self-propelled equipment
Izv.vys.ucheb.zav.; tsvet.met. 5 no.3:11-18 '62. (MIRA 15:11)

1. Krasnoyarskiy institut tsvetnykh metallov.
(Mirgalimsay region--Mining machinery)

IVANUSHKIN, ...

IVANUSHKIN, A.S. "Investigation of the Physical Properties and Structure of Invar Alloys Containing Molybdenum, Chromium, and Columbium." Min Higher Education USSR. Moscow Order of Labor Red Banner Inst of Steel imeni I.V Stalin. Moscow, 1956. (Dissertation for the Degree of Candidate in Technical Science)

So: Knizhnaya Letopis', No. 18, 1956,

AUTHOR: Ivanushkina, A.Z. and Livshits, B.G. 128

TITLE: Alloying of 36% invar enables one to change its properties by hardening and tempering. (Legirovanie 36-protsentnogo invara pozvolyaet izmenyat' ego svoystva putem zakalki i otpuska.)

PERIODICAL: "Fizika Metallov i Metallovedenie", (Physics of Metals and Metallurgy), 1957, Vol.IV, No.1 (10), pp.184-185 (U.S.S.R.)

ABSTRACT: The authors show that the K-state can be obtained by alloying of a single-phase alloy which without alloying has no ordered state or phase transformations. As such an alloy invar (36% Ni, rest Fe) was chosen and in Fig. 1 the change of the electric resistance after tempering from various temperatures of hardened invar containing 8% Mo is given. Thus, it is shown that a K-state can be obtained in order as well as disorder solutions by introducing small quantities of a third component. One graph, 1 German and 1 Russian reference.

Recd. July 24, 1956.

AUTHORS: Ivanushkina, A. Z. and Livshits, B. G. 126-5-3-18/31

TITLE: Investigation of the Properties and of the Structure of Invar Alloys Alloyed with Molybdenum, Chromium and Niobium (Issledovaniye svoystv i struktury invarnykh splavov, legirovannykh molibdenom, khromom i niobiyem)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1957, Vol 5, Nr 3, pp 527-535 (USSR)

ABSTRACT: In earlier work of one of the authors and his team (Ref.1), using methods of electric resistance and dilatometry, it was shown that on introducing molybdenum into a permalloy alloy Ni_3Fe the effects of ordering are suppressed and for Mo contents above 1% they assume a negative sign. Thus, in the case of long duration low temperature annealing of hardened specimens of the composition Ni_3Fe + 2 to 6% Mo, their electric resistance and volume increase and other properties also change. The assumption was expressed that introduction of Mo into the solid solution Ni_3Fe produces non-uniformity at low temperatures, referred to as the K-state by Thomas (Ref.2). Livshits (Ref.1) expressed the hypothesis that such non-uniformity is the consequence of unequal affinity of Mo

Card 1/5

Investigation of the Properties and of the Structure of Invar Alloys Alloyed with Molybdenum, Chromium and Niobium.

with iron and nickel. However, Bosorth and Boothby (Ref.3) and Josso (Ref.4) expressed the opposite view, namely, that the change in the properties of Mo permalloy during heat treatment is the result of ordering of the solid solution and Taylor and Hinton (Ref.5) expressed the same view on nichrome. Therefore, the authors of this paper considered it interesting to investigate introduction of transition metals into such an iron-nickel alloy in which, in absence of a third component, ordering does not take place. In this respect invar is a fully suitable alloy. Alloying of invar with transition metals is of interest also from another point of view, namely, it could be anticipated that in this way it will be possible to reduce the temperature coefficient of the modulus of elasticity of invar, which is of great practical importance. The chemical compositions of the investigated eight alloys are entered in Table 1, p.527. All the alloys except one, which was a two-phase alloy, were solid solutions. The experimental melts were produced in a high frequency induction furnace. From a rod of 3.2 mm dia. dilatometric specimens were produced for measuring the electric resistance, the micro-hardness

Investigation of the Properties and of the Structure of Invar Alloys Alloyed with Molybdenum, Chromium and Niobium

and also for micro-structural analysis. The heating was effected in a hydrogen filled furnace or in a vacuum of 10^{-3} mm Hg col. Temperature control of the furnace was effected by means of an automatic potentiometer and measured with a chromel-alumel thermocouple with an accuracy of $\pm 5^{\circ}C$; quenching was effected in ice water. For studying the influence of deformation in the cold state on the electrical resistance of the alloys, rods with various initial diameters were chosen (from 10 mm down to 3.2 mm) and drawn to a diameter of 3.2 mm so that reductions were obtained varying between 0 and 90%. The results are described and evaluated and the authors formulate the following distinguishing features of the K-state (intraphase non-uniformity):

1. The kinetics of formation of the K-state indicates that this state becomes established by diffusion in the case of ordering as well as in the case of ageing.
2. The process takes place inside the solid solution without separating out of a second phase with a lattice differing from the lattice of the initial solution;

Investigation of the Properties and of the Structure of Invar Alloys Alloyed with Molybdenum, Chromium and Niobium

thereby, the process of the K-state is reminiscent of the process of ordering.

3. In the same way as for other phase transformation, the formation or cessation of the K-state is accompanied by absorption or release of heat, a volume effect, a change in hardness, strength, elastic and other properties.

4. The electric resistance changes in the opposite direction to the respective change during ordering. In the case of the K-state forming (during annealing or tempering), the resistance increases whilst during hardening or work-hardening (after annealing or tempering) the resistance decreases.

5. Introduction of a third component into a binary alloy with a tendency to ordering (for instance, Ni_3Fe) the tendency to order is at first eliminated and an increasing concentration of the third component will at first bring about and then intensify the K-state which can be detected on the basis of all physical properties of the alloy (Ref.1). If the alloy is a non-ordering one

Investigation of the Properties and of the Structure of Invar Alloys Alloyed with Molybdenum, Chromium and Niobium

(for instance Fe + 36% Ni) introduction of a third component will cause the formation of the K-state and intensify this state with increasing concentration of the third component. In both cases a considerable intensification is obtained on introducing only a few atomic percent of the third component and it is this feature which distinguishes the K-state from the ordinary ordering process at which introduction of a third component can only weaken the effect of ordering by concentration softening.

6. As Thomas has indicated, the K-state is detected in alloys containing transition metals. Apparently this phenomenon is caused by the chemical (electronic) interaction of atoms of individual components which causes their regrouping in the lattice. It cannot be ruled out that the selective affinity of components leads to such an atomic segregation.

Card 5/5

There are 7 figures and 3 tables and 7 references, 3 of which are Soviet, 2 English, 1 German, 1 French.

ASSOCIATION: Institut pretsizionnykh splavov TsNIIChM (Institute of Precision Alloys TsNIIChM)

SUBMITTED: February 26, 1957

AVAILABLE: 1. Nickel steel alloys--Properties 2. Nickel steel alloys--Structural analysis 3. Nickel steel alloys--Metallurgy

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PURPOSE: This collection of articles is intended for technical personnel and scientific workers in the metallurgical, instrument-manufacturing, and electrical-equipment-manufacturing industries. It may also be useful to students of schools of higher technical education.

COVERAGE: This collection of articles presents the results of studies of precision alloys made in recent years by the Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (Central Scientific Research Institute of Ferrous Metallurgy). Properties of metal alloys which can be soldered (soft or hard) with glass and ceramic materials and alloys used for making springs are discussed. Anomalies of electrical resistance and thermal expansion and the effect of irradiation on properties of alloys are considered. Problems connected with the determination of magnetic susceptibility and with rolling of bimetallic strips are reviewed. An analysis of alloys used in manufacturing high-temperature transducers and strain gages is presented. No personalities are mentioned. References follow several of the articles.

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