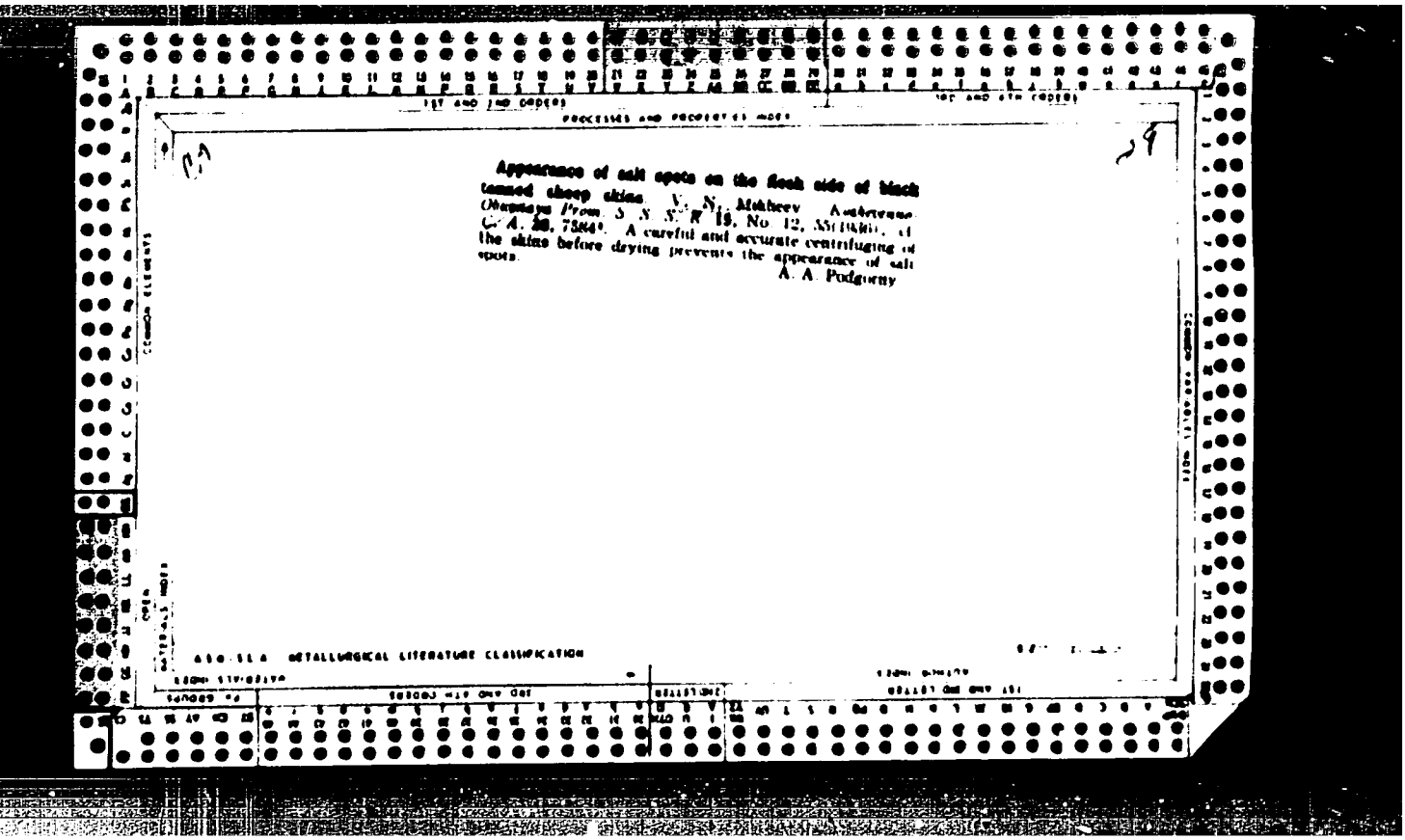
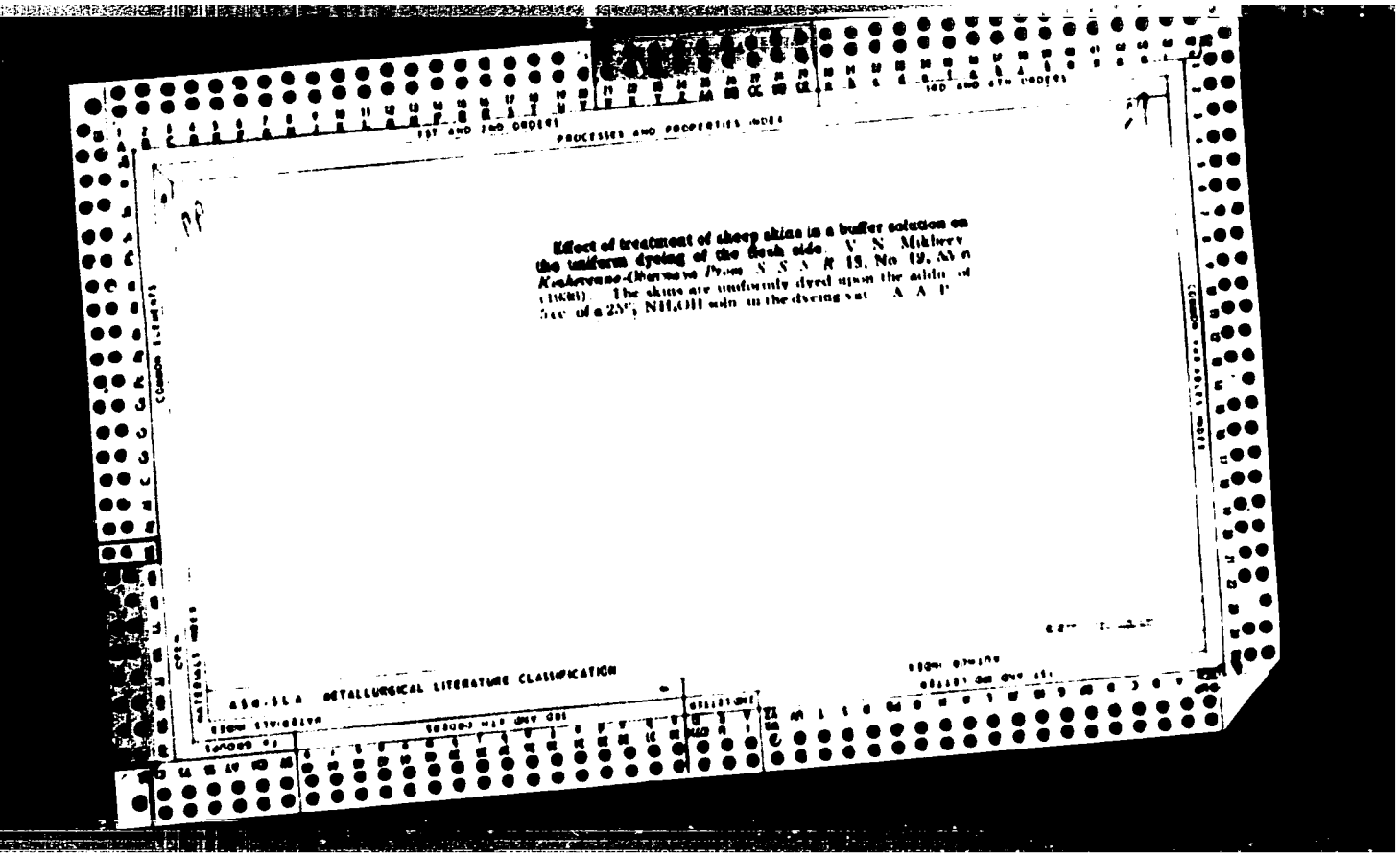
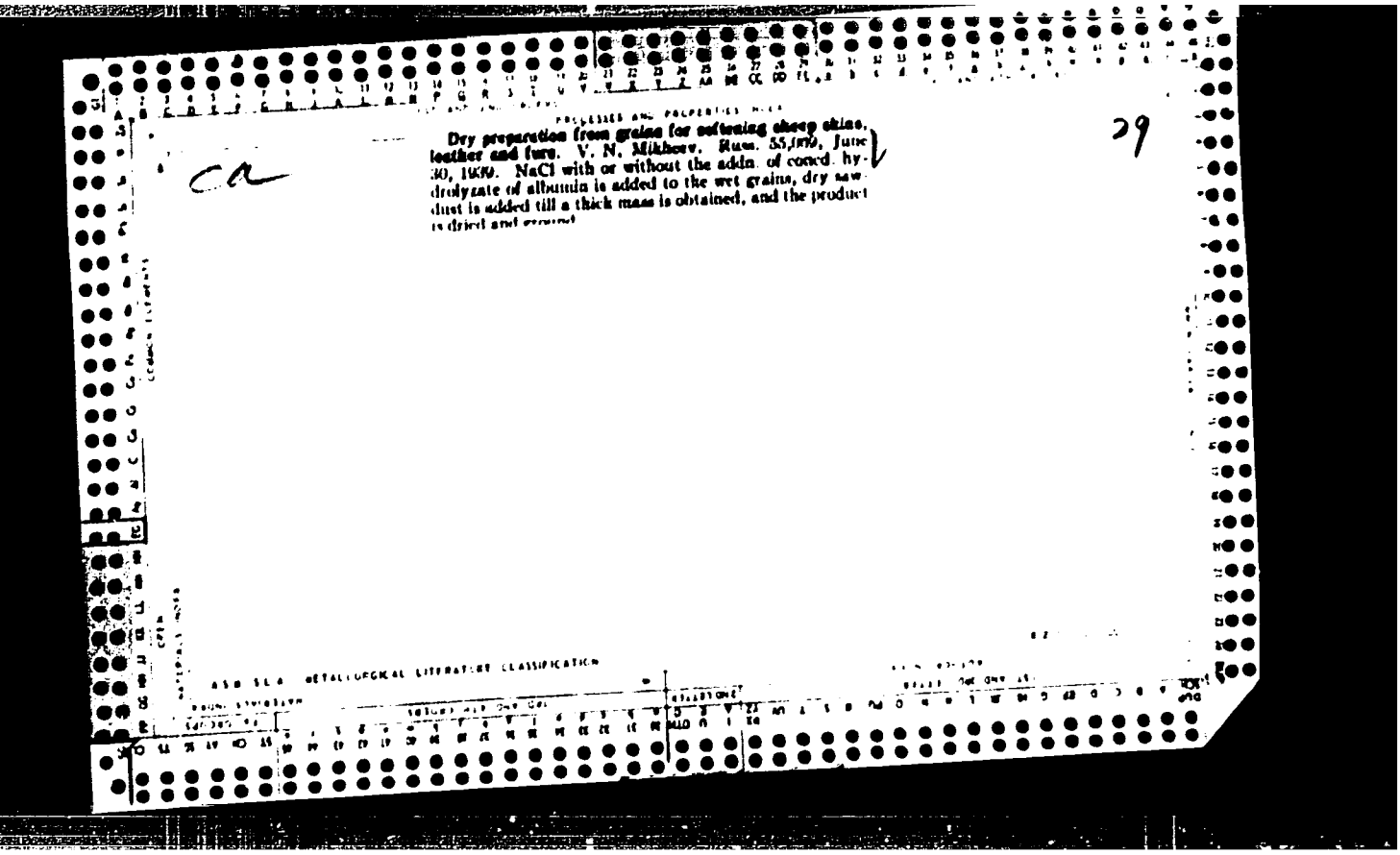


Appearance of salt spots on the flesh side of black tanned sheep skins. V. N. Mikheev. Avtoreferat Otkrytaya Prom. S. S. S. R. 19, No. 12, 55(1949); C. A. 50, 7584g. A careful and accurate centrifuging of the skins before drying prevents the appearance of salt spots.

A. A. Podgorny

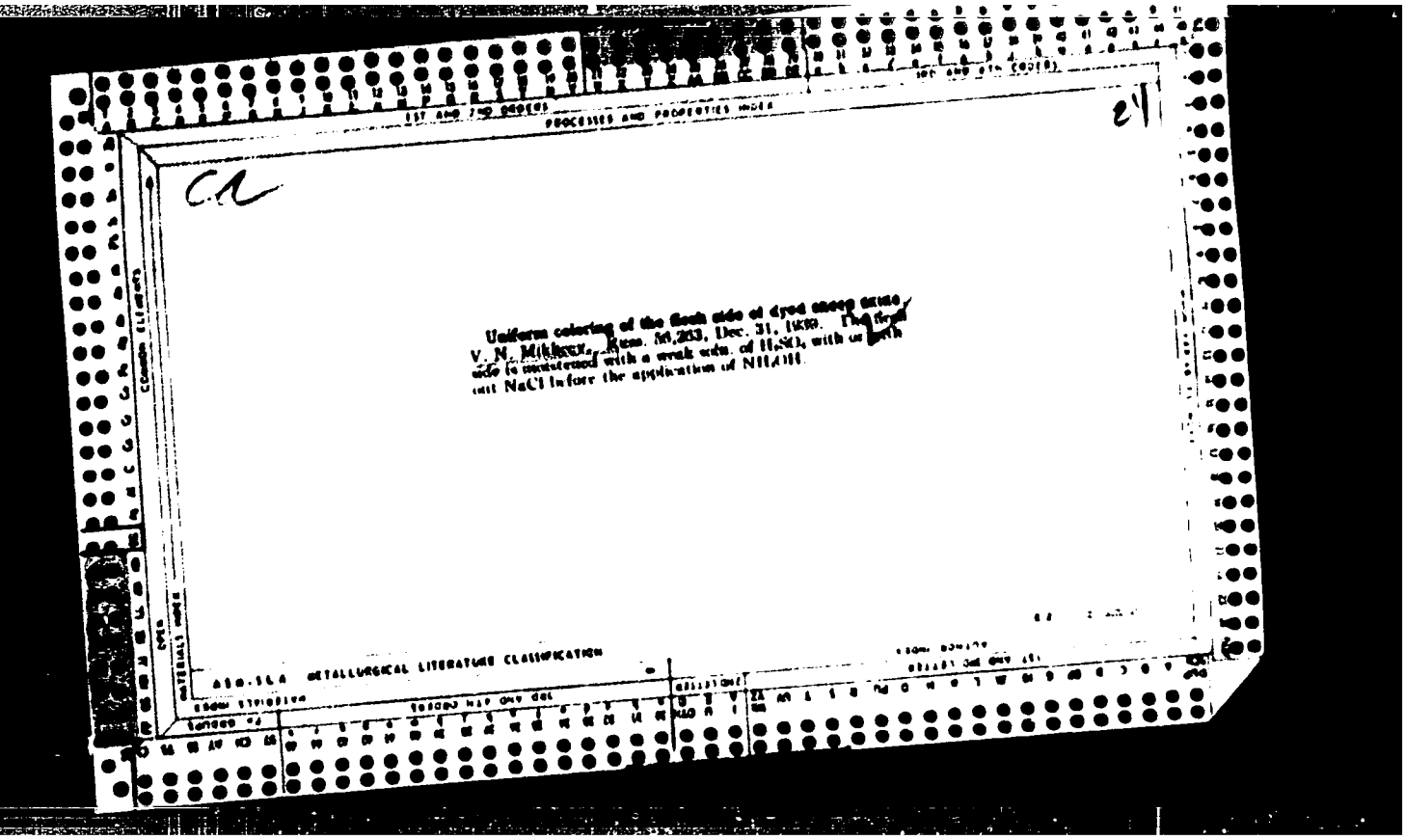


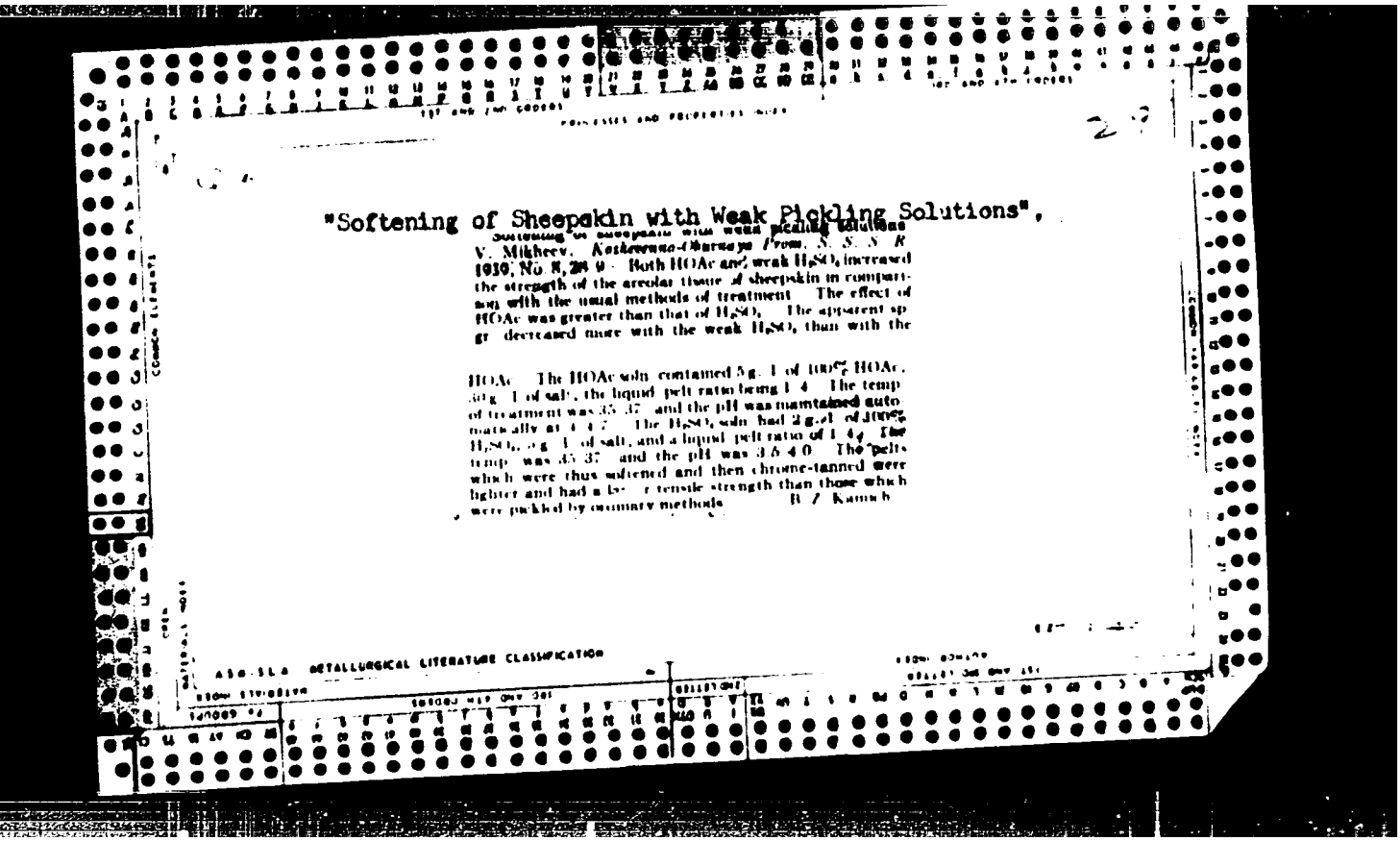


CA

29

Dry preparation from grains for softening sheep skins, leather and furs. V. N. Mikheev. Russ. 55,189, June 30, 1939. NaCl with or without the addn. of concd. hydrolyzate of albumin is added to the wet grains, dry sawdust is added till a thick mass is obtained, and the product is dried and ground

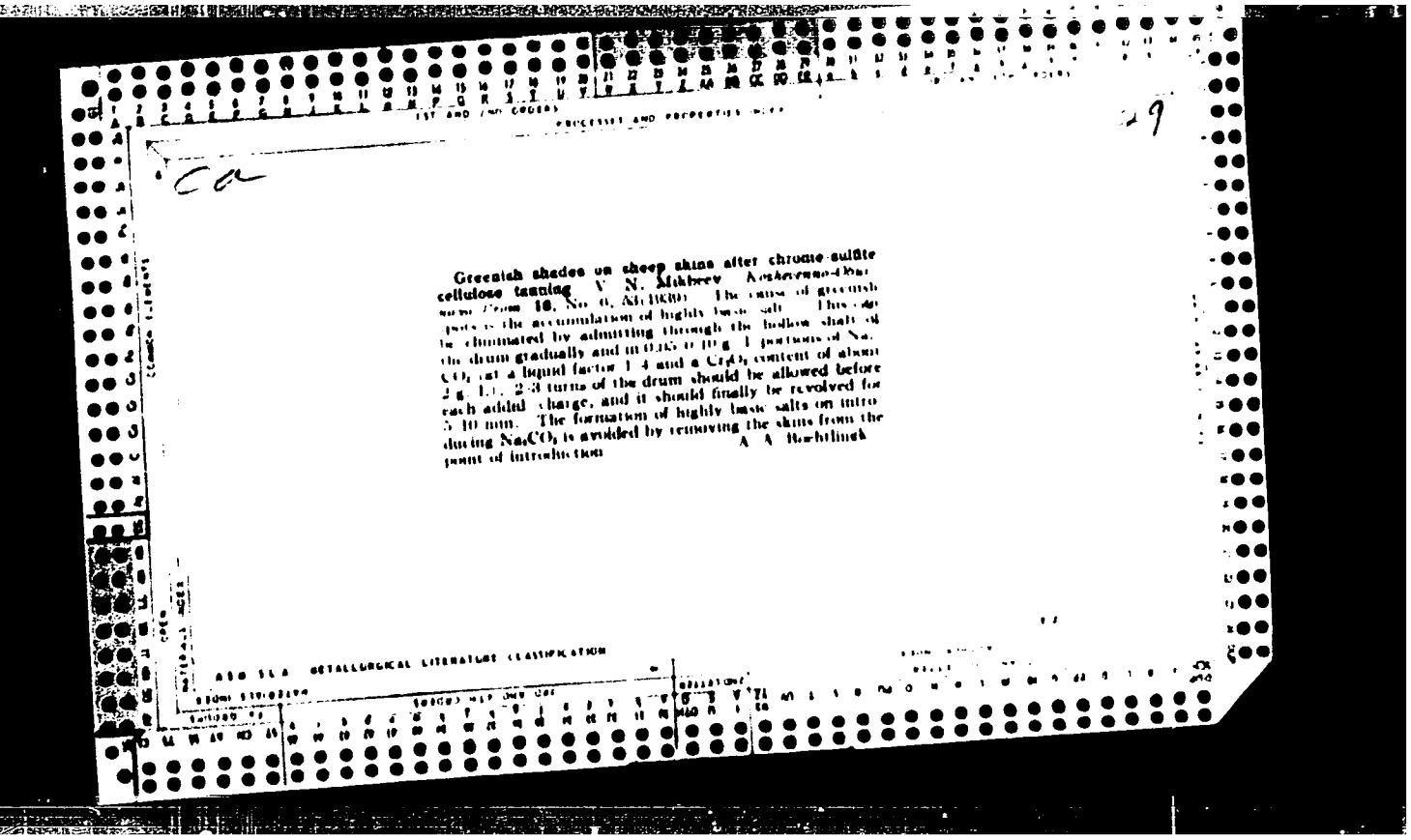




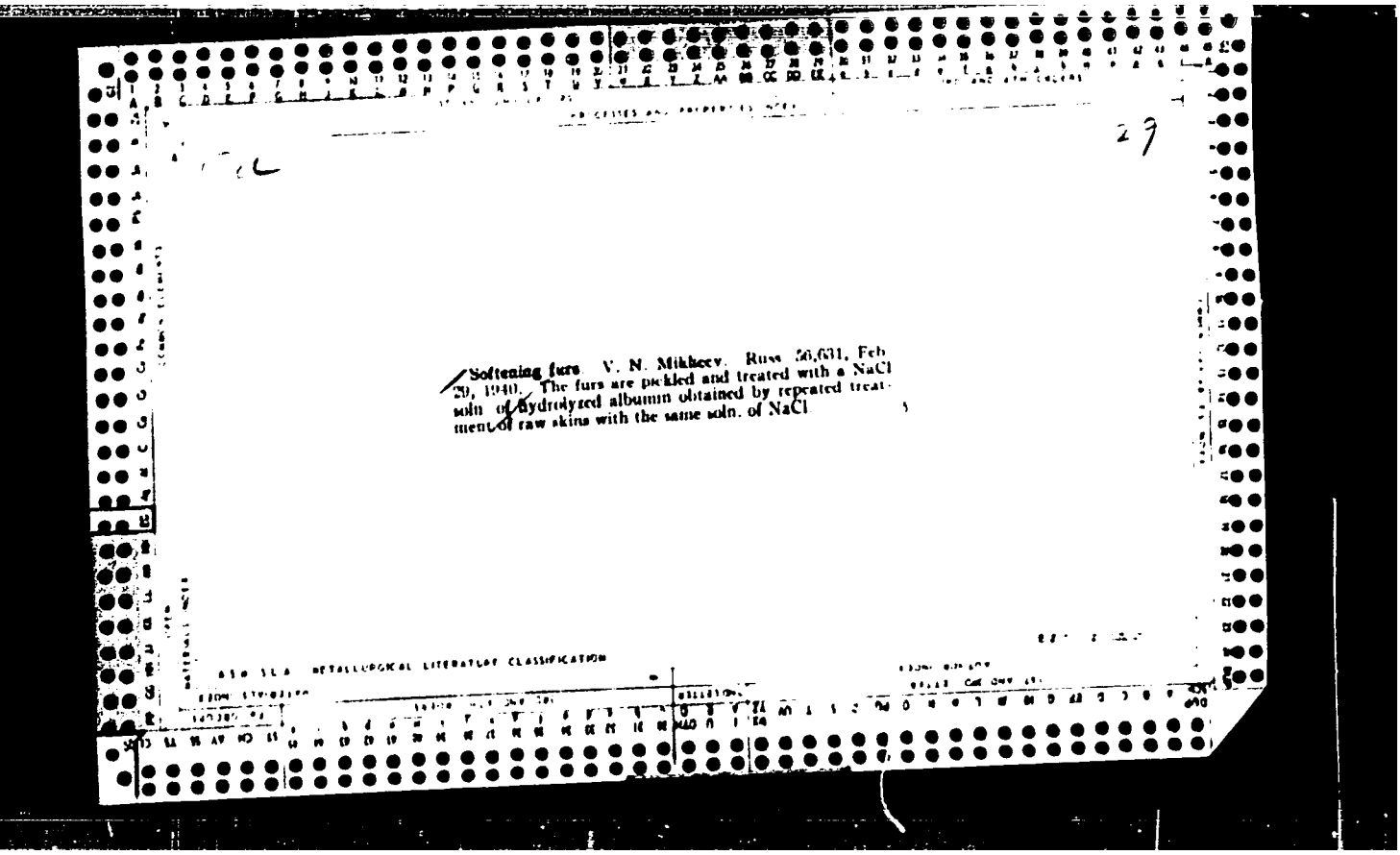
"Softening of Sheepskin with Weak Pickling Solutions",

V. Mikheev, *Kozhevenno-Obuvnoye* (from U.S.S.R. 1939, No. 8, 28-9). Both HOAc and weak H_2SO_4 increased the strength of the areolar tissue of sheepskin in comparison with the usual methods of treatment. The effect of HOAc was greater than that of H_2SO_4. The apparent specific decreased more with the weak H_2SO_4, than with the

HOAc. The HOAc soln. contained 5 g. l. of 100% HOAc, 50 g. l. of salt, the liquid pelt ratio being 1:4. The temp. of treatment was 35-37° and the pH was maintained automatically at 4-4.7. The H_2SO_4 soln. had 2 g.-eq. of 100% H_2SO_4, 50 g. l. of salt, and a liquid pelt ratio of 1:4. The temp. was 35-37° and the pH was 3.5-4.0. The pelts which were thus softened and then chrome-tanned were lighter and had a lower tensile strength than those which were pickled by ordinary methods. B. Z. Kamush



Greenish shades on sheep skins after chrome-sulfite cellulose tanning. V. N. Mikheev. Kozhevenno-Obuv. Prom. 10, No. 6, 31(1960). The cause of greenish spots is the accumulation of highly basic salt. This can be eliminated by admitting through the hollow shaft of the drum gradually and in 0.3% to 0.6 g. l portions of Na_2CO_3 at a liquid factor 1:4 and a Cr_2O_3 content of about 2 g. l.; 2-3 turns of the drum should be allowed before each added charge, and it should finally be revolved for 5-10 min. The formation of highly basic salts on nitro during Na_2CO_3 is avoided by removing the skins from the point of introduction. A. A. Burbulinsk



Softening furs. V. N. Mikhieev. Russ. 26,631, Feb. 29, 1940. The furs are pickled and treated with a NaCl soln. of hydrolyzed albumin obtained by repeated treatment of raw skins with the same soln. of NaCl.

MIKHEYEV, V.N.

USSR

Stepwise pickling of sheepskin. V. N. Mikheev. Zag. kaya Prom. 14, No. 10, 30–3(1954).—The pickling process can be regarded as a stepwise and selective satn. of the skin with acid. Results are dependent not on nature of acid but on acid capacity of the skin. Following classification of acid capacities is suggested: the 1st acid capacity of the skin is complete satn. of acid capacity with org. or equiv. mineral acid, the 2nd incomplete satn. with mineral acid, and the 3rd complete satn. of skin with mineral acid. (This is the generally accepted method of pickling.) B. Z. K.

MIKHEYEV, V.N., inzhener.

Wasteless laying-out of sheepskin used for fur coats. Leg.prom.15 [i.e.16] no.3:48-50 Mr '56. (MLRA 9:7)
(Fur) (Hides and skins)

DOBRUNOV, G.M.; SMIRNOVA, T.A.; BLINOV. A.N.; RUDKIN, A.G., konstruktor; MIKHEYEV, V.P., konstruktor; MAL'TSEV, B.G., konstruktor; PETROV, V.I., konstruktor; BASINKEVICH, I.R., red.izd-va; SHIBLOVA, R.Ye., tekhn. red.

[Album of standard shielding and protecting devices for basic types of sawmilling and woodworking equipment] Al'bom tipovykh ograditel'nykh ustroistv i predokhranitel'nykh prisposobleniĭ dlia osnovnykh vidov lesopil'no-derevoobrabatyvaiushchego oborudovaniia. Moskva, Goslesbumizdat, 1963. 51 p. (MIRA 16:9)

1. Moscow. TSentral'nyy nauchno-issledovatel'skiy institut mekhanicheskoy obrabotki drevesiny.
(Woodworking machinery--Safety measures)

MIKHEYEV, P.V.; MEYSNER, Ye.V.; MIKHEYEV, V.P.

Attraction by light of organisms on which fishes feed. Vop. ikht. 2 no.4:731-739 '62. (MIRA 16:2)

1. Vserossiyskiy nauchno-issledovatel'skiy institut prudovogo rybnogo khozyaystva (VNIPRKh), Moskva.
(Fishes—Food) (Light—Physiological effect)

MIKHEYEV, V.P.

Tests on killing Dreissena by warmed-up water. Biul.Inst.biol. vodokhran. no.11:10-12 '61. (MIRA 15:8)

1. Kuybyshevskaya stantsiya Instituta biologii vodokhranilishch AN SSSR.
(KUYBYSHEV RESERVOIR--DREISSENDIDAE) (MARINE FOULING)
(TEMPERATURE--PHYSIOLOGICAL EFFECT)

MIKHEYEV, V.P.

Distribution of Dreissena polymorpha Pallas on the structures of the Volga Hydroelectric Power Station (Lenin). Biul. Inst. biol. vodokhran. no.12:32-33 '62. (MIRA 16:3)

1. Kuybyshevskaya stantsiya Instituta biologii vodokhranilishch AN SSSR.
(Volga Hydroelectric Power Station (Lenin)—Dreissenidae)

MIKHEYEV, V.P., insh.

Shortcomings of suggestion systems used in Northern River Navigation Administration. Izobr.v SSSR 2 no.2:33-34 F '57. (MIRA 12:3)
(Suggestion systems) (Steamboat lines)

MIKHEYEV, V.P., insh.

Improving oil cleaning on diesel ships equipped with ZD6 engines. (MIRA 11:8)
Mekh. transp. 17 no. 7:50 Jl '58.
(Marine diesel engines)
(Oil filters)

AUTHOR: Mikheyev, V.P. SOV/117-58-11-?1/?6

TITLE: Measuring Parts of Large Diameter by a Common Slide Gage (Izmereniye detaley bol'shogo diametra obychnym shtangen-tsirkulem)

PERIODICAL: Mashinostroitel', 1958, Nr 11, p 42 (USSR)

ABSTRACT: A simple geometric formula is given for measuring the diameter of details with measuring devices too small for the detail. There is 1 diagram.

1. Gages--Performance 2. Measurement 3. Mathematics

Card 1/1

KUVSHINOV, M.I.; MIKHEYEV, V.P., assistent

Better transient clips are needed for the contact line system. Elek.i tepl.tiaga 4 no.1:26-27 Ja '60. (MIRA 13:4)

1. Ispolnyayushchiy obyazannosti nachal'nika otdela ekspluatatsii sluzhby elektrifikatsii i energeticheskogo khozyaystva Omskoy dorogi (for Kuvshinov). 2. Kafedra "Energosnabzheniye zheleznykh dorog" Tomskogo elektromekhanicheskogo instituta inzhenerov zheleznodorozhnogo transporta (for Mikheyev).
(Electric railroads--Wires and wiring)

LYAKHOV, S.M.; MIKHEYEV, V.P.

Quantitative evaluation of the fouling fauna in Volga reservoirs by using diving devices. Trudy Inst. biol. vnutr. vod no.6:303-308 '63. (MIRA 18:1)

MIKHEYEV, Viktor Petrovich; KARPOV, Aleksandr Petrovich; FRAYFEL'D, A.V., red.

[Contact network supports and foundations; work practices of the collective of the Western Siberia Railroad] Opory i fundamenty kontaktnoi seti; opyt raboty kollektiva Zapadno-Sibirskoi zheleznoi dorogi. Moskva, Transport, 1965. 63 p. (MIRA 18:12)

SOV/124-58-11 12395

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 11, p 63 (USSR)

AUTHOR: Mikheyev, V. P.

TITLE: The Delivery of a Gas Undergoing Cooling (Transport gaza s uchetom yego okhlazhdeniya)

PERIODICAL: Sb. nauchn. tr. Kuybyshevsk. industr. in ta, 1957, Nr 7, pp 99-103

ABSTRACT: It is pointed out that in accepted engineering practice in the design and operation of compressed air plants and gas distribution mains for the delivery of gas the gas flow is usually assumed to be isothermal, i. e., the initial temperature of the gas at the point of entry into the main distribution line is not considered as having any influence upon the hydraulic pressure losses in the pipe line or upon its carrying capacity. In this connection approximate relationships are developed for the non-isothermal flow of gas in pipe lines of great length. In case of isobaric cooling of the gas, an approximate mathematical relationship for the determination of the temperature of gas at any desired point of the extended pipe line is derived from the equation of the heat transfer and heat balance, such relationship having the following form:

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The Delivery of a Gas Undergoing Cooling

$$t = t_o + (t_1 - t_o)\exp\left(-\frac{l}{V_o C_p R}\right) \qquad (1)$$

where t_o is the temperature of the medium surrounding the pipe (soil); l is the distance between the given section of the pipe line and the compressor plant; V_o is the gas-flow rate under normal conditions; C_p is the specific heat of the gas at constant pressure; R is the thermal resistance of the heat transfer from the gas to the surrounding medium, which is determined, similarly to the heat transfer resistance of a bare pipe, in accordance with an approximate formula accepted for the power-flow calculation for central-heating pipe lines, as follows:

$$R = \frac{1}{2\pi\lambda_{soil}} \log_e \frac{4h}{D_o} \quad \frac{\text{lineal meter} \cdot \text{hr} \cdot {}^{o}C}{\text{kcal}} \qquad (2)$$

where λ_{soil} is the heat-conductivity coefficient of the soil; h is the depth at which the pipe is buried (the distance from the finished grade to the center line of the pipe; D_o is the outer diameter of the pipe. The author asserts that calculations according to formula (1), taking into consideration formula (2), agree with extant test results more closely than do calculations made in accordance with the well-known formula by V. G. Shukhov [Neftepровod... ikh primenenive v neftyanom

Card 2/4

The Delivery of a Gas Undergoing Cooling

khozyaystve (Oil Pipe Lines and Their Application in the Oil Industry) Moscow 1895], which does not take into account the depth of burying of the pipe line in the soil or the heat conductivity of the soil. By integrating Darcy's differential equation, taking into consideration the changes in the velocity and density of the gas in relation to the changes in pressure and temperature, the author applies equation (1) and obtains an approximate relationship for the determination of the pressure P at any desired point of the main gas pipe line in the following form:

$$P = \sqrt{P_1^2 - 2aV_0^2 \frac{T_0}{273} l \left[1 + \frac{V_0 C_p R}{L} \frac{t_1 - t_0}{273} \left(1 - e^{-l/V_0 C_p R}\right)\right]} \text{ atm abs}$$

where P_1 is the pressure at the entry connection to the main distribution line; T_0 is the temperature of the medium surrounding the pipe line in degrees Kelvin; the quantity a is derived from the mathematical relationship

$$a = 0.661 \times 10^{-3} \lambda \frac{\gamma_0}{D^5}$$

where λ is the local-resistance coefficient, γ_0 is the weight density of the gas under normal atmospheric conditions and D is the inner diameter of the pipe. It is pointed out that this relationship should be used only when

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The Delivery of a Gas Undergoing Cooling

$$\frac{V_0 (t_1 - t_0)}{L} > 10 \quad \text{and} \quad \frac{2 a V_0^2 L}{P_1^2} > 0.8$$

where L is the total length of the main gas line. Examples are submitted on the influence of non-isothermal flow of gas in a main gas line (10, 50, and 100 km long) on the pressure losses in it due to the relationship of the gas flow rate (25000 nm^3/hour and 65000 nm^3/hour) and the diameter of the pipe (250 and 300 mm respectively) at various initial thermodynamic parameters (t_1 = 40°C and P_1 = 50 atm abs, t_1 = 80° and P_1 = 40 and 50 atm abs). The calculations were based on the assumption that t_0 = 0°, C_p = 0.40 kcal/nm^3 °C, h = 1.5 meter, λ_{soil} = 1.0 kcal m hr °C, γ_0 = 1.0 kg (weight)/nm^3. However, it is not indicated for which resistance coefficients these results were obtained. It is shown that the application of the isothermal flow formulae of the gas for the determination of the magnitude of the pressure losses results in an underrating of pressure losses by 10 - 16% and more. Also noted is the fact that the error is particularly great in short main lines and at low terminal pressures. The paper contains a number of misprints in the formulae. Bibliography: 3 references.

G Ye Khudyakov

Card 4/4

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A005/A001

Translation from: Referativnyy zhurnal, Mekhanika, 1960, No. [illegible], p. [illegible], # [illegible]

AUTHOR Mikheyev, V.P.

TITLE: Heating of Thin Materials in a Circulating Air Stream

PERIODICAL: Sb. nauchn. tr. Kuybyshevsk. industr. in-ta, 1957, No. 7 pp. [illegible]

TEXT: The correlation is derived between the temperature of the material placed in a chamber, the temperature of the air circulating in the system, and the time according to the given characteristics of the unit. The rating formulae are derived on the following assumptions: 1) the temperature gradient within the material is equal to zero; 2) the heat exchange coefficient in the system does not depend on the temperature; 3) heat losses within the system do not exist. The equations derived are valid for heating as well as for cooling of thin materials in a circulating air stream.

L.N. Tryakina

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

Card 1/1

MIKHEYEV, V. P. (Cand. Tech. Sci.)

"Experience with Industrial Gas Combustion in the City of Kuybyshev"

(Theory and Practice of Gas Combustion; Transactions of a Scientific and Technical Meeting) Leningrad, Gostoptekhizdat, 1958. 343 p.

MIKHEYEV, Vikentiy Pavlovich, kand.tekhn.nauk; POSTNIKOVA, I.V., red.; YASHCHENKINA, Ye.A., tekhn.red.

[Industrial combustion of natural gas] Promyshlennoe szhiganie prirodnogo gaza. Kuibyshev, Kuibyshevskoe knizhnoe izd-vo, 1959. 136 p. (MIRA 13:12)
(Gas, Natural)

24(6)

SOV/143-59-5-13/19

AUTHORS: Mikheyev, V.P., and Erlikhman, A.M., Candidates of Technical Sciences, Docents

TITLE: The Thermal Calculation of Periodic Action Apparatus With External Heat Exchangers

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - Energetika, 1959, Nr 5, pp 115-124 (USSR)

ABSTRACT: Two functional systems of heat exchangers are known. In system 1, the heat exchange surface is placed inside the apparatus as shown in Figure 1. In system 2, the heat transfer circulation (cooling) of the medium is achieved in an external heat exchanger as shown in Figure 2. The thermal calculation of heat exchangers functioning according to the first system is known [Ref 1, 2]. In the second system, because of forced motion of the medium to be heated (cooled), the heat exchange may be considerable intensified, resulting in higher heat transmission factors and reduction of the rated heat exchange surface, compared to system 1, where the intensity of the heat exchange is

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The Thermal Calculation of Periodic Action Apparatus With External Heat Exchangers

determined by conditions of natural convection. Presently, there are no founded recommendations for the thermal calculation of the second system. System 1 is simpler than system 2. The application of system 2 must always be justified. For example, it may be applied when the rated heat exchange surface can not be included in the dimensions of the apparatus of type 1, or, of a circulation heating (cooling) of a medium is required for technological reasons. In this article the authors establish the dependencies permitting design and thermal control calculations of devices with periodic heating (cooling) processes in systems with external heat exchangers. Recommendations were given for thermal calculations and graphs, simplifying calculations and facilitating an analysis of the heating (cooling) process in the system under consideration. A comparison is made between the functions of heat exchange apparatus of periodic heating

SOV/143-59-5-13/19

The Thermal Calculation of Periodic Action Apparatus With External Heat Exchangers

(cooling). There are 2 diagrams, 10 graphs and 2 Soviet references. This article was presented by the Kafedra promteploenergetiki (The Chair of Industrial Power Engineering).

ASSOCIATION: Kuybyshevskiy industrial'niy institut imeni V.V. Kuybysheva (Kuybyshev Industry Institute imeni V.V. Kuybyshev)

SUBMITTED: February 11, 1959

Card 3/3

MIKHEYEV, V.P.

Gas flame furnace for nonoxidizing metal heating. Biul. TSIICHM no.4:52 '61. (MIRA 14:10)
(Furnaces, Heating)

MIKHEYEV, Vikentiy Pavlovich; GLOZSHTEYN, Ya.S., nauchnyy red.; SEGAL', Z.G., vēd. red.; YASHCHURZHINSKAYA, A.B., tekhn. red.

[Burning of natural gas in industrial units] Szhiganie prirodnogo gaza v promyshlennykh ustanovkakh. Leningrad, Gostoptekhizdat, 1962. 231 p. (MIRA 15:7)
(Gas as fuel) (Gas burners)

ARKHANGEL'SKIY, I.A.; MIKHEYEV, V.P.; STEPANOV, B.M.

Automatic device for measuring the light characteristics of photoelectric multipliers. Avtom. i telem.; sbor. st. no.2: 85-94 '62. (MIRA 15:9)
(Photoelectric multipliers) (Electronic measurements)

MIKHEYEV, V.P.

Study of the wear of contact wires and collector cover plates in the upper layers. Trudy TEIIZHT 35:102-105 '62. (MIRA 16:8)
(Electric railroads—Wires and wiring)

MIKHEYEV, V.P.

Devices for studying the wear of contact wires. Trudy TEIIZHT 35:112-118 '62. (MIRA 16:8)
(Electric railroads—Wires and wiring) (Electric meters)

MIKHEYEV, V.P.; ZHARKOV, V.T.

Concerning the angle of wear of contact wires. Trudy TEIIZHT 35: 119-126 '62. (MIRA 16:8)
(Electric railroads--Wires and wiring)

MIKHEYEV, V. P., inzh.

Determination of temperature for a sagless condition optimum in respect to the wear of contact wires and current collector caps. Trudy OMIIT 37:102-109 '62.

Operation of a suspension system with spring-type and ordinary supporting slide wires in an anchor sector. Ibid.:110-117.

Effect of the suspension system type on the wear of the cap of the current collector. Ibid.:118-127. (MIRA 17:5)

MIKHEYEV, V.P.; VENEDIKTOV, A.V.

Injection burners for natural gas with active air spray.
Gaz. prom. 8 no.12:15-20 '63 (MIRA 18:1)

YEREMIN, A.S.; MIKHEYEV, V.F., ROZOV, B.S.

Controlled pulse integrating amplifier. Prib. i tekh. eksp. 9 no.5:148-149 S-O '64. (MIRA 17:12)

MIKHEYEV, V.P.; AGEYEVA, I.A.; SDVIZHKOV, N.S.; VETROV, N.I., inzh., retsenzent; KALININ, V.K., kand. tekhn. nauk, red.; MURAV'YEVA, N.D., tekhn. red.

[Decreasing the wear of contact wires; work practice of the staff of the West Siberian railroad] Umen'shenie iznosa kontaktnykh provodov; opyt raboty kollektiva Zapadno-Sibirskoi dorogi. Moskva, Izd-vo "Transport," 1964. 89 p. (MIRA 17:3)

MIKHEYEV, Vikentiy Pavlovich; VENEDIKTOV, Aleksey Vladimirovich; GLOZSHTEYN, Ya.S., nauchn. red.; GINTSBURG, V.I., ved. red.

[Jet burners for natural gas with active air spray] Inzhektsionnye gorelki dlia prirodnogo gaza s aktivnoi vozdushnoi struei. Leningrad, Izd-vo "Nedra," 1964. 92 p. (MIRA 17:4)

BELYAYEV, I.A., inzh.; VETROV, N.I., inzh.; MARGOLIS, S.M., inzh.; BORZENKO, Ye.A., inzh., retsenzent; MIKHEYEV, V.P., kand. tekhn. nauk, retsenzent; GORCHAKOVA, O.D., inzh., red.; VOROB'YEVA, L.V., tekhn. red.

[Installation, operation and repair of overhead contact systems] Montazh, ekspluatatsiia i remont kontaktnoi seti. Moskva, "Transport," 1964. 294 p. (MIRA 17:3)

MIKHEYEV, V.P.; MEDNIKOV, Yu.P.

Characteristics of the calculation of injection gas burners taking into consideration the energy of the air being sucked off. Gaz. prom. 10 no.1:33-38 '65.

(MIRA 18:1)

MIKHEYEV, V.P.; MEDNIKOV, Yu.F.; YUDASHKIN, A.G.

Varying performance of injector burners under subcritical conditions of gas outflow. Gaz. prom. 10 no.9:30-35 '65.
(MIRA 18:11)

MIKHEYEV, Vikentiy Pavlovich; FEDOROV, Vsevolod Nikolayevich; GLOZSHTEYN, Ya.S., nauchn. red.; LEVEL'SHTEYN, V.I., ved. red.

[Hearth and slotted burners for natural gas] Podovye i shchelevye gorelki dlia prirodnogo gaza. Leningrad, Nedra, 1965. 73 p. (MIRA 18:4)

NESTERENKO, G.T., kand. tekhn. nauk; [illegible], inzh.; MIKHEYEV, V.P., inzh.; TITICHENKO, A.M.

Effect of the angle of [illegible] stability of the exposed roof of chambers. Gor. zhur. no. 1, 1962 D '65. (MIRA 18:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy marksheyderskiy institut, Leningrad (for Nesterenko, Skvortsov, Mikheyev). 2. Kombinat Achpolimetall, g. Kentau (for Titichenko).

MIKHEYEV, V.P.; SUKHA[illegible]

Machines for analyz[illegible]
collectors and the overhaul[illegible]
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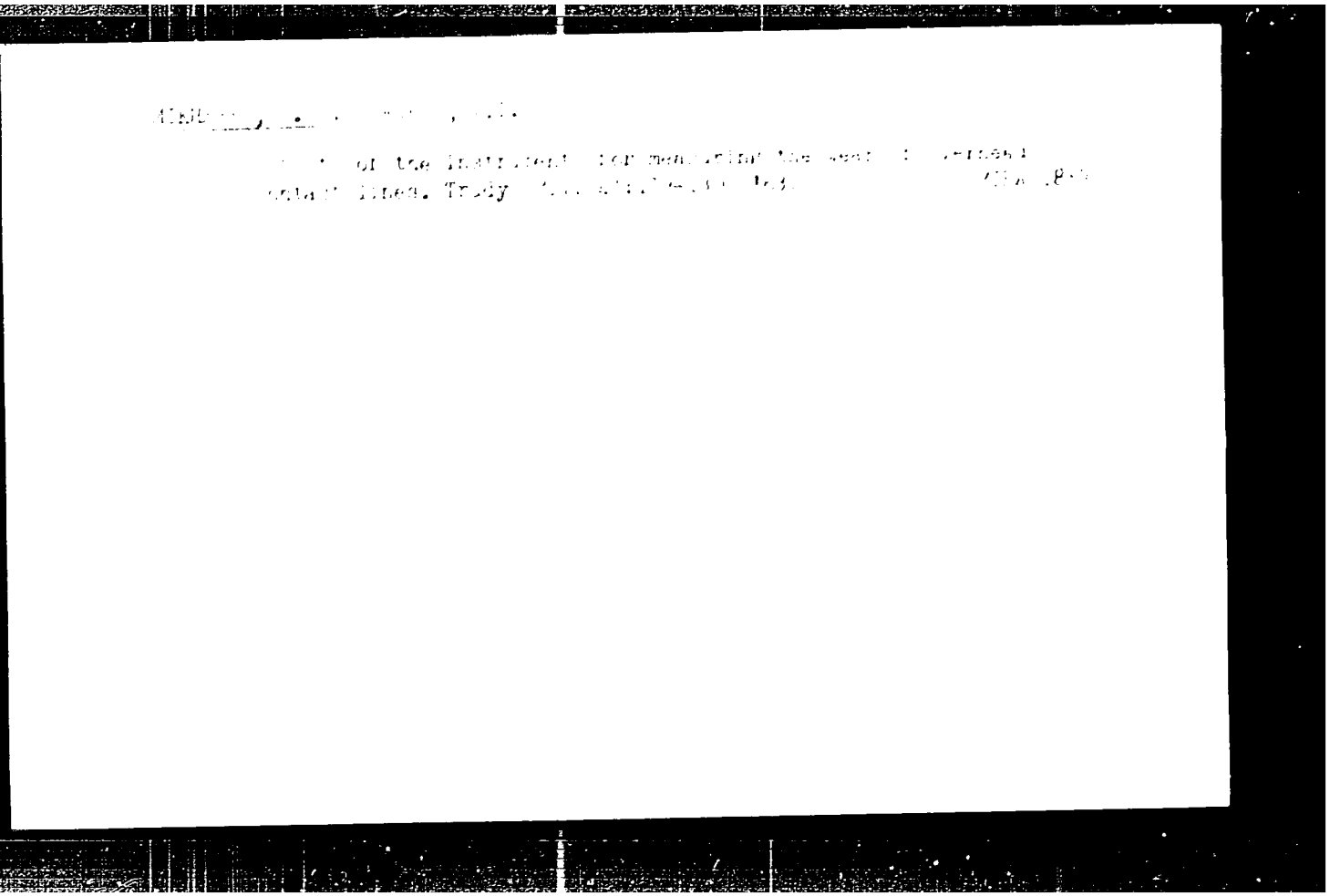
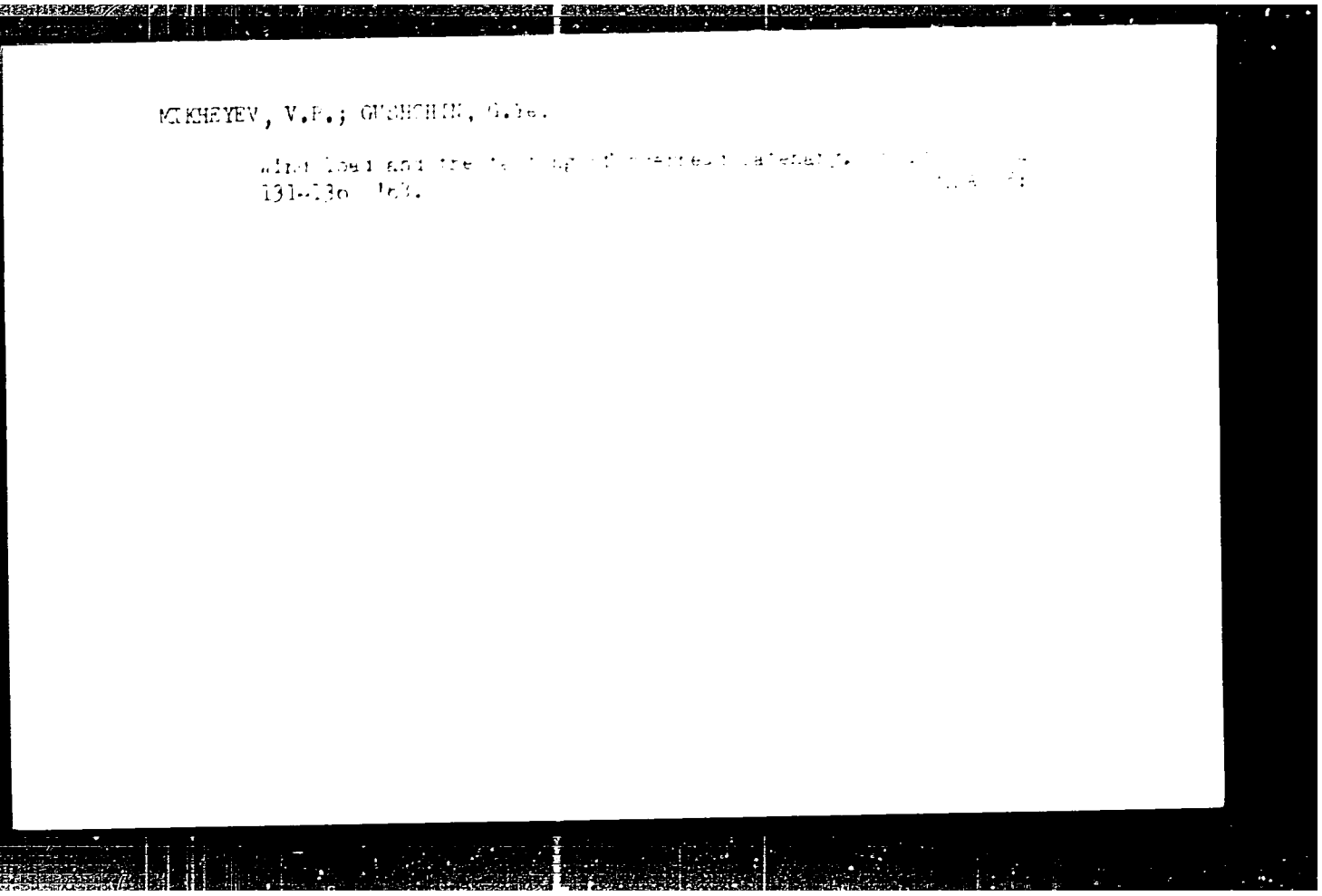




MIKHEYEV, V.P.; GUSHCHIN, G.Ye.

[illegible]
131-130 '63.

MIKHEYEV, V.P.; VENEDIKTOV, A.V.

Automatic control of gas injection burners with active air spray.
Gaz. prom. 9 no.1:21-25 '64. (MIRA 17:12)

MIKHEYEV, V.P.; MILDNIKOV, Yu.P.; FELIN, Ye.P.

Plant testing of flat multinozzle injector gas burners.
Gaz. prom. 10 no.7,18-21 '65. (MIRA 18:8)

L 12396-65 EWT(1)/EWA(h) Peb SSD/APETR/APML/ASD(a)-5/RAEM(a)/ESD(c)/ESD(t)

ACCESSION NR: AP4047479 S/0120/64/000/005/0148/0149

AUTHOR: Yeremin, A. S.; Mikheyev, V. P.; Rozov, B. S.

TITLE: Controlled pulse integrating amplifier

SOURCE: Pribory* i tekhnika eksperimenta, no. 5, 1964, 148-149

TOPIC TAGS: amplifier, integrating amplifier, pulse amplifier

ABSTRACT: For such purposes as measuring a current-pulse charge or a voltage-pulse area, a special controlled operational amplifier with a parallel feedback circuit has been designed. Normally, the amplifier transfers the incoming signal with substantial attenuation. Upon application of an external control voltage, the amplifier integrates the incoming signal as a conventional operational amplifier would do. Upon termination of the control pulse, the amplifier returns to its initial state. A circuit diagram and oscillograms of the pulses involved are supplied. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 15Jan64 ENCL: 00 SUB CODE: EC

NO REF SOV: 001 OTHER: 000 ATD PRESS: 3125

Card 1/1

LYAKHOV, S.M.; MIKHEYEV, V.P.

Distribution and quantity of Dreissena in Kuybyshev Reservoir in the seventh year of its existence. Trudy Inst. biol. vnutr. vod no.7:3-18 '64. (MIRA 18:2)

1. Kuybyshevskaya stantsiya Instituta biologii vnutrennikh vod AN SSSR.

MIKHEYEV, V.P.

Linear growth of Dreissena polymorpha Pallas in some reservoirs of the European part of the U.S.S.R. Trudy Inst. biol. vnutr. vod no.7:55-65 '[illegible]. (MIRA 18:2)

1. Kuybyshevskaya stantsiya Instituta biologii vnutrennikh vod AN SSSR.

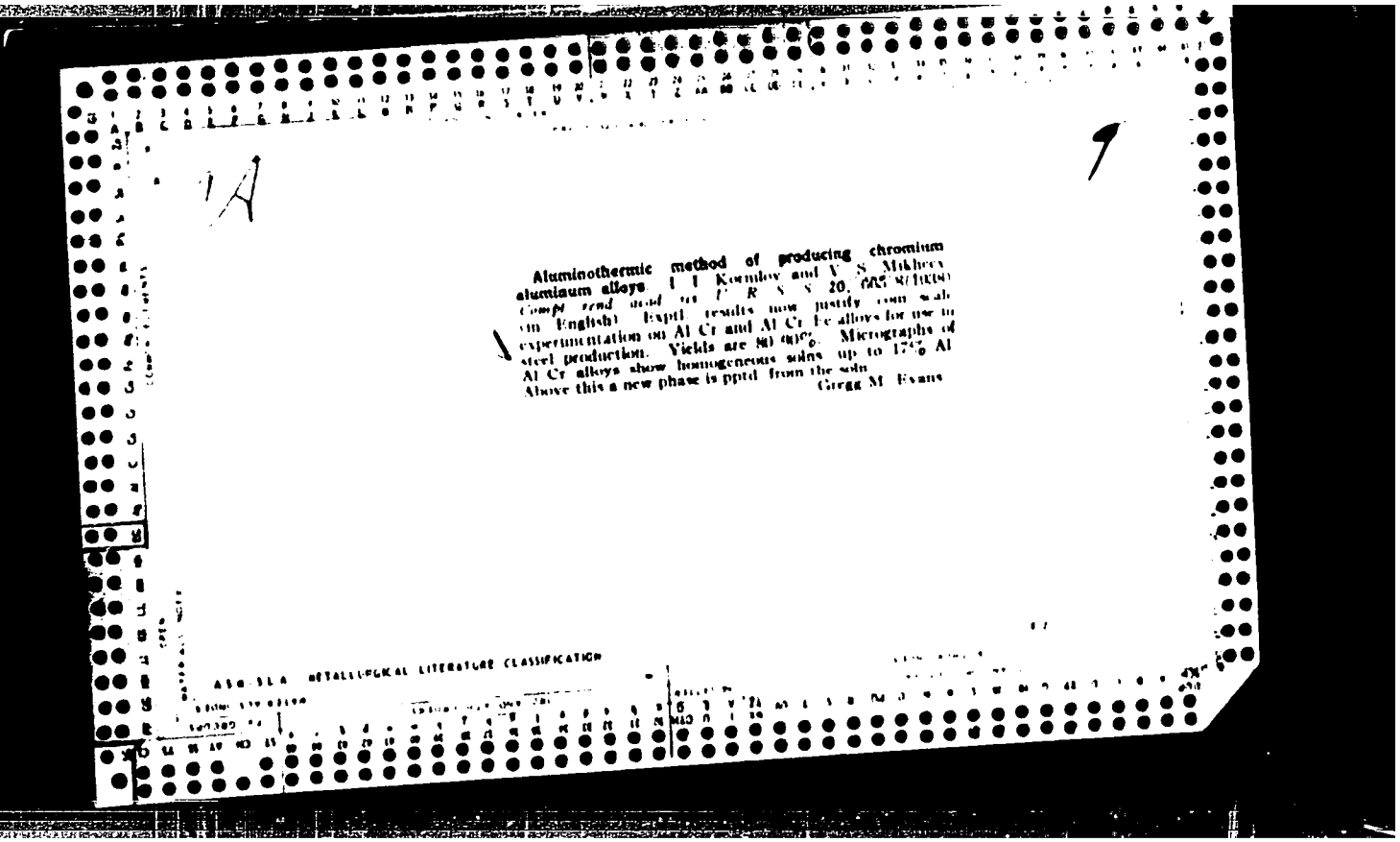
DUDNIKOV, V.F.; MIKHEYEV, V.I.

Action of the ions of some metals on [illegible]. Trudy [illegible] vnutr. vod. no.7:71-75 '64.

1. Kuybyshevskaya stantsiya Instituta biologii vnutrennikh vod AN SSSR i Volzhskaya gidroelektricheskaya stantsiya im. [illegible] Lenina.

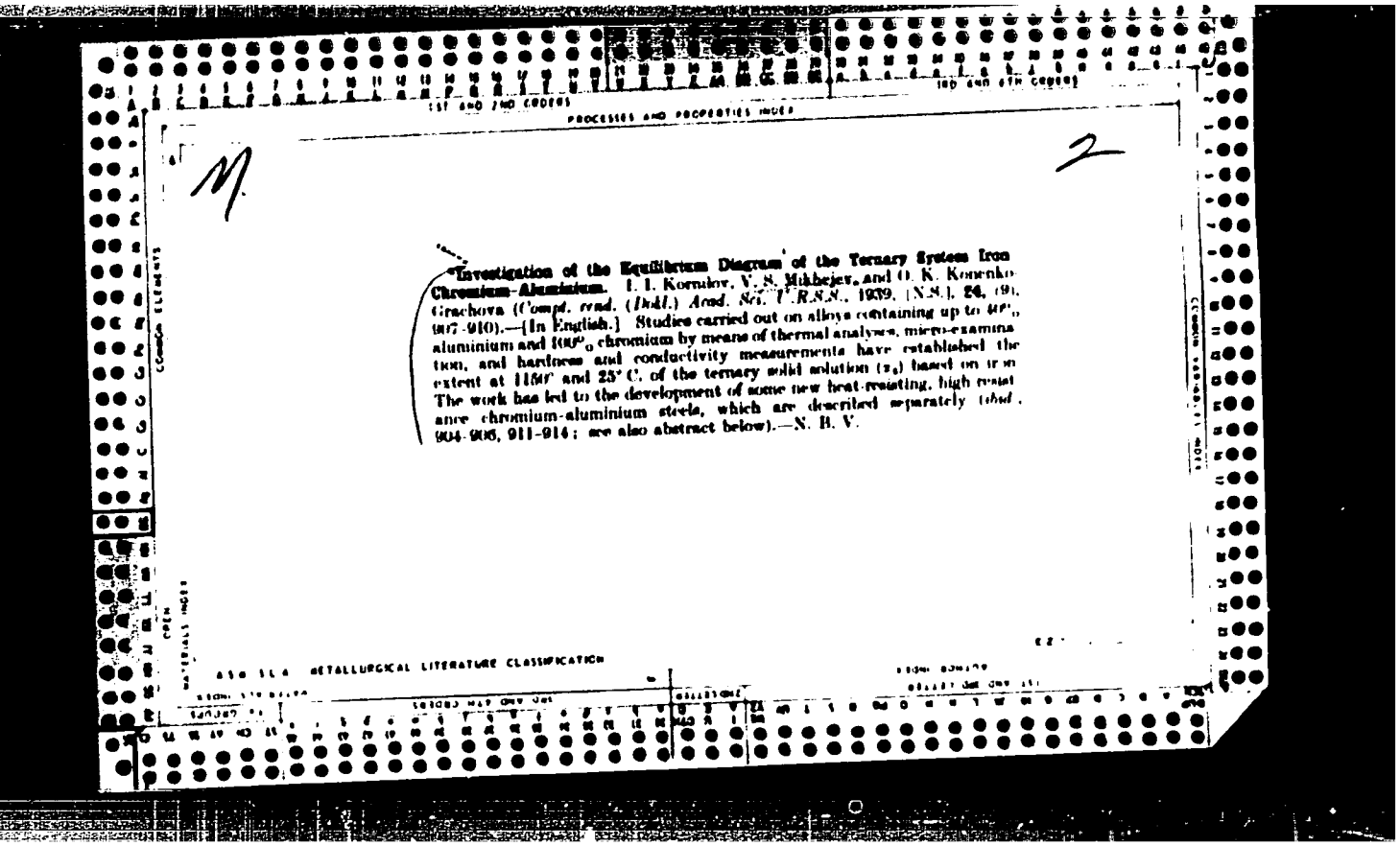
MIKHEYEV, V.P.

Death rate of Dreissena under anaerotic conditions. Trudy Inst. biol. vnutr. vod no.7:76-80 '64. (MIRA 18:2)



Aluminothermic method of producing chromium aluminum alloys. I I Kornilov and V S Mikheev. *Compt rend acad sci U R S S* 20, 605-8(1938) (in English). Exptl. results now justify com. scale experimentation on Al Cr and Al Cr Fe alloys for use in steel production. Yields are 80 to 90%. Micrographs of Al Cr alloys show homogeneous solns. up to 17% Al. Above this a new phase is ppted. from the soln.
Gregg M. Evans

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION



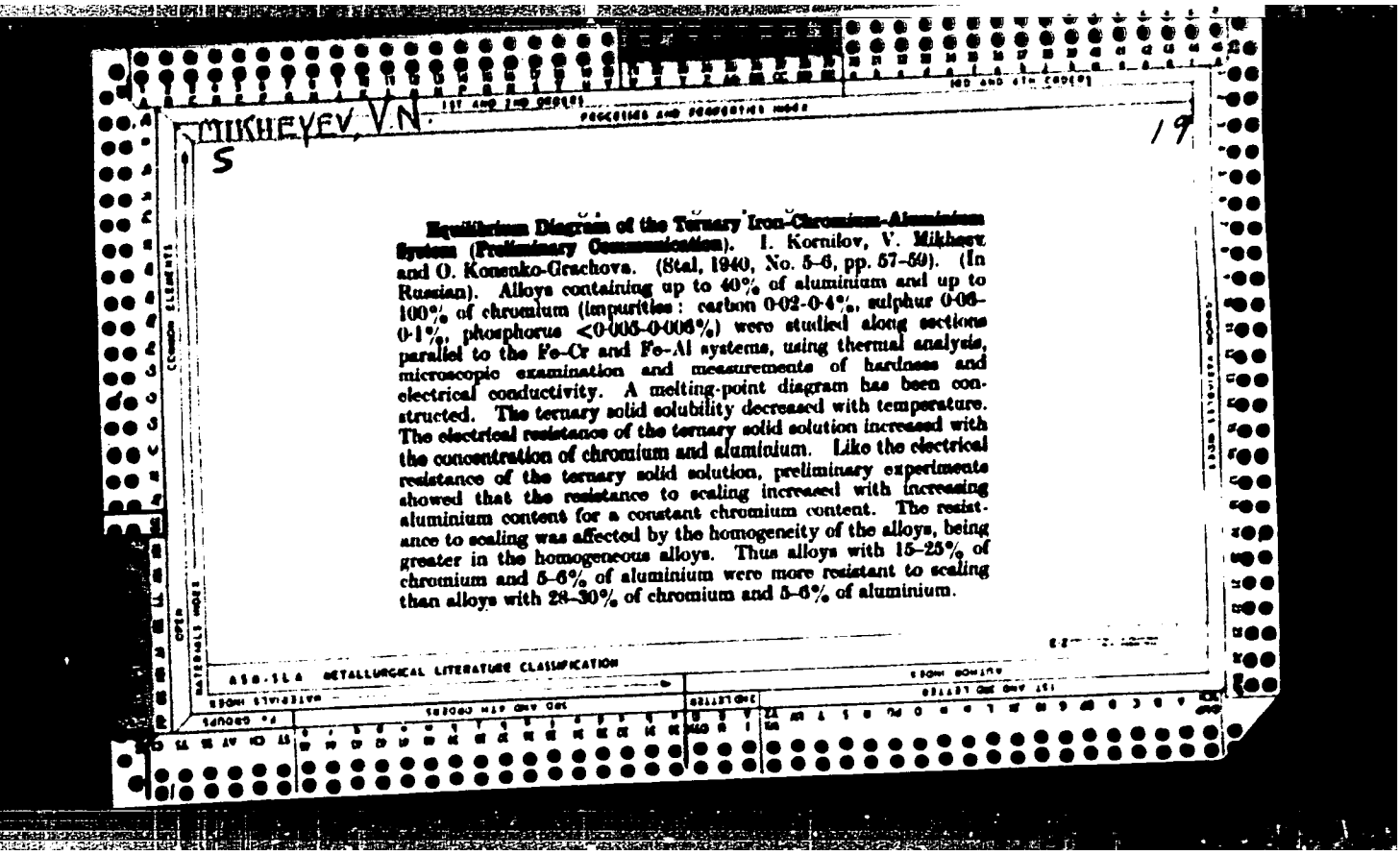
PROCESSES AND PROPERTIES INDEX

M

2

Investigation of the Equilibrium Diagram of the Ternary System Iron Chromium-Aluminium. I. I. Kornilov, V. S. Mikheyev, and O. K. Kosenko Grachova (*Compt. rend. (Dokl.) Acad. Sci. U.R.S.S.*, 1939, [N.S.], **24**, (9), 907-910).—[In English.] Studies carried out on alloys containing up to 40% aluminium and 100% chromium by means of thermal analyses, micro-examination, and hardness and conductivity measurements have established the extent at 1150° and 25° C. of the ternary solid solution (α_3) based on iron. The work has led to the development of some new heat-resisting, high resistance chromium-aluminium steels, which are described separately (*ibid.*, 904-906, 911-914; are also abstract below).—N. B. V.

A10 11.4 METALLURGICAL LITERATURE CLASSIFICATION



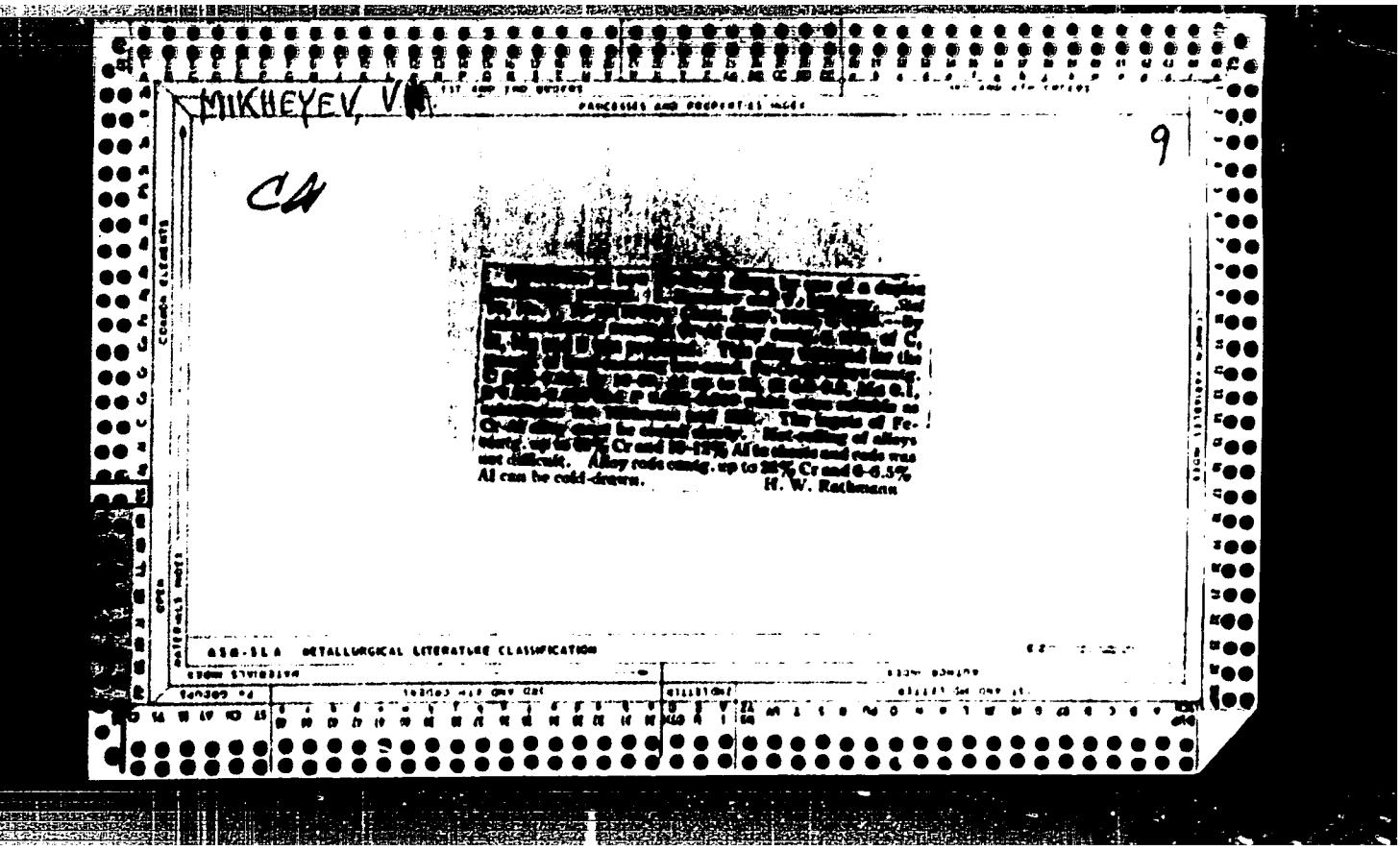
MUKHEYEV, V.N.

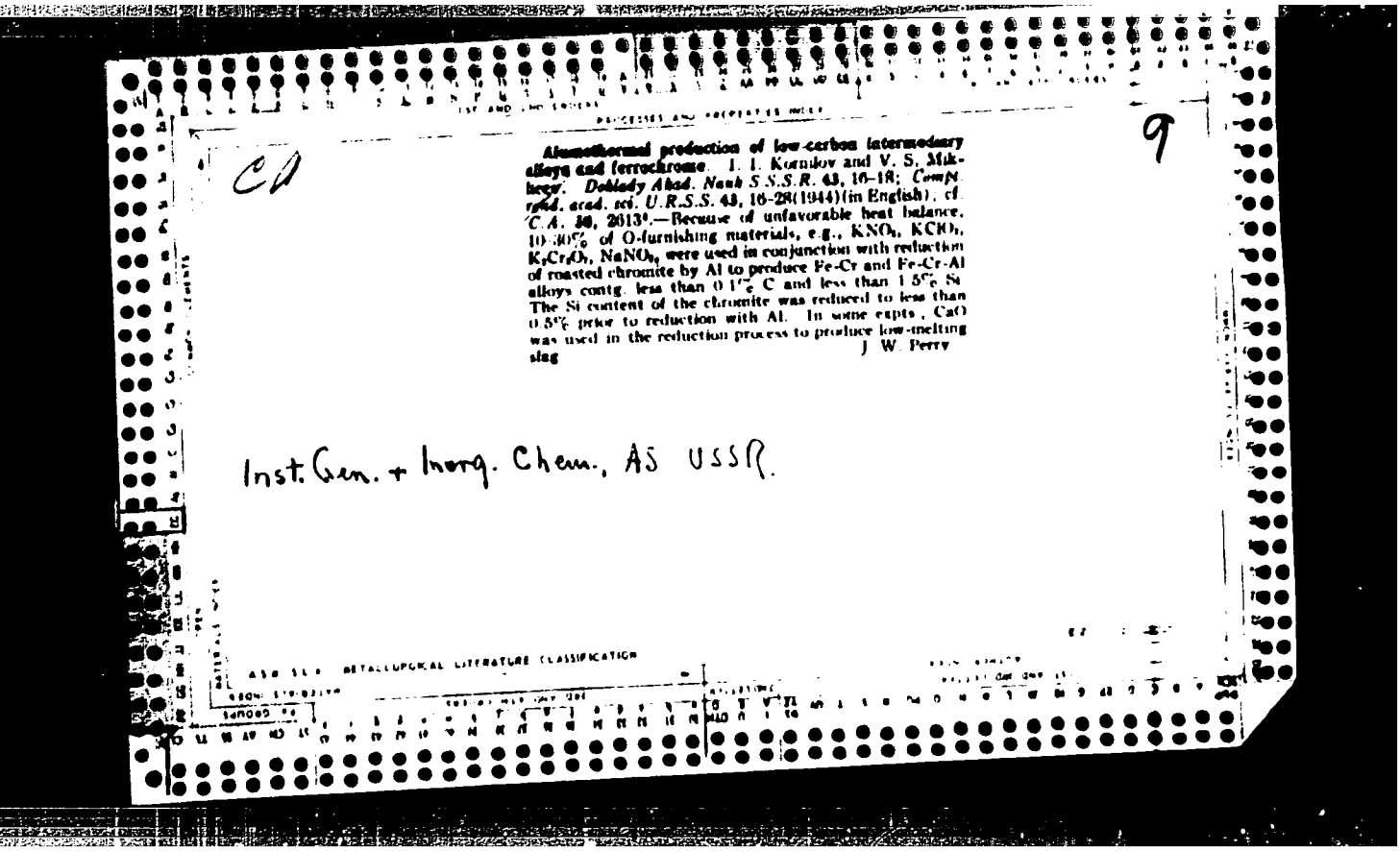
S

19

Equilibrium Diagram of the Ternary Iron-Chromium-Aluminium System (Preliminary Communication). I. Kornilov, V. Mikheev and O. Konenko-Grachova. (Stal, 1940, No. 5-6, pp. 57-59). (In Russian). Alloys containing up to 40% of aluminium and up to 100% of chromium (impurities: carbon 0·02-0·4%, sulphur 0·06-0·1%, phosphorus <0·005-0·008%) were studied along sections parallel to the Fe-Cr and Fe-Al systems, using thermal analysis, microscopic examination and measurements of hardness and electrical conductivity. A melting-point diagram has been constructed. The ternary solid solubility decreased with temperature. The electrical resistance of the ternary solid solution increased with the concentration of chromium and aluminium. Like the electrical resistance of the ternary solid solution, preliminary experiments showed that the resistance to scaling increased with increasing aluminium content for a constant chromium content. The resistance to scaling was affected by the homogeneity of the alloys, being greater in the homogeneous alloys. Thus alloys with 15-25% of chromium and 5-6% of aluminium were more resistant to scaling than alloys with 28-30% of chromium and 5-6% of aluminium.

A59-11A METALLURGICAL LITERATURE CLASSIFICATION





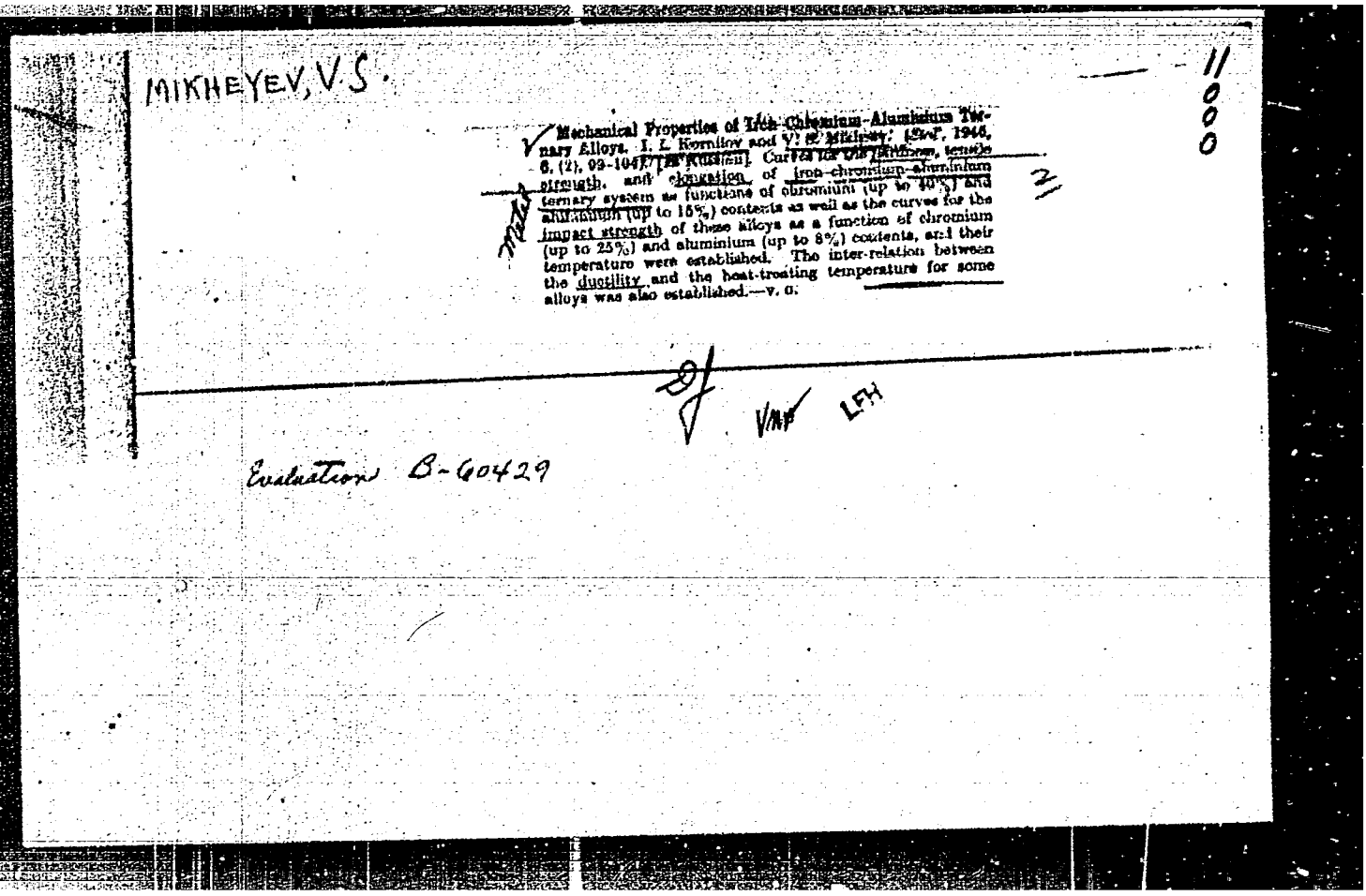
CD

9

Aluminothermal production of low-carbon intermediary alloys and ferrochrome. I. I. Kornilov and V. S. Mikheev. *Doklady Akad. Nauk S.S.S.R.* **43**, 16–18; *Compt. rend. acad. sci. U.R.S.S.* **43**, 16–28(1944)(in English); cf. *C.A.* **38**, 2613⁹.—Because of unfavorable heat balance, 10–30% of O-furnishing materials, e.g., KNO_3, $KClO_3$, $K_2Cr_2O_7$, $NaNO_3$, were used in conjunction with reduction of roasted chromite by Al to produce Fe-Cr and Fe-Cr-Al alloys contg. less than 0.1% C and less than 1.5% Si. The Si content of the chromite was reduced to less than 0.5% prior to reduction with Al. In some expts., CaO was used in the reduction process to produce low-melting slag. J. W. Perry

Inst. Gen. + Inorg. Chem., AS USSR.

ASM S.L.A. METALLURGICAL LITERATURE CLASSIFICATION



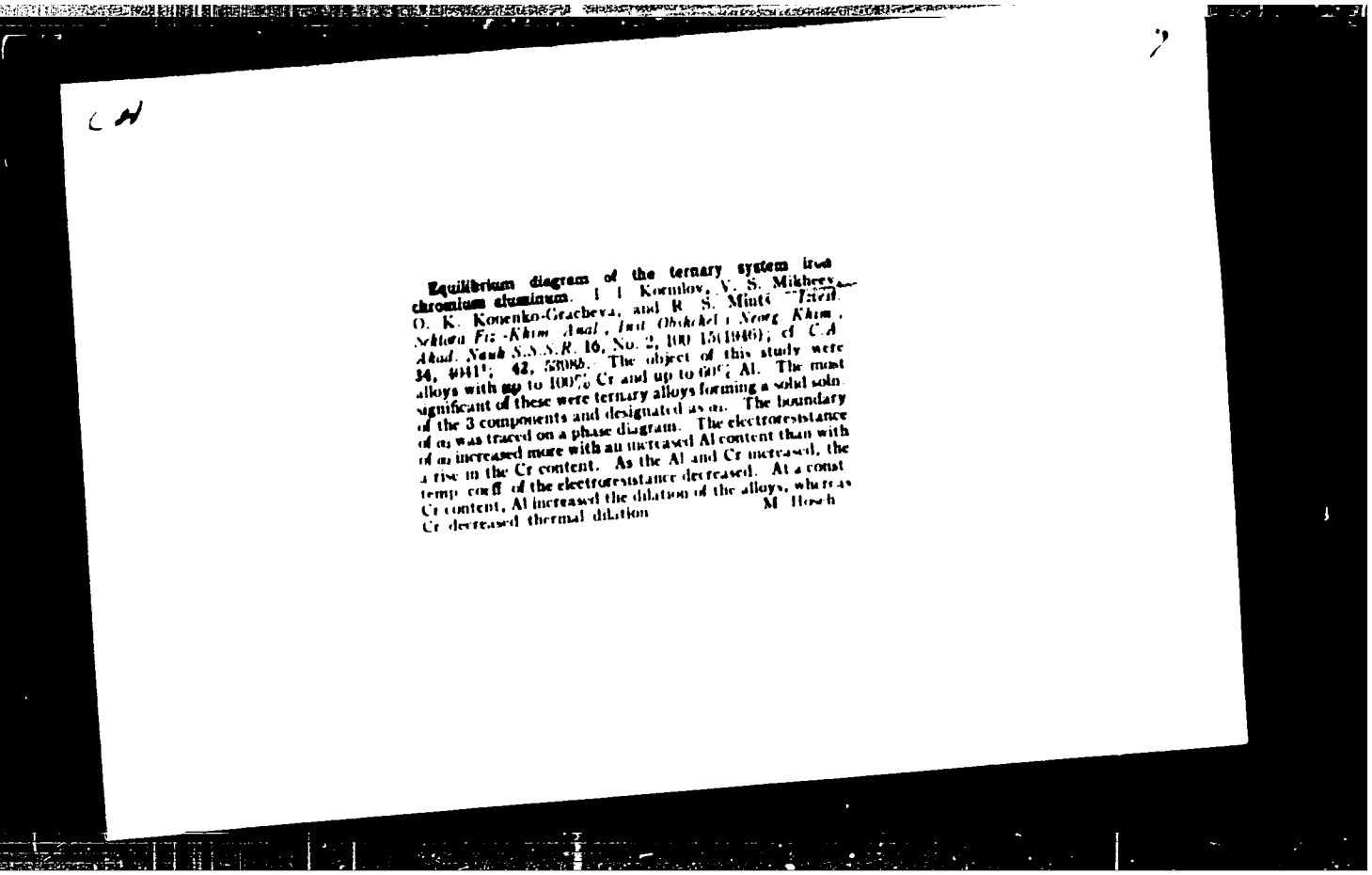
MIKHEYEV, V.S.

11000

Mechanical Properties of Iron-Chromium-Aluminum Ternary Alloys. I. I. Kornilov and V. S. Mikheyev. [Zav. lab., 1946, 12, (2), 93-104] [In Russian]. Curves for the hardness, tensile strength, and elongation of iron-chromium-aluminum ternary systems as functions of chromium (up to 40%) and aluminium (up to 15%) contents as well as the curves for the impact strength of these alloys as a function of chromium (up to 25%) and aluminium (up to 8%) contents, and their temperature were established. The inter-relation between the ductility and the heat-treating temperature for some alloys was also established.—v. o.

2

Evaluation B-60429



Equilibrium diagram of the ternary system iron-chromium-aluminum. I. I. Kornilov, V. S. Mikheev, O. K. Konenko-Gracheva, and R. S. Mints. *Trudy Sektora Fiz.-Khim. Anal., Inst. Obshchei i Neorg. Khim., Akad. Nauk S.S.S.R.* 16, No. 2, 100-15(1946); cf. *C.A.* 34, 4041[1]; 42, 5808b. The object of this study were alloys with up to 100% Cr and up to 10% Al. The most significant of these were ternary alloys forming a solid soln. of the 3 components and designated as α. The boundary of α was traced on a phase diagram. The electroresistance of α increased more with an increased Al content than with a rise in the Cr content. As the Al and Cr increased, the temp. coeff. of the electroresistance decreased. At a const. Cr content, Al increased the dilation of the alloys, whereas Cr decreased thermal dilation. M. Hirsch

C 1

4

Study of the transformation of the σ-solid solution in the iron-chromium system by the method of transformation velocity. I. I. Kornilov and V. S. Mikheev (N. S. Kurnakov Inst., Acad. Sci., U.S.S.R.). *Doklady Akad. Nauk S.S.S.R.* 68, 527–30(1949).—An exptl. study was made of Fe alloys contg. from 40.66 to 54.80 at. % Cr. The time for 50% transformation of the solid soln. at 650° was detd. by a magnetometer and was found to have minima of 21 hrs. at 42.44 Cr, 33 hrs. at 46.44 Cr, and 68 hrs. at 49.57 at. % Cr. Between and beyond these compns. the half-time rose to about 1500 hrs. These data show the existence of three one-phase regions, β, θ, and σ, resp., with intervening eutectoid reactions involving β + θ and θ + σ. The eutectoid decompns. did not go to completion in the 1925 hrs. of the expts. The curve of Curie temp. vs. compn. was continuous in the compn. ranges beyond and between the 3 one-phase regions.

A. G. Guy

MIKHEYEV, V. S. Cand Chem Sci

Dissertation: "Transformations in Solid Solutions of the Iron-Chromium System."
25/1/50

Inst of General and Inorganic Chemistry imeni N. S. Kurnakov, Acad Sci USSR

SO Vecheryaya Moskva
Sum 71

MIKHEYEV, V. S.

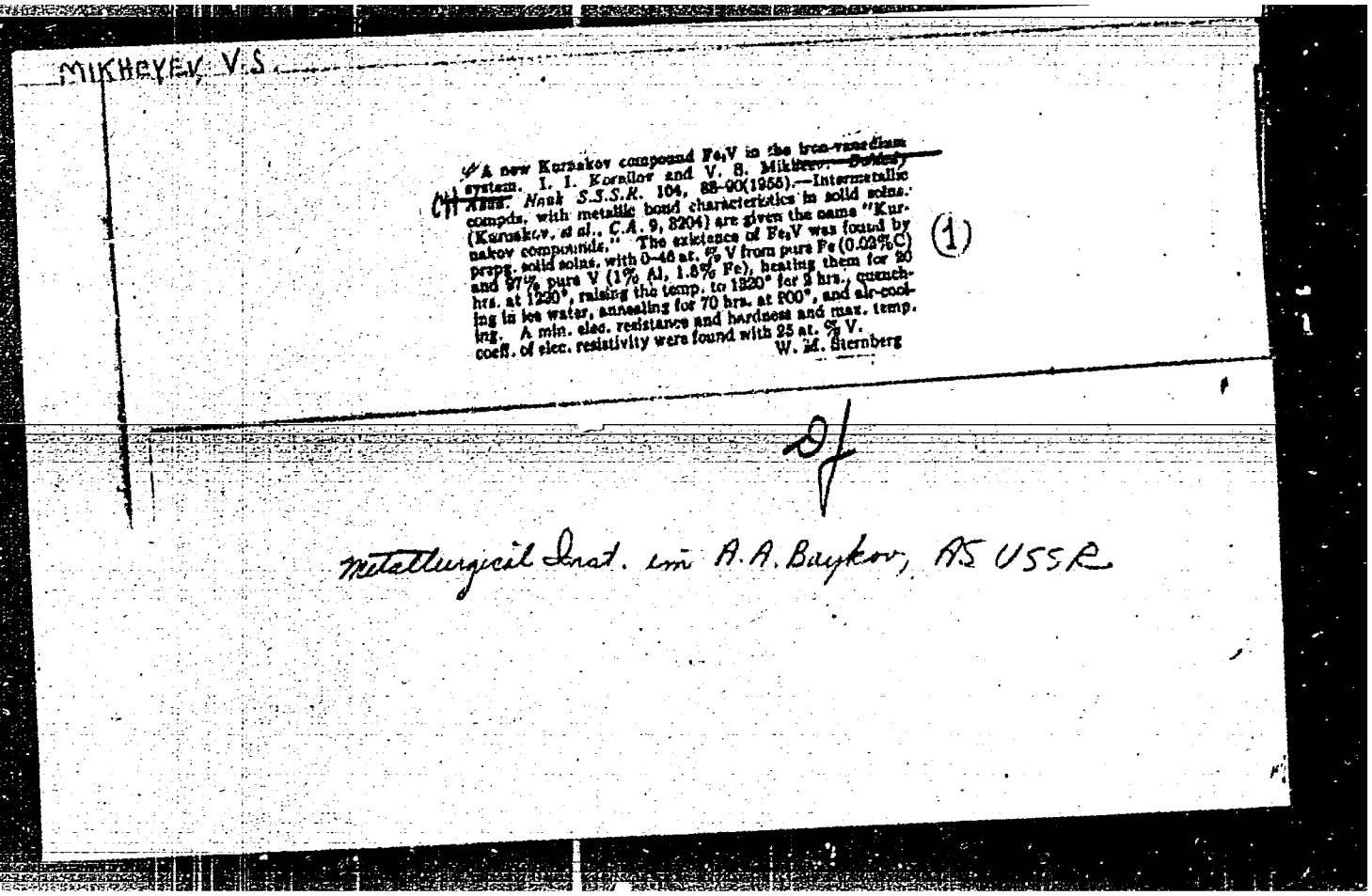
4

Chem 2

Acc. No. 147
1-25-54
General & Physical Chemistry

Diagrams of state of metallic systems based on chromium. I. I. Kornilov and V. S. Mikheev. *Uspekhi Khim.* 22, 87–98 (1953).—A review of phase diagrams of metallic systems with Cr. 36 references. G. M. Kosolapoff

4-21-54



MIKHEYEV, V.S.

A new Kurnakov compound Fe_4V in the iron-vanadium system. I. I. Kornilov and V. S. Mikheev. *Doklady Akad. Nauk S.S.S.R.* 104, 88-90(1955).—Intermetallic compds. with metallic bond characteristics in solid solns. (Kurnakov, *et al.*, *C.A.* 9, 8204) are given the name "Kurnakov compounds." The existence of Fe_4V was found by prepg. solid solns. with 0–46 at. % V from pure Fe (0.02% C) and 97% pure V (1% Al, 1.8% Fe), heating them for 20 hrs. at 1220°, raising the temp. to 1320° for 3 hrs., quenching in ice water, annealing for 70 hrs. at 900°, and air-cooling. A min. elec. resistance and hardness and max. temp. coeff. of elec. resistivity were found with 25 at. % V.
W. M. Sternberg

(1)

2/

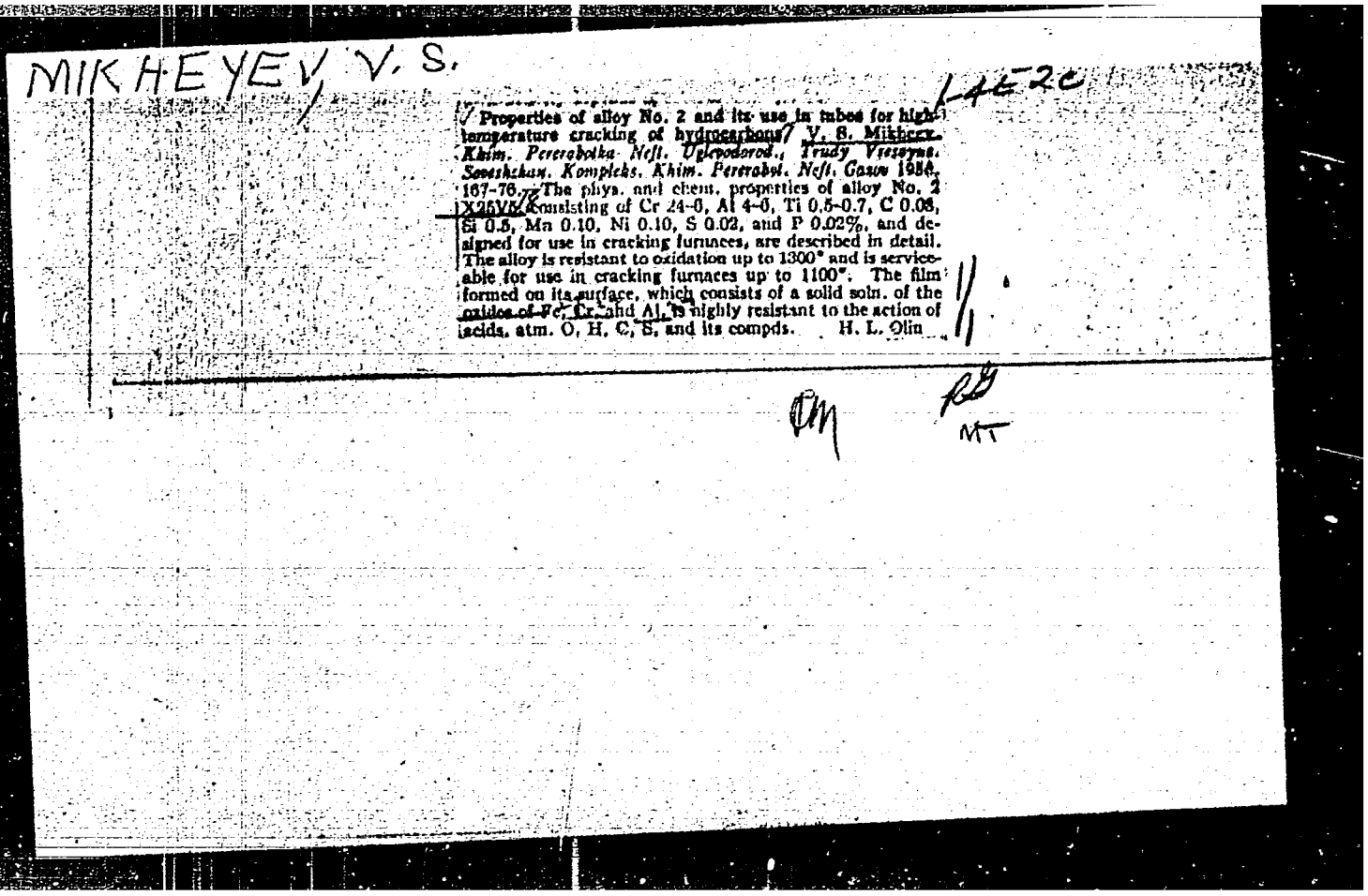
Metallurgical Inst. im A. A. Baykov, AS USSR

MIKHEYEV, V. S.

Kornilov, I. I., Mikheyev, V. S., "Study of the Heat Resistance of Iron-Chrome-Aluminum Alloy No. 2."

in book Research on Heat Resistant Alloys, pub by Acad. Sci. USSR, Moscow, 1956, 100 pp.

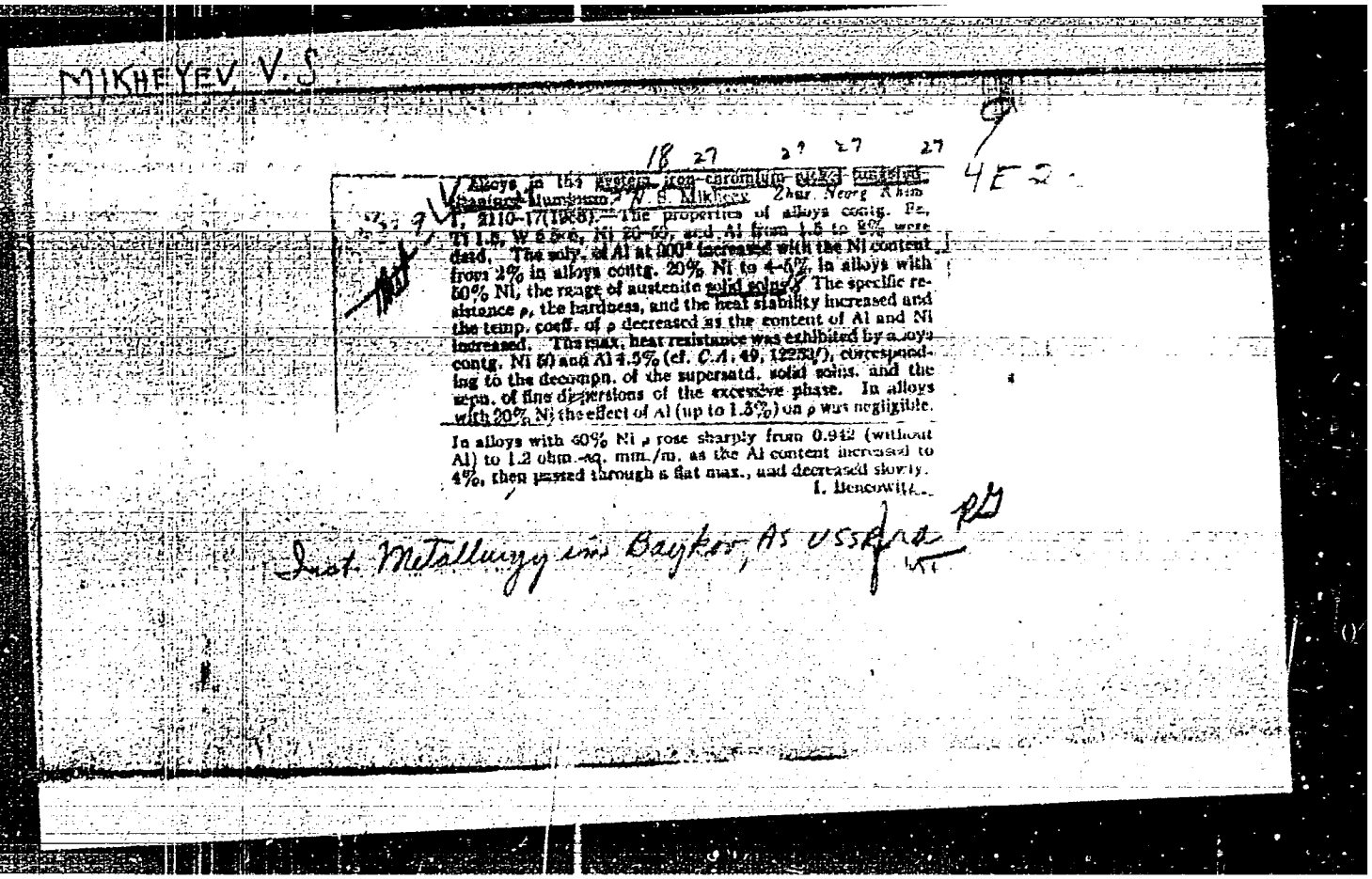
Inst. Metallurgy im A. A. Baykov



MIKHEYEV, V. S.

L-4520

Properties of alloy No. 2 and its use in tubes for high-temperature cracking of hydrocarbons / V. S. Mikheev. *Khim. Pererabotka Nefti. Uglevodorod., Trudy Vsesoyuz. Soveshchan. Kompleks. Khim. Pererabot. Nefti. Gazov* 1956, 167-76.—The phys. and chem. properties of alloy No. 2 (X25V8) consisting of Cr 24-6, Al 4-6, Ti 0.5-0.7, C 0.08, Si 0.5, Mn 0.10, Ni 0.10, S 0.02, and P 0.02%, and designed for use in cracking furnaces, are described in detail. The alloy is resistant to oxidation up to 1300° and is serviceable for use in cracking furnaces up to 1100°. The film formed on its surface, which consists of a solid soln. of the oxides of Fe, Cr, and Al, is highly resistant to the action of acids, atm. O, H, C, S, and its compds. H. L. Olin



MIKHEYEV V.S.

18 27 27 27 27

4E2

Alloys in the system iron-chromium-nickel-aluminum. V. S. Mikheev. *Zhur. Neorg. Khim.* 1, 2110-17(1956).—The properties of alloys contg. Fe, Ti 1.5, W 6.5%, Ni 20-60, and Al from 1.5 to 8% were detd. The solv. of Al at 900° increased with the Ni content from 2% in alloys contg. 20% Ni to 4-5% in alloys with 60% Ni, the range of austenite solid solns. The specific resistence ρ, the hardness, and the heat stability increased and the temp. coeff. of ρ decreased as the content of Al and Ni increased. The max. heat resistance was exhibited by alloys contg. Ni 60 and Al 4.5% (cf. *C.A.* 49, 12253f), corresponding to the decompn. of the supersatd. solid solns. and the sepn. of fine dispersions of the excessive phase. In alloys with 20% Ni the effect of Al (up to 1.5%) on ρ was negligible.

In alloys with 60% Ni ρ rose sharply from 0.942 (without Al) to 1.2 ohm.-sq. mm./m. as the Al content increased to 4%, then passed through a flat max., and decreased slowly.

I. Bencowitz

Inst. Metallurgy im. Baykov, AS USSR

Mikheyev V.S.

137-58-2-4173

Translation from Referativnyy zhurnal Metallurgiya 1958, Nr 2 p 273 (USSR)

AUTHORS: Kornilov, I.I., Mikheyev V.S.

TITLE: The High-temperature Strength of Iron-chrome-aluminum Alloy Nr 2 at 900 and 1,000°C and the Use Made of this Alloy in the Chemical Industry (Zharoprochnost' zhelezo-khromo-alyuminiyevogo splava No 2 pri 900 i 1000° i primeneniye etogo splava v khimicheskoy promyshlennosti)

PERIODICAL: Tr. In-ta metallurgii AN SSSR, 1957, Nr 1, pp 124-131

ABSTRACT: A study was made of the high-temperature strength of the Fe-Cr-Al alloy Nr 2 (GOST Kh25Yu5), used to manufacture heating resistor elements for electric furnaces and refractory sheeting and pipe. The composition of the alloy is 23-26% Cr, 4.5-5.5% Al, 0.5% Ti, 0.08% C, 0.5% Si, $\leq$ 0.10% Ni, and $\leq$ 0.020% S and P. The alloy was tested in two forms, as fine-grain cold-deformed work hardened wire and as a coarse-grain recrystallized material. Testing was done on a centrifuge at 900 and 1,000°C under stresses of 0.30 and 0.10 kg/mm^2, respectively. Test duration was 10 000 hours at 900°, 6 000 hours at 1,000°, the diameter of the test specimens was 4 mm

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The High-temperature Strength (cont.)

the length of the cantilever 80 mm. The variation in deflection as a function of the stress duration was taken as the criterion of the high-temperature strength. It was found that the fine-grain alloy was deformed more rapidly than the (same) coarse-grain alloy. The high rate of creep of the fine-grain alloy is attributed to the irregularity of its structure. The tests yielded data (the dependence of the ultimate stresses on the temperature) which are needed to plan products to be made of a cold-deformed alloy and able to operate under bending stresses at high temperatures. The alloy was found to be highly plastic at temperatures above 700°. Recommendations are included concerning the manufacture of coils (for heat exchangers etc., Tr. Ed.) from pipe and casings made from sheets of this alloy, and an account is given of the use of these products in the chemical industry.

A. M.

1. Steel alloys—Applications 2. Steel alloys—Test methods 3. Steel alloys —Test results

Card 2/2

137-58-3-5835

Translation from: Referativnyy zhurnal, Metallurgiya 1958, Nr 3, p 195 (USSR)

AUTHORS: Kornilov, I. I., Mikheyev V. S., Chernova, T. S.

TITLE: The Ti-Cr Phase Diagram (Diagramma sostoyaniya Ti-Cr)

PERIODICAL: Tr. In-ta metallurgii AN SSSR, 1957, Nr 2, pp 126-134

ABSTRACT: The Ti-Cr phase diagram was investigated by means of thermal and microstructural analysis, as well as by measurement of its specific electrical resistivity, its temperature coefficient, and its hardness. Powder metallurgy methods were employed in the preparation of alloys composed of Ti hydride and Cr hydride; after sintering the alloys were fused in a high-frequency induction furnace. The following procedures were employed in heat treatment of specimens: 1) tempering, starting at 1200°, 1000°, 900°, and 800°C; 2) annealing with subsequent stepwise cooling as follows: exposure to 1200° for a period of 25 hours, slow cooling to 800°, at which temperature the specimen was maintained for 100 hours; this was followed by a 500 hour exposure to a temperature of 650°, whereupon the specimen was allowed to cool in the furnace. The data obtained were employed in the construction of the Ti-Cr phase diagram. The existence of an

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The Ti-Cr Phase Diagram

eutectoid transformation in the system is verified. The eutectoid composition corresponds to approximately 15 percent Cr. The transformation of the eutectoid into the β phase (solid solution of Cr in Ti) occurs at 728°. The solubility of Cr in β Ti amounts to 30 percent and 26 percent at 1200° and 1100°, respectively, and diminishes with decreasing temperatures. The solubility of Cr in α Ti is less than 1 percent at the eutectoid temperature and at decreasing temperatures it decreases to a value of 0.5 percent. It is verified that metallic compounds, the composition of which corresponds to the formula Ti_2Cr_3, are being formed in the Ti-Cr system. The solubility of Ti in Cr amounts to 8 percent at 1200°, 4-4.5 percent at 1100°, and approximately 2 percent at 800° and below. Heterogeneous at temperatures below 1350° and 728°, the Ti-Cr alloys at room temperature are composed of α solid solution of Cr in Ti (0.5%). At Cr contents of 0.5 to 58% the alloys have a eutectoid microstructure which contains $\alpha+\gamma$ phases as well as segregations of the excess α phase, as long as the Cr content does not exceed 15 percent, whereas in the range of 15 percent to 58 percent Cr content, the alloys are composed of γ phase (Ti_2Cr_3) only. At 60-62 percent Cr the alloys have a γ phase composition, whereas at 62-98 percent Cr they exhibit a structure of α solid solution of Ti in Cr with segregations of the excess γ phase. Alloys containing 98-100 percent Cr are solid solutions of Ti in Cr.

M. Sh.

Card 2/2

Mikheyev V.S.

137-1958-3-4621

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 3, p 22 (USSR)

AUTHOR: Mikheyev, V. S.

TITLE: A Contact Method of Determining the Temperature of Fusion of Metals and of Some Metallic Alloys (Kontaktnyy metod opredeleniya temperatury plavleniya metallov i nekotorykh metallicheshikh splavov)

PERIODICAL: Tr. In-ta metallurgii AN SSSR, 1957, Nr 2, pp 154-163

ABSTRACT: A description of a contact method for measuring the temperature of molten metal by means of a W-Ta or a Pt Pt-Rh thermocouple, inserted into a drilled opening in the body of a specimen, heated under vacuum by the passage of an electric current which passes through it. Graphs showing the thermo-e.m.f. of the thermocouples as a function of temperature are given, together with a method for the calibration of thermocouples by means of utilizing meltingpoints of various metals (Cu, Ni, Fe, Ti, Mo); it is noted that the W-Ta thermocouple generates a maximum e.m.f. (approximately 21.5 mv) at a temperature of about 2200°; any further increase in the temperature produces a decrease in the e.m.f. Some results of the determination of the fusion tem-

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137-1958-3-4621

A Contact Method of Determining the Temperature of Fusion (cont.)

perature of various metallic alloys are shown, in particular for the Ti-Cr, Ti-Al, and Ni-Mo systems with various contents of components. Author recommends that this method be employed for the determination of the temperature at which the fusion of binary and more complex metallic alloys begins in the crystallization region of solid solutions.

M. L.

Card 2/2

79-3-41/47

AUTHORS: Kornilov, I. I., Mikheyev, V. S., Chernova, T. S.

TITLE: An Investigation of the Equilibrium Diagram of the System Titanium-Chromium-Aluminum (Issledovaniye diagrammy ravnovesiya titan-khrom-alyuminiy)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 3, pp. 786-796 (USSR)

ABSTRACT: On the basis of the investigation of the microstructure of titanium-chromium-aluminum alloys in a hardened and annealed state the phase diagrams were not only constructed by the isothermal sections, but by the sections between the temperature of 1200°C and room temperature. It was found that the α-phase of the solid solution of α-titanium at room temperature lies in the triangular concentration of 5 % chromium and 20 % aluminum. The domain of the γ-phase lies at about 0,8 % chromium and 38 % aluminum. The investigations of the γ-domain and of the two phases $\alpha + \gamma_1$ as well as the boundary of distribution in the concentration triangle titanium-chromium-aluminum were determined. The alloys in

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3 41/47

An Investigation of the Equilibrium Diagram of the System Titanium-Chromium -Aluminum

a hardened and annealed state have microstructures consisting of solid solutions of the α and β modification, the metallic compound $TiAl(\gamma')$, and Ti_2Cr_3 or the β phase. The two-phase domains consist of $\alpha + \gamma'$, $\alpha + \beta$ and $\alpha + \gamma_1$, $\beta + \gamma$ and $\gamma + \gamma_1$-phases. The three-phase domains consist of the $\alpha + \beta$ and γ'-phase. In the present work the occurrence of the $\alpha + \beta + \gamma$ phase at 760°C was not confirmed, but only the occurrence of the $\alpha + \beta$-phase. The specific electric resistance and the temperature coefficient of the alloys titanium -aluminum-chromium in dependence on the aluminum- and chromium-content were examined. It was found that titanium-chromium-aluminum alloys are characterized by a high electric resistance at room temperature which is dependent on the chromium- and aluminum content. Titanium chromium aluminum alloys with a content up to 2,8 % aluminum are not magnetic or plastic, and permit the treatment in hot state. There are 8 figures, 4 tables, and 6 references 4 of which are Soviet.

SUBMITTED: June 25, 1957

Card 2/2

78-3-4-5/38

AUTHORS: Mikheyev, V. S., Pevtsov, D. M.

TITLE: The Phase Diagram of the System Niobium-Tungsten (Diagramma sostoyaniya sistemy niobiy-vol'fram)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 4, pp. 861-866 (USSR)

ABSTRACT: In the present paper the system niobium-tungsten was investigated by means of physico-chemical analysis, thermal analysis, determination of microstructure, hardness and electric resistance, and the phase diagram was constructed. Niobium-tungsten alloys were produced by powder metallurgical methods. At 7,5 - 100 % tungsten the melting temperature curve of the alloys changes constantly. In the solidus line a deviation occurs until 7,5 % tungsten. Alloys with 20-70 % tungsten have dendritic microstructure, alloys with 50, 70, 97,5 % tungsten have polyhedral microstructure and represent solid solutions on the basis of tungsten. The hardness of the alloys changes continuously. At 20 % tungsten the maximum hardness occurs. Alloys with 40 - 50 % tungsten have the least hardness (200 and 300 H_V). There are 6 figures, 1 table, and 3 references, 2 of which are Soviet.

Card 1/2

78-3-4-5/38

The Phase Diagram of the System Niobium-Tungsten

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR
(Institute for Metallurgy imeni A. A. Baykov, AS USSR)

SUBMITTED: June 25, 1957

Card 2/2

11(4) PHASE I BOOK EXPLOITATION SOV/3075

Akademiya nauk SSSR. Bashkirskiy filial, Ufa

Khimiya seraorganicheskikh soyedineniy, soderzhashchikhsya v neftyakh i nefteproduktakh; [materialy III nauchnoy sessii] (Chemistry of Sulphur Organic Compounds Contained in Petroleum and Petroleum Products; [Papers of the Third Scientific Session]) Moscow, Izd-vo AN SSSR, 1959. 376 p. 2,300 copies printed. Errata slip inserted.

Editorial Board: R.D. Obolentsev (Resp. Ed.) Doctor of Chemical Sciences; G.D. Gal'pern, Doctor of Chemical Sciences; Ya. B. Chertkov, Doctor of Technical Sciences; V.V. Panov, Candidate of Technical Sciences; and V.P. Rozhdestvenskiy, Candidate of Chemical Sciences; Ed. of Publishing House: I.I. Kruzhkov; Tech. Ed.: T.P. Polenova.

PURPOSE: This book is intended for chemists, chemical engineers, and technicians specializing in the chemistry of petroleum.

COVERAGE: The book is a collection of papers presented at the Third Scientific Session on the Chemistry of Organic Sulfur- and Nitrogen Compounds Contained in Petroleum and Petroleum Products. The scientific session was held in Ufa, June 3-8, 1957. The book consists of six sections: 1) Synthesis, characterization, and analysis of organic sulfur compounds; 2) Separation and composition of organic sulfur compounds contained in petroleum and petroleum products; 3) Transformation of organic sulfur compounds by thermal catalysis; 4) Corrosive properties of and tar formation in sulfur-containing petroleum and petroleum products; 5) Uses of organic sulfur compounds and hydrogen sulfide; 6) Physiological properties of organic sulfur compounds. No personalities are mentioned. There are 315 references, of which 179 are Soviet, 118 English, 5 French, 12 German, and 1 Czech.

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Chemistry of Sulphur Organic Compounds (Cont.) SOV/3075

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PHASE I BOOK EXPLOITATION SOV/2117

24(8)

Issledovaniya po eksperimental'noy tekhnike i metodam vysokotemperaturnykh issledovaniy, 1956

Eksperimental'naya tekhnika i metody issledovaniy pri vysokikh temperaturakh; trudy soveshchaniya (Experimental Techniques and Methods of Investigation at High Temperatures; Transactions of the Conference on Experimental Techniques and Methods of Investigation at High Temperatures) Moscow, AN SSSR, 1959. 789 p. (Series: Akademiya nauk SSSR. Institut metallurgii. Komissiya po fiziko-khimicheskim osnovam proizvodstva stali) 2,200 copies printed.

Resp. Ed.: A.M. Samarin, Corresponding Member, USSR Academy of Sciences; Ed. of Publishing House: A.L. Bankvitser.

PURPOSE: This book is intended for metallurgists and metallurgical engineers.

COVERAGE: This collection of scientific papers is divided into six parts: 1) thermodynamic activity and kinetics of high-temperature processes 2) constitution diagram studies 3) physical properties of liquid metals and slags 4) new analytical methods and procedures of pure metals 5) pyrometry, and 6) general questions. For more specific coverage, see Table of Contents.

Toporov, Yu.P., and I.A. Bondar'. Effect of Calcium Fluoride on the Crystallization Process in the Ternary System $CaO-Al_2O_3-SiO_2$ 205

It was shown that the addition of 5 percent of CaF_2 decreases the viscosity of the melt and lowers the temperature of crystallization by 50-70 percent. CaF_2 can be used as an activator of the binding properties of blast-furnace slags. The addition of 5 percent of CaF_2 lowers the refractive index of glasses by 5-6 figures in the third decimal place. A section with a constant CaF_2 content of 5 percent was drawn in the investigated portion of the $CaO-Al_2O_3-SiO_2-CaF_2$ quaternary system, adjacent to the $CaO-SiO_2$ side and extending from 20 to 65 percent SiO_2 and 80 percent Al_2O_3.

Nikitin, Yu.I. Contact Method of Measuring the Melting Point of Metals and Certain Metallic Alloys 213

The method is based on direct measurement of the thermoelectromotive force in the contacting of a hot thermocouple junction with a drop of liquid metal upon fusion of the specimen under the action of the electric current. The contact method is recommended for the determination of the initial fusion temperature of simple and complex alloy systems in the temperature range of the crystallization of solid solutions.

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SOV/180-59-3-30/43

AUTHORS: Mikheyev, V.S. and Fedotov, S.G. (Moscow)

TITLE: Hardness of Titanium Alloys at Elevated Temperatures

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 3, pp 145-146(USSR)

ABSTRACT: Results of hardness tests are given for 6-component titanium alloys with aluminium content of 0.5 to 12%. Specimens were prepared in a vacuum arc furnace and hardness measurements taken using a diamond indentor which was loaded for one minute. The temperature was varied from 20 to 1000°C. Hardness results are given in the table. The first figures in each case are for the as cast alloys and the second for alloys quenched from 1150°C. Fig 1 and 2 show the influence of temperature on hardness. Small additions of Cr, Fe, Si and B increase the hardness and with increasing Al addition from 0.5 to 12%, the hardness is further increased. At room temperature the hardness is lower for the as cast alloy but at 300 to 500°C the quenched alloy is harder due to ageing processes. Above 500°C there is a sharp decrease in the quenched alloy. It is not clear why the hardness of the quenched alloy is less

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Hardness of Titanium Alloys at Elevated Temperatures

than that of the cast alloy. At 1000°C the alloy containing 12% Al is five times harder than that of the alloy containing 0.5% Al. There are 2 figures, 1 table and 3 Soviet references.

ASSOCIATION: Institut metallurgii AN SSSR (Metallurgical Institute, Academy of Sciences, USSR)

SUBMITTED: April 4, 1959

SOV/154-59-4-6/17

3(4)
AUTHOR: Mikheyechev, V. S., Assistant

TITLE: Measurement of Short Distances by Means of the Optic Range Finder SVV-1 (Izmereniye korotkikh rasstoyaniy svetodal'nomerom SVV-1)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Geodeziya i aerofotos"-yemka, 1959, Nr 4, pp 53 - 55 (USSR)

ABSTRACT: Since no published data on the possibility of short distance measurements with the aid of the range finder SVV-1 are available, special tests were carried out in the field by means of this range finder in May 1958. For a better control of the measurement results measurements were carried out on a basis of 736430 meters with an error not exceeding 1:1000000. The SVV-1 of 1957 was used which was produced in the UPM MIIGAiK. The measurements and the evaluation of the results were made according to the method developed in the NII VTS. For measurement the socalled "blinker" method is used. The results obtained are given in a table. The measurement results are indicated by the curve shown in the diagram for the root of the square of the mean error. The results show that in distances of 350 to

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Measurement of Short Distances by Means of the Optic SOV/19-59-4-6/17
Range Finder SVV-1

750 meters the root of the square of the [illegible] error is the same and amounts to ± 30 mm. If the distances are shorter the error is considerably more marked. Measures for an increased accuracy in the measurement of short distances are pointed out. In this connection the efforts of foreign countries are pointed out. There are 1 figure, 1 table, and 1 reference.

ASSOCIATION: Moskovskiy institut inzhenerov geodezii, aerofotos"yemki i kartografii (Moscow Institute of Geodetic, Aerial Survey and Cartographic Engineers)

SUBMITTED: October 16, 1958

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18.1150

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SOV/180-59-4-11/48

AUTHOR: Mikheyev, V.S. (Moscow)

TITLE: Hot Strength of Iron-Chromium-Aluminium Alloy Nr 2 at Temperatures of 600 to 1200°C

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 4, pp 66-72 (USSR)

ABSTRACT: Iron-chromium-aluminium alloy Nr 2 contains 23 to 27% chromium, 4.5 to 6.5% aluminium, 0.5% titanium, balance iron and impurities (Ref 1,2). It is type Kh25Yu5 according to GOST, consisting of a ferritic solid solution of chromium and aluminium in alpha-iron. It is used both as a resistance and a constructional alloy. The object of the present work was to study the hot strength (as measured by deflection) of the alloy at 100°C intervals from 600 to 1200°C with a range of deflection stresses at each temperature (overall range 7.5 to 0.025 kg/mm^2). Tests were carried out on a V.P.Prokhanov-design (Ref 4) centrifugal machine with specimens 4 mm in diameter, with a cantilever length of 80 mm. Grain growth takes place rapidly above about 850°C (Fig 1 shows microstructures obtained after 1 hour's heating) Curves of deformation vs time for different stresses and temperature are given

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in Fig.2. The limiting stress for a deflection of 3 to 5 mm in 500 hours is plotted against temperature in Fig 3. Fig 4 shows deformation vs time curves for 600°C and a stress of 7.5 kg/mm^2 for the initial cold-deformed state (curve 1) and after annealing for 1 hour at 700, 800, 850, 900 and 1000°C (curves 2, 3, 4, 5 and 6 respectively). similar curves for 1200°C are given in Fig.6. The times to attain various deflections are shown as functions of temperature in Fig 5. The author concludes that in the work-hardened state with annealing below 700°C (ie with a grain size of 0.001 to 0.002 mm^2) the alloy deforms most rapidly compared with the speed of deformation for annealing temperatures of 850 to 1000°C (with grain sizes of 0.009 to 0.05 mm^2 and over). With increasing annealing temperature and increasing grain size the resistance to applied stress rises greatly. The limiting stresses for producing 3 to 5 mm deflection of the test piece in 500 hours at 600, 700, 900 and 1000°C are (in kg/mm^2), 4, 1, 0.3 and 0.2; and in 300 hours at 1200°C it is 0.025 . These values

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Hot Strength of Iron-Chromium-Aluminium Alloy Nr 2 at Temperatures of 600 to 1200°C

enable design calculations for high-temperature service parts to be effected. There are 6 figures and 9 Soviet references.

SUBMITTED: January 13, 1958

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18.1285

67809

SOV/180-59-5-26/37

AUTHORS: Mikheyev, V.S., and Fedotov, S.G. (Moscow)

TITLE: Influence of Aluminium on the Modulus of Normal Elasticity of Titanium Alloys at Elevated Temperatures

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 5, pp 141-142 (USSR)

ABSTRACT: The authors have studied the influence of a variable aluminium content on the modulus of normal elasticity of six-constituent titanium alloys at elevated temperatures. The quinternary α-titanium solid solutions with chromium, iron, silicon and boron (Ref 1) were taken as basis alloys. PKhMZ TG-0 titanium was used for the preparation of alloys. This contained the following weight percentages of impurities: Fe - 0.02, Si, C, Ni, Cl, N_2 - 0.03 each, Mg - 0.04, O_2 - 0.09, and H_2 - 0.003. The basic mechanical properties of titanium were: $\sigma = 40 \div 45$ kg/mm^2, $\delta = 30$ to 40%, $\psi = 60 \div 70\%$, $a_k = 19 \div 29$ kg/cm^2, and $H_b = 130 \div 140$ kg/mm^2. Cast ingots of 1 to 2 kg in weight were forged into rods of 14-16 mm diameter at a temperature of 1100 to 1150 °C. The alloys were melted in a vacuum arc furnace with consumable electrodes. The modulus of normal elasticity

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was determined by a radiotechnical method by means of measuring the frequency of natural oscillations during excitement of transverse oscillations in the specimen. The specimens were in the form of cylindrical rods, 200 mm long and 10 mm in diameter. Heating of the specimens which were suspended by thin nichrome wires from the container and exciter, was effected in a special tri-sectional electric furnace. The apparatus and method of measurement have been described by Lozinskiy et al (Refs 2, 3). The modulus of normal elasticity for a cylindrical specimen can be calculated by the formula

$$E = 1.6388 \cdot 10^{-8} (\ell/d)^4 G/\ell^2 \text{ kg/mm},$$

where ℓ is the length of the specimen in cm, d is the specimen diameter in cm, G is the weight of the specimen in g, and f is the frequency of natural oscillations in Hertz. (Abstractor's note: it appears that one of the ℓ's in the above formula should be 'f'). The figure on p 142 shows curves for the change of the modulus of normal elasticity on heating of titanium, the titanium alloys

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T-3, T-4, T-6 and T-8 and their bases representing a solid solution of α-titanium with chromium, iron, silicon and boron. From the above data it follows that small soluble additions of chromium, iron, silicon and boron raise the modulus of normal elasticity of titanium both at room temperature and at elevated temperatures. A noticeable increase of this property is observed when aluminium is introduced in the alloy in addition. The higher the aluminium content of the alloy, the higher its modulus of normal elasticity. It is also noted that when titanium is alloyed with aluminium the intensity of drop of the modulus of elasticity of titanium alloys on heating decreases noticeably with increase of aluminium content. In the study of the long-term strength, creep and hardness of these alloys at elevated temperatures, it has also been found by Kornilov et al (Ref 1) that the strength properties of titanium alloys and their resistance to creep increase with increase in aluminium content. The authors express gratitude to M.G. Lozinskiy for the facilities offered

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to them to carry out experiments in the measurement of the modulus of normal elasticity.
There are 1 figure and 3 Soviet references.

ASSOCIATION: Institut metallurgii AN SSSR (Institute of Metallurgy, Ac.Sc. USSR)

SUBMITTED: April 4, 1959

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18.8200
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66167
SOV/20-128-5-19/67

AUTHORS: Fedotov, S. G., Likheyev, V. S.

TITLE: On the Interrelation Between Indentation Hardness and Modulus of Normal Elasticity in Titanium Alloys at High Temperatures

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 5, pp 933-936 (USSR)

ABSTRACT: As early as 1913 N. S. Kurnakov et al (Refs 2, 3) investigated the pressure occurring during the flowing out of plastic bodies and the character of changes in hardness of copper-nickel alloys as a function of composition. He came to the conclusion that the Brunell hardness of the solid solutions depends directly on the product of the modulus of elasticity and the relaxation time: $H_B = ET$, where H_B denotes the Brunell hardness, E the modulus of elasticity, and T the relaxation time. Thus, the change in hardness of such alloys may be due either to a change in the modulus of elasticity, or to a change in relaxation time, or to a simultaneous change in both quantities. P. P. Lazarev (Ref 4) also pointed out a close interrelation between these properties of metals. In the present paper results of measurement of the indentation hardness and the normal modulus of elasticity of titanium,

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On the Interrelation Between Indentation Hardness and Modulus of Normal Elasticity in Titanium Alloys at High Temperatures SOV/20-128-5-19/67

a five-component solution of α-titanium with chromium, iron, silicon, and boron, and of a six-component solution of titanium with an additional variable aluminum content. The aluminum content amounted to 3.0, 4.5, 6.0, and 7.5% by weight. The alloys were fused in an arc furnace. The preparation of the samples is discussed in brief. The results obtained by the measurement of hardness at temperatures varying from room temperature to 1000°C are given in a diagram. The next diagram shows the curves for the variation of the normal modulus of elasticity of titanium, which forms the basis of the above alloys. Simultaneous addition of slight amounts of chromium, iron, silicon, and boron increases the hardness and the modulus of normal elasticity of titanium. An increase in the values for these quantities at room temperature and higher temperatures is also produced by a further admixture of aluminum. However, the rate of increase is not the same for both quantities, especially at room temperature. Experimental data found by the authors reveal that the consolidation of the titanium alloys at room temperature (in relation to their aluminum content) is mainly due to structural factors of

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consolidation, or to an increase in relaxation time together with an increase in interatomic interaction. The indentation hardness and the modulus of normal elasticity decrease on heating. On investigating titanium and its six-component alloys with variable aluminum content the authors drew the following conclusions, among others: (1) Soluble admixtures of chromium, iron, silicon, and boron increase the hardness and the modulus of normal elasticity of a solid solution of α-titanium. (2) Aluminum is the element which produces the most marked consolidation of titanium alloys at room temperature and higher temperatures. (3) The high solidity of titanium alloys with varying aluminum content is preserved in the temperature interval between room temperature and 500-600°C, and decreases rapidly at higher temperatures. (4) The relation between the characteristic properties of the resistivity of the alloys to plastic deformation and of the interatomic interaction becomes increasingly marked with rising experimental temperatures. There are 4 figures, 1 table, and 6 Soviet references.

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On the Interrelation Between Indentation Hardness and Modulus of Normal Elasticity in Titanium Alloys at High Temperatures SOV/20-128-5-19/67

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR (Institute of Metallurgy imeni A. A. Baykov of the Academy of Sciences, USSR)

PRESENTED: May 27, 1959, by I. P. Bardin, Academician

SUBMITTED: May 22, 1959

Card 4/4

S/180/60/000/03/012/030
E111/E352

AUTHORS: Kornilov, I.I., Mikheyev, V.S. and Chernova, T.S. (Moscow)

TITLE: Study of the Partial Phase Diagram of Titanium-aluminium-chromium-iron-silicon

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1960, Nr 3, pp 70 - 72 + 1 plate (USSR)

ABSTRACT: Kornilov has previously worked on the reactions of titanium with various elements (Refs 1-3) and the phase diagrams of some binary and ternary titanium base alloys (Refs 4,5). In the present work experimental data from his and his co-workers' study of the partial phase diagram for the five-component Ti-Al-Cr-Fe-Si system are presented. The diagram is represented by the tetrahedron method (Ref 6) in which the origin is taken as the composition of the solid solution (here the alloy corresponding to the binary Ti-Si solid solution with 0.5 wt.% Si is taken), the three remaining components being assigned to the three axes (Figure 1). As shown in Table 1, aluminium has a high solubility in both alpha- and beta-titanium, that of the others being small in alpha-titanium. Grade TG-00 titanium

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E111/E352

Study of the Partial Phase Diagram of Titanium-aluminium-chromium-iron-silicon

sponge and high-purity grades of the other components were used, alloys being prepared by vacuum arc melting with forging of the ingots into 12-18 mm diameter bars. Alloys with 0 - 15 wt.% Al were studied. Typical microstructures for hardened (from 1 200 °C) and annealed alloys are shown in Figure 3 (top and bottom pairs, respectively) for 6 and 7.5% Al alloys. Table 2 gives solidus temperatures (determined by the surface fusion method with an OP-48 optical pyrometer). Phase transformations were studied on annealed specimens, heating curves being taken with a Kurnakov pyrometer (transformation start and end temperatures are given in Table 3). Hardness was determined in the hardened and annealed states, the former being higher for every aluminium content (Table 4). A polythermal section through the system is given in Figure 2, covering the aluminium-content range studied. There are 3 figures, 4 tables and 6 Soviet references.

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SUBMITTED: February 26, 1960

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S/180/60/000/005/015/033
E193/E183

18.8200

AUTHORS: Mikheyev, V.S., and Chernova, T.S. (Moscow)

TITLE: Investigation of the Titanium-Chromium-Aluminium Alloys by Bending Tests at Elevated Temperatures

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1960, No.5, pp.142-145

TEXT: The object of the investigation described in the present paper was to determine the high-temperature strength of the Ti-Cr-Al alloys belonging to three pseudo-binary systems, represented by vertical sections of the ternary Ti-Cr-Al constitution diagram, with the Cr:Al ratios of 1:9, 1:1, and 3:1. The experimental specimens were prepared by the powder metallurgy technique. The powder compacts (5.5 x 5.5 x 100 mm) were compressed under pressure of 12-15 atmospheres and sintered in vacuum, according to the following schedule: slow heating to 600 °C and holding at that temperature for 100 h; slow heating to 1150 °C and holding at that temperature for 100-150 h; furnace cooling. The sintered rods, placed in evacuated silicate tubes, were heated by high-frequency induction to round off the edges,

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