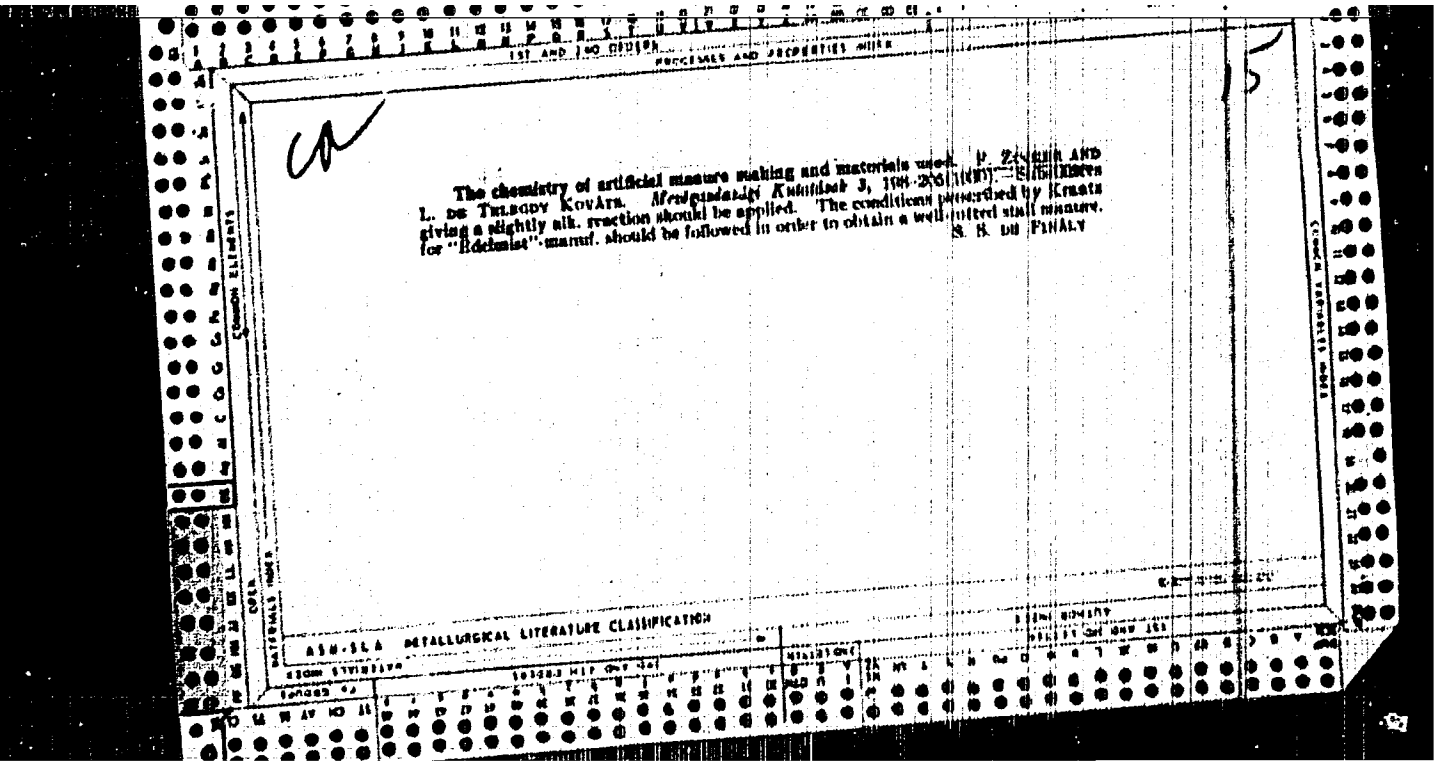
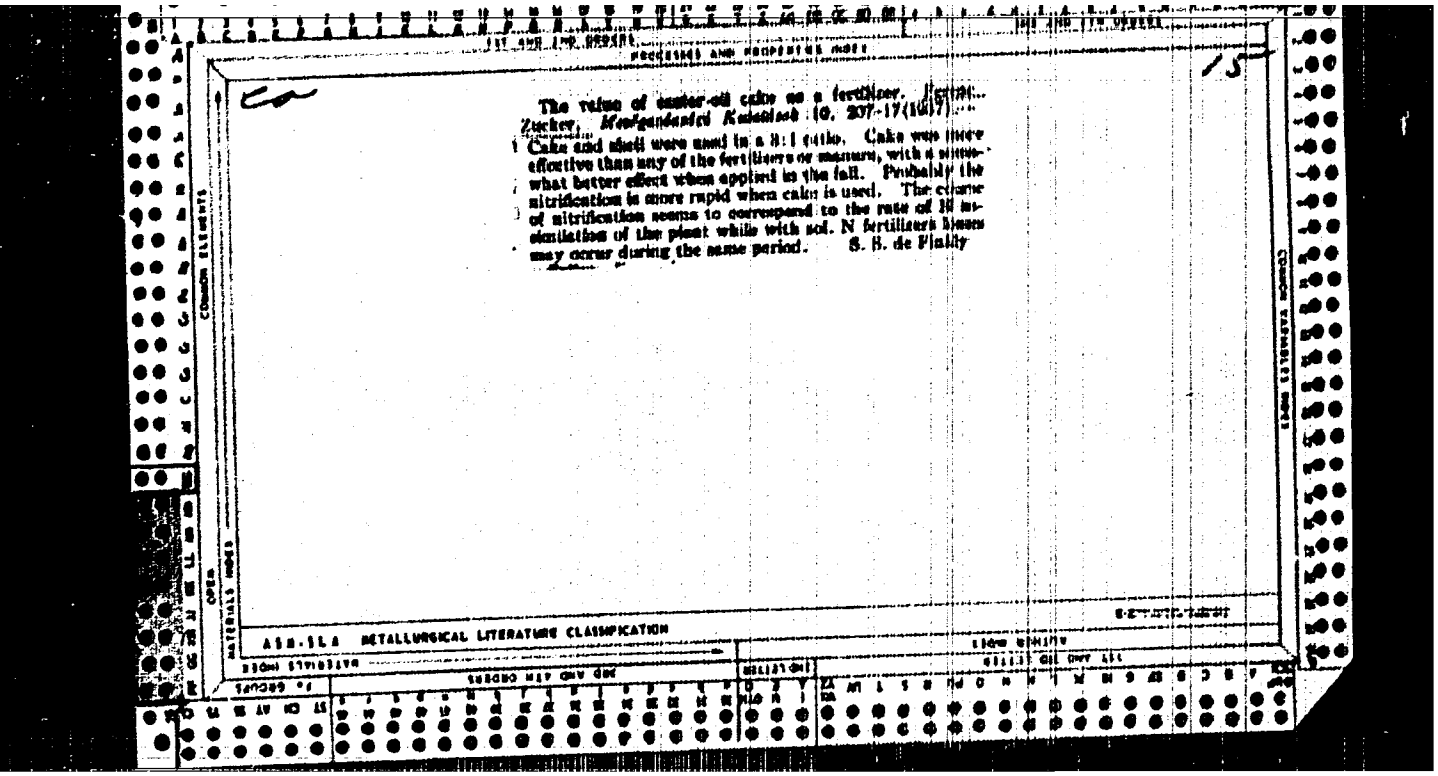
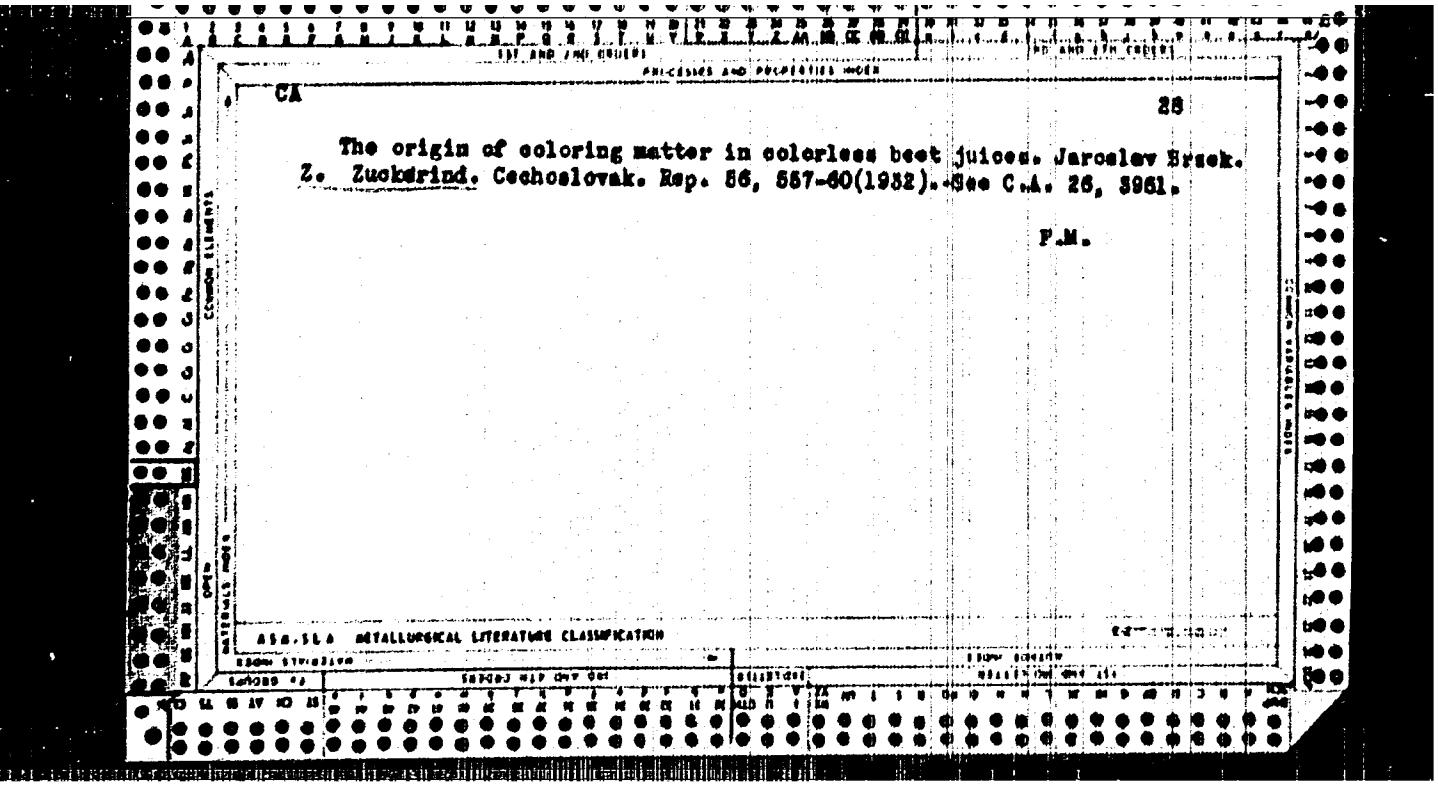


The chemistry of artificial manure making and materials used. [illegible] AND L. DE TELEGDY KOVÁTS. *Mezőgazdasági Kutatások* 3, 198-206 (1930). — [illegible] giving a slightly alk. reaction should be applied. The conditions prescribed by Kraats for "Edelmist"-manuf. should be followed in order to obtain a well [illegible] S. H. DE FINALY

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



The value of castor-oil cake as a fertilizer. [Germ.]...
Zucker, *Landwirtsch. Versuchsstat.* (G. 207-17(1927)).
Cake and shell were used in a 3:1 ratio. Cake was more effective than any of the fertilizers or manure, with a similar effect when applied in the fall. Probably the nitrification is more rapid when cake is used. The course of nitrification seems to correspond to the rate of N assimilation of the plant while with sol. N fertilizers losses may occur during the same period. S. B. de Fialdy



CA

28

The origin of coloring matter in colorless beet juices. Jaroslav Brsek. Z. Zuckerind. Cechoslovak. Rep. 56, 557-60(1932).—See C.A. 26, 3961.

F.M.

Zuckermann A.M.

SOURCE Documentary: Newsletter, Issue No. 2, issued by the Center for Documentation and Communication Research, School of Library Science, Western Reserve University, Cleveland 6, Ohio.

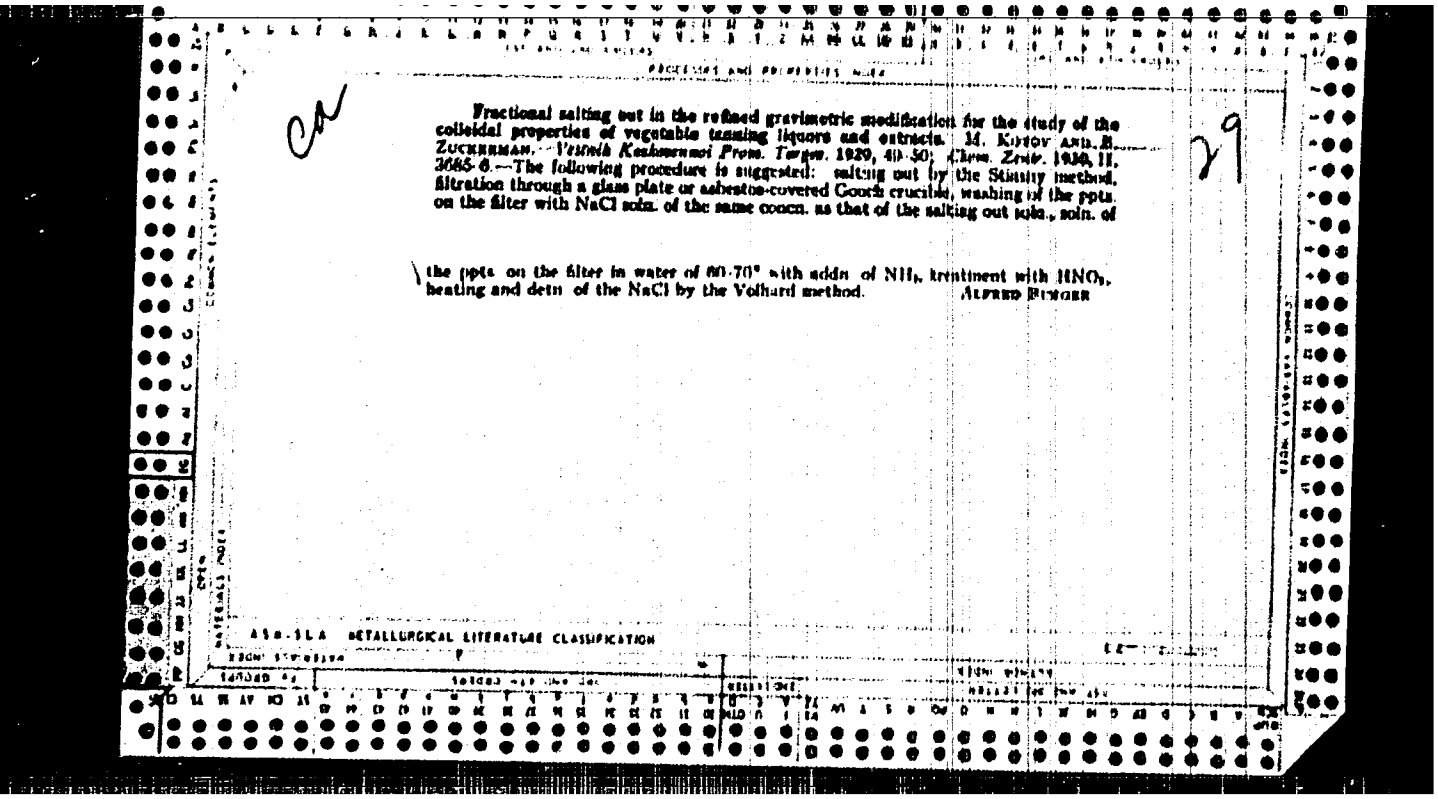
1. To date, 49 papers, from 10 countries, have been scheduled for the subject Conference. They include:

USSR	AKHMANOVA, O.S., Linguistics Institute, USSR Academy of Sciences, Moscow - "Common machine languages as 'auxiliary codes' for 'mediator languages'"
	ANDREYEV, N.D., Experimental Laboratory of Machine Translation, Leningrad University - (1) "Report on the activities of the experimental laboratory of machine translation (Leningrad University)"; (2) "Universal code of science and machine language"
	CHERENIN, V. P., LAVRENT'YEVA, G. A., and KHIDEKOVA, N. V., Institute of Scientific Information, USSR Academy of Sciences, Moscow - "Experimental information language for mechanization of searching of scientific and technical literature"
	ZUCKERMANN, A. M., and TERENT'YEV, A. P., Moscow State University - "Chemical nomenclature translation"

report to be submitted for the Intl. Conference on Machine Searching and Translation, (for Standards on a Common Language), Cleveland, Ohio, 6-12 September 1959.

Chrome tanning of sheep skins. A. Margulis and B. Zuckerman. *Vestnik Kozhevennoi Prom. Torgov.* 1929, 342-3; *Chem. Zentr.* 1930, II, 3081.—Tanning expts. in the one- and two-bath systems are described. Alfred Burgess

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Fractional salting out in the refined gravimetric modification for the study of the colloidal properties of vegetable tanning liquors and extracts. M. Kirtov and B. Zuckerman.—*Vestnik Kozhevennoi Prom. Torgov.* 1929, 40-50; *Chem. Zentr.* 1930, II, 3665-6.—The following procedure is suggested: salting out by the Stiasny method, filtration through a glass plate or asbestos-covered Gooch crucible, washing of the ppts. on the filter with NaCl soln. of the same concn. as that of the salting out soln., soln. of the ppts. on the filter in water of 60-70° with addn. of NH_3, treatment with HNO_3, heating and detn. of the NaCl by the Volhard method. Alfred Burger

A58-51A METALLURGICAL LITERATURE CLASSIFICATION

EXCERPTA MEDICA Sec.2 Vol.11/5 Physiology,etc. May 58

2230. CHARACTERISTICS OF THE FOCAL CONVULSIVE SEIZURE INDUCED BY STIMULATION OF DIFFERENT CORTICAL LAYERS - Caracteristicile accesului convulsiv focal declanşat prin excitarea unor straturi corticale diverse - Zuckerman E. Inst. de Neurol. 'I. P. Pavlov', Bucureşti - REV. FIZIOL. NORM. PATOL. 1957, 4/5 (240-244) Graphs 1

Two pairs of electrodes (each of 100 μ.) were implanted chronically at 2 symmetrical points of the cerebral cortex in 40 rats. In 15 rats the 2 electrode pairs were of the same length and thus stimulated the same cortical layer; in the other 25 they were of different lengths and thus ended in different layers. (The placing was subsequently verified histologically.) When electrical stimuli of increasing intensity were applied until convulsive activity appeared, it was found that the convulsion threshold for 2 symmetrical points was the same if the electrodes were in the same layer, but when the electrodes were in 2 different layers the threshold for the superficial layers was much higher than that for the deeper layers (V and VI). This is not an exclusively motor phenomenon of the pyramidal cells, as in the classical experiments of Dusser de Barenne, but a central phenomenon characterized by the appearance of a hypersynchronous bioelectrical activity due to the formation of convulsive neuronal chains.

Graur - Bucharest

ZUCKERMAN, E.

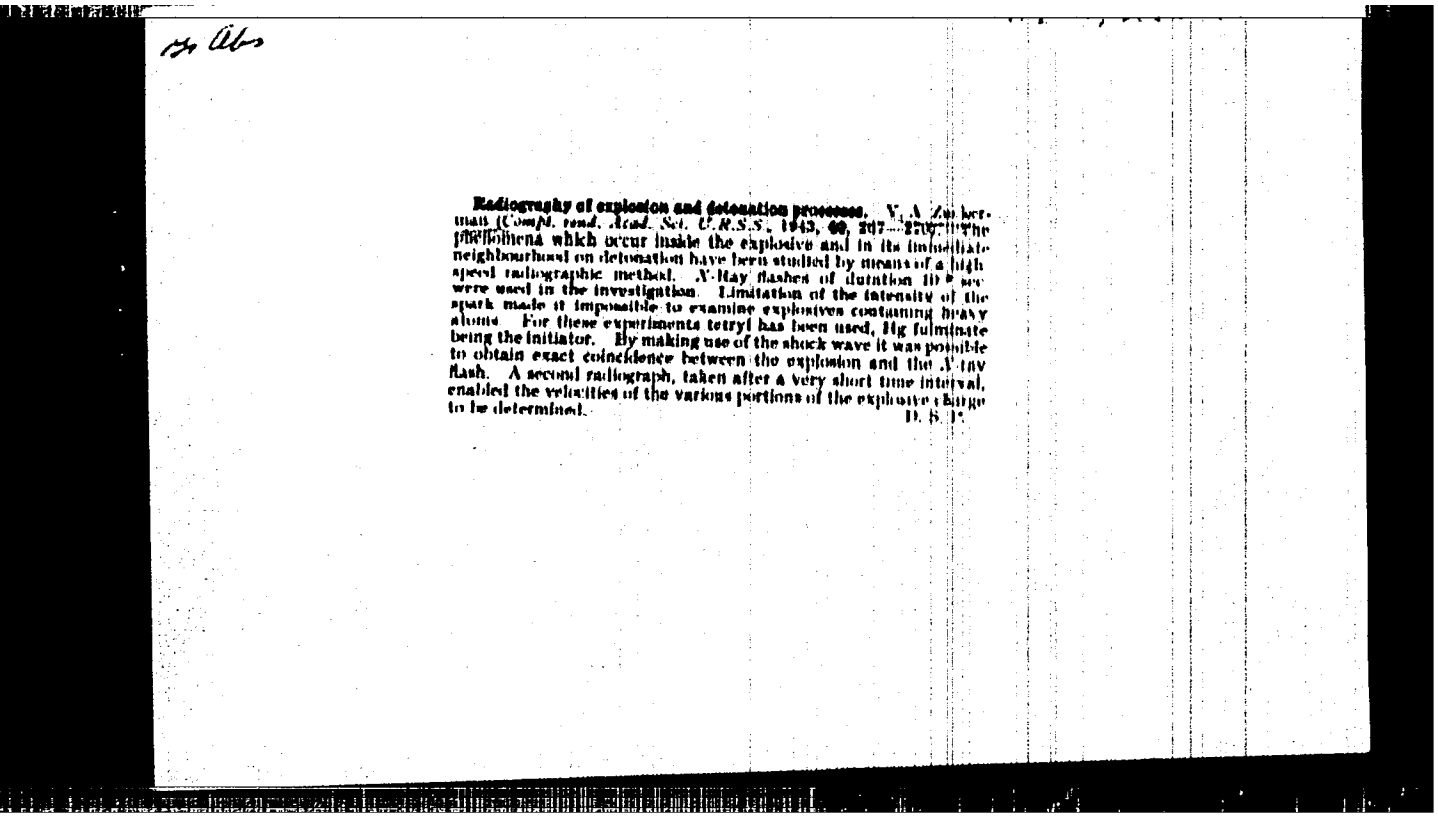
Study of cerebral metabolism of acetylcholine; metabolism of acetylcholine in convulsive seizures. Bul. stiint., sect. med, 7 no. 3:817-835 July-Sept 55.

(BRAIN, metabolism
acetylcholine, in exper. convulsions)
(ELECTRICITY, effects
exper. convulsions, eff. on cerebral metab. of acetylcholine)
(ACETYLCHOLINE, metab.
brain, eff. of exper. convulsions)
(CONVULSIONS, experimental
electrically-induced, eff. on cerebral metab. of acetylcholine)

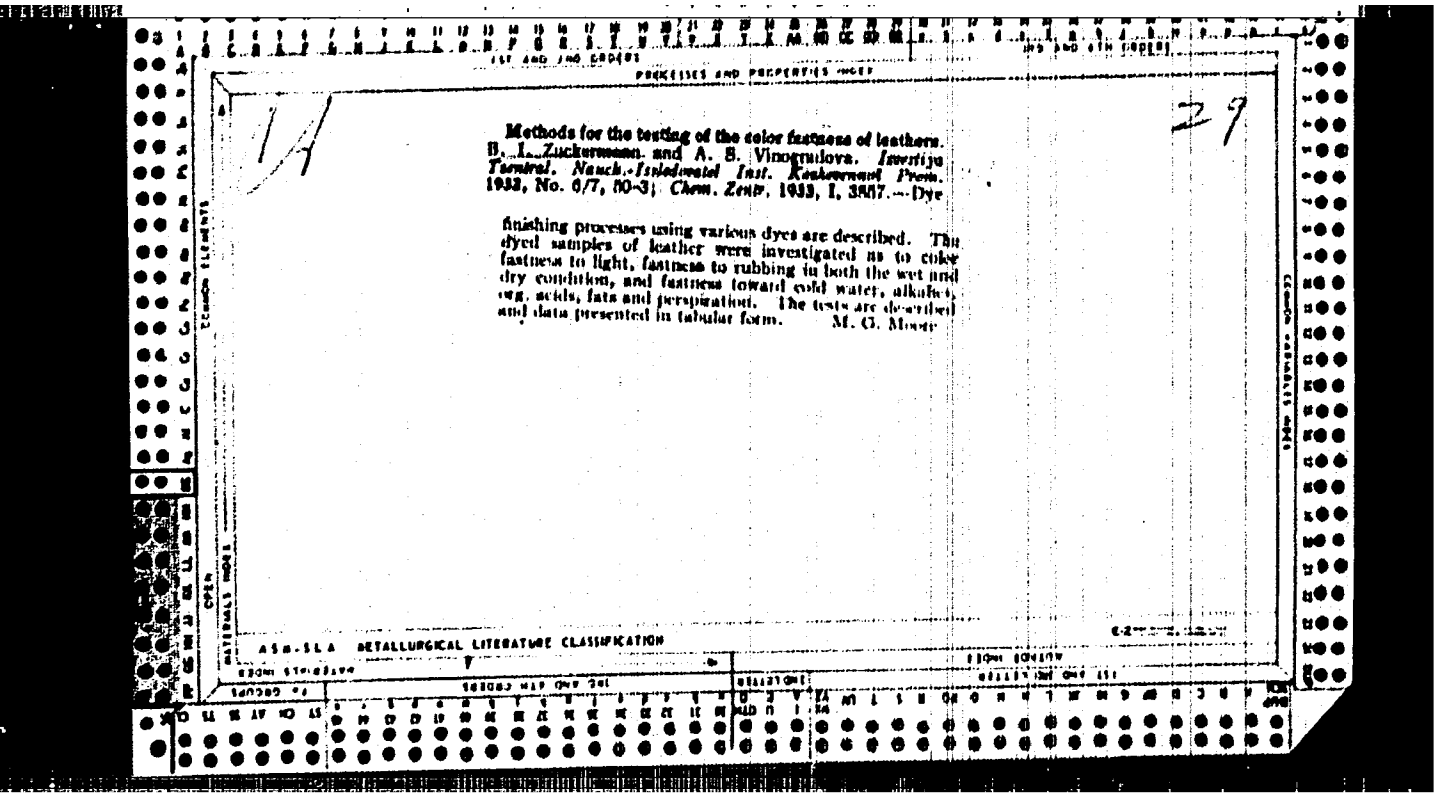
ZUCKERMAN, N. Ja.

"Hydration of Vinylacetylene Compounds." by A. L. Klebansky, L. B. Popov and N. Ja. Zuckerman (p. 2083)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1946, Volume 16, No. 12



Radiography of explosion and detonation processes. V. A. Zuberman (*Compt. rend. Acad. Sci. U.R.S.S.*, 1943, **39**, 267—270). The phenomena which occur inside the explosive and in its immediate neighbourhood on detonation have been studied by means of a high speed radiographic method. X-Ray flashes of duration 10^{-6} sec. were used in the investigation. Limitation of the intensity of the spark made it impossible to examine explosives containing heavy atoms. For these experiments tetryl has been used, Hg fulminate being the initiator. By making use of the shock wave it was possible to obtain exact coincidence between the explosion and the X-ray flash. A second radiograph, taken after a very short time interval, enabled the velocities of the various portions of the explosive charge to be determined. D. S. P.



14

29

Methods for the testing of the color fastness of leathers. B. I. Zuckermann and A. S. Vinogradova. *Izvestija Tsentral. Nauch.-Issledovatel. Inst. Kozhevennoi Prom.* 1933, No. 6/7, 80-3; *Chem. Zentr.* 1933, I, 3867.—Dye finishing processes using various dyes are described. The dyed samples of leather were investigated as to color fastness to light, fastness to rubbing in both the wet and dry condition, and fastness toward cold water, alkalies, org. acids, fats and perspiration. The tests are described and data presented in tabular form. M. G. Moore

ZUCKERMAN, I.
SURNAME (in caps); Given Names

Country: Rumania

Academic Degrees: Engineer

Affiliation: --

Source: Bucharest, Probleme Zootehnice si Veterinare, No 6, 1961, pp 71-72.

Data: "Responding to the Requirements of Production."

ZUCKERVANIK, I.

Zuckervanik, I., and Sergeeva, V.- "Alkylation of Aromatic Compounds in the presence of Zinc Chloride. II. Syntheses of alkylguaiacols" (p. 1014)

SO: Journal of General Chemistry, (Zhurnal Obshchei Khimii), 1947, Vol. 17, No. 5

ZUCKERVANIK, I. P.

"Alkylation of Aromatic Compounds in the presence of Zinc Chloride. I. Syntheses of Alkylbenzenes and Alkylchlorbenzenes" (p. 1008)

SO: Journal of General Chemistry, (Zhurnal Obshchei Khimii), 1947, Vol. 17, No. 5

POLAND / Human and Animal Physiology (Normal and Pathological). Metabolism. T-3

Abs Jour : Ref Zhur - Biologiya, No 13, 1958, No. 60869

Author : Zuczak, M.
Inst : State Institute of Hygiene
Title : Thiamine and Riboflavin Urinary Excretion as an Index of Saturation of the Human Organism with Those Vitamins

Orig Pub : Roczn. Panstw. zakl. hig., 1956, 7, No 3, 223-239

Abstract : Thiamine (T) and riboflavin (R) excretion was determined in 70 people between the ages of 15 and 58. With a daily dose of 1.5 mg. of T and 2 mg. of R (an adequate daily dose), there was a daily excretion of about 70 mcg. of T and 450 mcg. of R. T and R administration on an empty stomach fluctuated within the first hour between 5 - 15 mcg. of T and 14 - 30 mcg. of R. With a sufficiently large dose of vitamins, a definite relationship between the utilization of vitamins and excretion was established. The

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Abs Jour : Ref Zhur - Biologiya, No 13, 1958, No. 60069

latter emphasize the usefulness of this determination in the evaluation of the saturation of the organism with T and R. After 4 hours of 5 mg. of T and R administration, the excreted vitamins were 100 and 500 mcg., respectively. The author proposes that for a correct picture of the vitamin saturation in the body, it is sufficient to take samples after 4 hours for the determination of T and R in the urine. -- G. A. Cherkes

POLAND/Chemical Technology: Chemical Products and Their Applications. Food Industry. H

Abs Jour: Ref Zhur-Khim., No 8, 1959, 29339.

Author : Zuczek, E.
Inst :
Title : Typical Milk Cooling Installations at Czech Collection Points.

Abs Jour: Przegląd Mleczarski, 5, No 8-9, 11-12 (1957) (in Polish)

Abstract: A milk-cooling installation is described, consisting of a cylindrical refrigerated storage tank equipped with an evaporating coil, a methyl chloride cooling system, and a water storage tank. -- Z. Fabinskiy.

Card : 1/1

POLAND / Chemical Technology, Chemical Products and Their Application, Part 3. - Food Industry. H

Abs Jour: Ref Zhur-Khimiya, No 18, 1958, 62692.

Author : Janina Zuczek.
Inst : Not given.
Title : Yogurt Production in Czechoslovakia.

Orig Pub: Przegl. mleczarski, 1958, 6, No 2, 18 - 20.

Abstract: No abstract.

Card 1/1

ZUCZKIEWICZ, S.

Location of nitrogen plants and the shipping costs.

P. 164. (CHEMIK) (Warszawa, Poland) Vol. 10, No. 6, June 1957

SO: Monthly Index of East European Accession (EEAI) LC Vol. 7, No. 5, 1958

ZUCZKIEWICA, S.: MIAZGOWA, M.

ZUCZKIEWICA, S.; MIAZGOWA, M. Remarks concerning the 5-Year Plan in the chemical synthesis industry. p. 220

V ol. 9, no. 7.8, July/Aug. 1956
CHEMIK
SCIENCE
Warszawa, Poland

So: East European Accession, Vol. 6, no. 2, Feb. 1957

ZUCZKIEWICZ, S.

Long-term investments. p. 213. CHEMIK. Vol. 8, no. 7/8, July/Aug. 1955. Katowice.

SOURCE: East European Accessions List (EEAL), LC, Vol. 5, no. 3, March 1956

ZUCZKIEWICZ, SL: MIAGOWA, M.

ZUCZKIEWICZ, SL: MIAGOWA, M. Again on the Six and the Five year Plans
p. 326

Vol 9, no. 11, Nov. 1956
ACTA PHYSICOLOGICA POLONCIA
SCIENCE
Warszawa, Poland

So: East European accession vol 6, no. 3, March 1957

ZUCZKIEWICZ, Stanislaw, mgr inz.

Beginning of the reconstruction of the Nitrogen Works in Tarnow.
Chemik 16 no.7/8:218-223 Jl-Ag '63.

DUDZIAK, Eugeniusz; LUKASZEWICZ, Marian; ZUCZKOWSKI, Ryszard

Cold cathodes with polycrystalline MgO layer. Przegl elektroniki 3 no. 5:213-220. My '62

1. Katedra Fizyki, Politechnika, Wroclaw.

L 20533-66 EWT(d)/EEC(k)-2
ACC NR: AP5024848 (A) SOURCE CODE: CZ/0078/65/000/009/0013/0013

AUTHOR: Rott, H. (Engineer) (Prague); Zuda, J. (Engineer) (Plzek)

ORG: none

TITLE: Czech patent no. 665-65

SOURCE: Vynalezy, no. 9, 1965, 13

TOPIC TAGS: measuring apparatus, measuring instrument, measurement, control circuit, electric current, electric switch, electronic switch, electronics

TRANSLATION: The connection of a measuring device for measuring tolerance in particular, designated for use in programmed control equipment, has the measured quantities converted to voltage values or the current measurement transferred in the form of an electric code used for actuating the signal number table and for other evaluations with a metering switch that is equipped for actuating the switch and for comparing the deviations with the reference voltage source. In the course of operation, the installed switch is actuated by a signal from the comparison of the measuring device so that the reference voltage supplied to the comparison element is as high as the voltage supplied from the input of the measuring device or proportional to it and a change in the position of the metering switch is accompanied by a change in the point of the reference voltage value, or of the value of the voltage supplied from the input of the measuring

Card 1/2

device, or of the value of both voltages, characterized by the fact that the track through which a device is set for actuating the metering switch is also equipped with a throw-over contact which, in one position connects the output of the comparison element of the measuring device with the device for actuating the metering switch, and in another position connects the introduced output of the comparison element with its evaluating device.

SUB CODE: 09 SUBM DATE: 30Jan65

ZUDA, K.

"Experiences from the 4th Congress of the International Association of Bridge and Structural Engineering and from a Visit to England's Building Industry." p. 62 (Stavebni Prumysl, Vol. 3, no. 3, Feb. 1953, Praha)

SO: Monthly List of East European Accessions, Vol. 3, no. 2, Library of Congress, Feb. 1954, Uncl.

ZUDA, Karel, prof., inz., Sc.Dr.; LEFTUS, Stanislav, inz.; KOHUT, Jiri, inz., Sc.C.

The 4th International Congress on Prestressed Concrete. Inz stavby 11 no.2:77-79 F '63.

BARKAN, Vitaliy Fedorovich; ZHDANOV, Vasiliy Konstantinovich; ZUDAKIN, A.I., inzh., red.; BURAKOVA, O.N., izdat.red.; ROZHIN, V.P., tekhn.red.

[Radio receiving devices] Radiopriemnye ustroistva. Izd.2., perer. i dop. Moskva, Gos.nauchno-tekhn.izd-vo Oborongiz, 1960. 465 p. (MIRA 13:7)
(Radio--Receivers and reception)

SOV/106-59-4-7/13

AUTHOR: Zudakin, A.I.

TITLE: Use of White Noise for Measurement of Interference in the Telephone Channels of Radio-relay Lines (Ispol'zovaniye belogo shuma dlya izmereniya pomekh, voznikayushchikh v telefonnykh kanalakh radioreleynykh liniy)

PERIODICAL: Elektrosvyaz', 1959, Nr 4, pp 56 - 63 (USSR)

ABSTRACT: After reviewing the internationally recommended noise limits, the author points out that, up to the present time, there is no agreed definition of mean power of a multi-channel signal; for more than 240 channels, the mean power is defined by Eq (1) and for more than 12, but less than 240 channels by Eq (2). Recently both in Russia and in other countries, methods of noise measurement have been developed which are based on the replacement of the multi-channel signal by white noise. This is permissible because the multi-channel signal, being composed of independent, random signals has a white-noise probability distribution.

Figure 1 shows the simplified block diagram of apparatus, designed to measure the relative noise power levels, i.e. the value of the increase of white noise power in a small

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frequency band within the limits of the linear spectrum over the noise power produced by the transmission element under test. The apparatus consists of two parts, a transmitter and a receiver, between which the element under test is connected.

The main elements of the transmitter are (Figure 2): a source of white noise, which simulates the multi-channel signal; a broad-band amplifier; blocking filters. The amplifier has a bandwidth equal to the linear spectrum of the multi-channel signal and the blocking filters are designed to suppress a small band of frequencies within which the measurements are made. At the output of the transmitting part there is apparatus which measures the mean power of the white noise passed to the element under test.

The main elements of the receiving part are (Figure 2): an attenuator; an amplifier; band-pass filters and an indicator. The number and the mid-frequencies of the band-pass filters correspond to the number and mid-frequencies of the blocking filters in the transmitter. Initially, the

 entire white noise spectrum is applied to the element under

test. With the attenuator set to its maximum reading, the indicator reading is noted. The corresponding filters are switched in. This suppresses a small band of frequencies from the transmitter, but passes the same small band from the element to the indicator. The attenuator is reduced until the initial reading is again obtained on the indicator. The difference in the attenuator readings gives the increase of the white noise power in the band of the filters over the total power of the fluctuation and non-linear noise produced by the element in the same frequency band.

A basic disadvantage of this method is that the data have to be processed to obtain the form required by the MKKR recommendations. The author then describes a modification to the apparatus to overcome this disadvantage. A generator of sinusoidal signals is introduced into the transmitter (Figure 3). The method of measurement differs from the first in that, initially, a sinusoidal signal is applied to the input to the element under test, the frequency of the signal being the mid-frequency of the filters. The level of the signal is equal to the measured

level of one telephone channel at the input to the element. The white noise is applied to the element with a small band suppressed and the level of the white noise is equal to the level of the multi-channel signal. The results are obtained as in the previous case. By adding to the measured values 2.5 dB to account for the curve of the psophometer filter, the value of the increase of a sinusoidal signal over the psophometric noise is obtained. Whence the psophometric noise power relative to the zero level can be determined by:

$$P_{wn} = 10^{\frac{90-(p+2.5)}{10}} = 10^{\frac{87.5-p}{10}} \qquad (3)$$

where p is the value of the excess of the sinusoidal signal over the power of the total noise. By using this formula, graphs can be constructed from which the psophometric noise can be easily obtained.

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Use of White Noise for Measurement of Interference in the Telephone Channels of Radio-relay Lines

The author then gives brief details of apparatus designed for measurement of the relative noise power in radio-relay lines having 24, 60, 240 and 600 channels. Results of experimental checks on the apparatus are also given. There are 5 figures, 1 table and 5 references, 4 of which are Soviet and 1 English.

SUBMITTED: January 17, 1959

ZUDAKIN, A.I.

BARKAN, Vitaliy Fishelevich; ZHDANOV, Vasiliy Konstantinovich; CHISTYAKOV, N.I., professor, doktor tekhnicheskikh nauk, retsenzent; ZUDAKIN, A.I., inzhener, redaktor; PETROVA, I.A., izdatel'skiy redaktor; ZUDAKIN, I.M., tekhnicheskiy redaktor

[Radio receiver apparatus] Radiopriemnye ustroistva. Moskva, Gos. izd-vo obor. promyshl., 1956. 495 p. (MLRA 9:12)
(Radio--Receivers and reception)

Zudakin, I.M.

BLAGONRAVOV, A.A., akademik, general-leytenant artillerii, redaktor; RUMYANTSEVA, M.S., redaktor; ZUDAKIN, I.M., tekhnicheskiy redaktor.

[Small arms] Material'naia chast' strelkovogo orushiia. Moskva, Oborongiz NKAP, Glav.red. lit-ry po vooruzheniiu i boepripasam. Vol. 2. 1946. 831 p. (MLRA 8:1)
(Firearms)

MOSHNIN, Ye.N., kandidat tekhnicheskikh nauk, redaktor; KOKHTEV, A.A., redaktor; ZUDAKIN, I.M., tekhnicheskiy redaktor.

[Hammers without anvil blocks] Besshabotnye moloty. Moskva, Gos. izd-vo oboronnoi promyshlennosti, 1955. 79 p. (MLRA 8:6)
(Hammers)

ZUDAKIN, A.T., kand. tekhn. nauk

Apparatus for measuring crosstalk on radio relay lines. Vest. sviazi 24 no.11:6-9 N '64. (MIRA 18:2)

ZUDAKINA, Ye.A.

Use of field geophysical data for the approximate evaluation of changes in oil saturation of reservoirs in the development of pools as exemplified by layer D-II of the Tuymazy field. Neftegaz. geol. i geofiz. no.7:23-27 '65.

(MIRA 18:8)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut.

ZUDAKINA, Ye.A.; IVANCHUK, L.P.; BARAMZINA, V.A.

Studying the character of the oil and gas saturation of reservoirs close to the oil-water surface based on a study of the Devonian pools of the Tuymazy, Bavly, and Shkapovo oil fields. Trudy VNII no.43:177-192 '65. (MIRA 18:6)

ZUDAKINA, Ye.A.; IVANCHUK, L.F.; BARAMZINA, V.A.

Change in the oil-water saturation of reservoirs during development based on a study of the Devonian oil pools in the Tuymazy and Bavli oil fields. Geol i geofiz. no.5:58-62 '64. (MIRA 17:9)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut.

YENIKEYEVA, O.P.; ZUDAKINA, Ye.A.; KORSHIKOV, V.N.; SHKURAL', N.M. Primimal uchastiye PER'KOV, N.A., kand. geol.-miner. nauk; SHOROKHOVA, L.I., vedushchiy red.; VORONOVA, V.V., tekhn. red.

[Album of standard geological and geophysical cross sections of wells of petroleum areas in the Volga-Ural region] Al'bom tipovykh geologo-geofizicheskikh razrezov skvazhin neftianykh raionov Volgo-Ural'skoi provintsii. Pod red. N.A.Per'kova. Moskva, Gos. nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, 1961. 112 p. (MIRA 14:10)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh metodov razvedki. 2. Laboratoriya interpretatsii Vsesoyuznogo nauchno-issledovatel'skogo instituta geofizicheskikh metodov razvedki (for Yenikeyeva, Zudakina, Korshikov, Shkural', Per'kov). (Volga-Ural region--Oil well logging)

ANPILOGOV, A.P.; KORSHIKOV, V.N.; ZUDAKINA, Ye.A.

Testing methods used in determining reservoir properties of terrigenous strata of the Tuymazy and Serafimovskiy deposits from data of applied geophysics. Trudy VNII no.29:125-135 '60. (MIRA 13:10)

1. Volgo-Ural'skiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta geofizicheskikh metodov razvedki.
(Tuymazy region (Bashkiria)--Oil well logging)
(Serafimovskiy region (Bashkiria)--Oil well logging)

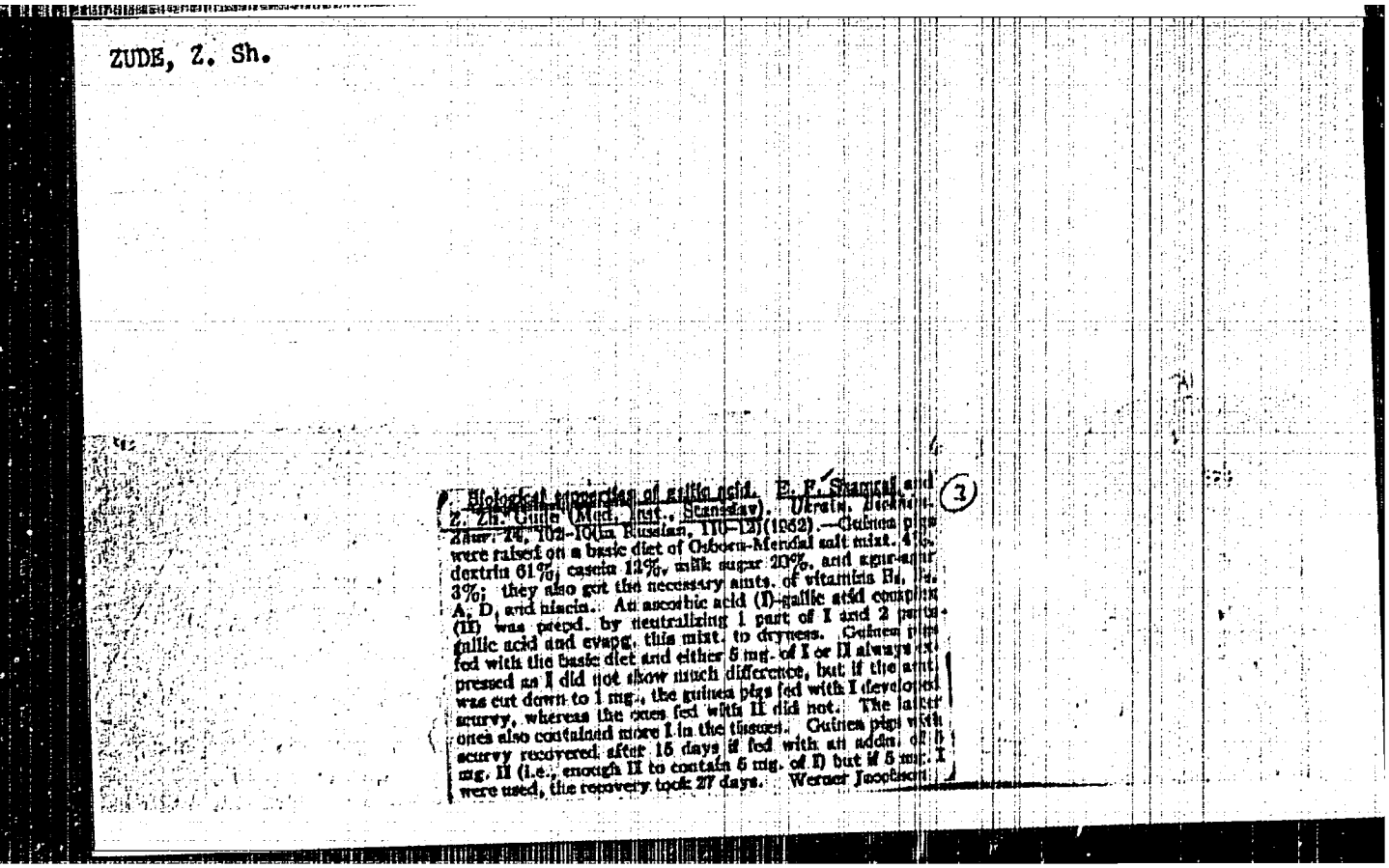
PER'KOV, N.A.; ANPILOGOV, A.P.; ZUDAKINA, Ye.A.; KORSHIKOV, V.N.; SHKURAI', R.M.

Testing methods of applied geophysics used in determining reservoir properties in the Tuymazy oil deposit. Prikl. geofiz. no.28:166-176 '60. (MIRA 14:3)
(Tuymazy region--Prospecting--Geophysical methods)
(Petroleum)

ZUDAROV, Z., sanitetski pukovnik, docent, dr.; KRSTIC, Z.; sanitetski kapetan, I. klase, dr.

Modern problems of trauma and working capacity. Vojnosanit. pregl. 21 no.11:753-756 N '64

1. Klinika za hirurske bolesti, Ortopedsko odeljenje, Vojnomedicinska akademija u Beogradu.



ZUDE, Z. Sh.

Biological properties of gallic acid. P. P. Shapiral and Z. Zh. Gude (Med. Inst., Stanislav). Ukrain. Biokhim. Zhur. 24, 102-10(in Russian, 110-12)(1952).—Guinea pigs were raised on a basic diet of Osborn-Mendal salt mixt. 4%, dextrin 61%, casein 12%, milk sugar 20%, and spin-saur 3%; they also got the necessary amts. of vitamins B1, A, D, and niacin. An ascorbic acid (I)-gallic acid complex (II) was prepd. by neutralizing 1 part of I and 2 parts gallic acid and evapg. this mixt. to dryness. Guinea pigs fed with the basic diet and either 5 mg. of I or II always expressed as I did not show much difference, but if the amt. was cut down to 1 mg., the guinea pigs fed with I developed scurvy, whereas the ones fed with II did not. The latter ones also contained more I in the tissues. Guinea pigs with scurvy recovered after 15 days if fed with an addn. of 5 mg. II (i.e., enough II to contain 5 mg. of I) but if 5 mg. I were used, the recovery took 27 days. Werner Jacobson

ZUDENKOV, L.M.

GATOV,Boris Iosifovich; DUBINSKIY,Naum Grigor'yevich; ZINOV'YEV, Nikolay Afanas'yevich; MALAKHOVSKIY, Grigoriy Viktorovich; NOVIKOV,Fedor Andreyevich; ZUDENKOV,Leonid Mikhaylovich; REZNICHENKO, Fred Semoy - lovich; SOKOLOV, Nikolay Nikolayevich; POTINO, I.Yu., [deceased] re - daktor; FRUMKIN,P.S., tekhnicheskiy redaktor

[Production of cast, welded and forged chains] Proizvodstvo litykh, svarnykh i shtampovannykh tsepei. Leningrad, Gos.soiuznoe izd-vo sudostroitel'noi promyshlennosti, 1955. 267 p. (MLRA 9:1)
(Chains)

ZUDILIN, Vasiliy Ivanovich; GUBANOVA, G.A., red.

[Automatic geared-dial band and strip feeding from stock to die] Zubchato-diskovaia avtomaticheskaia podacha lent i polos iz stopy v shtamp. Leningrad, 1965. 8 p. (MIRA 18:5)

ACCESSION NR: AT4035415 S/0000/63/000/000/0234/0239

AUTHOR: Toropov, V. S.; Zudilina, S. B.

TITLE: Investigation of ferrite magnetization reversal over a nonhysteresis curve

SOURCE: Vsesoyuznoye soveshchaniye po ferritam i po beskontaktny*m magnitny*m elementam avtomatiki. 3d, Minsk. Ferrity* i beskontaktny*ye elementy* (Ferrites and noncontact elements); doklady* soveshchaniya. Minsk, Izd-vo AN BSSR, 1963, 234-239

TOPIC TAGS: ferrite, ferrite magnetization, magnetization reversal, magnetization curve, ferrite core, core storage

ABSTRACT: In a study of ferrite magnetization reversal, the authors discuss ideal or nonhysteresis magnetization curves created by the superimposition of weak stable and strong variable damping fields. A 2 x 1.5 x 1 mm BT-1 core and a 3 x 2 x 1 mm BT-5 core with coercive forces of 1.2 e and 0.3 e, respectively, and 3 coils were used in the experimental demonstration of the curves. Pulses were sent through 2 coils, as shown in the Enclosure, and the signal was read from the third. The coincident damping sine-shaped and steady-amplitude pulses magnetize the core in one direction while the other pulse of the opposite polarity reinstates it. To achieve complete magnetization reversal, the magnitude of the

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ACCESSION NR: AT4036415

two first damping half-periods must be sufficiently great and the period length $T > 2\tau_{per}$. This method of magnetization reversal may be useful in operative storage design and operation. Orig. art. has: 5 figures and 2 formulas.

ASSOCIATION: none

SUBMITTED: 04Dec63 DATE ACQ: 07May64 ENCL: 01

SUB CODE: DP NO REF SOV: 001 OTHER: 000

Card 2/3

ACCESSION NR: AT4035415

ENCLOSURE: 01

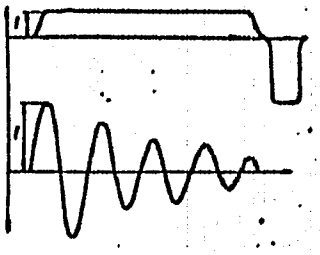
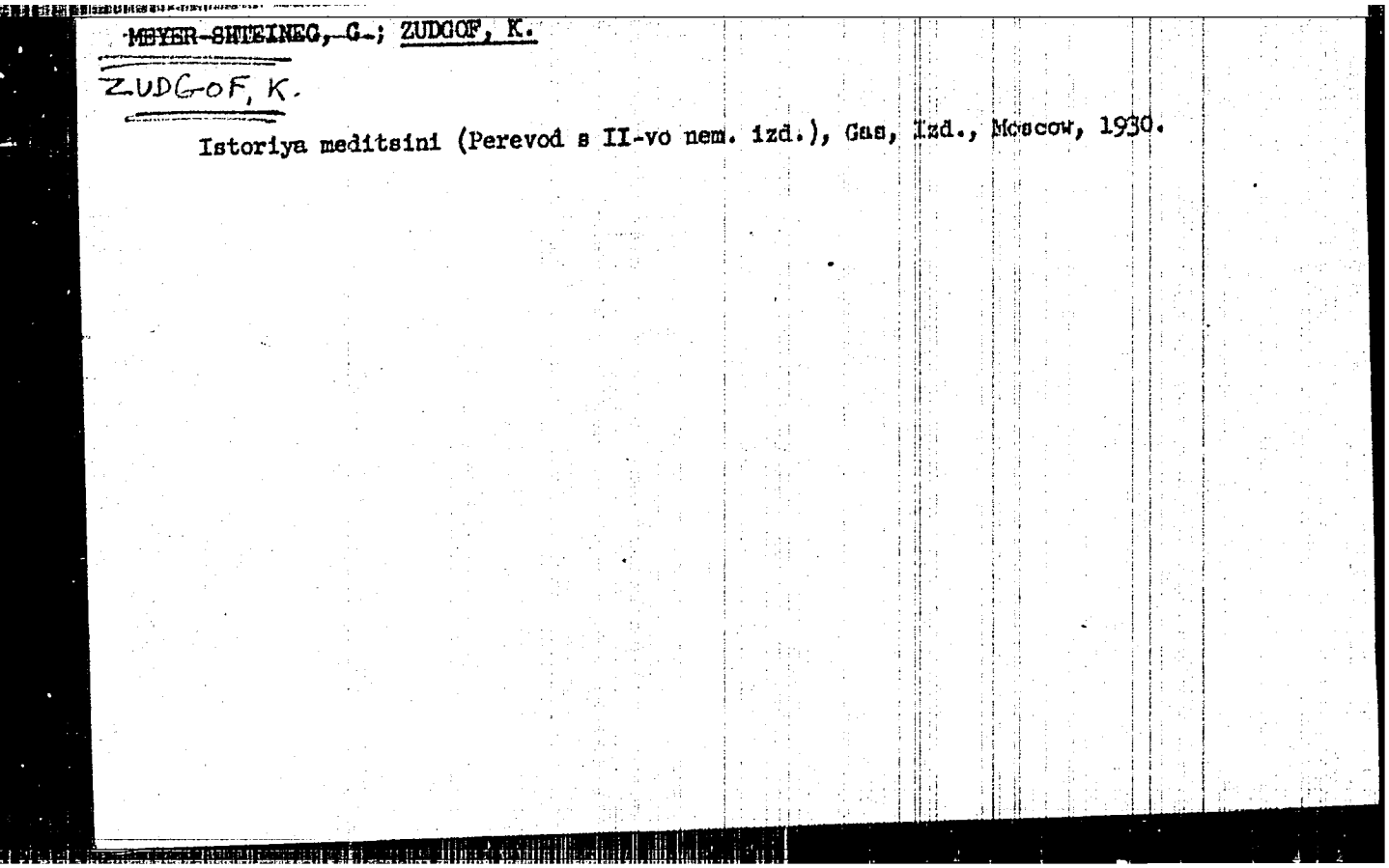


Fig. 1. Time course of pulse tracking

Card 3/3



MEYER-STEINEG, G.; ZUDOF, K.

ZUDGOF, K.

Istoriya meditsini (Perevod s II-vo nem. izd.), Gas, Izd., Moscow, 1930.

PROCESSES AND PROPERTIES INDEX

Cracking of the heavy fractions from the primary tar from Barzass sapropelites with aluminum chloride. I. R. Zudilov. *Khim. Tverdogo Topliva* 3, 121-35(1932).

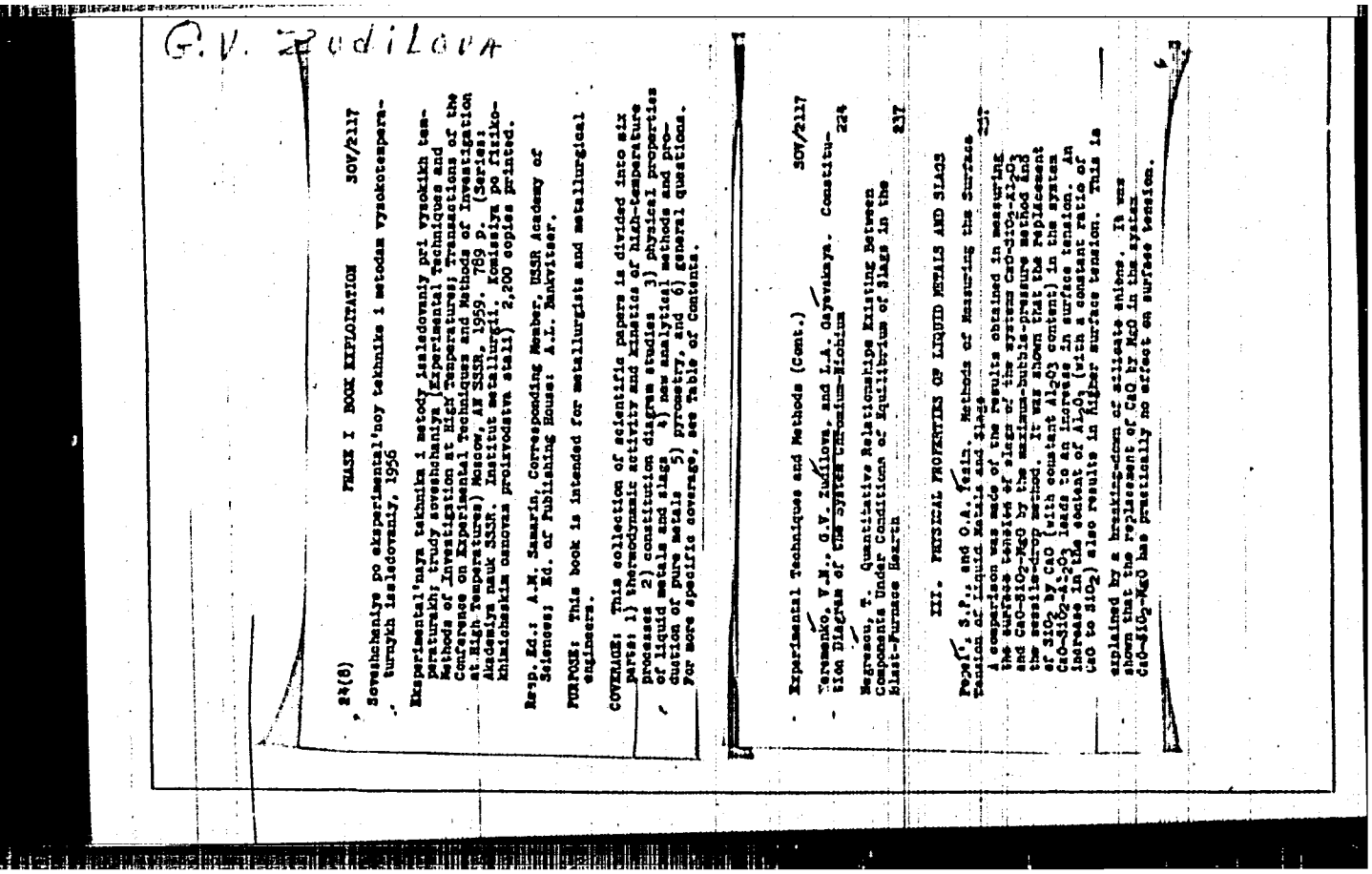
A. A. Bochtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

ZUDILOVA, G. V., GAYEVSKAYA, L. A., and YEREMENKO, V.N.

"On the Formation of the Alloy System Chromium-Nickel" a paper read at the International Metallurgists' Conference, Moscow 26-30 June 56

SO: CS-3,302,240, 11 Jan 57.



G.V. Zudilova

22(6) PHASE I BOOK EXPLOITATION SOV/2117

Soveshchaniye po eksperimental'noy tekhnike i metodam vysokotempera-turnykh issledovaniy, 1956

Eksperimental'naya tekhnika i metody issledovaniy pri vysokikh tem-peraturakh; 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.I. Bakvitser.

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 pro-duction of pure metals 5) pyrometry, and 6) general questions. For more specific coverage, see Table of Contents.

Experimental Techniques and Methods (Cont.) SOV/2117

Yeremenko, V.N., G.V. Zudilova, and L.A. Gayevskaya. Constitu-tion Diagram of the System Chromium-Niobium 224

Magnesun, T. Quantitative Relationships Existing Between Components Under Conditions of Equilibrium of Slags in the Blast-Furnace Hearth 237

III. PHYSICAL PROPERTIES OF LIQUID METALS AND SLAGS

Pepelf, S.P., and O.A. Yesin. Methods of Measuring the Surface Tension of Liquid Metals and Slags 251

A comparison was made of the results obtained in measuring the surface tension of slags of the systems $CaO-SiO_2-Al_2O_3$ and $CaO-SiO_2-MgO$ by the maximum-bubble-pressure method and the sessile-drop method. It was shown that the replacement of SiO_2 by CaO (with constant Al_2O_3 content) in the system $CaO-SiO_2-Al_2O_3$ leads to an increase in surface tension. An increase in the content of Al_2O_3 (with a constant ratio of CaO to SiO_2) also results in higher surface tension. This is explained by a breaking-down of silicate anions. It was shown that the replacement of CaO by MgO in the system $CaO-SiO_2-MgO$ has practically no effect on surface tension.

, G.V.

129-1-3/14

AUTHORS: Yeremenko, V.N., Zudilova, G.V. and Gayevskaya, L.A.

TITLE: On the Diagrams of State of the System Chromium-Niobium (O diagramme sostoyaniya sistemy khrom-niobiy)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, No.1 pp. 11 - 16 (USSR).

ABSTRACT: Use of niobium as an addition to chromium alloys has created an interest in the system chromium-niobium. However, very little data are published in literature on this system. Therefore, the authors investigated the manufacture by smelting and sintering of shromium alloys with niobium for the purpose of constructing the elements of the diagram of state of this system. The molten alloys were produced in a high-frequency furnace under a protective argon atmosphere from powders of electrolytic Cr-Nb of the sizes of 1 - 5 μ. The chromium was crushed in a steel ball mill and the iron removed by washing with nitric acid and then passed through a sieve with 10 000 holes/cm^2. The niobium powder contained 98.2% Nb, 0.93% Fe, 0.34% Ti, 0.06% Al, 0.56% Ca, 0.007% B and less than 0.01% P. The powders were mixed and pressed into briquettes, applying a pressure of up to 5 tons. A sketch of the melting device is given in Fig.1, p.11. The results of the thermal analysis

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On the Diagram of State of the System Chromium-Niobium.

are entered in Table 1, p.12. The compositions of the obtained sinter alloys are entered in Table 2, p.12; Table 3, p.15, gives the results of the decoding of the X-ray picture of the inter-metallic compound (containing 47.3% Nb); Table 4 gives the results of measuring the parameters of the lattice of a chromium-base solid solution. In Figs. 2 - 8, a few of the obtained micro-photographs are reproduced. The data given in Table 3 indicate that almost all the lines of the X-ray pictures are in agreement with the assumptions made by the authors. The diagram of state of the system Cr-Nb proposed by the author, is plotted in Fig.9, p.16. The following conclusions are arrived at: on the basis of the results of thermal, metallographic and X-ray structural analysis and measurement of the micro-hardness, it was found that in the system Cr-Nb, only one inter-metallic compound $NbCr_2$ forms, which has a face-centred cubic lattice; inter-metallic compounds form eutectics with chromium-and niobium-base solid solutions and the temperature of eutectoidal crystallisation of the inter-metallide with chromium-base solid solution is 1 660 °C (for a content of about 31 wt.% Nb) and the second eutectic point is at 1 710 °C for a content of 66 wt.% Nb. Primary niobium- and chromium-base

On the Diagram of State of the System Chromium-Niobium. 129-1-3/14

solid solutions form; the solubility of niobium in chromium at 1 350 °C is about 3 wt.%. Long duration annealing at 1 350 °C coarsens the components of the eutectic and after annealing for 100 hours at 1 350 °C, the structure does not have a eutectoidal character. Alloys of chromium with niobium can be obtained by sintering inside a protective atmosphere at 1 550 °C; in the case of sintering for 2 to 5 hours at 1 550 °C, a full recrystallisation takes place and an equilibrium state is reached. There are 9 figures and 4 tables and 3 non-Slavic references.

ASSOCIATION: Institute of Metallo-ceramics and Special Alloys Ac.Sc. Ukrainian SSR.
(Institut Metallokeramiki i Spetsial'nykh Splavov AN USSR)

AVAILABLE: Library of Congress.
Card 3/3

SOV/137-59-1-1069

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 144 (USSR)

AUTHORS: Yeremenko, V. N., Zudilova, G. V., Gayevskaya, L. A.

TITLE: On the Phase Diagram of the Chromium-niobium Alloy (O diagramme sostoyaniya sistemy khrom-niobiy)

PERIODICAL: V sb.: Vopr. poroshk. metallurgii i prochnosti materialov. Nr 5. Kiyev, AN UkrSSR, 1958, pp 36-48

ABSTRACT: Ref. RzhMet, 1958, Nr 6, abstract 13250

Card 1/1

Zudilova, G.V.

18(0,7) PHASE I BOOK EXPLOITATION SOV/2170

Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov

Voprosy poroshkovoy metallurgii i prochnosti materialov, vyp. 5 (Problems in Powder Metallurgy and Strength of Materials, Nr 5) Kiyev, Izd-vo AN USSR, 1958. 172p. 2,000 copies printed.

Ed. of Publishing House: Ya. A. Samokhvalov; Tech. Ed.: V.Ye. Sklyarova; Editorial Board: I.N. Frantsevich (Resp. Ed.), I.M. Fedorchenko, G.S. Pisarenko, G.V.Samsonov, and V.V. Grigor'yeva.

PURPOSE: This collection of articles is intended for a wide circle of scientists and engineers in the research and production of powder metallurgy. It may also be useful to advanced students of metallurgical institutes.

COVERAGE: This collection of articles describes the results of investigations made at the Institut metallo keramikii spetsial'nykh splavov, AN USSR (Institute of Powder Metallurgy and Special Alloys, Academy of Sciences, Ukrainian SSR). The physical and chem-

Card 1/6

ical properties of materials used in powder metallurgy are discussed. Materials described as new, production processes, and methods and results of mechanical testing are described. No personalities are mentioned. References follow each article.

TABLE OF CONTENTS:

ZUDIN, A.A.

Phosphorescence spectra of some phenols at the temperature of liquid oxygen. Izv.AN SSSR.Ser.fiz. 23 no.1:142 Ja '59. (MIRA 12:4)

(Phenols--Spectra) (Phosphorescence)

24(7) SOV/48-23-1-32/36

AUTHOR: Zudin, A. A.

TITLE: The Phosphorescence Spectra of Some Phenols at the Temperatures of Liquid Oxygen (Spektry fosforestsentsii nekotorykh fenolov pri temperature zhidkogo kisloroda)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 1, p 142 (USSR)

ABSTRACT: In the present paper the phosphorescence spectra of alcoholic solutions of pyrocatechol, resorcin, and hydrochinone were investigated at temperatures of liquid oxygen. The substances were selected because of the regular variation of their structure. The molecules are in the metastable state. The pictures were taken by means of a single-disk phosphoroscope. Spectra are illustrated by a figure from which it may be seen that isomerism influences the character of the spectra in that pyrocatechol and resorcin with the hydroxyl group in ortho-or meta-position, have a sharply marked structure, whereas hydrochinone, with the hydroxyl group in para-position, possesses only a band with a maximum at 427 mμ. The author

Card 1/2

The Phosphorescence Spectra of Some Phenols at the Temperatures of Liquid Oxygen SOV/48-23-1-32/36

thanks B. A. Pyatnitskiy for supervising work. There are 1 figure and 10 references, 8 of which are Soviet.

Card 2/2

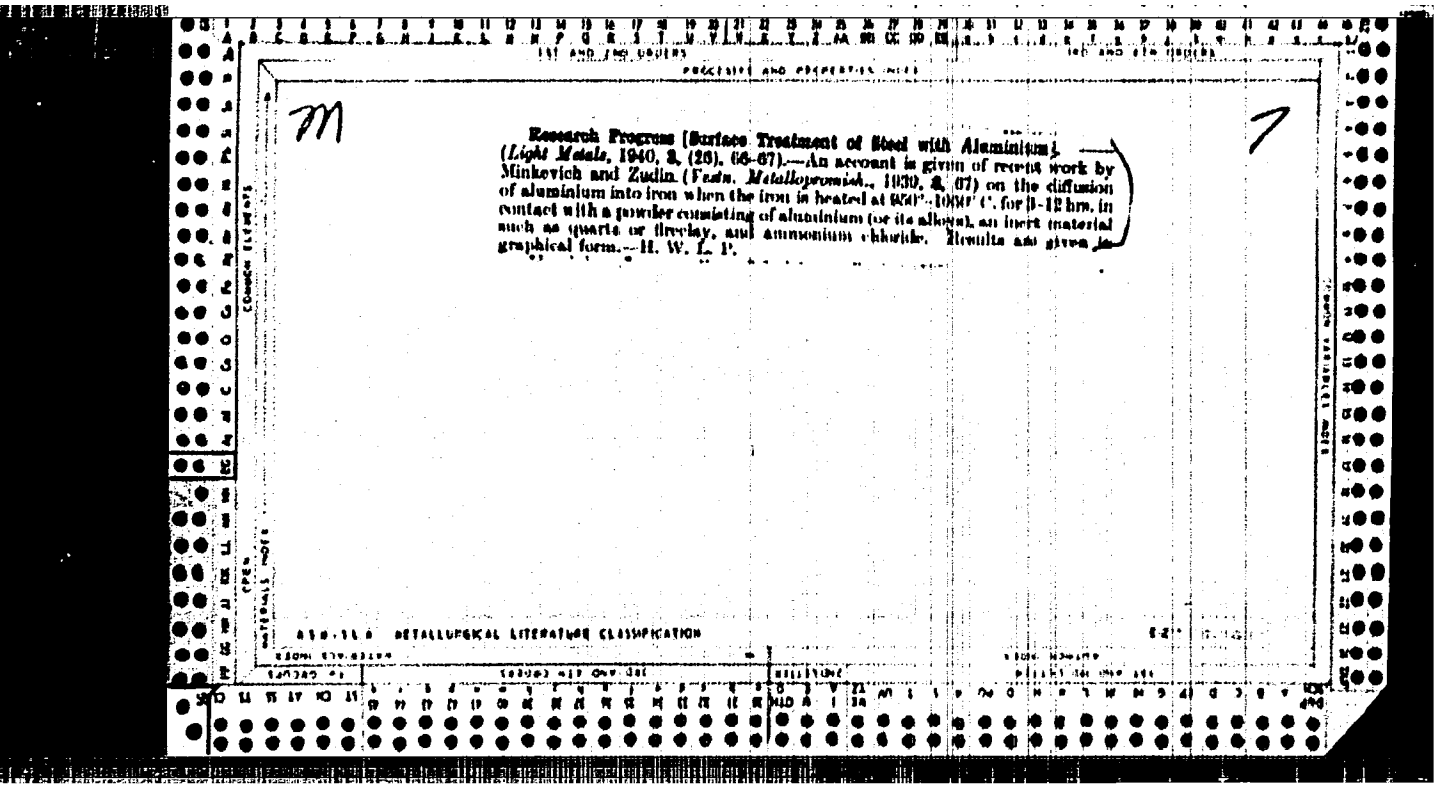
ZUDIN, A.N.; MOSKVIN, V.I.

Materials on recent tectonic movements in the northern slope of the Western Sayan Mountains. Geol. i geofiz. no.5:111-119 '65.
(MIRA 18:8)

1. Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR, Novosibirsk i Novosibirskiy gosudarstvennyy universitet.

ZUDIN, A.N.

Mineral composition of Cenozoic continental sediments in the lower Chulyma Valley. Trudy Inst. geol. i geofiz. Sib. otd. AN SSSR no.44:152-165 '64. (MIRA 17:11)



Research Program [Surface Treatment of Steel with Aluminium]. (*Light Metals*, 1940, 3, (26), 66-67).—An account is given of recent work by Minkevich and Zudin (*Vestn. Metallopromish.*, 1939, 8, 67) on the diffusion of aluminium into iron when the iron is heated at 950°–1000° C. for 5–12 hrs. in contact with a powder consisting of aluminium (or its alloys), an inert material such as quartz or fireclay, and ammonium chloride. Results are given in graphical form.—H. W. L. P.

VALEYEV, A.M.; GOLEV, Yu.D.; GOLEVA, Z.N.; GOLOVKO, R.Ye.; ZAVIYALOVA, B.A.; ZARETSKIY, B.A.; ZVEREV, Ye.A.; LIPINSKIY, F.A.; MANGUSHEV, I.Kh.; MEYZLER, M.Kh.; MUTOVKIN, V.A.; RUDAKOV, Ya.D.; RUKOVANOV, B.P.; KHASANOV, G.M.; ESTRIN, Z.I.; ZUDIN, B.A., red.; BORUNOV, N.I., tekhn. red.

[Adjustment and operation of equipment in the Novo-Ufimskii Heat and Electric Power Plant] Naladka i ekspluatatsiia oborudovaniia na Novo-Ufimskoi TETs. Moskva, Gos. energ. izd-vo, 1961. 175 p. (MIRA 14:9)
(Bashkiria—Electric power plants)
(Bashkiria—Heating from central stations)

CHULKOV, Yevgeniy Ivanovich; ZUDIN, B.A., red.; BORUNOV, N.I., tekhn.red.

[Preparation of studded casings at electric power plants] Izgotovlenie shipovykh ekranov na elektrostantsiiakh. Moskva, Gos.energ.izd-vo, 1959. 63 p. (MIRA 12:10)
(Electric power plants--Equipment and supplies) (Boilers)

M. A. Gulyayev, B. A. Zudin, and N. G. Lobanchenko, Obdurka kotel'nykh agregatov (Blowing Out Boiler Units), Gosenergoizdat.

The booklet describes the causes, and the formation of boiler scale, the design, methods of installation, and operating schedule of various blowing-out apparatus. The necessary instructions are included for personnel charged with blowing-out boiler heating surfaces, and basic labor safety requirements are stated.

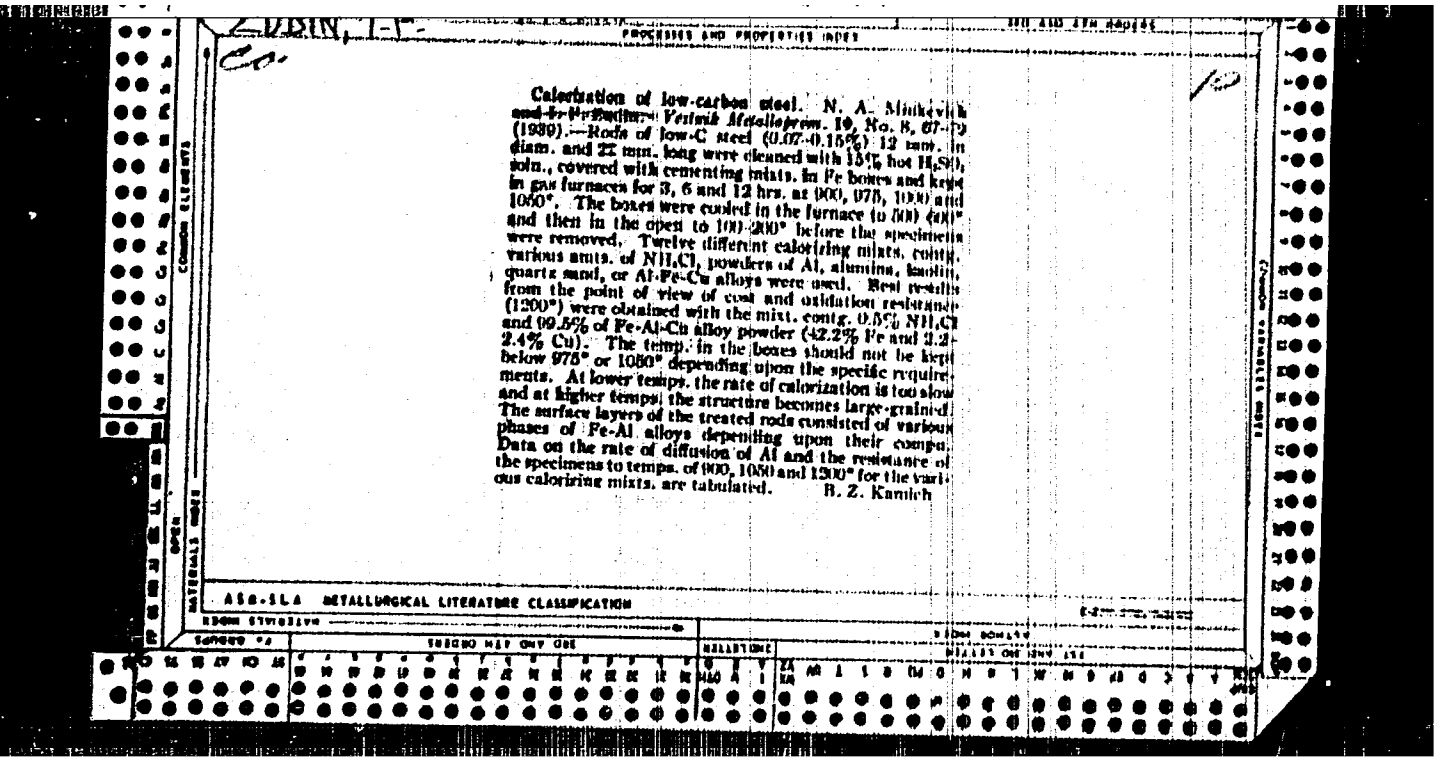
The booklet is intended for personnel charged with blowing-out boiler units, but also may serve as a practical aid for other duties of boiler operating personnel.

SO: Sovetskiye knigi (Soviet Books), No. 183, 1953, Moscow, (U-6472)

ZUDIN, B.A.

Obduvka kotel'nykh agregatov (Steamblast cleaning of boiler units). Leningrad, Gosenergoizdat, 1953. 128 p.

SO: Monthly List of Russian Accessions, Vol. 7, No. 5, August 1954



Calorization of low-carbon steel. N. A. Minkevich and [illegible]. *Vestnik Metallopromy.* 19, No. 8, 67-[illegible] (1939).—Rods of low-C steel (0.07-0.15%) 12 mm. in diam. and 22 mm. long were cleaned with 15% hot H_2SO_4 soln., covered with cementing mixts. in Fe boxes and kept in gas furnaces for 3, 6 and 12 hrs. at 900, 975, 1050 and 1050°. The boxes were cooled in the furnace to 600 (600)° and then in the open to 100-200° before the specimens were removed. Twelve different calorizing mixts. contg. various amts. of NH_4Cl, powders of Al, alumina, kaolin, quartz sand, or Al-Fe-Cu alloys were used. Best results from the point of view of cost and oxidation resistance (1200°) were obtained with the mixt. contg. 0.5% NH_4Cl and 99.5% of Fe-Al-Cu alloy powder (42.2% Fe and 2.2-2.4% Cu). The temp. in the boxes should not be kept below 975° or 1050° depending upon the specific requirements. At lower temps. the rate of calorization is too slow and at higher temps. the structure becomes large-grained. The surface layers of the treated rods consisted of various phases of Fe-Al alloys depending upon their compn. Data on the rate of diffusion of Al and the resistance of the specimens to temps. of 900, 1050 and 1200° for the various calorizing mixts. are tabulated. B. Z. Kamich

ZUDIN, I. F.

"Increasing the Heat Resistance of Iron Carbide Alloys by Aluminum Coating," Moscow, 1944

..., V. I., Dr.; ZODIN, I. F.; VERSHINSKAYA, A. D., Engineer

Mbr., TsNIITMASh (Central Scientific-Research Institute of Technology and Machine Bldg.) (-1945-)

Candidate in Technical Sciences

"Cast Nitrogenous Steel Cutter," Stanki I Instrument, 16, No. 3, 1945

BR-52059019

GUDTSOV, N.T., LOZINSKII, M.G., ZUDIN, I.F., BOGDANOV, A., and MATVEEVA, M.P.

C.A. Vol.45,8955 d

"Properites of Metals and Alloys at High Temperatures in Vacuo." N.T. Gudtsov, M.G. Lozinskii, I.F. Zudin, N. A. Bogdanov, and M.P. Matveeva. Izvest. Akad. Nauk S.S.S.R., Otdel, Tekh. Nauk 1950, 108-25

App. is described for heating polished steel specimens of 25 sq. mm. cross-sect area up to the m.p. in vacuo (10^{-3} mm. Hg) and etching at the desired temp.by admitting Cl, HCL, HNO_3, N oxides, or air to several mm. Hg pressure. Heating is accomplished by passing elec. current through the specimen, and the temp. is detd. by thermocouples welded to the specimen. Above 900° the specimens are etched in vacuo because of the varying rate of vaporization of the phases and impurities present. Special attachments permit measurement of Vickers hardness at temp. up to 900° and of the rate of vaporization of the metal.

Inst. of Metal im. A.A. Baykov, AS USSR

Translation W-16673, 2 Feb 51

ZUDIN, I.F.

Academician N.T.Gudtsov's 70th birthday. Izv.AN SSSR.Otd.tekh.nauk no.11:3-4 N '55. (MIRA 9:2)
(Gudtsov, Nikolai Timofeevich, 1885)

ACCESSION NR: AT4009495 S/2509/63/000/014/0068/0077

AUTHOR: Banny*kh, O. A.; Zudin, I. F.; Kashin, V. I.; Prokoshkin, D. A.; Samarin, A. M.

TITLE: Properties of ferrite aluminum-iron alloys

SOURCE: AN SSSR. Institut metallurgii. Trudy*, no. 14, 1963. Metallurgiya, metallovedeniye, fiziko-khimicheskiye metody* issledovaniya, 68-77

TOPIC TAGS: aluminum alloy, iron alloy, aluminum-iron alloy, ferrite alloy, melting, forging, heat treatment

ABSTRACT: Some properties of aluminum-iron alloys are of industrial importance, but they are not commonly used as construction materials. In the present work a number of these alloys were exposed to melting, forging and heat treatment, after which they were studied for specific gravity, impact strength, rupture strength and plasticity under various conditions. The chemical composition of the alloys used in the investigation is given in Table 1 of the Enclosure. Two series of alloys were melted: one group in air and the other in a vacuum. It was found that vacuum melting of the alloy improves the mechanical properties, especially under high-temperature conditions. Figure 1 of the

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ACCESSION NR: AT4009495

Enclosure shows the dependence of the rupture strength and plasticity of the alloy on the aluminum content. The curves show that an increase in the aluminum content to about 15% increases the strength of the alloy between 20-600C; at 700C the strength does not depend on the aluminum content. The alloy has a maximum strength and satisfactory plasticity at 400C; the strength drops sharply and the plasticity simultaneously increases at temperatures over 600 C. Aluminum-iron alloys may thus be used under stress without adding a third element at temperatures below 600C. Figure 2 of the Enclosure shows that an increase in the aluminum content in the alloy increases grain size at 1,100C. Additional studies on the effect of admixtures (Ti, Zr, B, Ni, W) on the properties of the Al-Fe alloys shows that the introduction of titanium, zirconium, and boron into alloys with 10% Al does not change the strength of the alloy. Zirconium and boron lower the scaling resistance of the alloy while additions of nickel and tungsten to an alloy with 15% Al lowers the strength and plasticity of the alloy. Orig. art. has: 7 figures and 6 tables.

ASSOCIATION: Institut metallurgii, AN SSSR. (Metallurgical Institute, AN SSSR)

SUBMITTED: 00 DATE ACQ: 25Jan64 ENCL: 04

SUB CODE: MM NO REF SOV: 006 OTHER: 011

Card 2/6

ACCESSION NR: AT4009495

ENCLOSURE: 01

Alloy No.	Content % Al	Mn	Si	O	N
Air-melted alloys					
1	4,87	0,023	0,032	0,0150	0,0048
2	9,80	0,004	0,065	0,0052	0,0090
7	8,70	0,010	0,047	0,0051	0,0040
8	12,70	0,005	0,046	0,0097	0,0090
9	15,00	0,018	0,013	0,0033	0,0020
Vacuum-melted alloys					
3	10,36	<0,010	0,030	0,0031	0,0110
4	12,19	<0,010	0,100	0,0048	0,0070
5	14,92	<0,010	0,030	0,0026	0,0070
6	16,82	<0,010	0,030	0,0020	0,0040

TABLE 1 - Chemical composition of the alloys tested.

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ACCESSION NR: AT4009495

ENCLOSURE: 02

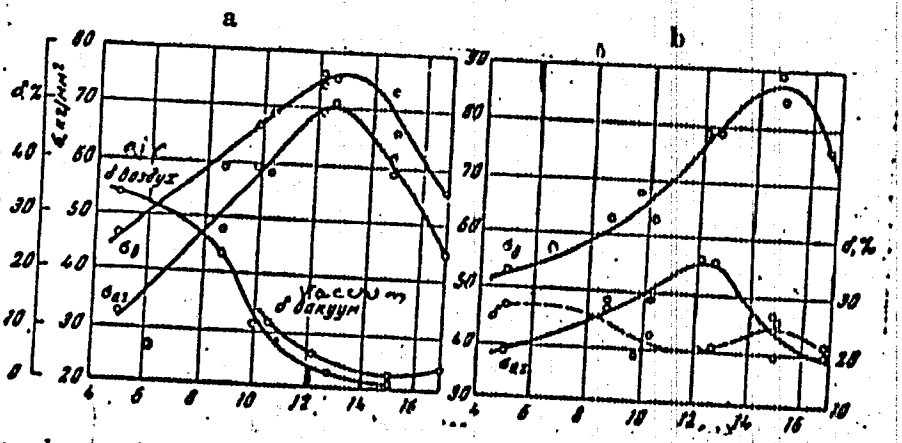

Fig. 1 - Dependence of rupture strength and plasticity of alloys on aluminum content
a - at 20C; b - at 400C; c - at 500C; d - at 600 and 700C

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ACCESSION NR: AT4009495

Fig. 1 (Continued)

ENCLOSURE: 03

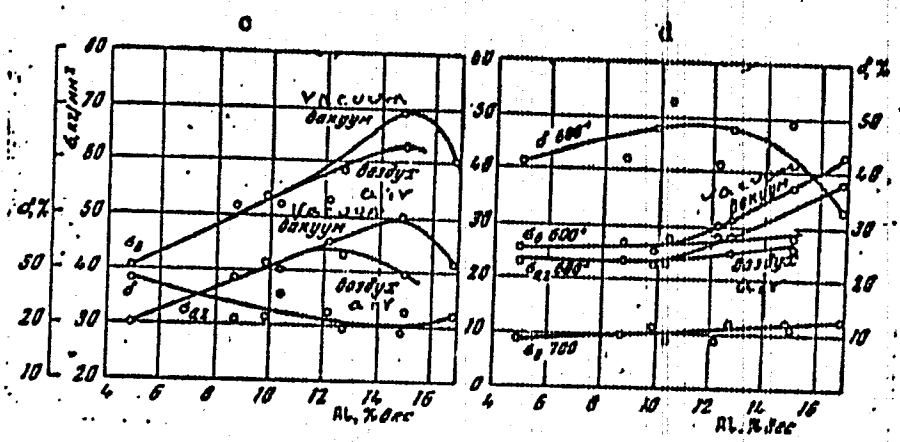

Fig. 1 - Dependence of rupture strength and plasticity of alloys on aluminum content
a - at 20C; b - at 400C; c - at 500C; d - at 600 and 700C

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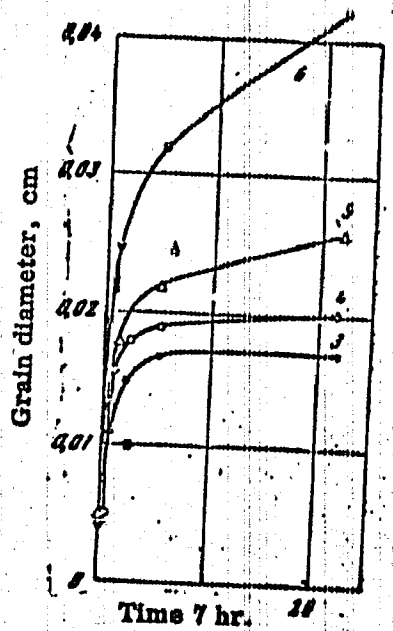
ACCESSION NR: AT4009495

ENCLOSURE: 04

Fig. 2 - The dependence of the average grain size on the duration of treatment at 1,100C for vacuum-melted alloys 3-6 - alloy nos. (see Table 1 of the Enclosure)



Card 6/6

BANNYKH, O.A.; ZUDIN, I.F.; KASHIN, V.I.; PROKOSHKIN, D.A.; SAMARIN A.M.

Properties of ferritic iron-aluminum alloys. Trudy Inst. met. no.14: 68-77 '63 (MIRA 17:8)

1. Chlen-korrespondent AN SSSR; otvetstvennyy redaktor zhurnala "Trudy Instituta metallurgii" (for Samarin).

AGEYEV Nikolay Vladimirovich, nagrazhden ordenom Lenina, dvumya ordenami Trudovogo Krasnogo Znameni, medal'yu za doblestnyy trud v Velikoy Otechestvennoy voyne, otv. red.; KURDYUMOV, G.V., akademik, red.; ODING, I.A., red. [deceased]; PAVLOV, I.M., red.; ZUDIN, I.F., kand. tekhn. nauk, red.

[Study of steels and alloys] Issledovaniia stalei i splavov. Moskva, Nauka, 1964. 390 p. (MIRA 17:8)

1. Moscow. Institut metallurgii.2.Chlen-korrespondent AN SSSR (for Odin, Ageyev, Pavlov).

PROKOSHKIN, D.A.; BANNYKH, O.A.; KOVERNITSYY, Yu.K.; ZUDIN, I.F.

Investigating the phase constitution of chromium-manganese-aluminum steel. Issl. po zharoproch. splav. 10:138-143 '63.

Chromium-manganese-aluminum austenitic steel. Ibid.:144-148
(MIRA 17:2)

ACCESSION NR: AT4013940 S/2659/63/010/000/0144/0148

AUTHOR: Prokoshkin, D. A.; Banny*kh, O. A.; Kovneristy*y, Yu. K.; Zudin, I. F.

TITLE: Chromium-manganese-aluminum austenite steel

SOURCE: AN SSSR. Institut metallurgii. Issledovaniya po zharoprochny*m splavam, v. 10, 1963, 144-148

TOPIC TAGS: steel, austenite steel, chromium-manganese-aluminum steel, austenite steel magnetic property, steel strength carbon content dependence

ABSTRACT: Austenitic steels with an Fe-Cr-Mn base are finding an ever-widening range of industrial application. The authors point out that the alloying of chromium-manganese steel with carbon and aluminum yields a satisfactory complex of strength properties at both normal and high temperatures. This paper gives the results of a study of the mechanical properties, as well as certain other properties, of chromium-manganese-aluminum steel. The study was based on an alloy of 9-10% Cr and 13-15% Mn, with a varying content of aluminum and carbon. Strength tests were made on IM-4P machines (tensile strength tests) and IP-5 machines (tests for creep and fatigue strength). The data obtained on short-term mechanical properties indicate that carbon definitely strengthens chromium-manganese-aluminum steel. An increase in plasticity results from increasing the amount of the plas-

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tic structural component (austenite) in the steel. The maximum is attained with a carbon concentration which provides for a 100% austenitic condition. An increase in the carbon content from 0.5 to 0.9% has no effect on the notch toughness of the steel, after annealing at temperatures of 1050-1150C. At temperatures of 700-750C, steel containing approximately 3% Al has reduced creep resistance when the carbon content is increased over the amount necessary for the creation of a stable austenitic structure. In the initial condition (after annealing), all the steels were non-magnetic. The long-term effect of temperature and stress led to the formation of up to 34-36% ferromagnetic phase in steel with 10% Cr, 14% Mn, and 0.1%C. When the aluminum concentration was increased from 3 to 6%, the authors noted a considerable rise in the ultimate strength value. This rise results from a certain strengthening of the austenite and from a considerable reduction of the grain that occurs with the appearance of small quantities of ferrite phase. In the fatigue-strength test, failure time was shortened drastically as the aluminum concentration was increased. A sample of austenitic steel with 3% Al did not fracture after 6000 hours of testing, and the total deformation was less than 1.1%. In the case of steel with 4.5% Al, the austenite partially decays under the influence of high temperature deformation. Although this steel was non-magnetic prior to the test, it was found to be about 35% magnetic after a failure time of 134 hours. The authors conclude that it is possible to obtain a metal with satisfactory heat resistance by the aluminum-alloying of Fe-Cr-Mn-C austenitic steel. However, the aluminum con-

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tent must not exceed that which causes the appearance in the structure of a ferrite component, either in the initial (tempered) state, or after an extended exposure to high temperatures and stress. It was also noted that an addition of 6-8% aluminum reduces the density of Cr-Mn steel by about 10-12%. Orig. art. has: 5 figures and 4 tables.

ASSOCIATION: INSTITUT METALLURGII AN SSSR (Institute of Metallurgy, AN SSSR)

SUBMITTED: 00 DATE ACQ: 27Feb64 ENCL: 00

SUB CODE: ML NO REF SOV: 004 OTHER: 001

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ACCESSION NR: AT4013939 S/2659/63/010/000/0138/0143

AUTHOR: Prokoshkin, D. A.; Banny*kh, O. A.; Kovneristy*y, Yu. K.; Zudin, I. F.

TITLE: Investigation of the phase composition of chromium-manganese-aluminum steel

SOURCE: AN SSSR, Institut metallurgii. Issledovaniya po zharoprochny*m splavam, v. 10, 1963, 138-143

TOPIC TAGS: steel phase composition, steel, chromium alloy, manganese alloy, aluminum alloy, steel property carbon dependence

ABSTRACT: Chromium-nickel austenite steels are being replaced by chromium-manganese steels, both in the SSSR and in other countries. The influence of carbon (0.1-0.8%) and aluminum (3-7.5%) on the position of the α, ($\alpha + \gamma$) and γ phases for steel with 10% Cr and 14% Mn was investigated at 800, 950, 1100 and 1250C. It was shown that the content of the ferro-magnetic phase in the steel increases in direct proportion to the aluminum concentration (for constant carbon content) and decreases as the carbon content increases (for a constant aluminum content). The top concentration of aluminum in the austenite rises together with an increase of carbon in the steel. The carbon concentration required for complete change of the α-crystalline lattice into γ

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remains practically the same when the aluminum content in the steel changes. The effectiveness of aluminum for α-formation is lowered and that of carbon for α-formation increases as the temperature rises. Using metallographic analysis, it can be shown that the diffusion temperature of carbides rises with an increase in the aluminum and carbon content. Orig. art. has: 5 figures and 2 tables.

ASSOCIATION: Institut metallurgii AN SSSR (Metallurgical Institute AN SSSR)

SUBMITTED: 00 DATE ACQ: 27Feb64 ENCL: 00

SUB CODE: ML NO REF SOV: 004 OTHER: 001

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ZUDIN, I.F.

PHASE I BOOK EXPLOITATION SOV/5947

Prokoshkin, Dmitriy Antonovich, Ivan Feofanovich Zudin, Rustan Salikhovich Sharipkulov, and Oleg Aleksandrovich Bannykh

Legirovaniye khromomargantsovistoy nerzhaveyushchey stali (Alloying Chromium-Manganese Stainless Steel) Moscow, Izd-vo AN SSSR, 1961. 74 p. Errata slip inserted. 3000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii im. A.A. Baykova.

Resp. Ed.: N.N. Kurnakov, Professor, Doctor of Chemical Sciences; Ed. of Publishing House: A.N. Chernov; Tech. Ed.: V.Ye. Volkova.

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

COVERAGE: Problems connected with the effect of different alloying elements on the phase composition, transformation, and mechanical

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and corrosion properties of chromium-manganese stainless steels are discussed, with particular attention given to the alloying of steel containing 17 to 18% Cr and 12 to 15% Mn. The present work is based on results of investigations carried out at the Institute of Metallurgy, Academy of Sciences USSR, and on experimental data published in Soviet and non-Soviet literature. No personalities are mentioned. There are 53 references: 18 Soviet, 18 English, 16 German, and 1 Czech.

TABLE OF CONTENTS:

BANNYKH, O.A.; ZUDIN, I.F.; Prinimal uchastiye: KISELEV, Yu.I.

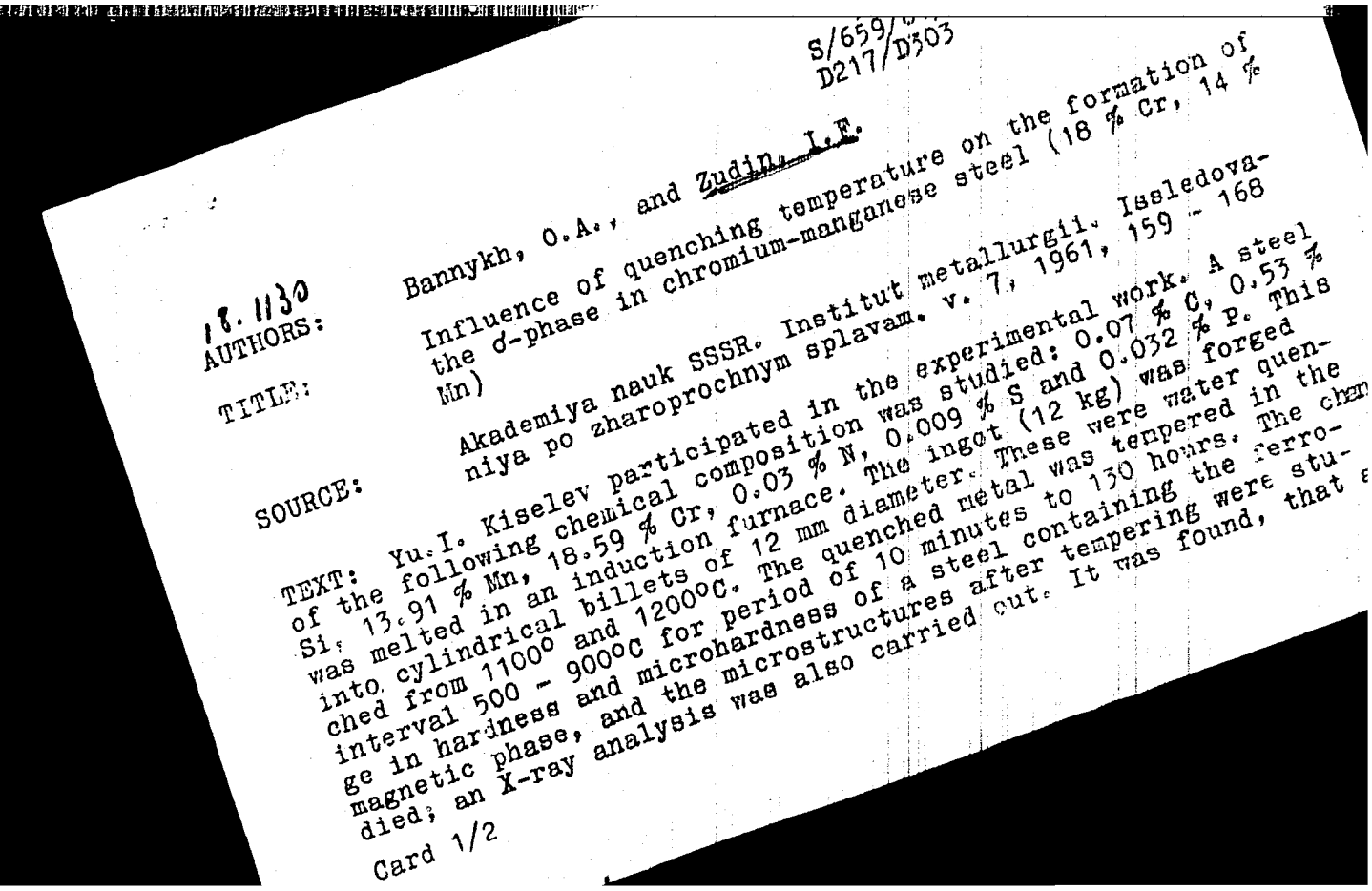
Effect of the temperature of hardening on the process of δ-phase formation in chromium-manganese steel (18 % Cr, 14 % Mn). Issl. po zharopr. splav. 7:159-168 '61. (MIRA 14:11)
(Chromium-manganese steel--Metallography)
(Metals, Effect of temperature on)

KOVNERISTYY, Yu.K.; BANNYKH, O.A.; ZUDIN, I.F.; PROKOSHKIN, D.A.

Effect of aluminum and carbon on the properties of steel with 10 % Cr and 13 % Mn at high temperatures. Issl. po zharopr. splav. 7:319-328 '61. (MIRA 14:11)
(Steel alloys--Metallurgy) (Metals at high temperatures)

PROKOSHKIN, D.A.; BANNYKH, O.A.; BRATENKO, V.N.; ZUDIN, I.F.

Investigating certain heat-resistant chromium-manganese steels alloyed with nitrogen, molybdenum and boron. Issl. po zharopr. splav. 7:370-378 '61. (MIRA 14:11)
(Chromium-manganese steel--Testing)
(Heat-resistant alloys--Metallurgy)



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18.1130
AUTHORS: Bannykh, O.A., and Zudin, I.F.

TITLE: Influence of quenching temperature on the formation of the σ-phase in chromium-manganese steel (18 % Cr, 14 % Mn)

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Issledovaniya po zharoprochnym splavam. v. 7, 1961, 159 - 168

TEXT: Yu.I. Kiselev participated in the experimental work. A steel of the following chemical composition was studied: 0.07 % C, 0.53 % Si, 13.91 % Mn, 18.59 % Cr, 0.03 % N, 0.009 % S and 0.032 % P. This was melted in an induction furnace. The ingot (12 kg) was forged into cylindrical billets of 12 mm diameter. These were water quenched from 1100° and 1200°C. The quenched metal was tempered in the interval 500 - 900°C for period of 10 minutes to 130 hours. The change in hardness and microhardness of a steel containing the ferromagnetic phase, and the microstructures after tempering were studied; an X-ray analysis was also carried out. It was found, that a

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ter quenching from 1100°C, the σ-phase forms directly from the ferrite on tempering. In X-ray pictures taken of specimens after quenching from 11000C and tempering for various periods of time, lines for ferrite, austenite and the FeCr-type σ-phase were obtained. The hardness of the steel is directly proportional to the quantity of decomposed ferrite. After quenching from 1200°C, the formation of σ-phase from ferrite during tempering passes through intermediate stages. In the first stage 'excess' austenite precipitates from the ferrite. The change in hardness of the steel is not directly proportional to the ferrite content. There are 6 figures, 2 tables and 12 references: 4 Soviet-bloc and 8 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: G.F. Tisinai, J.K. Stanley and C.A. Samans, J. Metals, February, 1956; R.P. Frerich and C.U. Clark, Trans. ASM, 46, 1954; A.L. Bindari, P.K. Koh and O. Zmeskal, Trans ASM, 43, 1951; W.D. Pearson and J.W. Christian, Acta, 5, 1952.

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