

AUTHORS: Dudinov, V. A., Arapov, N. V. 72-58-3-10/15

TITLE: Saggerless Burning of Semiporcelain in Direct Tunnel Kilns
(Beskapsel'nyy obzhig polufarfora v tunnel'noy pechi pryamogo deystviya)

PERIODICAL: Steklo i Keramika, 1958, vol. 13, Nr 3, pp. 37-39 (USSR)

ABSTRACT: A direct tunnel kiln for saggerless burning and single-stage charging was built in the works "Stroyfayans" in Leningrad, as the first of this kind in the USSR. It attained its planned output with a time interval of 1 hour 20 minutes for the passage of the truck. The time-interval of the passage of the trucks was reduced to from 50 to 55 minutes and the planned output of the kiln was exceeded by introducing new methods of organization and engineering and by following some suggestions with respect to rationalization (V. M. Shurygin, V. N. Krylov and others), as well as by scientific collaboration with the Leningrad-branch of the Teploproyekt (N. V. Arapov). In 1956, after a 2 years' experience with this kiln, V. A. Dudinov proposed further improvements without carrying out cardinal alterations with the kilns. The

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gas-line was shortened and its diameter increased, due to which the resistance of the gas-supply was reduced, which made it possible to increase the gas-supply substantially by means of the same gas-blasting device. By this, a reduction of the interval of the passage of the trucks to 30 minutes was achieved. The kiln-temperature increased abruptly due to the increased gas-supply, which resulted in much waste (figure). The introduction of a 30 minutes' interval required an enlargement of the combustion zone in the furnace. A cooling of the products in the furnace by taking off hot air from the cooling-zone by means of an exhaustor and by conveying it into the combustion-zone, formed part of the project of structural alteration. Yet this lead equally to much waste with cooling. In view of achieving a more intense cooling of the products, an adequate recuperator which achieved the necessary cooling was built in the arch of the cooling-zone of the kiln. The removed heat was used for drying the forms and for the hot blower. As may be seen from the table, the output of the tunnel kiln was very much increased. Moreover, many expenses were saved by this. There are 1 figure, 1 table and 0 references.

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ASSOCIATION. Leningradskiy zavod "Stroyfayans" ("Stroyfayans"-Works,
Leningrad)

: I. Ovensen-Design etc.

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АРАПОВ, П.П.

ANDREYEV, A.B.; ANTONOV, A.I.; АРАПОВ, П.П.; BARMASH, A.I.; BEDNYAKOVA, A.B.; BENIN, G.S.; BERESNEVICH, V.V.; BERNSHTEYN, S.A.; BITUTSKOV, V.I.; BLYUMENBERG, V.V.; BONCH-BRUYEVICH, M.D.; BORMOTOV, A.D.; BULGAKOV, N.I.; VEKSLER, B.A.; GAVRILENKO, I.V.; GENDLER, Ye.S., [deceased]; GERLIVANOV, N.A., [deceased]; GIBSEMAN, Ye.Ye.; GOLDOVSKIY, Ye.M.; GOBUNOV, P.P.; GORYAINOV, F.A.; GRIMBERG, B.G.; GRUNER, V.S.; DANOVSIIY, N.F.; DEKUL'SKIY, V.M., [deceased]; DREMAYLO, P.G.; DYBETS, S.G.; D'YACHENKO, P.F.; DYURBAUM, N.S., [deceased]; YEGORCHENKO, B.F., [deceased]; YEL'YASHKEVICH, S.A.; ZHEREBOV, L.P.; ZAVEL'SKIY, A.S.; ZAVEL'SKIY, F.S.; IVANOVSKIY, S.R.; ITKIN, I.M.; KAZHDAN, A.Ya.; KAZHINSKIY, B.B.; KAPLINSKIY, S.V.; KASATKIN, F.S.; KATSAUROV, I.N.; KITAYGORODSKIY, I.I.; KOLESHNIKOV, I.P.; KOLOSOV, V.A.; KOMAROV, N.S.; KOTOV, B.I.; LINDE, V.V.; LEBEDEV, H.V.; LEVITSKIY, N.I.; LOKSHIN, Ya.Yu.; LUTSAU, V.K.; MANNKESBERGER, A.A.; MIKHAYLOV, V.A.; MIKHAYLOV, N.M.; MURAV'YEV, I.M.; NYDEL'MAN, G.E.; PAVLYSHKOV, L.S.; POLUYANOV, V.A.; POLYAKOV, Ye.S.; POPOV, V.V.; POPOV, N.I.; RAKHLIN, I.Ye., RZHEVSKIY, V.V.; ROZENBERG, G.V.; ROZENTRETER, B.A.; BOKOTYAN, Ye.S.; BUKAVISHNIKOV, V.I.; BOTOVSKIY, B.N. [deceased]; RYVKIN, P.M.; SMIRNOV, A.P.; STEPANOV, G.Yu.; STEPANOV, Yu.A.; TARASOV, L.Ya.; TOKAREV, L.I.; USPASSKIY, P.P.; FEDOROV, A.V.; FERRE, N.E.; FRENKEL', N.Z.; KHEYFETS, S.Ye.; KHLOPIN, M.I.; KHODOT, V.V.; SHAMSHUR, V.I.; SHAPIRO, A.Ye.; SHAROV, M.I.; SHISHKINA, N.E.; SHOR, M.R.; SHPICHENETSKIY, Ye.S.; SHPRINK, B.E.; SHTERLING, S.Z.; SHUTYY, L.R.; SHUKHAL'TER, L. Ya.; ERVAYS, A.V.;

(Continued on next card)

ANDREYEV, A.B. (continued) Card 2.

YAKOVLEV, A.V.; ANDREYEV, Ye.S., retsenzent, redaktor; BERKHN-
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A.V., retsenzent, redaktor; GUDTSOV, N.T., retsenzent, redaktor;
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retsenzent, redaktor; ZHEMOCHKIN, D.N., retsenzent, redaktor;
SHURAVCHENKO, A.N., retsenzent, redaktor; ZLODEYEV, G.A., retsenzent,
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METELITSYN, I.I., retsenzent, redaktor; MIKHAYLOV, S.M., retsenzent;
redaktor; OLIVETSKIY, B.A., retsenzent, redaktor; PAVLOV, B.A.,
retsenzent, redaktor; PANYUKOV, N.P., retsenzent, redaktor; PLAKSIN,
I.N., retsenzent, redaktor; RAKOV, K.A. retsenzent, redaktor;
RZHAVINSKIY, V.V., retsenzent, redaktor; RINBERG, A.M., retsenzent;
redaktor; ROGOVIN, N. Ye., retsenzent, redaktor; RUDENKO, K.G.,
retsenzent, redaktor; RUTOVSKIY, B.N., [deceased] retsenzent,
redaktor; RYZHOV, P.A., retsenzent, redaktor; SANDOMIRSKIY, V.B.,
retsenzent, redaktor; SKRAMTAYEV, B.G., retsenzent, redaktor;
SOKOV, V.S., retsenzent, redaktor; SOKOLOV, N.S., retsenzent,
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retsenzent, redaktor; STRELETSKIY, N.S., retsenzent, redaktor;

(Continued on next card)

ANDREYEV, A.V., (continued) Card 3.

TRET'YAKOV, A.P., retsenzent, redaktor; FAYERMAN, Ye.M., retsenzent, redaktor; KHACHATYROV, T.S., retsenzent, redaktor; CHERNOV, H.V., retsenzent, redaktor; SHERGIN, A.P., retsenzent, redaktor; SHESTOPAL, V.M., retsenzent, redaktor; SHESHKO, Ye.F., retsenzent, redaktor; SHCHAPOV, N.M., retsenzent, redaktor; YAKOBSON, M.O., retsenzent, redaktor; STEPANOV, Yu.A., Professor, redaktor; DEM'YANYUK, F.S., professor, redaktor; ZNAMENSKIY, A.A., inzhener, redaktor; FLAKSIN, I.N., redaktor; RUTOVSKIY, B.N. [deceased] doktor khimicheskikh nauk, professor, redaktor; SHUKHGAL'TER, L. Ya, kandidat tekhnicheskikh nauk, dotsent, redaktor; BRESTINA, B.S., redaktor; ZNAMENSKIY, A.A., redaktor.

(Continued on next card)

ANDREYEV, A.V. (continued) Card 4.

[Concise polytechnical dictionary] Kratkii politekhnicheskii slovar'. Redaktsionnyi sovet; IU.A.Stepanov i dr. Moskva, Gos. izd-vo tekhniko-teoret. lit-ry, 1955. 1136 p. (MLRA 8:12)

1. Chlen-korrespondent AN SSSR (for Plaksin)
(Technology--Dictionaries)

АРАПОВ, П.Р.

All-Union Industry Exhibition of 1957: Metrology, Standards and
Precise Measurements Hall. Izv. tekhn. no. 3:3-4 My-Je '57.
(Moscow--Measuring instruments--Exhibitions) (MLBA 10:8)

АРАПОВ, П.П.

Awards to the Committee's Institutes participants in the All-Union
Industrial Exhibition in 1956. Izv. tekhn. no.3:96 My-Je '57.
(Measuring instruments) (MLRA 10:8)
(Rewards (Prizes, etc.))

VOSTROKNUTOV, N.G.; ILYUKOVICH, A.M.; ARAPOV, P.P., red.; MATVEYEVA, A.Ye.,
tekh.red.

[Present-day electric meters] Sovremennye elektricheskie schetchiki.
Moskva, Gos.izd-vo standartov "Standartgiz," 1958. 21 p. (Seria
obsornykh monografii po izmeritel'noi tekhnike, no.3).
(Electric meters) (MIRA 13:9)

TYURIN, N.I.; ARAPOV, P.P., red.

[Standardization, metrology, standard measures and precision measurement] Standartizatsiia, metrologiia, etalony i tochnye izmereniia. Moskva, Kom-t standartov, mer i izmeritel'nykh priborov pri Sovete Ministrov SSSR. 1958. 66 p.

(MIRA 14:1)

1. Moscow. Vsesoyuznaya promyshlennaya vystavka. Pavil'on "Mashinostroyeniye."
(Standardization) (Mensuration)

АРАПОВ, П.П.

AVDHYEV, B.A.; RYMAR', N.F., inzh., retsenzent; АРАПОВ, П.П., inzh., red.;
KOCHETOVA, G.F., nauchnyy red. izd-va; UVAROVA, A.F., tekhn.red.

[Methods of determining mechanical properties of materials]
Tekhnika opredeleniia mekhanicheskikh svoistv materialov. Izd.
3-e, perer. idop. Moskva, Gos. nauchno-tekhn. izd-vo mashino-
stroit. lit-ry, 1958. 474 p. (MIRA 11:5)
(Materials--Testing)

AUTHOR: Arapov, P.P.

SOV-115-58-3-3/41

TITLE: All-Union Industrial Exhibition 1958.- The Hall of "Standardization, Metrology, Standards and Precise Measurements." (Vsesoyuznaya promyshlennaya vystavka 1958 g. - Zal "Standartizatsiya, metrologiya, etalony i tochnyye izmereniya").

PERIODICAL: Izmeritel'naya tekhnika, 1958, Nr 3, pp 15 - 16 (USSR)

ABSTRACT: The Komitet standartov, mer i izmeritel'nykh priborov (Committee of Standards, Measures and Measuring Devices (VNIIC) organized a demonstration of the work of its institutions at the All-Union Industrial Exhibition in Moscow, which opened 31 May 1958. The article lists a number of the demonstrated items and gives a brief description of their technical characteristics. 1) A 500 kg class III weight with ± 10 g maximum error, of cylindrical shape with an inserted steel tube the inside of which is utilized for weight adjustments, and a set of ultramicroanalysis weights of 0.1 to 5 mg with errors up to ± 0.0002 and ± 0.002 mg, of the VNIIC; 2) Small inspector scales for technical class II weights, with a self-adjusting beam and two beam shoulder ratios of 1:1 and 1:5, for maximum loads of 200 g and 2 kg and with errors of up to 50 and 400 mg, from the Novosibirskiy gosudarstvennyy institut mer i izmeritel'nykh priborov (NGIMIP) (Novosibirsk

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State Institute of Measures and Measuring Devices); 3) Single-mark unevenness-height gages for checking profilographs and double microscopes, in the form of 8 steel plates with V-grooves of depths corresponding to surface finish classes (made by VNIK); 4) A standard compensation micromanometer of class II with a range of 0 to 250 mm water column, for checking laboratory micromanometers. It consists of two connected containers, one of which is displaceable in a vertical direction; the maximum error of this standard micromanometer on the upper limit is ± 0.04 and on the lower limit ± 0.01 mm of water column. It was developed by the Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii im. D.I. Mendeleeva (VNIIM) (All-Union Scientific Research Institute imeni D.I. Mendeleev); 5) A standard instrument for calibrating by a diamond cone the standard hardness-gages of class I; the instrument is loaded automatically by a hydraulic drive (VNIIM); 6) The tachometer "TKh-4" for checking tachometers in a velocity range from 40 to 40,000 rpm, with maximum error $\pm 0.1\%$ (the Leningrad experimental plant "Etalon"); 7) A standard whiteness-comparer

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for measurements of slight color differences in the field of white colors (VNIIM); 8) A cryostate for up to -60°C using liquid carbonic acid continually entering the instrument chamber by a capillary pipe (NGIMIP); 9) A phase meter for measuring high-stable frequencies by standard frequencies, basing on the method of subsequent relative measurement of the phase between the basic and the multiple (of the basic) frequencies, suitable for measuring only very near frequencies with an error of the order of $\pm 1.10^{-11}$, developed by Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy (VNIIFTRI) (All-Union Scientific Research Institute of Physico-Technical and Radio Measurements). This device consists of a standard oscillographic tube ("8L039") with a sweep unit showing on the tube screen a circular scan of the standard frequencies of 1-10-100 kilocycles, and an impulse unit generating impulses from high-stable frequencies of 1-10-100 kilocycles; 10) Quartz resonators for 500 and 1,600 kilocycles frequency, for use in quartz generators and frequency meters (VNIIFTRI); 11) Transportable 3-phase installation for checking electric measuring instruments directly on the spot

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of their use; the installation is transported on "GAZ-69" automobile and is easily removable (developed by the Gor'kovskaya GKL (Gor'kiy GKL); 12) High-accuracy thermo-wattmeter, eliminating the errors from non-stability of the volt-ampere characteristics of thermo-converters, suitable for measurements of power at a high, as well as at a low power factor in a frequency range from 50 to 10,000 cycles with maximum error of $\pm 1\%$ within current limits of 0.2, 0.5, 1.0, 2.5, 5.0 and 10 amp and voltage limits of 20, 50, 100 and 200 volt (VNIIM); 13) A high-accuracy thermoampere-meter consisting of a thermo-unit and a d.c. microampere-meter, for measuring current in d.c. and a.c. circuits in a frequency range of 50 to 10,000 megacycles, with maximum error of $\pm 1\%$, with measurement limits of 0.05, 0.1, 0.25, 1.0, 2.5, 5.0 and 10 amp (VNIIM); 14) Instrument "UINI-2", for checking klirr factor meters working in a sound frequency range of 60 to 20,000 cycles and measuring the klirr factor in the limits from 0.3 to 50% at the input signal level of 1 volt and output resistance of 10-220 kilohm, with maximum error of $\pm 1\%$, with a peak compensating diode

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voltmeter for 60 cycles to 300 megacycles used as indicator (developed by VNIIM); 15) Instrument "UGSS-2", for checking generators of standard signals by the output voltage or power in a frequency range of 20 to 700 megacycles, comprising the standard compensation diode voltmeter "OKV-2", low-power meter "IMM-2" and measuring receiver "IP-1" (VNIIM); 16) A standard installation for checking standard signal generators working on pulse modulation schedule, permitting measurement of temporary parameters of radio pulses of 0.1 to 250 micro-second duration and 0.1 to 1 volt amplitude, and of temporary parameters of video-pulses of 0.1 to 250 microseconds; asymmetry of rectangular radio-pulses of semi-period ration 1:1 and amplitude 0.1 to 1.volt with $\pm 5\%$ error (VNIIFTRI); 17) Standard milliamperimeter "TA-1" for testing and checking thermo-milliamperimeters up to 30 millampere, basing on replacement of high-frequency current passing through the thermo-converters by direct current being measured by a precise milliamperimeter, for a range of 1-30 milliampere and frequency up to 100 megacycles, with maximum error of $\pm 1\%$ (VNIIFTRI); 18) Standard amperemeter "OFA-2" for checking and testing thermo-amperimeters, with measurement range

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of 30 milliamperes to 5 amp and frequency range up to 100 megacycles, with max. error $\pm 0.7\%$ in measuring currents up to 1 amp on frequency up to 100 megacycles (VNIIFTRI); 19) Standard amperemeter "EDA-3" for testing and checking thermo-ampere-meters, with a measurement range of 5-20 amp and a frequency range of 1-100 megacycles, with error of $\pm 1\%$. (VNIIFTRI); 20) A phase-meter for measuring high-stable frequencies by standard frequencies with an error of $\pm 1 \cdot 10^{-11}$.

1. Measurement--Standards
 2. Weights--Standards
 3. Instrumentation
- Development

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SOV/115-58-5-2/36

AUTHOR: Arapov, P.P.

TITLE: Awards of All-Union Industrial Exhibition Diplomas to Institute Members of the Committee (Nagrazhdeniye diplomami Vsesoyuznoy promyshlennoy vystavki sotrudnikov institutov Komiteta)

PERIODICAL: Izmeritel'naya tekhnika, 1958, Nr 5, pp 5-6 (USSR)

ABSTRACT: The paper contains the names of those who obtained diplomas awarded by the Main Committee of the 1957 Union Exhibition. Diplomas 1st Class were awarded to: Professor M.F.Romanova; Candidate of Technical Sciences Ye.D.Volkova; Candidate of Technical Sciences V.S. Stepanov and Candidate of Technical Sciences A.I. Kartashev - all members of the All-Union Research Institute of Metrology imeni D.I.Mendeleye (VNIIM) - for the design of a universal interferometer, used to measure the length of end gauges and geodesic quartz rods, by the absolute interference method. The measuring limits lie between 100-1200 mm. The limit of error

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Awards of All-Union Industrial Exhibition Diplomas to Institute
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in measuring does not exceed ± 0.0001 mm. per meter. Diplomas 2nd Class were awarded to: Candidate of Technical Sciences A.D.Veysbrut and B.A.Kamochkin - both members of VNIIM, for designing a standard recorder of small time intervals (DMPV-1) intended for checking millisecond timers and chronometers with a contact or pulse control system. The device can reproduce time intervals from 0.1 milliseconds to 10 seconds. Diplomas 2nd Class were also awarded to: Candidates of Technical Sciences V. N. Gramenitskiy and K.I.Khansuvarov - members of the VNIIM - for designing a twin-piston standard vacuum manometer for checking standard spring pressure gauges class 0.2 and standard spring vacuum gauges of classes 0.2 and 0.25. The measuring limits for pressure lie between 0-2.5 kg/cm², for rarefaction between 0-760 mm of mercury. A diploma 2nd Class was further awarded to A.L.Grokhov'skiy - Head of the Novosibirsk State Institute for Measures and Measuring Equipment - for creating a set of standard measures for

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capacitance and inductance for checking the efficiency measuring instruments KV-1 and UK-1 and also for checking the resistance measuring unit used in the range 50-60 Mc. A Diploma 3rd Class was awarded to VNIIM member and Candidate of Technical Sciences A.I.Petrov for designing a portable PPR-1 apparatus for checking differential pressure gauges and other appliances up to a pressure of 1000 mm of mercury. The degree of error in measuring here does not exceed $\pm 0.3\%$ of the measured value.

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AUTHOR: Arapov, P.P.

SOV/115-58-6-36/36

TITLE: The International Organization of Legislative Metrology
(Mezhdunarodnaya organizatsiya zakonodatel'noy metrologii)

PERIODICAL: Izmeritel'naya tekhnika, 1958, Nr 6, pp 94-95 (USSR)

ABSTRACT: At the All-Union Industrial Exhibition a lecture was held on 25 June 1958 by the president of the International Committee of Legislative Metrology, Doctor of Physical-Mathematical Sciences M. Jacob, dealing with the history of this organization. The organization was founded on 20 May 1875. In 1956 a draft for a convention was approved in which the tasks of the organization are laid down. Documents and information on metrology should be exchanged through a special center.

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AUTHOR: Arapov, P.P.

SOV/115-59-8-1/33

TITLE: The Work of Metrological Institutes and Laboratories

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 8, pp 1 - 4 (USSR)

ABSTRACT: This article contains a list of 28 different measuring instruments with a short description of each. These measuring instruments were developed by institutes and laboratories of the Komitet standartov, mer i izmeritel'nykh priborov (Committee of Standards, Measures and Measuring Instruments). They were shown in Hall Nr 21 of the department "Machinebuilding" at the Exhibition of Achievements of the USSR National Economy. The instruments were shown in groups according to their fields of application. The following instruments were shown at the section "Linear and Angular Measurements": Interferometer IPP-15 was designed by VNIIM for checking planeness and parallelity of glass and metal surfaces at an error rating of 0.05 and 0.1 microns respectively. The device may be used for measuring surfaces of parts of up to 140 mm diameter and 70 mm thickness. The photoelectric profiloscope FEP-1 was designed by

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VNIIM for determining the roughness of metal surfaces by a non-contract method. It may be used for measuring the roughness of internal and external surfaces. The smallest internal diameter of a part must not be below 40mm. The device may be used for determining the character of microscopic unevennesses of surfaces with 4th to 13th class finishes and for measuring the H_{ck} value according to GOST 2789-51. The vertical magnification at the indicator screen ranges from 5000 to 20,000^x. The horizontal magnification is up to 100^x. A number of other instruments shown at this section were developed by the byuro vzaimozamenyayemosti (Bureau of Interchangeability). The induction profilometer PCh-4 is used for measuring 5th to 12th-class surface finishes according to GOST 2783-51. A diamond needle is used in the feeler, which is moved either manually, or by a mechanical drive. A calibrated amplifier with an indicating instrument is used. The instrument dial is calibrated in H_{ck} or R_a values. With manual operation, the measuring error does not exceed $\pm 25\%$. The device BV-890 is used for measuring

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differences of adjacent circumferential pitches and accumulated errors of circumferential pitch of large, precision gears having modules of 2 to 6mm. The BV-990 pitch indicator is used for determining the accumulated error of the circumferential pitch of large, precision spur gears having modules of 2 to 8mm and diameters of 250 to 4000 mm. The BV-890 and the BV-990 may be used for checking gears up to the 4th accuracy class according to GOST 1643-56. The inside micrometer calipers BV-1044 were designed for measuring bores of 3 to 3.75 mm diameter with an error of less than ± 0.01 mm. A dial indicator of IIZ is used with this instrument. The pneumatic self-recorder BV-1042, shown in Figure 1, was designed for continuous recording of measuring results on 120 mm paper tape being moved at a rate of 200 mm/min. The electrocontact dial amplitude pick-up BV-1045 is used for automatic checking of deviations from a geometrical shape or a mutual position of surfaces of parts. It may be used for separating serviceable parts from unserviceable ones. The device has dimen-

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sions 102x53x15 mm and will perform between 3000 and 5000 measurements per shift. The ultimate deviation to be measured is 0.2 mm. The error does not exceed ± 0.5 microns. The induction self-recorder BV-1010 is used chiefly for recording small displacements characterizing the accuracy of kinematic systems of different machines and mechanisms. A 210 mm paper tape is used for recording. The vertical recording scale ranges from 500 : 1 to 5000 : 1 and the error is ± 0.5 or ± 4 microns respectively. VNIIM designed an instrument for measuring the force applied by feelers of profilometers and profilographs used for determining the roughness of metal surfaces. The measuring range is 0.05 to 5 g. VNIIM developed a device for checking the basic elements of profilometer elements, for example, diamond needles, with an error of less than ± 0.5 microns. It consists of a microscope, illumination, transformer, etc. The following instruments were shown at the section "Time and Frequency Measurements": VNIIM developed

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the device UCh-2 for checking frequencies and frequency meters. Audio, ultrasound and signal generators may be checked with this device. It reproduces frequencies of 16 cps to 26 Mc with an error of less than $\pm 0.03\%$. VNIIFTRI developed an astronomical pendulum clock AChF-3 for observatories and time service laboratories. The mean daily variation is about 0.0002 - 0.0003 seconds. The following instruments were shown at the section "Pressure Measurements": VNIIE demonstrated a 1st Category reference, non-mercury piston barometer, which was developed for checking stationary mercury barometers and for precise measurements of atmospheric pressures of 700 to 780 mm mercury column. The error does not exceed $\pm 0.002\%$. At the section "Temperature Measurements", the infrared pyrometer IKP-57, developed by KhGIMIP, was shown. It is to be used for precision temperature measurements in the range of 400 - 1100°C. VNIIE presented a series of Category I mercury-filled glass thermometers to be used for checking reference thermometers of Category II in the range from 0 to

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100°C. The error of these thermometers does not exceed $\pm 0.002 - 0.004^\circ\text{C}$. At the section "Electrical and Magnetic Measurements", four devices were shown by VNIIM. The instrument UBS-1 is used for measuring resistances of $10^9 - 10^{14}$ ohms by direct current of 2 - 500 volts. The error does not exceed $\pm 0.5\%$. The device UMIPT-1 is used for testing circular specimens of ferromagnetic materials by alternating currents of 50-10,000 cps. The measuring error amounts to $\pm 3 - 10\%$, depending upon the measuring range. The device UIMM-2 is used for testing soft magnetic materials on frequencies of 20 kc to 1 Mc. The device is based on the bridge measuring method. The device UKIP-2 is used for measuring hysteresis and eddy current losses in magnetic materials by the calorimetric method at frequencies of 20 kc to 1 Mc. Reference magnets of small dimensions, dielectrics, thin steel sheets, etc, are tested with this device. The power ranges are 0.1 - 2 watts. The measuring error is $\pm 5 - 2\%$, respectively. VNIIM exhibited a number of devices at

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SOV/115-59-8-1/33

The Work of Metrological Institutes and Laboratories

the aforementioned section, among them, there were a capacitor box for 1 - 11,000 microfarads and an inductance box for 1 - 1000 henry. The latter had coils with permalloy air-gap cores. The device UBIYe-1 is used for measuring high inductances and capacitances with an error below $\pm 0.2\%$ at frequencies of 50 and 100cps. The device UPPV is designed for measuring the loss angle of reference capacitors and the time constants of nonreactive resistors. A bridge circuit with capacitances is used. Loss angles are measured for capacitors of 10 picofarads to 1 microfarad and time constants of resistors of 500 ohms to 20 megohms. The frequency range is 40-20,000 cps. The error in measuring the loss angle does not exceed $2 \cdot 10^{-5}$ radians. The error in measuring time constants does not exceed $2 \cdot 10^{-9}$ seconds. The portable device PTU-2 is used for checking active and reactive electric power meters on single or three-phase current of 50 cps. Phasemeters, a-c ammeters and voltmeters of class 1.5 or lower may also be

Card 7/9

SOV/115-59-8-1/33

The Work of Metrological Institutes and Laboratories

checked. The device is mounted in 2 cases. One contains the voltage units for 150-300-380 volts, while the current elements are mounted in the other one for ranges of 0.5-1-2-10-20 and 50 amps. The total weight of the device is 80kg. At the section "Radio Engineering Measurements", VNIIFTRI showed reference attenuators for wavelengths of 0.75 - 4 cm and a dual thermistor bridge DTM-6 for power measurements of VHF radio equipment. The upper measuring limits are 15, 50 and 150 microwatts. The measuring error does not exceed the values within the limits $\pm(0.03A+1)$ microvolt, where A is the upper measuring level. The resistance of the thermistor is 50-400 ohms. KhGIMIP presented the millivoltmeter MPM-1 designed for measuring the power passing thru a waveguide in the 2 or 3 cm range. Measuring ranges are 15 - 80 milliwatts at a standing wave ratio of the voltage of not more than 1.03 and 50-800 milliwatts at a standing wave ratio of the voltage below 1.20. The accuracy is $\pm 6\%$. The author states at the end of the article that the

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SOV/115-59-8-1/33

The Work of Metrological Institutes and Laboratories

Soviet instrument industry should organize the production of these new and modern devices in quantities and qualities adequate for the requirements of the USSR national economy. There are 4 photographs.

Card 9/9

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S/115/61/000/004/008/010
B129/B206

AUTHOR: Arapov, P. P.

TITLE: High-precision measuring instruments

PERIODICAL: Izmeritel'naya tekhnika, no. 4, 1961, 59

TEXT: A number of high-precision measuring instruments were exhibited at the pavilion of the Exposition "Machine Building", room no.21. The VNIIC exhibited the prototype of a piezoelectric accelerometer for the graduation and control of industrial accelerometers. The instrument consists of a piezoelectric acceleration transducer with a sensitive element from barium-titanate, a cathode follower, an a.c. voltage calibrator and a cathode-ray oscilloscope used as an output-voltage comparator. The accelerometer has two measuring ranges: 0.5 - 25 g and 2 - 100 g. The sensitivity in the first range is 20.4 mv/g and in the second 5.7 mv/g. The relative measurement error of the output voltage does not exceed 2% in the total range of the acceleration to be measured. [Abstracter's note: Complete translation].

Card 1/1

АРАПОВ, П.П.

Conference of the secretariat "Manometer" of the International
Organization of Legislative Metrology. Izv.tekh. no.2:60-61
F '62. (MIRA 15:2)

(Manometer)

L 19707-63

EPR/EWT(d)/BDS ESD-3 Ps-4 WW

ACCESSION NR: AP3003213

S/0115/63/000/006/0055/0057

AUTHOR: Arapov, P. P.

14

34 B
A8

TITLE: New precision measuring instruments

SOURCE: Izmeritel'naya tekhnika, no. 6, 1963, 55-57

TOPIC TAGS: PPM-1 instrument, photoelectric colorimeter, light filter, prism, BP-IV barometer, stabilized power supply, VKI-1 pulse voltmeter, OINP field-intensity meter, ESCh-2 electric timer, IPM-1 conductivity meter

ABSTRACT: A few "best models developed by scientific-research institutes of the State Committee of Standards, Measures, and Instruments, SSSR" exhibited at the Show of Achievements of National Economy, SSSR, 1963, are described. Developed by KhGIMIP, type PPM-1 instrument is intended to check the parallelism of the measuring surfaces of 100-1,000-mm micrometers; the instrument can check up to 20 micrometers per hour and its maximum error is $\pm 0,0005$ mm. Developed by VNII of the State Committee of Standards, nine neutral light filters (for checking visual and photoelectric colorimeters) and a set of 21 standard prisms (for checking refractometers) are exhibited. Filter optical densities are: 0.05, 0.1,

Card 1/3

L 19707-63

ACCESSION NR: AP3003213

13

0.3, 0.5, 0.8, 1.0, 1.3, 1.9, and 2.4. Refraction indices can be measured within 1.3-1.8. The same Institute exhibits a model of standard rate-of-flow measuring outfit intended for checking nozzles, orifices, Venturi tubes, etc. The outfit handles up to 120 m³/hr of water flow and measures with an error of ±0.06%. A model of standard weight-piston BP-IV barometer is intended for checking stationary and portable barometers that have a "maximum error 0.005 torr or over". An MP-59M modulation pyrometer built by KhGIMIP can measure high temperatures of flames, gas streams, and plasma. Its measurement range is 2,000-6,000C and error 1-3%. Developed by NGIMIP, type UGTA-61 outfit is intended for automatic calibrating platinum-rhodium-platinum thermocouples at 300-1,200C with an error of ±5 microvolts. A stabilized sinusoidal-wave power-supply unit (developed by the Sverdlovsk Branch of VNIIM) that can help in checking ammeters, voltmeters, etc. has a maximum capacity of 50 va, 0-30 amp, 0-300 v; its output voltage varies within ±0.2% when the input voltage fluctuates within ±5%. Briefly mentioned in the article are these instruments: a natural-thermostat-controlled standard-frequency generator; a 50-picofarad precision variable capacitor; a 100-kc quartz-controlled oscillator; a 5-100-v VKI-1 pulse voltmeter for nanosecond pulses; a 50-400-Mcps OINP field-intensity meter; a 1,000-sec ESCh-2 electric timer; IPM-1 conductivity meter; a set for measuring admittance at 400-1,000 Mcps.

Card 2/3

L 19707-63

ACCESSION NR: AP3003213

Orig. art. has: no figure, formula, or table.

ASSOCIATION: none

SUBMITTED: 00

SUB CODE: IE

DATE ACQ: 22Jul63

NO REF SOV: 000

ENCL: 00

OTHER: 000

Card 3/3

АРАПОВ, П.П.; СИРТИН, М.А.

Introduce achievements of standardization into national economy.
Standartizatsia 28 no.4:71-72 Ap '64.

Unification and standardization of the parts of equipment.
Ibid.:71-72

Interbranch unification of multipurpose machines for labor
consuming operation. Ibid.:72. (MIRA 17:6)

ARAPOV, P.P.; SIROTIN, M.A.

Pavilion "Standards of the U.S.S.R." Izv. tekhn. no. 4:6-10
Ap '64. (MIRA 17:7)

L 2208-65 EWP(1)

ACCESSION NR: AP5017049

AUTHOR: Arapov, P. P.

UR/0115/64/000/009/0057/0007

TITLE: Seminar on modern methods and means for verifying measurements and for checking linear and angular measuring instruments

SOURCE: Izmeritel'naya tekhnika, no. 9, 1964, 57

TOPIC TAGS: metrology, scientific conference, laboratory instrument, optical instrument, industrial instrument

ABSTRACT: The seminar was held in June 1964 by the All-Union Scientific Research Institute of State Standardization together with the State Standards of the USSR. Taking part in the seminar were scientists and engineers from various technical enterprises of the USSR and the German Democratic Republic. Reports, laboratory work, and films were presented. The seminar dealt with the following topics: new means for linear measurements including the GIM-23 universal microscope, the I U-3 horizontal comparator, autocollimators, goniometers, contactless

Card 1/2

L 52:08-65

ACCESSION NR: A75017049

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ASSOCIATION: none

SUBMITTED: OO ENCL: OO SUB CODE: GO, IE

NO REF SOV: COO OTHER: OO JPRS

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Car: 2/2

ARAFOV, I.M.

Awards for high-precision measuring instruments. Izv. tekhn.
no.10:63-64 0 '64 (MIRA 18:2)

АРАПОВ, П.П.; СТАРТСЕВ, В.И.

Securing unified measurements is an important condition for
the improvement of production quality. Izv. tekhn. no.4:48-49
Ap '65. (MIRA 18:7)

ARAPOV, P.P.

New devices in the pavilion "Standards of the U.S.S.R." at the
Exhibition of the Achievements of the National Economy. Izv. tekh.
no. 6:57-59 Je '65. (MIRA 18:8)

DEOTEREV, Georgiy Nikolayevich, kandidat tekhnicheskikh nauk; АРАПОВ,
S.Ya., redaktor; GALAKTIONOVA, Ye.N., tekhnicheskij redaktor

[Centralizing the hauling of freight by automobiles] TSentra-
lizovannye perevoski gruzov avtomobil'nyh transportom. Moskva,
Nauchno-tekhn. izd-vo-avtotransp. lit-ry, 1955. 82 p.
(Transportation, Automotive) (MIRA 9:2)

АРАПОВ, В.А.; БАЗИЛ', В.Ф.

Time of the postmagmatic process in the Kara-Mazar Mountains. Изв.
geol.zhur. no.5:3-5 '59. (MIRA 13:5)

1. Karamazarskaya poiskovo-s'yemochnaya tematicheskaya ekspeditsiya.
(Kara-Mazar Mountains--Ore deposits)

ARAPOV, V.A.

Stratigraphy of the effusive formation of the Tashkesken platform.
Izv. Otd. geol.-khim. i tekhn. nauk AN Tadzh.SSR 1:45-59 '60.

(MIRA 15:1)

1. Severo-Tadzhikskaya tematicheskaya ekspeditsiya Upravleniya
geologii i okhrany nedr pri Sovete Ministrov Tadzhikskoy SSR.
(Kurama Range--Geology, Stratigraphic)

АРАФОВ, В.А.

Stratigraphy of the upper Paleozoic effusive formation in the northern part of the western Kara-Mazar Mountains. Uzb. geol. zhur. no. 6:3-12 '60. (MIRA 14:1)

1. Glavgeologiya Tadzhikskoy SSR i Glavgeologiya UzSSR.
(Kara-Mazar Mountains—Geology, Stratigraphic)

ARAPOV, V.A.; TKACHEV, V.N.

Upper Paleozoic tuff lavas and ignimbrites of the Kurama Range.
Trudy Lab. vulk. no.20:199-205 '61. (MIRA 14:11)

1. Glavgeologiya Uzbekskoy SSR.
(Kurama Range--Vocanic ash, tuff, etc.)

ARAPOV, V.A.

Stratigraphy of the sedimentary-effusive layer in the Middle and
Upper Paleozoic of Altyn-Topkan. Trudy Uz. geol. upr. no.2:
8-14 '62. (MIRA 16:8)
(Kurama Range—Geology, Stratigraphic)

ARAPOV, V.A.

Some characteristics of the distribution of mineralization in the
Almalyk ore zone. Trudy Uz. geol. upr. no.2:85-94 '62.

(MIRA 16:8)

(Kara-Mazar Mountains--Ore deposits)

ARAPOV, V.A.

Petrographic classification of Upper Paleozoic effusive rocks
of the Kurama Range. Uzb.geol.zhur. 6 no.1:63-67 '62.

(MIRA 15:4)

1. Glavnoye upravleniye geologii i okhrany nedr pri Sovete
Ministrov UzSSR.

(Kurama Range--Rocks, Igneous--Classification)

АРАПОВ, В.А.

Some characteristics of the Hercynian tectonics of the Kurama Range. Uzb. geol. zhur. 9 no.2:36-49 '65.

(MIRA 18:6)

1. Revizionno-tematicheskaya ekspeditsiya Gosudarstvennogo geologicheskogo komiteta UzSSR.

CHEKUNOV, V.S.; ARAPOV, V.A.; CHEBOTAREVA, G.P.

Second All-Union Volcanologic Conference. Uzb. geol. zhur. 9
no.2:74-76 '65. (MIRA 18:6)

1. Revizionno-tematicheskaya ekspeditsiya Gosudarstvennogo geologicheskogo komiteta UzSSR.

АРАФОВ, В.Н., assistant

Pushbutton calling device for selective telephone systems. Trudy
ТБИЗХТ 25:299-316 '58. (MIRA 13:10)
(Railroads--Communication systems) (Telephone)

GENTSEVA, Rovekka Yenediktovna; SAVEL'YEVA, Klavdiya Tikhonovna; ~~ARABOV~~
Yu.A., redaktor; SEMENOVA, M.V., redaktor izdatel'stva; KRYNOCHKINA,
K.V., tekhnicheskii redaktor

[Manual for the identification of uranium minerals] Rukovodstvo po
opredeleniiu uranovykh mineralov. Moskva, Gos. nauchno-tekhn.
izd-vo lit-ry po geol. i okhrane nedr, 1956. 259 p. (MLRA 10:3)
(Uranium ores)

ABDULLAYEV, Kh.M.; ALYAVDIN, V.F.; AMIRASLANOV, A.A.; ANIKEYEV, N.P.;
ARAPOV, Yu.A.; BARSANOV, G.P.; BELYAYEVSKIY, N.A.; BOKIY, G.P.;
BORODAYEVSKAYA, M.B.; GOVOROV, I.N.; GODLEVSKIY, M.N.; SHCHEGLOV, A.D.;
SHAKHOV, F.N.; SHILO, N.A.; YARMOLYUK, V.A.; DRABKIN, I.Ye.;
YEROFEYEV, B.N.; YERSHOV, A.D.; IVANKIN, P.F.; ITSIKSON, M.I.;
KARPOVA, Ye.D.; KASHIN, S.A.; KASHKAY, M.A.; KORZHINSKIY, D.S.;
KOSOV, B.M.; KOTLYAR, V.N.; KREYTER, V.M.; KUZNETSOV, V.A.; LUGOV,
S.F.; MAGAK'YAN, I.G.; MATERIKOV, M.P.; ODINTSOV, M.M.; PAVLOV, Ye.S.;
SATPAYEV, K.I.; SMIRNOV, V.I.; SOBOLEV, V.S.; SOKOLOV, G.A.; STRAKHOV,
N.M.; TATARINOV, I.M.; KHRUSHCHOV, N.A.; TSAREGRADSKIY, V.A.;
CHUKHROV, F.V.

In memory of Oleg Dmitrievich Levitskii; obituary. Sov.geol. 4
no.5:156-158 My '61. (MIRA 14:6)
(Levitskii, Oleg Dmitrievich, 1909-1961)

KOTLYAR, Vasilii Nikitich; BETEKHTIN, A.G., retsenzent; TATARINOV, P.M. retsenzent; YAKZHIN, A.A., retsenzent; KRASHNIKOV, V.I., retsenzent; GOTMAN, Ya.D., retsenzent; ARAFOV, Yu.A., retsenzent; LUGOV, S.F., red.; OVCHENNIKOVA, S.V., red. izd-va; BYKOVA, V.V., tekhn. red.

[Geology and genetic types of industrial uranium deposits] Geologiya i geneticheskie tipy promyshlennykh mestorozhdenii Urala. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po geol. i okhrane nedr, 1961. 245 p. (MIRA 14:10)

(Uranium)

ARAPOVA, A., inzh.

Using vibrated wet-ground cement for increasing the activity
of old cements. Rech. transp. 20 no. 2:48 F '61. (MIRA 14:2)
(Cement)

ARAPOVA, A., inzh.

Additional vibration grinding of cement in reinforced concrete
shipbuilding. Rech.transp. 21 no.7:24-27 J1 '62. (MIRA 15:8)
(Ships, Concrete)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

1ST AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 6TH ORDERS

CA
ARAPOVA, A. A.

The distribution of the different fractions of acid-soluble phosphorus in the blood of dogs during the course of intermediary metabolism, as observed on an empty stomach, after the introduction of glucose and radon.

Anna A. Arapova. *Ann. roentgenol. radiol. (U. S. S. R.)* 17, 338-51 (in English 353-3) (1934).—By applying the method of angustomy A. has studied the content of different P fractions in the arterial and venous blood of the various organs, such as the intestine, the liver, the muscles and the kidneys. The fractions of acid-sol. P were detd. by the combined methods of Eggleton and Fiske and Subbarow. Conclusions: Fractions of ortho- and pyrophosphates and sol. and nonsol. phosphoric esters are present in blood vessels. No creatinephosphoric acid has ever been found in blood. The sol. ester fraction is most changed in its passage through the organs. The other fractions are very little changed. After the introduction of glucose the fraction of sol. esters is again most changed. After the introduction of Rn the fraction of sol. esters is increased in the arterial blood. It also increases the amt. of sol. esters given off by the kidneys. N. N. M.

COMMON ELEMENTS

COMMON VARIABLES

ASB-5LA METALLURGICAL LITERATURE CLASSIFICATION

140000 2

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

АРАПОВА, А.А. with Zh.A. Klaas

On the After Sensations in the Auditory Apparatus

Lab of the Physiology of the Sensory Organs, Physiology Institute imeni I.P.Pavlov
Academy of Sciences USSR

So: Fiziologicheskii Zhurnal Vol 32, No 4, 1946

ARAPOVA, A.A.; KLAAS, Yu.A.; KNYAZEVA, A.A.

Analysis of the modifications of auditory sensitivity during sound stimulation of various intensity. Probl.fiziol.akust., Moskva Vol. 2:19-28 1950. (GLML 20:5)

1. Laboratory of the Physiology of Sense Organs, Physiological Institute imeni Academician I.P.Pavlov of the Academy of Sciences USSR.

ARAPOVA, A.S., inzh.; SHESTOPEROV, S.V., doktor tekhn.nauk, prof.

The effectiveness of using quick-hardening cements and stiff mixes
for shipbuilding concretes. Bet. 1 shal.-bet. 8 no.2:53-55 F
'62. (MIRA 16:5)

(Ships, Concrete) (Precast concrete construction)

ACCESSION NR: AT4001250

S/2504/63/023/000/0064/0135

AUTHORS: Levshin, V. L.; Arapova, E. Ya.; Blazhevich, A. I.; Voronov, Yu. V.; Voronova, I. G.; Gutan, V. B.; Lavrov, A. V.; Popov, Yu. M.; Fridman, S. A.; Chikhacheva, V. A.; Shchavenko, V. V.

TITLE: Study of cathode luminescence of zinc sulfide and other cathode phosphors

SOURCE: AN SSSR. Fizicheskiy institut. Trudy*, v. 23, 1963, 64-135

TOPIC TAGS: luminescence, cathode luminescence, phosphor, zinc sulfide phosphor, phosphorescence, photoluminescence, zinc sulfide, excitation energy, phosphor excitation

ABSTRACT: This is a review article devoted to a theoretical and experimental analysis of excitation energy losses in cathode luminescence, the approximate maximum cathode luminescence yield, exchange

Card 1/4

ACCESSION NR: AT4001250

of energy between an electron beam and a layer of luminox through which it passes, and also the evolution of individual glow processes as functions of the excitation density and the temperature. Particular attention is paid to an investigation of the persistence properties of ZnS phosphors and their connection with the location and filling of the electron and hole localization levels. A detailed analysis is made of the energy losses resulting from thermalization of the electrons and holes, and it is shown that in cathode luminescence these unavoidable losses are very large and decrease the glow efficiency by approximately 2.5 times. Allowing for other losses, the over-all glow efficiency in cathode luminescence cannot exceed 0.27--0.30. The study of the passage of an electron beam through sublimated layers of zinc-sulfide luminors has established the voltage dependence of the electron penetration depth and the energy losses at different depths of electron penetrations. The dependence of the spectral composition, brightness, and energy glow yield of various zinc-sulfide and phosphate luminors on the current density,

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ACCESSION NR: AT4001250

voltage, and temperature were investigated. A glow efficiency of 0.256 was calculated for one type ZnS-Ag luminor. The attenuation of glow of different types of cathode luminors to 0.1, 0.01, and 0.001 of the initial brightness was investigated and the presence of two superimposed de-excitation processes of different durations is established. The causes of the reduction in the duration of afterglow with increasing excitation density are considered. The arrangement and development of localization level of the investigated luminors was studied by the thermal de-excitation method and a connection was established between the attenuation and liberation of the levels at definite depths. "The authors are grateful to senior designer A. G. Ovchinnikov, radio technicians V. P. Ly*sov and Yu. A. Platukhin, senior laboratory assistants Z. M. Bruk, S. B. Kondrashkin, N. V. Mitrofanova, L. N. Petrakov, and A. D. Sy*chkov and laboratory assistant V. P. Prokhorova who helped with the present work." Orig. art. has: 66 figures, 28 formulas, and 4 tables.

Card 3/4

ACCESSION NR: AT4001250

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Physics Institute, AN SSSR)

SUBMITTED: 00

DATE ACQ: 30Nov63

ENCL: 00

SUB CODE: PH

NO REF SOV: 049

OTHER: 030

Card 4/4

S/051/62/013/003/007/012
E075/E136

AUTHOR: Arapova, E. Ya.

TITLE: Glow of autoactivated zinc sulphide phosphor sublimate

PERIODICAL: Optika i spektroskopiya, v.13, no.3, 1962, 416-420

TEXT: To elucidate the nature of the centre of blue glow of autoactivated ZnS, the latter was prepared by the method of sublimation in the absence of any impurities - coactivators. The cubic crystals were deposited on silica supporting plates heated from 200 to 350 °C. It was found that when the crystals were excited with cathode rays or light with the wavelength of 313 millimicrons, the blue glow was produced only in the temperature range 200-350 °C. Further heating produced a red-orange glow. The brightest blue samples were obtained in the range 275-300 °C. Introduction of ZnCl₂ (1-2%) on the support heated to 300 °C gave ZnS crystals with the intensity of blue glow 3-4 times that produced by the crystals sublimed in the absence of ZnCl₂. The absorption coefficients of pure ZnS layers deposited on the supports heated to 400 °C have maxima at the excitation light wavelengths of 220, 218 and 190 millimicrons. The yield of luminescence is the greatest
Card 1/2

L 26497-66 EWT(1)/EWT(m)/EWP(t) IJP(c) RM/JD
ACC NR: AP6013055

SOURCE CODE: UR/0048/66/030/004/0573/0580

AUTHOR: Arapova, E.Ya.; Levshin, V.L.; Mitrofanova, N.V.; Reshetina, T.S.; Tunitskaya, V.F.; Fridman, S.A.; Shchayenko, V.V.

ORG: Physical Institute im. P.N. Lebedev, Academy of Sciences SSSR (Fizicheskii institut, Akademiya nauk, SSSR)

58
55
B

TITLE: Luminescence mechanism and the band system of ZnS:Fe luminophors Report, Fourteenth Conference on Luminescence held in Riga, 16-23 September 1965

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 4, 1966, 573-580

TOPIC TAGS: crystal phosphor, luminescence, zinc sulfide, thermoluminescence, IR sensor

ABSTRACT: Although iron-activated zinc sulfide phosphors have been known since 1945, the nature of their luminescence mechanism is still obscure. The writers developed a synthesis procedure for ZnS:Fe phosphors in both powdered and sublimate form. The initial ZnS, containing less than 10^{-7} g/g iron, was mixed with the desired amount of Fe (none to 3×10^{-4} g/g) and heated at 1200° C for 90 min in a stream of HCl. Both the powdered and sublimated specimens proved to be sensitive to infrared. ZnS without Fe has one luminescence band peaking at 450 m μ ; doping with Fe gives rise to another band peaking at 630 m μ ; the intensity of this red band increases with the dopant concentration, while the blue band gradually weakens. Figures in the text show the lumin-

Card 1/2

L 26497-66

ACC NR: AP6013055

3

escence spectra at different Fe concentrations and the dependences of the intensities of the blue and red bands on the Fe content. Glow curves for the blue and red regions are also shown. Evaluations are made of the trap depth. The glow curve data are consistent with the results obtained in observing IR-stimulated flashes. A band scheme with two levels near the bottom of the conduction band and two levels or groups of levels near the valence band is proposed. Data on the infrared response are presented and discussed. It is suggested that the trapping levels responsible for IR-stimulated light flash may differ from the trapping levels responsible for the thermostimulated peak at 185°, even though both sets of levels are located at about the same depth, (0.06-0.07 eV). Aside from stimulation, infrared also proved to have a quenching effect, particularly in a certain frequency range. The authors are grateful to Z. M. Bruk, V. A. Minayeva and T. F. Filin for assistance in the work. Orig. art. has 9 figures.

SUB CODE: 20/

SUM DATE: 00/

ORIG REF: 008/

OTH REF: 002

Cerd 2/2 CC

ACC NR: AP7004982.

SOURCE CODE: UR/0048/66/030/009/1490/1493

AUTHOR: Arapova, E.Ya.; Voronov, Yu.V.; Lovshin, V.L.; Chikhacheva, V.A.; Shchayenko, V.V.

ORG: none

TITLE: Investigation of the ultraviolet luminescence of nonactivated zinc sulfide
/Report, Fourteenth All-Union Conference on Luminescence (Crystal Phosphors) held
at Riga, 16-23 Sept. 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no.9, 1966, 1490-1493

TOPIC TAGS: luminescence, cathodoluminescence, zinc sulfide, luminescence spectrum,
uv spectrum, crystal lattice vacancy, interstitial ion, luminescence center

ABSTRACT: The authors have investigated the ultraviolet cathodoluminescence of luminescence-pure ZnS that had been treated for 2 hours at 400° C and for 1.5 hours at 1200° in a stream of H₂S and then heated for 35 minutes at 1100° in evacuated sealed ampoules containing sometimes sulfur, sometimes zinc, and sometimes nothing in addition to the zinc sulfide. The purpose of this treatment was to produce materials in which the ratio of the number of zinc vacancies to the number of sulfur vacancies differed from specimen to specimen. The ultraviolet cathodoluminescence spectra were recorded at 89° K. There were three close peaks at about 335, 338, and 342 mμ, with an average separation of 325 cm⁻¹, which is in agreement with the frequency (349 cm⁻¹) of longitudinal vibrations of the sphalerite lattice. The luminescence was less

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ACC NR: AP7004982

intense when the specimen had been heated in the presence of either zinc or sulfur than when it had not. The results are regarded as supporting Williams' hypothesis that the structure of the luminescence band is due to the presence of dipole pairs of Zn and S vacancies. The intensity of the ultraviolet luminescence was very temperature dependent, decreasing by a factor of 1000 when the temperature was raised from 89 to 396° K. The luminescence decayed very rapidly following a complex hyperbolic law and decreasing in intensity by a factor of 1000 in 10 microsec. It is concluded that the centers responsible for this luminescence are donor-acceptor pairs. In addition to the luminescence discussed above, the specimens containing an excess of sulfur showed a second much weaker luminescence band at 395 mμ; this luminescence is ascribed to recombination of electrons and holes trapped at centers formed by zinc vacancies or interstitial sulfur ions. Results obtained with zinc sulfide heated in H₂S, NH₃, and H₂S + HCl atmospheres are presented very briefly. The specimen that contained chlorine had only a single strong luminescence band at 440 mμ. Orig. art. has: 4 figures and 1 table.

SUB CODE: 20 SUBM DATE: none ORIG. REF: 005 OTH REF: 007

Card 2/2

NESTEROVA, Yu.S.; ARAPOVA, G.A.

Methods of the chemical analysis of cassiterite. Trudy IZEM
no.81:23-35 '62.

Polarographic method of the determination of oxidized and
sulfide tin in siliceous rocks, sulfide ores, and minerals.
39-40 (MIRA 16:11)

YEROFEYEV, B.V.; OSIPENKO, I.F.; DOROSHEVICH, M.N.; ARAPOVA, L.D.;
BIRUL'CHIK, T.N.; ROZENBERG, A.Ya.; ZERNOVA, N.M.; ZVIZZHOV,
V.V.; KATSEVA, N.N.

Antiblock composition for cellophane. Khim. volok. no.4:64-66
'64 (MIRA 18:4)

1. Institut fiziko-organicheskoy khimii AN BSSR (for Yerofeyev,
Osipenko, Doroshkevich, Arapova, Birul'chik). 2. Mogilevskiy
zavod iskusstvennogo volokna (for Rozenberg, Zernova, Zvizzhov,
Katseva).

ARAFOVA, M.M.

Blaschke's projection. Uch. zap. MGPI no.208:199-213 '63.
(MIRA 17:6)

ARAPOVA, N.D.

Some new species of Senonian foraminifers in southwestern Uzbekistan.
Nauch. trudy TashGU no.249. Geol. nauki no.21.217-227 '64. (MIRA 18s j)

ARAPOVA, N. D.

Cand Geol-Min Sci, Diss -- "Stratigraphy and forminifera fauna of the Upper Cretaceous of the southwestern spurs of the Gissarskiy Mountain Range". Tashkent, 1961. 17 pp, 22 cm (Tashkent State U imeni V. I. Lenin), 175 copies, Not for sale (KL, No 9, 1961, p 178, No 24291).
/61-54094/

Handwritten notes at the top of the page, possibly "M.A. J. V. H. ...".

TABLE I BOOK DEVIATION SOV/445

Abolition of the USSR. Commission for scientific research (Methods of Determining Abolition in Pure Metals) Moscow, 1960, 111 p. (Series: Sci. Tech, 12) 3,500 copies printed.

Asp. M.: A. P. Vinogradov, Academician, and D. I. Prokhorov, Doctor of Chemical Sciences; M. of Publishing House: M. P. Volynskii, Tech. Ed.: V. P. Polyakov. PUBLISHED: This collection of articles is intended for chemists, metallurgists and engineers.

CONTRACT: The articles describe methods for detecting and determining various metal impurities and their compounds in pure metals. Also discussed are many chemical, physicochemical, electrical and spectroscopic methods and instruments for analyzing materials of high purity. The authors state that the methods have been developed within the last five or six years by various Soviet scientific institutes, and are now widely used in research and factory laboratories of the Soviet Union. 16 personalities are mentioned. References, metric Society, accompany each article.

Alister, R. B., P. B. Colson, K. L. Gibson, and G. B. Williams. Determination of the composition of copper in solid samples of polyoxides and oxides by the Spectral Method 288

Robison, J. S., A. B. Johnson, and L. A. Zampighi. Determination of traces of lead, tin, nickel and cadmium in metallic chromium and in its alloys 298

Mullins, V. J. Determination of admixtures of antimony in pure chromium and its alloys 311

Perrow, G. A. Spectral Determination of Admixtures of Bismuth, Cadmium, Tin, Lead and Antimony in Chromite Oxide and in Chromite Analytes 314

Shubin, I. B., G. A. Perrow, and I. F. Venger. Spectrochemical Method of Determining Admixtures of Bismuth, Cadmium, Tin, Lead, and Antimony in Chromite Analytes 317

Perkhovskiy, A. M., and V. M. Zhuravskiy. Application of Activated and Non-Activated Methods to the Determination of Small Quantities of Lead, Nickel, Antimony, and Tin in Metallic Chromium and Castings 322

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Kravchenko, E. V., and E. M. Zhuravskiy. Determination of Oxygen in Metallic Beryllium 341

Angerson, S. R., T. G. Skirrow, V. A. Joseph, G. K. Throckmorton, A. E. Thompson, and P. J. Williams. A New Method for the Quantitative Determination of Oxygen in Metallic Beryllium 344

Radzinskiy, O. I., K. P. Gorbunov, K. A. Gubchenko, and A. V. Anisimov. Spectrometry of Nickel Alloys to Determine their Sulfur Compounds and Admixtures 355

Greiner, D. K., and I. G. Nilov. Spectral Analysis of High-purity Nickel Alloys. I. P. and A. A. Rudina. Separation of Small Quantities of Cobalt from Large Quantities of Nickel 366

Klyachko, N. A., and N. M. Shapiro. Phase Analysis of Nickel-base Alloys 393

Arnsperg, V. H., G. A. Arnsperg, and V. G. Arnsperg. Determination of Small Quantities of Cadmium, Selenium, and Boron in Metallic Chromium 399

WILKINSON Library of Congress

LEVSHIN, V.L.; ARAPOVA, E.Ya.; BARANOVA, Ye.G.

Determining small quantities of gadolinium, samarium and europium in metallic thorium. Trudy Kom. anal. khim. 12:393-408 '60.

(MIRA 13:8)

(Thorium--Analysis)

(Rare earth metals)

ARAPOVA, E.Ya.; BARANOVA, Ye.G.; LEVSHIN, V.L.; TIMOFEYeva, T.V.; TROFIMOV,
A.K.; FEOFILOV, P.P.

Luminescent method of quantitative determination of gadolinium in
metallic beryllium. Trudy Kom. anal. khim. 12:344-354 '60.

(Beryllium--Analysis)

(MIRA 13:8)
(Gadolinium earths)

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S/048/61/025/003/004/047
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AUTHOR: Arapova, E.Ya.

TITLE: Activatorless ZnS sublimate phosphors

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya,
v. 25, no. 3, 1961, 324

TEXT: This is a reproduction of a lecture delivered at the 9th Conference on Luminescence (Crystal Phosphors), which took place in Kiyev from June 20 to 25, 1960. Zinc sulfide films were obtained by evaporation in vacuum. The zinc sulfide was pre-treated at a temperature of 1150°C for two hours in a H₂S current, and freed from sulfur excess by training in vacuum. Evaporation took place on pre-heated quartz plates. Zinc sulfide sputtered on base layers preheated to 200 - 350°C forms films with bright-blue luminescence under ultraviolet-light excitation. A preheating of base layers to higher temperatures gave rise to films with a weak red-orange luminescence. A study of the nature of the bright-blue luminescence of the films by examination of absorption and excitation spectra and X-ray analyses showed that the films had a cubic-crystalline structure. No zinc oxide was dis-

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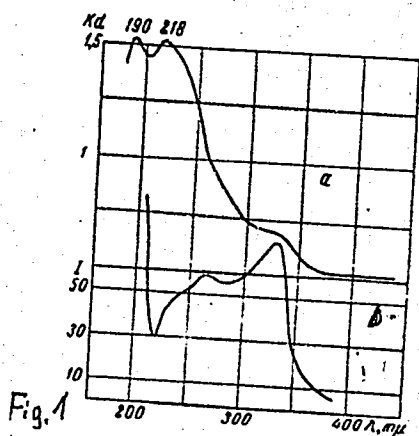
Activatorless ZnS sublimate ...

covered. Fig. 1 presents the absorption spectrum a and the excitation spectrum b of ZnS with bright-blue luminescence. A comparison of these two spectra reveals that in the region of the 218-m μ band the excitation spectrum has a valley. This excitation band is inactive. In the absorption maximum at 190 m μ , conversely, the corresponding absorption band is active. When heating up to 700°C the layer conserves the brightness of bright-blue luminescence, and only above 800°C does brightness decrease appreciably. At 900°C, the bright-blue luminescence vanishes to make place for a weak red luminescence. It was possible to establish a passage from the cubic to the hexagonal lattice at this temperature. A further paper will be devoted to the study of the effect of impurities upon the bright-blue luminescence. There are 1 figure and 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English language publication reads as follows: Hall J.F., J-Opt.Soc. America, 46, 1013 (1956)

Card 2/3

Activatorless ZnS sublimite ...

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Card 3/3

DOLOMANOVA, Ye.I.; NESTEROVA, Yu.S.; ARAPOVA, G.A.

Tl and Sn containing beudantite from the Bol'shaya Shirlovaya
Gora deposit (eastern Transbaikalia). Trudy Min.muz. no.13:179-
190 '62. (MIRA 16:2)

(Transbaikalia--Beudantite)

ARAPOVA, N.D.; SULEYMANOV, I.S.

New species from the family Textularidae (foraminifers).

Nauch. trudy TashGU no.249. Geol. nauki no.21:228-229 '64.

(MIRA 18:5)

ARAPOVA, M.M.

Theory of Laguerre transformations. Uch. zap. MGPI no. 243:
216-232 '65 (MIRA 19:1)

АРАПОВА, Т.М.

Practice in compiling glaciological maps. Vest.LGU 20 no.12:110-115
'65. (MIRA 18:8)

I 3:937-65

ALZ... ..

ARAPOVA, T.M.

Geodetic, photometric, and cartographic methods for studying
glaciers. Vest. LGU 19 no.18:70-76 '64.

(MIRA 17:11)

PLECHKOVA, Ye.K.; ARAPOVA, T.N.

Histochemical study of cholinesterases and phosphomonoesterases in the intramural nervous apparatus of the urinary bladder of mammals. Trudy Inst. norm. i pat. fiziol. AMN SSSR 6:88-90 '62.
(MIRA 17:1)

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ARAPOVA, Ye.P. (Moskva)

The problem of cytodagnosis in stomach cancer; preliminary report.
Klin.med. 36 no.2:88-91 F '58. (MIRA 11:4)

1. Iz kafedry propedeutiki vnytreznikh bolezney (zav. - deystvitel'-
nyy chlen AMN SSSR prof. V.Kh.Vasilenko) I Moskovskogo ordena
Lenina meditsinskogo instituta imeni I.M.Sechenova.

(STOMACH NEOPLASMS, diag.
sytdiag., evaluation (Rus))

BEZJAK, A.; FRIS-GACESA, T.; UZELAC, V.; ARAPOVIC, I.

The quantitative X-ray analysis of bauxite. I. The system
hydragillite-boehmite-goehtite-haematite. Croat chem acta 34
no.1:51-64 '62.

1. Institute of Light Metals, Zagreb, Croatia, Yugoslavia.

Arar, I.

V 3877. ELEMENTS FOR THE CALCULATION OF AUTOMATIC CIRCULATION ON MINE CARS ON PIT LANDINGS AND PIT BOTTOMS. Arar, I. (Rud.-Metall. Zborn. (Min. Metall. Rev., Ljubljana), Summer 1955, (2): 127-143). The various factors which are of importance in the design and layout of a pit bottom are considered with special reference to underground haulage systems. The motion of mine cars on horizontal and inclined tracks and around bends is discussed. The chain creeper, which is an endless chain with spaced horns or without them, is an important link in the automatic circulation system of mine cars. A method for the calculation of an inclined chain creeper is recommended. S.H.R.

ARAR, I.

Wire ropes in the mining industry. II. (Conclusion) p. 531.
TEHNIKA, Beograd, Vol. 10, no. 4, 1955.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, no. 10, Oct. 1955,
Uncl.

ARAR, Ivan, prof. inz.; NIKOLIC, Bozo, dipl. inz.

Testing the rope wheels. Rudar glasnik 1 29-38 '64.

1. Technological Faculty, Zagreb (for Arar).
2. Director, Institute of Industrial Safety, Zagreb (for Nikolic).

ARARATYAN, A.G.

Bastard hemp, a possible medicinal plant. Izv. AN Arm. SSR, Est.
nauki no.6:117-119 '47. (MLRA 9:8)

1. Institut genetiki rasteniy AN Armyanskoy SSR.
(Botany, Medical)

ARARATYAN, A.G.; AGADZHANYAN, G.Kh.

Weeds in Armenian rice fields. Izv. AN Arm. SSR. Biol. i sel'khoz.
nauki 1 no.1:57-72 '48. (MIRA 9:8)
(ARMENIA--WEEDS)

Inst. Plant Genetics, AS arm SSR, Yerevan.

ARARATYAN, A. G.

PA47T54

USSR/Medicine - Plants
Medicine - Cells

1 Mar 1948

"Karyotype and Myxoploidia in Echium Rubrum Jacq.,"
A. G. Araratyan, Inst Plant Genetics, Acad Sci Armen-
ian SSR, Yerevan, 3 pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LIX, No 7

Shows that the periblem and the dermatogen are onto-
genetically very close to each other and possible to
say that the latter almost a continuation of the
first, inasmuch as these two layers of meristem be-
have similarly in formation of polysomatic cells and
apparently can be in some sense contrasted to the
plerome. Submitted by Academician N. A. Maksimov,
17 Dec 1947.

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