

S/125/63/000/003/004/012
A006/A101

AUTHOR: Zaks, I. A.

TITLE: On the local failure resistance of 25-5 type ferrite-austenite steel welds

PERIODICAL: Avtomaticheskaya svarka, no. 3, 1963, 21 - 27

TEXT: The author investigated the local failure resistance in the weld-adjacent zone of X 25H5TMΦ (ЭИ954) (Kh25N5TMΦ) (EI954) steel, using the methods developed at the TsKPI imeni I. I. Polzunov and at the Institute of Electric Welding imeni Ye. O. Paton. In the former method the brittle failure of welds at temperatures ranging from 450 - 800°C is evaluated from the endurance ductility of the material, determined by bending tests at a constant deformation rate as high as 0.67% per hour. In the method developed by the Institute of Electric Welding, brittle failure in the weld-adjacent zone is determined from analyses of micro-and-macrosections cut out of austenite and perlite steel plates that were welded by the electric slag-method using a low-carbon wire. The tests yielded the following results. Weld joints of the aforementioned steel show suf-

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On the local failure resistance of...

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ficiently high deformation ability at high temperatures, which secures their resistance to local failure. Heat treatment of this steel after welding has only a slight effect upon the endurance ductility of weld joints; this makes it different from 1Kh18N9T austenitic steel whose resistance against local failure depends considerably upon the thermal condition of the welds. Least deformation ability of welded joints in Kh25N5TMF steel is observed in a 650 - 750°C temperature range. With higher test temperatures, from 750°C, the ductility of the weld-adjacent zone of the joints is sharply risen. This is also confirmed by results of testing 25-5 type ferrite austenite steel according to the IMET-1 method. TsKTI tests of Kh25N5TMF joints yielded comparable results. There are 2 tables and 4 figures.

ASSOCIATION: Leningrad Kiröv Plant

SUBMITTED: July 9, 1962

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s/135/63/000/004/001/012
A006/A101

AUTHOR: Zaks, I. A., Engineer

TITLE: The effect of the welding conditions and heat treatment upon the weld-adjacent zone of 25-5 type steel

PERIODICAL: Svarochnoye proizvodstvo, no. 4, 1963, 1 - 5

TEXT: An investigation was made at the Institute of Metallurgy imeni A. A. Baykov under the supervision of Candidate of Technical Sciences M. Kh. Shorshorov to determine the effect of welding and heat treatment conditions upon toughness and intercrystalline corrosion resistance in the weld-adjacent zone of X25H5 TMΦ (ЭИ954) (Kh25N5TMF (EI954)) austenite-ferrite steel welded joints. Preheating and cooling of the specimens was performed on a ИМЭТ-1 (IMET-1) machine, and high-speed dilatometry was employed. The parameters of welding cycles varied within the heating and cooling range of the weld-adjacent zone in manual arc and automatic submerged arc welding, corresponding to changes in the linear arc energy from 3,000 to 10,000 cal/cm, during building up of the first seam layer into a V-shaped groove of a 75 mm thick butt weld. The heating rate varied between

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170 - 280 degrees/sec; maximum temperature of the cycle was 1,250 - 1,330°C; heating time was 4.5 - 7 sec, cooling rate 17 - 140 degrees/sec. The specimens which were subjected to short-time welding heat under various conditions, were tested in the state after welding and after stabilizing treatment in a furnace (850°C, 10 hours with different cooling rates ranging from 0.05 - 0.1 to 90 - 100 degrees/sec). The investigation yielded the following results. Thermal welding cycles in a linear energy range from 3,000 to 10,000 cal/cm have no negative effect upon the toughness of the weld-adjacent zone in the welded joints. In a thermal welding cycle, predetermining a higher cooling rate of the weld-adjacent zone, the toughness of the steel increases; this is explained apparently by the reduced concentration of admixtures and separations on the interfacial boundaries. Stabilization of Kh25N5TMF steel at 850°C does practically not entail its embrittlement; however, the cooling rate after stabilization has a strong effect upon the toughness of ferrite-austenite steel. In slow cooling (with the furnace) the toughness of Kh25N5TMF steel has minimum values; this is caused by the appearance of 475° brittleness, and by the separation of fine-dispersed carbides and of a σ -phase on the grain boundaries. The intensity of embrittlement, and, inversely, the recovery of ductile properties of embrittled bi-phase metal, type 25-5, depend considerably

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upon the extension of interfacial boundaries (dispersion of the structural components) which, in turn, depend not only upon the composition of the steel but also upon its production method (casting, rolling, weld joint, etc). It was established that after heating Kh25N5TMF steel to 850°C, the separations forming during the cooling process, are located equidistantly to the boundary of α - and γ -phases, so that a second boundary is being formed. It is assumed that this phenomenon is caused by the polymorphous transformation of the boundary sections of the γ -phase according to the $\gamma \rightarrow \alpha' + Me C_{n m}$ scheme. There are 6 figures and 2 tables.

ASSOCIATION: Leningrad Kirov Plant

Card 3/3

ZAKS, I.A., inzh.

Effect of welding conditions and heat treatment on the
resistance of the weld zone in 25-5 type steel against inter-
crystallite corrosion. Svar. proizvod. no.7:10-11 J1 '63.
(MIRA 17:2)

1. Leningradskiy Kirovskiy zavod.

ZAKS, I.A., inzh.

Properties of various welded joints from 25-5 type ferrite-
austenite steel and steels of austenite and perlite classes.
Energomashinostroenie 9 no.10:30-33 0 '63. (MIRA 16:10)

ZAKS, I. A.

Stability of welded joints in 25-5 type ferrite-austenite steel
against zone cracking. Avtom. svar. 16 no.3:21-27 Mr '63.
(MIRA 16:4)

1. Leningradskiy Kirovskiy zavod.

(Steel, Stainless--Welding)
(Thermal stresses)

L 32259-65 EWT(m)/EWP(w)/ENA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b) Pf-4
HJW/JD/HM

ACCESSION NR: AP4047013

S/0135/64/000/010/0013/0016 4

AUTHOR: Zaks, I. A. (Engineer) 28
B

TITLE: Mechanical strength of ferritic-austenitic 25-5 type metal

SOURCE: Svarochnoye proizvodstvo, no. 10, 1964, 13-16

TOPIC TAGS: weld decay,¹⁶ intercrystalline corrosion, ferritic austenitic steel, plasticity, mechanical strength

ABSTRACT: An investigation of intercrystalline corrosion in ferritic-austenitic steel Kh25N5TMF¹⁶ and weld decay in 25-5 type filler metal showed an absolute deformation of 0.43 mm at the root of the weld with some formation of cracks. Consequently, within the hot cracking range, the metal weld possesses a certain plasticity and upon losing it, hot cracks begin to appear. The higher the temperature of initial plastic recovery and the higher its rate, the lower the tendency to hot-cracking in the weld-affected zone. The maximum testing temperature was 1320 to 1340 C. The decline and recovery of plasticity occurred within a narrow temperature range near the solidus and between 1200 and 1260 C specimens displayed a high reduction of area and elongation per

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L 32259-65

ACCESSION NR: AP4047013

unit of length. The lower plasticity of cast steel within that temperature range is attributed to a lower recovery rate and a possible reason for the formation of weld decay. By way of comparison, austenitic specimens tested by N. N. Prokorov at the MVTU (Moscow Higher Technical School im. Bauman) are discussed. However, the plasticity of Kh25N5TMF steel observed within the brittleness range greatly exceeds that of other austenitic specimens reflecting a higher weld decay strength. "The contribution of Belov, V.V., IMET (Institute of Metallurgy im. A.A. Baykov) and Yakushin, B.F., engineers at MVTU is gratefully acknowledged." The orig. art. has: 3 figures and 3 tables.

ASSOCIATION: Leningradskiy Kirovskiy zavod (Leningrad Kirov Plant)

SUBMITTED: 00

ENCL: 00

SUB CODE: MM

NR REF SOV: 013

OTHER: 000

Card 2/2

ZAKS, I.A., inzh.

Technological strength of a type 25-5 ferrite-austenite metal. Svar.
proizv. no.10:13-16 0 '64. (MIRA 18:1)

1. Leningradskiy Kirovskiy zavod.

ACC NR: AP7006945

(N)

SOURCE CODE: UR/0129/67/000/001/0041/0045

AUTHOR: Zaks, I. A.

ORG: Leningrad Kirov Plant (Leningradskiy kirovskiy zavod)

TITLE: Effect of heat treatment and nitrogen content on the notch toughness and intercrystalline corrosion resistance of ferritic-austenitic steel

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 1, 1967, 41-45

TOPIC TAGS: nitrogen, toughness, annealing, corrosion resistance, chromium steel, nitrogen steel, ferritic steel, austenitic steel, cast steel / Kh25N5TMF cast steel

ABSTRACT: Specimens of Kh25N5TMF cast steel (23.6—25.5% Cr, 4.9—5.1% Ni, 0.08 to 0.10% Mo, 0.10—0.13% V, 0.04—0.14% Ti, 0.044—0.17% N) were annealed at 1000, 1100, 1150, 1200 or 1250°C for 1 hr to determine the effect of heat treatment and nitrogen content on notch toughness and intercrystalline corrosion resistance. It was found that the notch toughness and susceptibility to intercrystalline corrosion increased with increasing annealing temperature: 6.3 kg·m/cm² at 1000°C and 12.7 kgm/cm² at 1250°C. Annealing at the same temperatures significantly changed the lattice parameters of the α- and γ-phases and produced stresses which affected the resistance against intercrystalline corrosion. Addition of up to 0.17% nitrogen increased the notch toughness by about 50% after annealing at 1000°C, and by almost

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UDC: 620.17:669.14.018.8

ACC NR: AP7006945

100% after annealing at 1150°C, furnace cooling to 1000°C, and oil quenching. Orig.
art. has: 4 figures and 3 tables. [AZ]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 008/ OTH REF: 002/

Card 2/2

L 32390-65 EWT(1)/EWT(m)/EPF(c)/ENG(s)-2/FA/ENG(r)/ENG(m)/T-2 Pz-6/Pe-5/
Pr-4/Pw-4 TE/WE
ACCESSION NR: AP5007207 S/0286/65/000/003/0087/0087

44
B

AUTHOR: Zaks, I. M.; Berzon, O. S.; Yemel'yanov, I. V.

TITLE: An automatic valve for controlling fuel transfer from spare tanks to service tanks. Class 47, No. 168095

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 3, 1965, 87

TOPIC TAGS: fuel system, fuel control, fuel valve, liquid level control

ABSTRACT: This Author's Certificate introduces an automatic valve for controlling fuel transfer from spare tanks to service tanks. The device is made up of a specially shaped control space and a spring return ball and float mechanism. The fuel system operation is made more reliable by a lever with an inertial weight which is built into the valve actuator.

ASSOCIATION: none

SUBMITTED: 28Feb63

ENCL: 00

SUB CODE: FP,IE,AC

NO REF SOV: 000

OTHER: 000

Card 1/1

EULANOVA, O.N.; ZAKS, I.O.

Acid-base equilibrium in the organism in dying from hemorrhage and in subsequent restoration of life functions. Pat. fiziol. i eksp. terap. 9 no.5:84-86 8-0 '65. (MIRA 19:1)

1. Laboratoriya eksperimental'noy fiziologii po ozhivleniyu organizma (zav. - prof. V.A. Negovskiy) AMN SSSR, Moskva. Submitted September 18, 1963.

GAYEVSKAYA, M.S., NOSOVA, Ye.A., ZAKS, I.O.

Effect of body temperature on the decomposition of energy resources of
the brain in death [with summary in English]. Ukr.biokhim.zhur.
30 no.4:513-520 '58 (MIRA 11:9)

1. Laboratoriya eksperimental'noy fiziologii po ozhivleniyu organizma
AMN SSSR, Moskva.

(BODY TEMPERATURE)
(DEATH (BIOLOGY))
(CEREBRAL CORTEX)

BULANOVA, O.N.; ZAKS, I.O.

(Moskva)

Hypoxia and acid-base equilibrium in prolonged artificial circulation produced by direct heart massage. Pat. fiziol. i eksp. terap. 6 no.6:17-22 N-D'62 (MIRA 17:3)

1. Iz laboratorii eksperimental'noy fiziologii po ozhivleniyu organizma (zav. - prof. V.A. Negovskiy) AMN SSSR.

BULANOVA, O.N.; ZAKS, I.O. (Moskva)

Blood substitution and oxidation of the intermediate products
of metabolism in resuscitation after clinical death. Pat.
fiziol. i eksp. terap. 7 no.4:40-45 J1-Ag '63.

(MIRA 17:9)

1. Iz laboratorii eksperimental'noy fiziologii po ozhivleniyu
organizma (zav.- prof. V.A. Negovskiy) AMN SSSR.

2475, 12.

SUBJECT: USSR/Welding 135-2-6/12

AUTHORS: Antonova, V. F., Engineer, Zaks, I.S., Engineer, and Zvegintsev, S.K., Engineer.

TITLE: Properties of metal coating made with electrodes УН-2 and УН-3. (Issledovaniya svoystv metalla, naplavlennogo elektrodami УН-2 i УН-3).

PERIODICAL: "Svarochnoye Proizvodstvo", 1957, No 2, pp 18-21 (USSR)

ABSTRACT: The experiments described in the article had the purpose of finding a replacement for the scarce and costly cobalt used to coat sealing surfaces of valves and other steam turbine and boiler parts, where the service conditions require extremely high resistance to corrosion and erosion, and hardness in temperatures over 500°C.

The UHUTMAN (TeNITMASH), and specifically V.A. Lapidus, Candidate of Technical Sciences, developed a new electrode - the УН-3 - and recommended it as fully replacing the УН-2 (containing cobalt). Up to now, sealing surface coating which most closely corresponds to technical conditions is obtained with cobalt-containing "stellite B-3K." The recom-

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TITLE:

Properties of metal coating made with electrodes $\text{U}_1\text{H}-2$ and $\text{U}_1\text{H}-3$. (Issledovaniya svoystv metalla, naplavlennogo elektrodami $\text{U}_1\text{H}-2$ i $\text{U}_1\text{H}-3$). 135-2-6/12

Relation of coating weight to rod	ГОСТ No	$\text{U}_1\text{H}-2$ (03K-43)	$\text{U}_1\text{H}-2$ (83K)	$\text{U}_1\text{H}-3$ (OX18H9)
weight.....	-	25-30	25-30	115-120

The recommended new electrode grade has been tested at the authors' plant (testing technology is given in detail). The criticism of the first consignment was: the actual chemical composition of the coating made with the new electrodes not in one single case corresponded to the TsNIITMASH'ES specifications (for instance: carbon 3.4 % instead of 1.7-2 %; the bottom content limit of chrome in one-layer deposit - 23% instead of 28 %, etc); the electrode coating which had been applied by pressure - cracked or slid off from some rods even at slight heat.

It was concluded that electrode $\text{U}_1\text{H}-3$ is no substitute for $\text{U}_1\text{H}-2$. The metal deposited by this electrode is an alloy of the sorbite type; satisfactory micro-structure and density of weld metal is only possible in one-layer deposit and only at a definite speed of crystallization; the multi-layer deposits form very coarse, brittle carbides of chrome which break out

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TITLE: Properties of metal coating made with electrodes $\text{UH} -2$ and $\text{UH} -3$. (Issledovaniya svoystv metalla, naplavlennogo elektrodami $\text{UH} -2$ i $\text{UH} -3$). 135-2-6/12

in grinding, the multi-layer coatings are also not sufficiently dense; their tensile strength in static bending tests is 2.5 times lower than of the deposit made by stellite $\text{UH} -2$. Experience with electrodes $\text{UH} -2$ shows that this grade $\text{B3K} - \text{UH} -3$

is satisfactory, and is to be recommended in arc-welding but not in gas-welding. The plant "Znanya Truda" has very good results in arc-welding with this grade.

There are 5 tables, 2 photographs, 7 micro-photographs. The article contains 3 references (all Russian).

INSTITUTION: Kirovskiy plant (Kirovskiy zavod).

PRESENTED BY:

SUBMITTED:

AVAILABLE: At the Library of Congress

Card 4/4

I 34882-66 EWT(m)/EWP(t)/ETI IJP(c) RDW/JD/GD

ACC NR: AT6013544

(A)

SOURCE CODE: UR/0000/65/000/000/0111/0114

AUTHOR: Yudelevich, I. G.; Shelpakova, I. R.; Avseyko, Ye. M.; Minskaya, L. N.;
Larina, L. K.; Chalkova, N. Ya.; Sosnovskaya, T. I.; Zaks, I. V.; Khamidulina, F. K.

ORG: None

TITLE: Spectrographic determination of trace elements in the raw materials and intermediate products of the rare metals industry

SOURCE: Ural'skoye soveshchaniye po spektroskopii. 4th. Sverdlovsk, 1963. Materialy. Moscow, Izd-vo Metallurgiya, 1965, 111-114

TOPIC TAGS: spectrum determination, zinc, lead, indium, thallium, germanium, selenium, tellurium, spectrographic analysis

ABSTRACT: A number of new methods are described for determination of ²⁷indium, ²⁷thallium, ²⁷germanium, ²⁷selenium and tellurium in intermediate products of the lead and zinc industry. Germanium is spectrographically determined by injection of powder specimens into an a-c arc discharge. The spectroscopic buffer for determination of more than 0.001% Ge is carbon powder containing 5% Bi(NO₃)₃ as an internal standard. The analytical line pair is Ge 269.13 mμ-Bi 280.96 mμ. For determining higher concentrations of germanium (above 0.1%), use is made of the Ge 258.91 mμ-Bi 280.96 mμ or Ge 274.04 mμ-Bi 280.96 mμ line. A buffer consisting of a mixture of quartz and sulfur

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L 34882-66

ACC NR: AT6013544

was used for determining traces of germanium of the order of 1 part in 100,000 in slags and mattes. The sensitivity of germanium determination with respect to the Ge 303.90 $\mu\mu$ line is $10^{-4}\%$ in this case with a relative error of about 15%. Commercial solutions are analyzed by electrode saturation. The relative mean square error is 9% with this method. Indium, thallium, gallium, and germanium are simultaneously determined by pouring the solutions to be analyzed into a socket in a special copper electrode and then drying the electrode so that the solution adheres to the surface. The advantage of this method over the saturation of carbon electrodes lies in the possibility of using the sensitive long-wave lines located in the region of cyanogen bands: In 410.18 $\mu\mu$, Ga 417.2 $\mu\mu$ and Tl 377.57 $\mu\mu$. This method gives a relative error of 9%. Methods are discussed for determination of rare elements in zinc and lead ores with a sensitivity of at least $10^{-4}\%$ using spectrographic analysis with a buffer solution of sodium fluoride. Orig. art. has: 1 figure.

SUB CODE://,20/ SUBM DATE: 06Jul65/ ORIG REF: 005/ OTH REF: 000

Card 2/2 *dt*

SHELPAKOVA, I.R.; ZAKS, I.V.

Spectrographic control of tellurium removal from lead.
Spor. trud. VINITISVIMMET no.9:189-191 '65.

(MIRA 18:11)

L 52098-65 EP7(c)/EwT(m)/T Pr-4 DJ

4

ACCESSION NR: AP5015267

UR/0286/65/000/009/0049/0049

AUTHORS: Stengrovits, O. Ya.; Balodis, V. N.; Iyevin'sh, Ya. K.; Vanag, Ya. P.; Plyavin'sh, A. A.; Zaks, L. B.; Zaltsmanis, G. R.; Rozite, G. I.; Slyshans, A. V.

TITLE: A rotary vacuum pump. Class 27, No. 170604

26
B

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 9, 1965, 49

TOPIC TAGS: vacuum pump, pressure, suction, lubricant^{ll}

ABSTRACT: This Author Certificate presents a rotary vacuum pump consisting of a cylindrical case with end covers, an eccentrically positioned rotor with plates, a suction nipple mounted on the cylindrical surface of the case, and pressure nipples (see Fig. 1. on the Enclosure). To distribute the lubricant uniformly along the length of the plates by changing the direction of motion of the gases being exhausted in the case, the pressure nipples are mounted in the end covers of the case. Orig. art. has: 1 figure.

ASSOCIATION: Glavnoye konstruktorskoye byuro severo-zapada pri zavode Rigel'mash (Main Construction Bureau of the Northwest at the Rigel'mash Plant)

SUBMITTED: 22Feb64

ENCL: 01

SUB CODE: IE

NO REF SOV: 000

OTHER: 000

Card 1/2 /

ZAYS, I. P., Figr, & MIL'SHTEIN, V. G., Cand Tech Sci.

"The Problem of Evaluating the Sensitivity of Electromagnetic Relays."

Avtomatika i Telemekhanika, Vol. 6, No. 4-5, 1961,

ZAKS, L. M.

IA 248T25

USSR/Electricity - Instruments

Feb 53

"Rational Selection of Parameters for a Series-Parallel Temperature-Compensation Circuit for Millivoltmeters," Engr L. M. Zaks, Moscow Inst of Measures and Measuring Instruments

Elek-vo, No 2, pp 62-63

Describes new procedure for detg optimum parameters of series-parallel temp compensation circuits for high-precision millivoltmeters. Procedure makes it possible to obtain max power in coil for a given permissible error at 10° C and for a minimum error

248T25

in a given range of operating temps. Presents graphs for detg circuit parameters according to technical requirements of instrument. Submitted 17 Jan 51.

248T25

ZAKS, L.M., inzhener.

General characteristics of magnetolectric indices in remote-measuring schemes. Elektrichestvo no.10:51-55 O '53. (MLRA 6:10)

1. Moskovskiy gosudarstvennyy institut mer i izmeritel'nykh priborov. (Magnetolectric machines) (Electric measurements)

MIL'SHTEYN, V.N.; ZAKS, L.M.

Energy correlations in electric measuring instruments. Izv.
tekh. no.1:36-45 Ja-F '55. (MIRA 8:9)
(Electric measurements)

MIL'SHTEYN, V.N.; ZAKS, L.M.

Reply to A.D. Nesterenko. Izv. tekhn. no. 5:23-25 S-0 '55. (MIRA 9:1)
(Electric instruments) (Nesterenko, A.)

ZAKS, L.M.

Category : USSR/General Problems - Method and Technique of Investigation

A-4

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 2893

Author : Zaks, L.M., Strizhevskiy, I.V.

Title : Instruments for the Measurement of Stray Currents

Orig Pub : Izmerit. tekhnika, 1956, No 3, 45-49

Abstract : The specific requirements imposed on instruments for the determination of the potential difference between a structure and ground and between underground structures, as well as for the measurement of currents within a structure, are indicated. Technical data are given on voltmeters and millivoltmeters intended for this purpose, either those already developed or those that can be developed on the basis of the electric-measuring instruments produced by the Russian industry.

Card : 1/1

— 7.12.1957.
YERMAKOV, V.I.; ZAKS, L.M.

Work of metrological institutes in the field of radio measurements.
Izm. tekhn. no.6:71-73 N-D '57. (MIRA 10:12)
(Radio measurements)

SUN' SU-FO [Sun Su-fo]; KOROVYAKOV, D.B., inzh. [translator]; ZAKS, L.M.,
kand.tekhn.nauk, red.; ANTIK, I.V., red.; MEDVEDEV, L.Ya., tekhn.red.

[Measuring power in multiphase circuits with transistorized instruments (based on the Hall effect)] Izmerenie moshchnosti v mnogovaznykh tsepiakh posredstvom poluprovodnikovyykh priborov (osnovannykh na effekte Kholla). Moskva, Gos.energ.izd-vo, 1958. 79 p.

(Electronic measurements)

(MIRA 13:1)

ZAKS, L.M.

Standard self-balancing direct-current bridge using thermistors.

Trudy inst. Kom. stand., mer i izm. prib. no.48:7-23 '60.

(MIRA 14:6)

(Bridge circuits) (Electronic measurements)

ZAKS, L.M.

Some results of the activity of metrological institutes in 1960.
Izm.tekh. no.4:1-4 Ap '61. (MIRA 14:3)
(Mensuration)

ZAKS, L.M.; RYNKEVICH, V.P.

Standardization of radio measurement equipment. Izv. tekhn.
no. 5:38-40 My '61. (MIRA 14:5)
(Radio measurements--Equipment and supplies--Standards)

27843

6.4300

S/115/61/000/009/002/006
E032/E114

AUTHORS: Zaks, L.M., and Belikov, Ye.N.

TITLE: Bolometric d.c. bridge for S.H.F. power

PERIODICAL: Izmeritel'naya tekhnika, 1961, No.9, pp. 34-37

TEXT: The apparatus developed by the present authors is illustrated in the figure. The device consists of two bridges: an external supply bridge and an internal measuring bridge. In addition, there is a stabilised supply source 1 with a photocompensated d.c. voltage stabiliser, an output meter (ferro-dynamic wattmeter), null-point indicator 2 with a photo-compensated d.c. amplifier, and a compensating current source 3. The bolometer R_b and the resistor r_b form one arm of the internal measuring bridge and the resistance of the constant comparison arm is equal to the maximum possible working resistance of the bolometer. The supply bridge incorporates the fixed-coil of the wattmeter W_1 , and the compensating circuit includes the second fixed coil W_2 and the movable frame W_3 . The initial balance is achieved by adjusting r_b and by the current through the bolometer by varying the output voltage of the

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27843

Bolometric d.c. bridge for S.H.F. ...

S/115/61/000/009/002/006
E032/E114

photocompensated stabiliser. The SHF power incident on the bolometer is compensated by reducing the heating current through the bolometer. The latter is achieved by applying an opposite compensating current. The compensating current produced by the ferroresonance stabiliser 3 is adjusted manually until the bridge is balanced. The measured power is indicated by the output wattmeter. The upper circuit in the figure employs a symmetric supply bridge and is used with small working ranges; the lower circuit employs a non-symmetric supply bridge. The former is employed with waveguide bolometric heads, and the latter with coaxial bolometric heads. The power meter has the following characteristics: working range 100 microwatt to 1 watt, bolometer resistance range 180-640 ohm; errors range between 6 and 10%. Expressions are derived which give the power as a function of the instrumental parameters. The present bolometer is based on previous work by the present authors (Ref.1: L.M.Zaks. Obraztsovyy avtomaticheskiiy termistornyy most postoyannogo toka. "Prototype automatic thermistor d.c. bridge": Trudy institutov komiteta standartov, mer i izmeritel'nykh priborov, "Trans. of the

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Bolometric d.c. bridge for S.H.F. ...²⁷⁸⁴³
S/115/61/000/009/002/006
E032/E114

Institutes of the Committee for Standards, Measures and Measuring
Instruments", Standartgiz, M., 1960, 48, (108), p.7) and
Ref.2:(L.M. Zaks and Ye.N. Belikov, Avt. svid. No.136794 c
prioretetom ot 18/3/1960, "Author's Certificate No.136794, Priority
from March 18, 1960").

There are 1 figure and 2 tables.

4

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34671

S/115/62/000/002/007/009

E192/E382

9,4320(1301, 1147, 1163, 2901)

AUTHORS: Zaks, L.M., Petrov, V.M. and Belikov, Ye.N.

TITLE: Improving the ~~las~~sensitivity of thermistor wattmeters for UHF

PERIODICAL: Izmeritel'naya tekhnika, no. 2, 1962, 43 - 48

TEXT: The main factor limiting the sensitivity and accuracy of thermistor wattmeters for UHF is the instability of its indications due to the instability of the temperature of the thermistor and the instability of its heater current. A method of increasing the sensitivity of a thermistor power-meter is described in the following. This is based on the use of temperature compensation and a special galvanometer stabilizer which results in a very high stability of the supply current for the measurement circuit. The methods of temperature compensation of thermistor meters for UHF power are usually based on a coaxial compensating thermistor whose resistance is dependent only on the temperature of the surrounding medium and is practically independent of the current flowing through the thermistor. The condition of compensation is achieved if,
Card 1/5

S/115/62/000/002/007/009
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Improving the

during temperature changes of the thermistor holder (i.e. temperature of the measuring and compensating thermistors), the changes in the resistance of the compensating thermistor result in a change in the current of the measuring thermistor and the power dissipated in it, such that its temperature and resistance are kept constant. The method of temperature compensation devised at VNIIFTRI is based on the use (Ref. 4: Zaks and Petrov - Authors' Certificate no. 670724/26, June 20, 1960) of an inertia-type compensating thermistor placed in the thermistor holder. This thermistor is in direct contact with the holder and is at the same temperature as the measuring thermistor. The compensating thermistor is connected not in the supply network of the measuring bridge but in the circuit of the reference voltage of a stabilizer feeding the bridge. In this way, it is possible to reduce to a negligible value the power dissipated in the compensating thermistor and thus to increase the efficiency of the temperature compensation in comparison with the other known methods (Ref. 1 - Measurement techniques at centimetre waves, Part II. Pub. Sovetskoye radio, Moscow, 1942:

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Improving the

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Ref. 3 - R.A. Valitov and V.N. Sretenskiy - Radio measurements at ultrahigh frequency, Voenizdat, 1958). The compensating circuit operates as follows. When the temperature of the thermistor-holder is changed, the temperature of the measuring and compensating thermistors, which are in the same thermal conditions, changes accordingly. The change in the resistance of the compensating thermistor, which is connected in the reference circuit of the voltage-stabilizer, leads to a change in the stabilized voltage and this results in a change of the current in the measuring transistor and the power dissipated in it. The temperature of the measuring thermistor and resistor is therefore unchanged. Consequently, when the temperature of the holder is varied, the balance of the thermistor bridge and the indication of the power-meter are unchanged. The reference-voltage divider, which is connected in the feedback loop of the voltage-stabilizer, is in the form of an unbalanced bridge (see Fig. 1), whose output "diagonal" contains the reference-voltage source e and a galvanometer Γ . The e.m.f. of the reference element is connected "against" the voltage of the Card 3/5

Improving the

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output diagonal of the bridge. The galvanometer stabilizer circuit is illustrated in Fig. 2. The system has three correction circuits. The capacitance $C_{k1} = 0.1 \mu F$ is connected in the diagonal of a photo-resistor bridge circuit and its purpose is to suppress the oscillations of 50 kc/s frequency. The low-frequency oscillations are suppressed by the network consisting of the capacitance $C_{k3} = 1 \mu F$ and resistance r_3 as well as the correcting network consisting of the capacitance $C_{k2} = 1 \mu F$ and a variable resistance $R_{k2} = 47 k\Omega$. This circuit is connected between the input of a DC amplifier consisting of transistors T_1, T_2 and the output of the control transistor R_3 . The input voltage of the power stage of the stabilizer is additionally stabilized by an auxiliary transistor stabilizer based on an emitter-follower T_4 , whose reference voltage is provided by a pair of reference diodes.

Card 4/5

ACCESSION NR: AT3013121

S/2589/62/000/065/0013/0020

AUTHOR: Zaks, L. M.; Petrov, V. M.

TITLE: New method of temperature compensation of thermistor microwave wattmeters

SOURCE: USSR. Komitet standartov, mer i izmeritel'ny*kh priborov, Trudy* institutov Komiteta, no. 65, 1962, 13-20

TOPIC TAGS: microwave power, microwave wattmeter, thermistor, thermistor wattmeter, temperature compensation

ABSTRACT: A new method is described for adjustable thermal compensation of thermistor wattmeters with the aid of an inertial thermistor, connected in the feedback circuit of the stabilizer feeding the measuring bridge. The development of this method is brought about by the fact that the customary method of connecting the compensation thermistor directly in the bridge supply circuit cannot be used for universal high-accuracy thermistor bridges intended to operate over a wide frequency range, in view of the intolerably large power dissipated in the compensation thermistor. The new method ensures the possibility

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ACCESSION NR: AT3013121

of exact adjustment of the thermal compensation by determining the change in the readings of the wattmeter. The design of the circuit is described and the test results reported. The instability does not exceed 0.05 microwatt per minute. Orig. art. has: 4 figures and 6 formulas.

ASSOCIATION: VNIIFTRI

SUBMITTED: Jul61

DATE ACQ: 28Oct63

ENCL: 02

SUB CODE: EE

NO REF SOV: 003

OTHER: 001

Card

2/7

ARUTYUNOV, V.O.; GORDOV, A.N.; ZAKS, L.M.; IVLEV, A.I.; KOLLEROV, D.K.

Fundamentals of the organization of a national system of standard information data. Izv. tekhn. no. 5:1-5 My'64 (MIRA 17:7)

L 2597-66 EWT(1)/EEC(k)-2/EWA(h)
ACCESSION NR: AP5019199

UR/0115/65/000/006/0041/0043
621.317.733.023

AUTHOR: Zaks, L. M.; Petrov, V. M.; Belikov, Ye, N.

TITLE: M4-3 self-balancing thermistor d-c bridge for measuring shf power

SOURCE: Izmeritel'naya tekhnika, no. 6, 1965, 41-43

TOPIC TAGS: thermistor bridge, dc bridge, ²⁵shf wattmeter / M4-3 thermistor bridge

ABSTRACT: A newly developed portable ²⁸M4-3 shf thermistor bridge¹⁰, which is an improvement of the older M4-1²⁸ type, has a d-c double-bridge circuit, a direct reading on a ferrodynamic-wattmeter scale, and an autocompensation system. Its measurement scope is 5-7500 μ w; basic error, $1.5 \pm 0.3\%$; zero-point drift, 0.3 μ w; supply, 220 v 50 cps; weight, 25 kg. The double thermistor bridge consists of an external supply bridge in one of whose arms an internal measuring bridge is inserted. The shf measuring thermistor forms an arm of the internal

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L 2597-66

ACCESSION NR: AP5019199

bridge. A simplified diagram of the M4-3 bridge is supplied. "These men took part in the development of the instrument and building prototypes: A. D. Selivanovskiy, A. K. Tomashévskiy, A. F. Lukashev, A. H. Razorenov, A. V. Alushkov, and I. I. Suchkov." Orig. art. has: 2 figures and 1 table.

ASSOCIATION:

SUBMITTED: 00

ENCL: 00

SUB CODE: EC

NO REF SOV: 004

OTHER: 000

Milt
Card 2/2

L 3801-66

ACCESSION NR: AP5025585

UR/0115/65/000/009/0041/0043
621.317.733.023

10
23

AUTHOR: Zaks, L. M.; Belikov, Ye. N.; Rypalev, S. V.; Petrov, V. H.

TITLE: A thermistor bridge with automatic digital readout and automatic zero correction

SOURCE: Izmeritel'naya tekhnika, no. 9, 1965, 41-43

TOPIC TAGS: thermistor, power meter, resistance bridge, digital readout system

ABSTRACT: A self-balancing thermistor bridge is described in which the upper limit of accuracy is raised by using an automatic digital readout system, and the threshold of sensitivity is lowered by adding automatic zero correction to the system. The automatic digital power readout is based on the use of a measuring multiplier which uses the pulse-time method for multiplying two dc voltages taken from the measurement circuit of the bridge. At the output of the multiplier is an analog-digital converter which changes the voltage to a proportional time interval, and an electronic meter which shows these intervals in digital form. The method for automatic zero correction is based on periodic blanking of the modulator for the shf chan-

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L 3801-66

ACCESSION NR: AP5025585

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nel and automatic balancing of the measurement system when the power is blocked by means of an electronic servosystem which "remembers" the current level for heating the thermistor. The power reading is fixed directly after automatic zero correction to improve accuracy. A schematic diagram of the instrument is shown and the operating principles are described in detail. The bridge is designed for measuring powers in three ranges up to 10, 100 and 1000 μ w. The measurement error is 0.3% at the maximum power readings. The instrument can also be used for measuring small power values of the order of a few μ w with an error of less than 0.03 μ w. Orig. art. has: 1 figure.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: EC

NO REF SOV: 007

OTHER: 001

PC
Card 2/2

DYUZHIN, A.T.; ZAKS, L.M.

Automation in metrology. Izv. tekhn. no. 12:3-5 D '64.

(MIRA 18:4)

ARUTYUNOV, V.O.; ZAKS, L.M.; IVLEV, A.I.

Functions and problems of modern metrology. Izv. tekhn. no.11;
1-5 N '64. (MIRA 18:3)

CA ZAKS, L.S.

22

The residual water in petroleum collectors. L. S. Zaks. *Izv. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1947, 787-881; *Chem. Zentr.* 1948, I, 825. By distn. with toluene or a naphtha fraction the water in various specimens of petroleum-bearing rock was distd. over and detd. Water contents of 0.15-4.27% were found. The relation between the permeability and the water content must be considered in evaluating petroleum-bearing minerals.
M. G. Moore

DUBROVA, B.M.; ZAKS, L.S.; PISKAREVA, K.A.

Improvement of the quality of enamels for agricultural machines
by introducing talcum as filler. *Lakokras.mat. i ikh prim. no.1:*
42-45 '60. (MIRA 14:4)

(Enamel and enameling)

KOZLOVA, P.K.; ZAKS, L.S.

Painting farm machinery with heated enamels. Sel'khozmaschina no.11:23-26
N '53. (MIRA 6:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sel'skokhozyaystvennogo
mashinostroyeniya. (Agricultural machinery) (Painting, Industrial)

KOZLOVA, P.K., kandidat tekhnicheskikh nauk; ZAKS, L.S., nauchnyy sotrudnik.

Thickening of glyptal enamels during storage. Sel'khozmaschina no.4:
26-29 Ap '56. (Enamel and enameling) (MIRA 9:7)

ZAKS, M., kapitan intendantskoy sluzhby

Take good care of personal equipment. Tyl i snab.Sov. Voor.S11 21
no.2:89 F '61. (MIRA 14:6)

(Russia—Army—Supplies and provisions)

MORIT, Yu., inzh.; ZAKS, M., inzh.

Grain cleaning and drying station. Trakt. i sel'khoz mash. 33 no. 1126-29
Ja '63. (MIRA 16:3)

1. Pribaltiyskaya mashinospytatel'naya stantsiya
(Grain—Cleaning) (Grain—Drying)

ZAKS, M.,¹ MASHOVA, A.

"A New Method of Raising the Fat Level in Milk" p. 931, (ZA SOCIALISTICKE ZEMEDELSTVI, Vol. 2, no. 8, August 1952, Praha, Czechoslovakia).

SO: Monthly List of East European Accessions, LC, Vol. 2, No. 11, Nov. 1953, Uncl.

ZAKS, M. F., Prof., YEGOROVA, A.A., NYUKANEN, L.A., OLENEV, YU.M.

Milking

Heat action on the udder as a means of increasing fat content of milk. Sov. zotekh.
7 no. 9, 1952.

Monthly List of Russian Accessions, Library of Congress, November, 1952. Unclassified.

RUMANIA / Farm Animals. Cattle. Q

Abs Jour : Ref Zhur - Biologiya, No 2, 1959, No. 7370

Author : Zaks, M. G.

Inst : Not given

Title : Regulating the Elimination of Milk Fat

Orig Pub : An. Rom.-Sov. Ser. Agric.-zootehn., 1957, 11,
No 4, 91-107

Abstract : No abstract given

Card 1/1

53

D'YACHEKOV, B.A., kand.tekhn.nauk; ZAKS, M.I., inzh.; RYVKIN, A.L., inzh.

Universal rectifier for welding apparatus with a wide range of voltage and current regulation. Vest. elektroprom. 31 no.10:36-41
O '60. (MIRA 15:1)

(Electric current rectifiers)
(Electric welding--Equipment and supplies)

SAK, M.I.

Design and operation of a two-stage heat exchanger.
Vol. 1 sum. tech. c. 9:10-18 S '61. (1961. 14:00)
(Hot-water heating)

1ST AND 2ND COPIES

PROCESSES AND PROPERTIES INDEX

11F

ca

The mechanism of thyroid stimulation during pregnancy in rabbits. M. G. Zaka. *J. Physiol. (U. S. S. R.)* 28, 132-8 (in English, 138) (1940); cf. *C. A.* 34, 6686.— Denervation of the thyroid during pregnancy lowers the basal metabolic rate by an av. of 12%. It does not affect basal metabolic changes occurring during the last third of pregnancy. T. I. Gerasimov

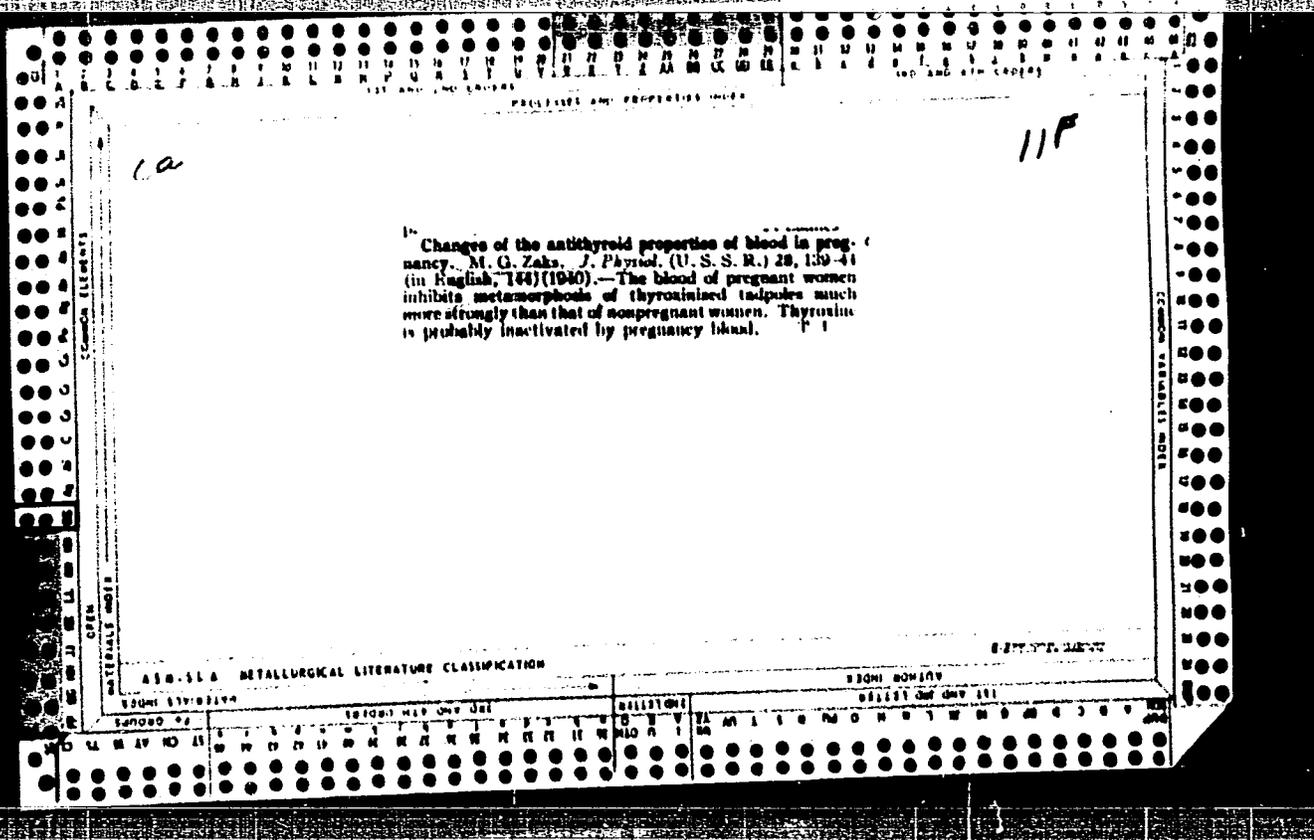
ASTM-SLA METALLURGICAL LITERATURE CLASSIFICATION

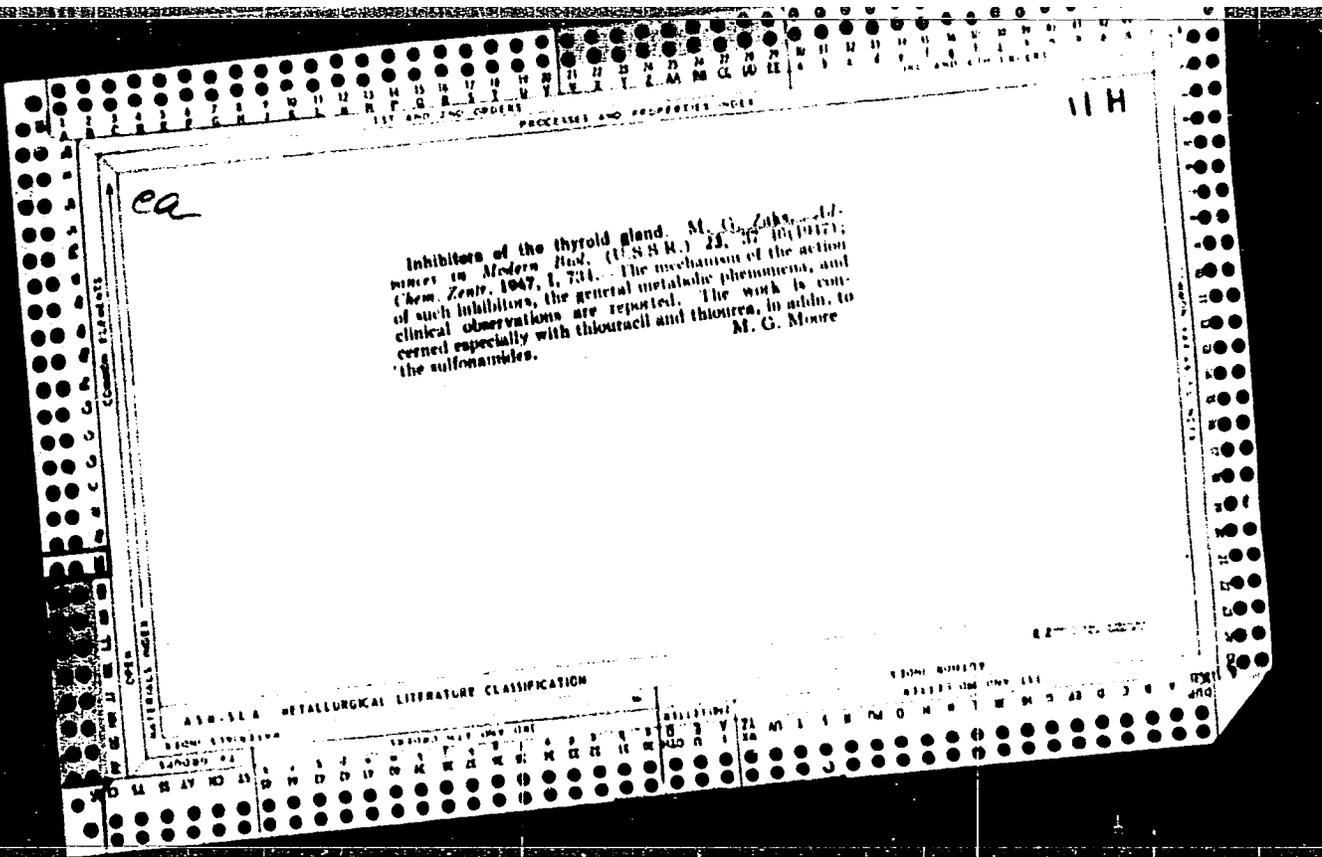
REGIONAL DIVISIONS										SUBJECTS									
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z										A B C D E F G H I J K L M N O P Q R S T U V W X Y Z									

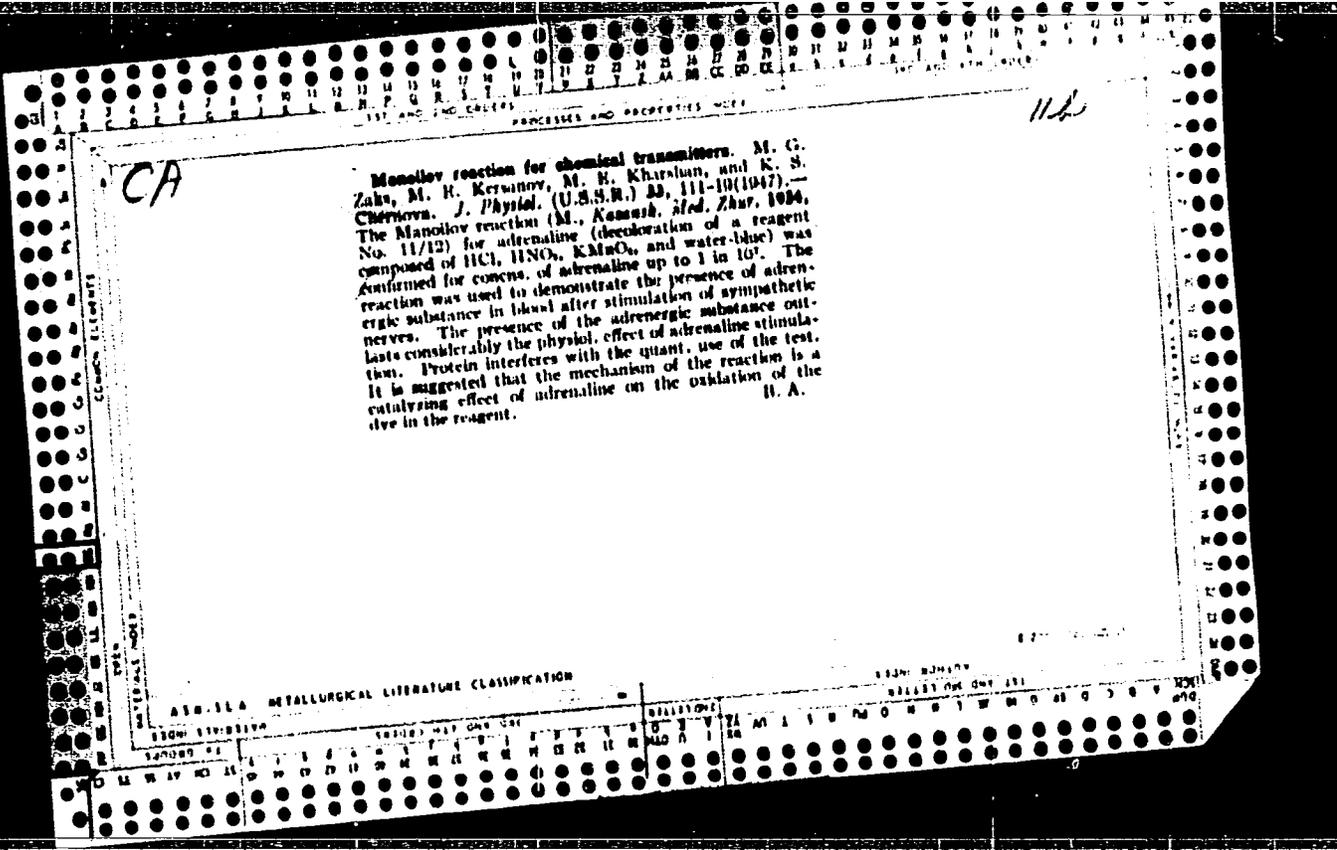
MATERIALS INDEX

COMMON ELEMENTS

COMMON VARIABLES INDEX







PROCESSING AND PROPERTIES INDEX

11-1

CA

» Effect of thiourea on metamorphosis of tailless amphibia. M. G. Zaks and G. B. Tyvrakof (Leningrad State Fediat. Med. Inst.); *Fiziol. Zhur. S.S.S.R. (J. Physiol.)* 33, 233-44(1947).—Tadpoles of *Rana lessonae* were subjected to thiourea at various stages of development as well as under metamorphosis induced by thyroxine. Keeping tadpoles in 0.003% thiourea soln. for 7 days resulted in definite retardation of tail growth, with especial effect at the end of metamorphosis (tail resorption). These specimens on immersion in pure water completed their metamorphosis within 8 days; those left in thiourea soln. remained immature. Growth retardation was very pronounced in young specimens in early growth stages. If thyroxine (10^{-4} soln.) is added to the medium after the thiourea effect becomes apparent (12 days), the metamorphosis is accelerated in both test and control groups, with the test group showing a much more pronounced stimulation of growth, as well as the higher lethal percentage. Thus, thiourea enhances the thyroxine effect.

G. M. Kowolapoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

111 AND OTHER LETTERS

111 AND OTHER LETTERS

ZAKS, M.G.

Experimental renal pathology and evolution of renal function.
Zhur. evol. biokhim. i fiziol. 1 no.1:52-58 Ja-F '65.

(MIRA 1E:6)

1. Laboratoriya razvitiya vydelitel'noy funktsii Instituta
evolyutsionnoy fiziologii i biokhimii im. I.M. Sechenova AN
SSSR, Leningrad.

ZAKS, M.G.

27674.

ZAKS, M.G. I GERBIL'SKIY, N.L. Vliyaniye tiomocheviny na vynoslivost' K kislородnomu goledaniyu lichinok I mal'kov lososya I foreli. trudy laboratorii os nov rybovodstva, t. II, 1949, s. 182-94. Bibliogr. 16 nazv.

30: Knizhnaya Letopis, Vol. 1, 1955

ZAKS, M.G.

BARYSHNIKOV, I.A; ZAKS, M.G; PAVLOV, Ye.F.

Effect of the maternal organism on the color of the progeny in rabbits following transplantation of ovaries. Izv.Akad.nauk SSSR Ser.biol.,Moskva no.6:77-96 Nov-Dec 50. (CML 20:4)

1. Physiological Institute imeni I.P. Pavlov of the Academy of Sciences USSR, Laboratory of the Physiology of Farm Animals.

CA

11F

Problems of neuro-humoral regulation of lactation. M.
Zakharenko. *Sovetskii Sovremennoi Biol.* (Advances in Modern
Biol.) 20, 74 (1959). A review with many references.
G. M. Kozlovskii

ZAKS, M.G. with Ginetzinskiy , Itina, and Sokolova.

Lab of Neuromuscular Physiology, Physiology Inst im. I.P.Pavlov, Acad Sci USSR

Functional characteristics of somatic muscle fibers grown outside of the body.

So: Fiziologicheskii Zhurnal Vol 36, No 1, 1950

ZAKS, M. G.

"Neuroregulation of Motor Function of the Breast; Storage and Output of Milk." (pp. 423-39)
by Baryshnikov, I. A., Zaks, M. G., Zotikova, I. N., Levitskaya, E. S., Pavlov, G. N.,
Pavlov, E. F., and Tsakhaev, U. A.

SO: Journal of General Biology (Zhurnal Obshchei Biologii) Vol. 12, No.6, (Nov-Dec) 1951.

GTRSP L Vol. 5 No. 1 Jan. 1952

Baryshnikov, I.A., Zaks, M.G. and Pavlov, E.F. (I.P. Pavlov Institute of Physiology, U.S.S.R. Academy of Sciences, Laboratory of Physiology of Farm Animals). Effect of the maternal organism on the coloring of the fur of the offspring of female rabbits with transplanted ovaries. 77-96

Izvestiya Akademii Nauk, S.S.S.R., Seriya Biologicheskaya No. 6-1951

ZAKS, M. G.: ZANKOVA, M. A.

Thioureas

Effect of thiourea on oxygen metabolism in salmon and sturgeon larvae. Dokl. An SSSR 84 No. 5, 1952.

Monthly List of Russian Accessions, Library of Congress,
October, 1952. UNCLASSIFIED.

ZAKS, M.G.

Neural regulation of mammary gland activity. I. A. Baryshnikov, V. M. Borsuk, M. G. Zaks, I. H. Zolotareva, G. N. Pavlov, and V. I. Tolstuzhin (I. P. Pavlov Inst. Physiol. Acad. Sci. U.S.S.R., Moscow). *Zhur. Obshch. Biol.* 14, 257-74 (1953). - Variations in butterfat content, especially in the alveolar portion of cow milk, under mech. and elec. nerve stimulation form part of the evidence that neural regulation of lactation includes a special control of the fat-forming function in mammary glands. Cf. C.A. 46, 925c.

- Sub 7 Physiol. of Agric. Animals,

Julian F. Smith

ZAKS, M.G.

Reflexive regulation of the tonus of the udder and its internal pressure.
Trudy Inst.fiziol. 4 34-50 '55. (MLRA 9:4)

1.Laboratoriya fiziologii sel'skokhozyastvennykh zhivotnykh. Zaveduyushchiy
I.A.Baryshnikov.
(Udder) (Conditioned response)

BORSUK, V.N.; ZAKS, M.G.

Distribution of fat and casein in successive samples from a single milking of cows. Trudy Inst.fiziol. 4:81-92 '55. (MLRA 9:4)

1.Laboratoriya fiziologii sel'skokhozyaystvennykh zhivotnykh. Zaveduyushchiy I.A.Baryshnikov.
(Milk--Analysis and examination) (Casein) (Fat)

BORSUK, V.N.; ZAKS, M.G.

Characteristics of the production of butterfat in cows with varying degrees of fats in milk. Trudy Inst.fiziol. 4:93-102 '55. (MLRA 9:4)

1.Laberateriya fiziologii sel'skokhozyaystvennykh zhiivotnykh Zavoduyushchiy
I.A.Baryshnikov.
(Lactation)

ZAKS, M.G.; OLENOV, Yu.M.; MAKBYEVA, I.P.

New data on the regulation of milk secretion. Zhur.ob.biol. 17 no.5:
355-363 S-O '56. (MIRA 9:12)

1. Institut biologii Karelo-Finskogo filiala Akademii nauk SSSR.
(LACTATION) (REFLEXES)

ZAKS, M.G. (Leningrad)

Regulation of the secretion of milk fat. *Usp.sovr.biol.* 42 no.2:
202-214 S-0 '56. (MIRA 9:11)
(LACTATION)

OLENOV, Yu.M.; ZAKS, M.G.

On the role of conditioned-reflex stimuli in milk excretion by cows.
Dokl.AN SSSR 108 no.4:754-756 Je '56. (MIRA 9:9)

1.Institut biologii Karelo-Finskogo filiala Akademii nauk SSSR.
Predstavlene akademikom L.A.Orbeli.
(CONDITIONED RESPONSE) (LACTATION)

2. P. 113, 114
ZAKS, Maksim Guegovich; GINETSINSKIY, A.G., otvetstvennyy red.; BIANKI, V.L.,
red.izd-va; PEVZNER, R.S., tekhn.red.

[Physiology of the motor apparatus of the mammary gland in farm
animals; accumulation and secretion of milk] Fiziologii dvigatel'-
nogo apparata molochnoi zhelezy sel'skokhoziaistvennykh zhiivotnykh;
nakoplenie i vyvedenie moloka. Moskva, Izd-vo Akad. nauk SSSR,
1958. 184 p. (MIRA 11:3)
(Lactation)

GINETSINSKIY, A.G., prof., ZAKS, M.G., doktor med.nauk (Leningrad)

~~.....~~
Kidneys. Zdorov'e 4 no.12:9-11 D '58

(MIRA 11:12)

1. Chlen-korrespondent AMN SSSR (for Ginetsinskiy)
(KIDNEYS)

GINETSINSKIY, A.G., VASIL'YEVA, V.F., ZAKS, M.G., SOKOLOVA, M.M., SOO, V.A.

Method for determining changes in elasticity of the female breast.
Akush. i gin. 34 no.5:104-106 S-0 '58 (MIRA 11:10)

1. Iz Instituta akusherstva i ginekologii (dir. - chlen-korrespondent
AMN SSSR P.A. Beloshapko) AMN SSSR i Institut evolyutsionnoy fiziologii
imeni I.M. Sechenova (dir. - akad. L.A. Orbeli) AN SSSR.
(BREAST, physiol.
capacity furot., method of determ. (Rus))

AUTHORS: Ginetsinskiy, A. G., Zaks, M. G., 307/20-120-1-60/63
Titova, L. K.

TITLE: The Mechanism of Action of the Antidiuretic Hormone
(Mekhanizm deystviya antidiureticheskogo gormona)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 120, nr 1,
pp. 216-218 (USSR)

ABSTRACT: In the investigation of the hyaluronidase activity of
urine the authors became convinced (reference 1) that
the process of facultative water re-absorption is based on
the increase of the permeability of the intercellular
intermediate strata which cement the epithelium of the
small distal canals. The authors suppose that the effect
of the antidiuretic hormone (ADH) which stimulates the
re-absorption is connected with the secretion of a ferment
by the nephritic cells, which depolymerizes the hyaluronic
acid. This latter forms a constituent of the intercellular
cement. This supposition which assumes the structural
change of the kidney muco-polysaccharides could be proved

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The Mechanism of Action of the Antidiuretic Hormone SOV/20-120-1-60/63

directly in a histochemical way. For the test white rats were used. The animals of one group were killed at the climax of the diuresis which was caused by water load, those of the other group after a 48 hour withdrawal of water or after an injection of Pituitrin-P. Quickly excised kidneys were investigated histochemically. Microscopic photographs of the fixed and dyed preparations are shown in the figures 1 - 3. The authors lay down the following facts as proved: 1. ADH stimulates the cells of the collecting duct (sobiratel'nyye trubki) which begins to secrete according to an apocrine type, with the secretion showing the ferment hyaluronidase. 2. The secreting ferment causes very quickly a depolymerizing effect on the hyaluronic complexes which form a constituent of the intercellular cement and of the basement membrane of the small canals. This effect renders those structures permeable to water which separate the lumens of the small canals from the interstitial tissue. The hypotonic contents of the small tubes follows the osmotic gradient, and as a consequence of that is re-absorbed facultatively. 3. The water entering the interstices is removed by an extensive

Card 2,4

The Mechanism of Action of the Antidiuretic Hormone SOV/20-120-1-60/63

network of opening lymphatic capillary vessels. 4. All these processes are localized in the most external distal nephritic section in the collecting ducts which also form the main point of facultative water re-absorption. The naming of this section should be changed as the term "collecting duct" does in no way correspond to the importance of the very active processes taking place in it. There are 3 figures and 6 references, 2 of which are Soviet.

ASSOCIATION: Institut evolyutsionnoy fiziologii im. I. M. Sechenova Akademii nauk SSSR (Institute of Evolutionary Physiology imeni I. M. Sechenov, AS USSR)

PRESENTED: January 31, 1958, by L. A. Orbeli, Member, Academy of Sciences, USSR

SUBMITTED: January 29, 1958

Card 3/4

The Mechanism of Action of the Antidiuretic Hormone SOV/20-120-1-60/63

1. Hormones--Physiological effects
2. Kidneys--Physiology
3. Kidneys--Performance
4. Rats--Physiology

Card 4/4

ZAKS, M.G.; TITOVA, L.K.

Histological and histochemical changes in the kidney of rats under conditions of hydration and antidiuresis. Arkh.anat. gist. i embr. 37 no.7:19-28 J1 '59. (MIRA 12:10)

1. Laboratoriya evolyutsii vydelitel'nykh protsessov (zav. - prof.A.G.Ginetsinskiy) i laboratorii evolyutsionnoy morfologii (zav. - prof.Ya.A.Vinnikov) Instituta evolyutsionnoy fiziologii im. I.M.Sechenova AN SSSR. Adres avtorov: Leningrad F-121. Prosp.Maklina, d.32. In-t evolyutsionnoy fiziologii im. I.M. Sechenova.

(VASOPRESSIN, pharmacology)
(KIDNEY, physiology)

ZAKS, M.G.; SOKOLOVA, M.M.

Role of potassium in the adaptation of lugworm tissues to hypotonic media. *Sitologia* 2 no.4:448-453 J1-Ag '60. (MIRA 13:9)

1. Laboratoriya evolyutsii vydelitel'nykh i sekretornykh protsessov Instituta evolyutsionnoy fiziologii AN SSSR, Leningrad. (POTASSIUM CHLORIDE--PHYSIOLOGICAL EFFECT) (POLYCHAETA)

ZAKS, M.G.; SOKOLOVA, M.M.

Mechanisms of adaptation to changes in the salinity of water in the
sockeye salmon (*Oncorhynchus nerka* (Walb.)). Vop. ikht. 1 no. 2: 333-
346 '61. (MIRA 14:6)

1. Laboratoriya evolyutsii vydelitel'nykh protsessov Instituta
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