

STEKOL'NIKOV, I.S.; USHAKOV, V.Ya.

Discharge phenomena in fluids. Zhur. tekhn. fiz. 35 no.9-1991-1992
S 165. (MIR, 1981)

1. Energeticheskiy institut imeni G.M.Krzhizhanovskogo, Moskva.

L. 33603-66 EWT(1)/EWT(m)/EWP(j)/T IJP(c) WW/GG/RM

ACC NR: AR6016230

SOURCE CODE: UR/0058/65/000/011/E057/E057

AUTHORS: Ushakov, V. Ya.; Torbin, N. M.

60
B

TITLE: Concerning the development of a discharge in solid dielectrics

SOURCE: Ref. zh. Fizika, Abs. 11E440

REF SOURCE: Sb. Probov dielektrikov i poluprovodnikov. M.-L., Energiya, 1964, 124-127

TOPIC TAGS: dielectric breakdown, electric discharge, dielectric strength, organic glass, sodium chloride

ABSTRACT: The channels of incomplete breakdown in rock salt and organic glass are considered. It is shown that the discharge glow zone exceeds by hundreds of times the channel dimensions. It is indicated that thermo-ionization and photoionization processes can occur during the breakdown of dielectrics. Dielectrics having larger dielectric strength have larger discharge-development rates (v). Values $v = (2 \times 10^5 - 1.5 \times 10^7)$ cm/sec were obtained and were found to depend on the value of the excess voltage. [Translation of abstract]

15

SUB CODE: 20

Card 1/1

90

L 7726-66 EWT(1)/EPA(S)-2 IJP(c) GG

ACC NR: AP5025898

SOURCE CODE: UR/0057/65/035/010/1844/1847

AUTHOR: ^{44,55} Ushakov, V.Ya.ORG: ^{44,55} Tomsk Polytechnic Institute im. S.M.Kirov (Tomskiy politekhnicheskiy institut)

TITLE: Development in liquid dielectrics of discharges due to steep voltage waves

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 10, 1965, 1844-1847

TOPIC TAGS: ^{21, 44, 55} dielectric breakdown, water, ethyl alcohol, transformer oil, spark gap

ABSTRACT: Positive and negative point to plane discharges in 2 to 16.5 cm gaps in transformer oil, ethyl alcohol, and distilled water were investigated with an experimental technique that the author has described elsewhere (Proboy dielektrikov i poluprovodnikov. Sb. dokladov IV mezvuzovskoy konf. po probuyu diel. i poluprov., 207-211, Izd. "Energiya", M.-L., 1964). The voltage on the gap was increased at rates ranging from 0.4 to 400 kV/ μ sec and the luminous phenomena accompanying the early stages of the discharge preceding arc formation were observed with an electron-optical image converter with light amplification. Curves are given showing the voltage at which leader formation is first observed and the initial velocity of the leader as functions of the rate of gap-voltage rise. At high voltage rise rates the initial leader velocity was approximately the same in all three liquids ($\sim 6 \times 10^7$ cm/sec).

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UDC: 537.528

E 7726-66

ACC NR: AP5025898

3

The luminous phenomena are described and discussed in considerable detail. These phenomena in the two polar liquids were similar and nearly independent of the polarity of the point electrode. In these liquids the appearance of the leader was signaled by a spherical glow near the point. After a 1 μ sec pause the leader reappeared with a length of about 2 mm. The subsequent growth of the leader was spasmodic, the length increasing by 1-1.5 mm in 0.12-0.13 μ sec and then remaining constant for 0.5-1 μ sec. During the spasmodic growth periods the leader channel glowed brightly. In the transformer oil the leader began with a glow near the point, accompanied by a current pulse; the growth of the leader was continuous but it was accompanied by periodic flashes and branching. When the point was negative the flashes were more frequent and the branching less pronounced than when the point was positive. In all three liquids the potential at which leader development began was somewhat less (considerably less in water) when the point was positive than when it was negative. It is concluded that field emission from the point does not play a significant role in the development of the discharge and it is suggested that the process is governed largely by formation of space charge near the point. The author thanks Doctor of Technical Science I.S. Stekol'nikov for his interest in the work and for great assistance in performing it.

Orig. art. has: 3 figures.

SUB CODE: EE, EC, ME/ SUBM DATE: 10Dec64/ ORIG REF: 003/ OTH REF: 004

Card 2/2 *[Handwritten mark]*

ANASHKIN, D.I., inzh.-elektrik; USHAKOV, V.Ya., red.

[Program of a training course in electric installation work for technical schools of ferrous metallurgy in the subject: "Electric equipment of industrial enterprises and establishments."] Programma uchebnoi elektromontazhnoi praktiki dlia tekhnikumov chernoi metallurgii po spetsial'nosti "Elektrooborudovanie promyshlennykh predpriyatii i ustanovok." Moskva, 1956. 11 p. (MIRA 11:8)

1. Russia (1923- U.S.S.R.) Ministerstvo chernoy metallurgii. Upravleniye uchebnykh zavedeniy. Nauchno-metodicheskiy kabinet.
2. Ministerstvo chernoy metallurgii (for Anashkin).
(Electric engineering--Study and teaching)

USHAKOV, V.Ya., inzh.

Calculation of volt-second characteristics of some liquid dielectrics. Izv. vys. ucheb. zav.; energ. 9 no.1:15-19
Ja '66. (MIRA 19:1)

1. Tomskiy politekhnicheskii institut imeni S.M.Kirova.
Predstavlena kafedroy tekhniki vysokikh napryazheniy.
Submitted March 30, 1965.

L 3630-66 EWT(1)/EPA(s)-2/EWT(m)/EPF(c)/T LJP(c) DJ/GG

ACCESSION NR: AP5024054

UR/0057/65/035/009/1692/1700

AUTHOR: Stekol'nikov, I. S.; Ushakov, V. Ya.

44, 55 37.528

339
336
B

TITLE: Investigation of discharge phenomena in liquids

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 9, 1965, 1692-1700

TOPIC TAGS: dielectric breakdown, liquid property, transformer oil, alcohol, water, electric discharge ionization

ABSTRACT: The authors have investigated point-to-plane and point-to-point breakdown in transformer oil, alcohol, and water, using a pulsed high voltage with no artificial limitation on the current during development of the discharge. A 5 cm gap was employed in all three liquids, and in addition there was investigated a 16.5 cm gap in water. Time-resolution photographs of the discharge process were obtained with the aid of an image converter tube. The apparatus and experimental technique are described in more detail elsewhere (V.Ya.Ushakov. Sb. dokl. na IV mezhvuzovskoy konferentsii po proboyu dielektrov i poluprovodnikov, 207-211, Izd. "Energiya", M.-L., 1964). The time resolution photographs clearly showed the development of the leader process in all three liquids. In oil a breakdown did not always result when the leader reached the plane electrode; this phenomenon is ascribed to a strong absorption of electrons by the heavy hydrocarbon molecules. In

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L 3630-66

ACCESSION NR: AP5024054

3

oil the leader increased in length at a constant rate of about 1.3×10^5 cm/sec; in the two polar liquids the leader grew in spurts. The leaders in all the liquids emitted light in flashes with intervening periods of relative darkness ranging in duration from 0.15 microsec (negative leader in water) to 3.4 microsec (positive leader in oil). The flashing and discontinuous growth velocity of the leaders were due to the breakdown mechanism itself, rather than to features of the external circuit, as has been suggested by V.S.Komel'kov (DAN SSSR, 136, No.4, 1960; AhTF, 31, No.8, 1961) and I.Ye.Balygin (ZhETF, 29, No.5 (11), 1955). There was not observed any luminosity in front of the head of the leader channel that could be interpreted as a pulse corona or an ionized region. The observed phenomena are discussed at some length and some interpretations are suggested. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: Energeticheskiy institut im. G.M.Krzhizhanovskogo, Moscow (Power Engineering Institute)

HY 155

SUBMITTED: 12Jun64

ENCL: 00

SUB CODE: EM, ME

NO REF SOV: 006

OTHER: 004

BVK
Card 2/2

L 46780-66 EWT(1)/EWT(m)/ENP(1)/T/ENP(t)/ETI IJP(c) RM/JD/NW/JG/NB
 ACC NR: AR6014537 SOURCE CODE: UR/0196/65/000/011/B004/B004

55
6

AUTHOR: Ushakov, V. Ya.; Torbin, N. M.

TITLE: Development of discharge in solid dielectrics

SOURCE: Ref. zh. Elektrotehnika i energetika, Abs. 11B21

REF SOURCE: Sb. Proboy dielektrikov i poluprovodnikov. M.-L., Energiya, 1964, 124-127

TOPIC TAGS: solid dielectric, dielectric breakdown, electric discharge

ABSTRACT: By means of a limited-duration voltage impulses, experimental results on the discharge development were obtained; the solid dielectrics used were: 35-mm thick rock salt NaCl and 20-mm thick plexiglas placed in a point(+)-plane(-) field. The luminescence that accompanied the discharge was photographed, and the incomplete-breakdown streamers were studied with microscope. The growing discharge channels are oriented along the crystallographic direction in NaCl crystals depending on the overvoltage; in the plexiglas, the discharges develop like in air. The luminescent zone of the discharge channels exceeds by hundreds of times the actual size of channel in the solid dielectric. The channel size decreases from 32 to 19 microns counting from the electrode into the dielectric. Initial stages of the incomplete breakdown channel in NaCl represent alternate disturbed and intact sections of the dielectric. The molten channel walls can be explained by the thermal nature of the breakdown. The intense luminescence and high speed of the discharge development (up to 10^7 cm/sec) can be explained by thermo- and photo-ionization. The discharge

UDC: 621.315.61.015.51

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L 46780-66

ACC NR: AR6014537

development speed depends on the overvoltage (from 2×10^5 to 1.5×10^7 cm/sec for overvoltages of 1 to 1.75, respectively). The dielectrics possessing higher electric strength have higher speeds of the discharge development. Four figures. Bibliography of 14 titles. N. Torbin [Translation of abstract]

SUB CODE: 09, 11

hs

Card 2/2

L 44598-66 EWI(1) IJP(c) GG

ACC NR: ARG010511

SOURCE CODE: UR/0196/65/000/010/B009/B010

AUTHOR: Ushakov, V. Ya.; Torbín, N. M.

48
47
B

TITLE: Investigation of the development of a discharge in liquid dielectrics

SOURCE: Ref. zh. Elektrotehnika i energetika, Abs. 10B53

REF SOURCE: Sb. Probov dielektrikov i poluprovodnikov. M.-L., Energiya, 1964, 227-231

TOPIC TAGS: electric discharge, liquid dielectric, dielectric property

ABSTRACT: Electrographic recording of the development of incomplete discharges was made, in transformer oil (TO), glycerin (G), distilled water (DW), with a lack of any retarding resistances, in a wide range of voltages. Breakdown was accomplished on the falling part of a positive polarity pulse, with a beveled front, $v_{avg} = 3.5 \cdot 10^{-7}$ sec. The dependences of the rate of development of the discharge v_{avg} upon excess voltage β (Fig. 1) and voltage U (Fig. 2) (the curves in the drawings are: 1) TO; 2) G; 3) DW are different for the liquids tested and are determined by their physicochemical properties. At the minimum penetration voltage, more highly polarized liquids have higher rates of discharge. In each case the nature of the discharge is also different, and also its variation with excess voltage variation. With an excess voltage $\beta = 1.45-1.5$, in the gap in TO and with $\beta = 1.17-1.2$ in DW, the discharge channel

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UDC: 621.315.615.015.51

L 44598-66

ACC NR: AR6010511

has 2 sections, with a different glow intensity. [Translation of abstract] 5 illustrations, bibliography of 7 titles. [Tomsk Polytechnical Institute Im. S. M. Kirov (Tomskiy politekhnich. in-t)] A. Petrashko

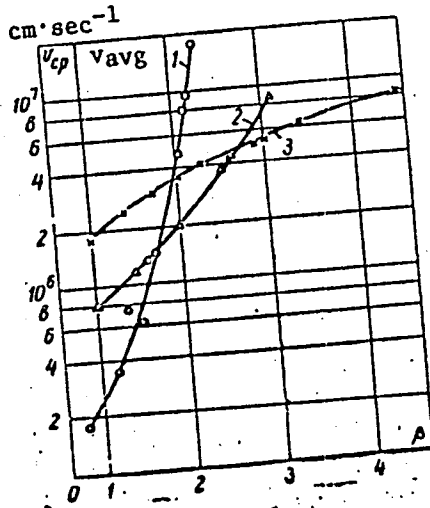


Fig. 1

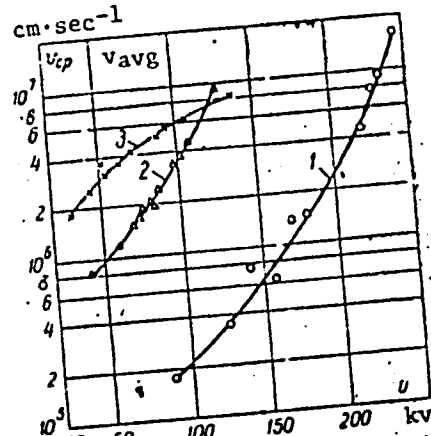


Fig. 2

SUB CODE: 20

Card 2/2 *287*

USHAKOV, Ye. I.

AID P - 1785

Subject : USSR/Mining

Card 1/1 Pub. 78 - 23/26

Author : Ushakov, Ye. I.

Title : Higher rate of speed in drilling work

Periodical : Neft. khoz., v.33, no.3, 93-94, Mr 1955

Abstract : Survey of the best drilling accomplishments of the trust Stalingradneftegasrazvedka in 1954.

Institution: None

Submitted : No date

USHAKOV, Ye. N.

"The Hardening of Killed Steel in Molds When They Are Being Filled with Metal." Cand Tech Sci, Dnepropetrovsk Metallurgical Inst, Omsk, 1954. (RZhKhim, No 7, Apr 55)

SO: Sum. No. 704, 2 Nov 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (16).

137-58-6-11804

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 87 (USSR)

AUTHOR: Ushakov, Ye.N.

TITLE: Smelting of Steel in a Recirculation Furnace for Continuous Casting (Vyplavka v retsirkulyatsionnoy pechi stali dlya neryevnoy razlivki)

PERIODICAL: V sb.: Primeneniye kisloroda v metallurgii. Moscow, Metallurgizdat, 1957, pp 244-254

ABSTRACT: An examination is made of the special features of the procedure required to smelt St 3 carbon steel (to be used in continuous casting) in a recuperative recirculation oxygen furnace at the Novo-Tul'skiy metallurgical plant. The use of O₂ permits a forcing of the heat and production of the metal at elevated temperature, satisfying the requirements for normal pouring in a continuous casting machine. O₂ constitutes 35-40% of the oxygen-air mix used for fuel (heavy-oil) combustion during the charging and melt-down period; it is 21-25% toward the end of the heat (i.e., only atmospheric air is used at the end of the heat to burn the fuel). In view of the high oxidizing capacity of the furnace, the mean rate of C burn-off is 0.5-0.7% per hour

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137-58-6-11804

Smelting of Steel in a Recirculation Furnace for Continuous Casting

during the melt-down period, sometimes attaining 2.2% per hr. Normal smelting of St 3 steel requires that [C] after the melt-down be in the 1.2-1.7% range (pig iron constituting 55 to 60% of the charge). Delivery of O₂ into the furnace ceases on conversion to pure boil ([C] is 0.5-0.7% of the metal), and the temperature of the air heated in the recuperators is $\geq 700-800^{\circ}\text{C}$. Under these conditions, the metal is heated to 1640-1660^oC at the moment of deoxidation.

N.N.

1. Steel--Production
2. Steel--Casting
3. Furnaces--Operation
4. Furnaces--Performance

Card 2/2

OYKS, G.N., doktor tekhn. nauk, prof.; USHAKOV, Ye.N., inzh.; KOZLOV,
V.I., inzh.

Using molten iron-calcium slag for converting high-phosphorous pig
iron. Izv. vys. ucheb. zav.; chern. met. no.12:3-8 D '58.
(MIRA 12:3)

1. Moskovskiy institut stali.

(Slag)

(Cast iron--Metallurgy)

USHAKOV, Ye.N., kand. tekhn. nauk

Studying the initial stages of metal solidification in ingot
molds. Izv. vys. ucheb. zav.; Chern. met. 2 no. 8:31-38
Ag '59. (MIRA 13:4)

1. Moskovskiy institut stali. Rekomendovano kafedroy metallurgii
stali Moskovskogo instituta stali.
(Steel ingots) (Solidification)

Novoye v teorii i praktike

PHASE I BOOK EXPLOITATION

SOV/5556

SI-

Moscow. Institut stali.

Novoye v teorii i praktike proizvodstva martenovskoy stali (New [Developments] in the Theory and Practice of Open-Hearth Steelmaking) Moscow, Metallurgizdat, 1961. 439 p. (Series: Trudy Mezhvuzovskogo nauchnogo soveshchaniya) 2,150 copies printed.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR. Moskovskiy institut stali imeni I. V. Stalina.

Eds.: M. A. Glinkov, Professor, Doctor of Technical Sciences, V. V. Kondakov, Professor, Doctor of Technical Sciences, V. A. Kudrin, Docent, Candidate of Technical Sciences, G. N. Oyks, Professor, Doctor of Technical Sciences, and V. I. Yavoyskiy, Professor, Doctor of Technical Sciences; Ed.: Ye. A. Borko; Ed. of Publishing House: N. D. Gromov; Tech. Ed.: A. I. Karasev.

PURPOSE: This collection of articles is intended for members of scientific institutions, faculty members of schools of higher education, engineers concerned with metallurgical processes and physical chemistry, and students specializing in these fields.

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New [Developments] in the Theory (Cont.)

807/5556

COVERAGE: The collection contains papers reviewing the development of open-hearth steelmaking theory and practice. The papers, written by staff members of schools of higher education, scientific research institutes, and main laboratories of metallurgical plants, were presented and discussed at the Scientific Conference of Schools of Higher Education. The following topics are considered: the kinetics and mechanism of carbon oxidation; the process of slag formation in open-hearth furnaces using in the charge either ore-lime briquets or composite flux (the product of calcining the mixture of lime with bauxite); the behavior of hydrogen in the open-hearth bath; metal desulfurization processes; the control of the open-hearth thermal melting regime and its automation; heat-engineering problems in large-capacity furnaces; aerodynamic properties of fuel gases and their flow in the furnace combustion chamber; and the improvement of high-alloy steel quality through the utilization of vacuum and natural gases. The following persons took part in the discussion of the papers at the Conference: S.I. Filippov, V.A. Kudrin, M.A. Glinkov, B.P. Nam, V.I. Yavoykiy, G.N. Oyks and Ye. V. Chelishchev (Moscow Steel Institute); Ye. A. Kazachkov and A. S. Kharitonov (Zhdanov Metallurgical Institute); N.S. Mikhaylets (Institute of Chemical Metallurgy of the Siberian Branch of the Academy of Sciences USSR); A.I. Stroganov and D. Ya. Povolotskiy (Chelyabinsk Polytechnic Institute); P.V. Umrikhin (Ural Polytechnic Institute); I.I. Fomin (the Moscow "Serp i molot" Metallurgical Plant); V.A. Fuklev (Central Asian Polytechnic Institute).

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New [Developments] in the Theory (Cont.)

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80V/5556

and M.I. Beylinov (Night School of the Dneprodzerzhinsk Metallurgical Institute).
References follow some of the articles. There are 268 references, mostly Soviet.

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Principal Trends in the Development of Scientific Research in Steel
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Institute]. Regularity Patterns of the Kinetics of Carbon Oxidation
in Metals With Low Carbon Content

15

[V. I. Antonenko participated in the experiments.]

Levin, S. L. [Professor, Doctor of Technical Sciences, Dnepropetrovskiy
metallurgicheskii institut - Dnepropetrovsk Metallurgical Institute].

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S/137/61/000/011/024/123
A060/A101

AUTHORS: Ushakov, Ye. N., Abrosimov, Ye. V., Kozlov, V. I., Shcherbakov,
V. A., Kotin, A. G., Sabiyev, M. P.

TITLE: Improvement of steel-smelting technology in high-capacity open-hearth furnaces

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 11, 1961, 38, abstract 11V227 (V sb.: "Novoye v teorii i praktike proizvod. martenovsk. stali", Moscow, Metallurgizdat, 1961, 125 - 132. Discuss. 193 - 201)

TEXT: The authors describe the results of the investigations of the conditions of slag formation and their effect upon the productivity of high-capacity open hearth furnaces under the conditions of replacing ore and limestone in the charge by ore-limestone briquets or a premixed ore-limestone mixture. The article also describes the investigation of various variants of metal reduction. In order to exclude the influence of the thermal schedule, the experimental and ordinary smeltings were carried out at practically the same thermal loads: 35 - 38 million kcal during the charging and 25 - 27 million kcal during the finishing. The ore-limestone briquets from the Krivorozh'ye plant had the following composition ✓

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Improvement of steel-smelting technology in...

S/137/61/000/011/024/123
A060/A101

tion: Fe 47 - 52%, SiO₂ 5.4 - 6.9%, CaO 10.1 - 14.1%; basicity 1.8 - 2.2. To raise the basicity of the slag, limestone (~1.3% of the weight of the metallic charge) was added to the charge after the melting. The main indices of the experimental and control smeltings with the use of briquets are cited, from which it follows that with practically the same composition of the metallic charge the quantity of loose materials in operating with briquets is less by 13.5 tons (2.8% by weight of the metallic charge and 12.3% of the total weight of ore and limestone). In smelting with briquets as compared with ordinary control smeltings the mean charging duration is reduced by 15 min, and that of the smelting by 1 hr 24 min. The basicity of the slag in smelting with briquets is somewhat higher than that in ordinary smeltings due to the lower SiO₂ content in the charge. Despite the fact that with the use of briquets the tapping duration is increased on account of the higher C content after the melting (by 0.11%), the total smelting duration is then still 1 hr 15 min less than that of ordinary heats. This corresponds to an increase of 9% in the hourly productivity of the furnace. The effectiveness of using lump materials in the charge is noted. The ore-limestone mixture was prepared earlier in the charge yard at ore to limestone weight-ratios of 2:1 to 1:1. The results of experimental heats with ore-lime-

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Improvement of steel-smelting technology in...

S/137/61/COO/011/024/123
A060/A101

stone mixture are cited. As result of reducing the smelting time the total duration of the heat was reduced by 15 min on the average. Liquid slags with floating pieces of limestone were noted during the smelting period. The mean slag basicity after the melting turned out to be considerably lower than in ordinary heats, which deteriorated the conditions of metal desulfuration. The finishing of the experimental heats, on account of the higher S content at a low C content (during smelting in the presence of high acidity slag much more C was burned out than in ordinary heats) is made more difficult and requires the addition of large quantities of limestone, and in special heats, also of Fe-Mn. The inefficiency of the use of ore-limestone mixture is noted, since a very small effect is achieved by it. The main indices of heats with the reduction in ladles and in the furnace are cited. Reduction in the furnace lowers the duration of the finishing, reduces the Mn burn-off (by 30% on the average) and the saving of about 3 kg of Fe-Mn per ton of steel is effected. Despite a somewhat greater complexity of the technological process the method of reducing the smelt in the ladle while smelting in high-capacity furnaces is recommended for large-scale production.

[Abstracter's note: Complete translation]

I. Polyak

Card 3/3

STEPANOV, I.A.; ANDREYEV, K.P.; USHAKOV, Ye.N.

Automatic distribution of containers on a conveyer moving
toward bottle-washing machines. Spirt.prom. 28 no.2:20-24
'62.
(MIRA 15:3)

1. Leningradskiy kholodil'nyy institut (for Stepanov). 2. Lenin-
gradskiy likero-vochnyy zavod (for Andreyev, Ushakov).
(Leningrad--Liquor industry--Equipment and supplies)

SHCHERBAKOV, V.A.; ABROSIMOV, Ye.V.; Primalni uchastiye: USHAKOV, Ye.N.;
KOZLOV, V.I.; KOTIN, A.G.; SABIYEV, M.P.

Slag conditions during melting in high-capacity open-hearth
furnaces. Izv. vys. ucheb. zav.; chern. met. 6 no.7:59-64
'63. (MIRA 16:9)

1. Moskovskiy institut stali i splavov.
(Open-hearth process) (Slag)

L 23224-66 EWT(d)/EWT(m)/EWP(c)/EWP(v)/T/EWP(t)/EWP(k)/EWP(l)/ETC(m)-6

ACC NR: AP6013600 IJP(c) JD

SOURCE CODE: UR/0148/65/000/001/0193/0194

AUTHOR: Ushakov, Ye. N.

ORG: none

TITLE: Means of improving the casting of steel and increasing ingot quality

SOURCE: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no. 1, 1965, 193-194

TOPIC TAGS: steel, metal casting, metallurgic conference, slag, foundry equipment, ultrasonic flaw detector

ABSTRACT: A conference devoted to the problems of improving the casting of steel and increasing ingot quality, brought about by the initiative and organization leadership of the Institute of Casting Problems, Academy of Sciences Ukrainian SSR, was held at the Zhdanov Metallurgical Institute on 13-15 October 1964.

Workers from the metallurgy higher education institutions, scientific research institutes and the largest metallurgical and machine building plants of the Soviet Union attended the conference.

Doctor of Technical Sciences, V. A. Yefimov, Institute of Casting Problems, spoke on the opening day of the conference on the problems of the state-of-the-art and investigations into steel casting processes. In his report, Yefimov cited three basic trends along which the scientific and practical efforts should be expanded to improve the steel casting processes:

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UDC: 669.189

I. 23224-66

ACC NR: AP6013600

1. A need for greater involvement of the precision sciences -- mathematics, physics, hydraulics and others in the theory of the ingot formation .
2. A need for more extensive investigation and introduction into production of rapid casting of steel, based on the theoretical premises of the hydrodynamics of molten steel in filling casting molds and on the nature of metal solidification in connection with the mold shapes used.
3. A need for further efforts in improving the technology of steel casting under a slag layer.

Representatives of the "Azovstal'", NTK (Nizhniy Tagil Metallurgical Combine), and "Krivorozhstal'" plants, workers of the Institute of Casting Problems, Central Scientific Research Institute of Ferrous Metallurgy (TsNIICherMet), and others delivered papers on experience in the accelerated casting of steel and use of casting molds having a wavy shape. They presented data attesting to the improvement of the technical and economic indices of production with the application of accelerated casting of steel through refractory nozzles 60-80 mm in diameter, noting the need for the accurate selection of the wave parameters of the internal surface of the casting molds.

Candidate of Technical Sciences, I. D. Kuzema, reported on the rational configuration of slab and sheet ingots based on the theoretical calculations and operational experience of the [Zhdanov] Plant imeni Il'ich. He stressed that in selecting the configuration of heavy ingots there should be considered its rolling condition not only from the viewpoint of increasing productivity of the rolling mills but also starting from the necessity for the maximum reduction of topping which will provide for the greatest yearly output.

Card 2/4

L 23224-66
ACC NR: AP6013600

A number of papers were devoted to the results of experimental works on the use of molten slags during normal and continuous casting of steel and to conditions of solidification of the continuous slab and its quality.

Engineer Ye. Z. Zatulovskaya dealt with the experience in wide use of the ultra-sound defectoscope at NTMK for the metal quality control of steel ingots for wheels. A method of setting up an experiment during the casting of steel was described by Candidate of Technical Sciences, V. P. Grebenyuk (Institute of Problems of Casting, AS UkSSR). Noting the tremendous difficulties which the researcher encounters in studying the distribution of the heat flows of solidifying ingots, he characterized all the means available and used at the present time for measurement of molten steel temperature including thermocouples mounted in slit quartz tubes, which permit continuous measurements at any site along the ingot cross section to be made. The speaker also stated that the method of pouring off the molten residue with all its disadvantages and difficulties remains, as before, one of the most acceptable methods. The increased chemical homogeneity of large forged ingots constantly remains in the center of the investigator's attention. This problem was covered by the report of Candidate of Technical Sciences, S. Ya. Skoblo (Zhdanov Metallurgical Institute). Using as an example the distribution of segregated particles, appearing as sulfur inclusions in 50-ton ingots, the author showed the reduction of inhomogeneity in rim zone segregation during the change in ingot configuration -- during the shift of the hot center in the ingot head which can be achieved by the substitution of the floating hot top by a stationary hot top.

Card 3/4

L 23221-66

ACC NR: AP6013600

Engineers G. A. Chikalenko (Zhdanov Heavy Machine Building Plant) and A. V. Mikal'chuk (Urals Heavy Machine Building Plant) delivered interesting reports on the defects of large forged ingots and measures to eliminate them. G. A. Chikalenko noted that, in addition to the metal defect associated with the conditions, specific for the plant where it is melted and cast, in individual cases the unsatisfactory conditions of cooling and subsequent heating of the ingots before forging are the cause of a large amount of scrap. A. V. Mikal'chuk presented data on the quality improvement of forged ingots, which was achieved as result of the vacuum degassing during the pouring of metal. In a number of reports material was presented on the improvement of the technology of casting molten steel and production of high-quality ingots with flawless surfaces.

At the concluding session on 15 October, individual conference participants delivered reports in the nature of a discussion of the reports presented. The conference drew up and approved the resolution directed at the further study of problems associated with steel casting and ingot quality conditions as well as on the desirability of the wider introduction into production of progressive methods of casting. The material of the conference will be published in a single collection of works by the Publishing House of the Academy of Sciences, Ukrainian SSR. [JPRS]


SUB CODE: 11, 13 / SUBM DATE: none

Card 4/4 H/w

S/032/026/012/022/036
B020/036

AUTHORS: Pavlov, I. M. and Ushakov, Ye. V.
TITLE: The Method of the Flat Recesses in the Front Surfaces, Which
Are Filled With Lubricants
PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 12,
pp. 1403-1404

TEXT: The effect produced by the width of the collar upon the specific pressure, and the possibility of determining the true deformation resistance by means of the method mentioned, was investigated. In this connection, the aluminum alloy Д1(D1) was investigated, from which specimens having a diameter of 12 and a height of 15 mm were cut, and into which 0.5 mm deep recesses were drilled. The width of the recesses was variable with their depth being constant. Paraffin was used as a lubricant, which warranted largely uniform deformation. The specimens were tested by means of a 5-t machine of the type P-5 (R-5) and by means of a device warranting the parallel position of the working surfaces. The deformation rate varied from 0.012 sec⁻¹ at the beginning to 0.03 sec⁻¹ at the end. At such low rates, their influence upon the deformation resistance may be
Card 1/2



The Method of the Flat Recesses in the Front Surfaces, Which Are Filled With Lubricants S/032/60/026/012/022/036
B020/B056

✓

neglected. The compression diagrams for specimens with different widths of the recesses were drawn. The dependence of the specific pressure upon the width of the recess at various stages of deformation is shown in Fig. 1. In consideration of the fact that the inclination of the curves is small, it may be expected that the curve of the true deformation resistance differs little from the compression diagram at low widths (e.g., 0.5 mm). This is confirmed by the curves given in Fig. 2. The difference between the stresses determined from these two curves is not more than 4% of the true deformation resistance, i.e., not greater than the possible experimental error. M. V. Rastegayev is mentioned. There are 2 figures and 2 Soviet references.

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

Card 2/2

15.6000 1583 only

21159
S/032/61/027/004/019/028
B103/B201

AUTHORS: Pavlov, I. M., Belosevich, V. K., and Ushakov, Ye. V.

TITLE: Device for studying the external friction in the plastic deformation of metals

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 4, 1961, 462-463

TEXT: The apparatus described here is suited for measuring the frictional force at high pressures and rubbing speeds arising in the pressure treatment of metals. The authors achieved their purpose by making use of a flywheel. They state that the effect of speed and pressure upon the coefficient of friction is often difficult to be studied. In devices known so far, samples have been shifted by hand over deforming plates in the process of plastic deformation. The consequence has been a strongly fluctuating rubbing speed which did not exceed 0.05 m/sec. In the authors' device (Fig. 1), samples are shifted by a mechanical system. Sample 1 is compressed by plane-parallel plates in a hydraulic 30-ton press. The parallel position of the working planes is ensured by guides 2, in which punches 3 move. Rubber shock absorbers 4 ensure a constant pressure

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21159

S/032/61/027/004/019/028
B103/B201

Device for studying the external ...

on the sample. Inside the deforming device, the sample is shifted by means of an elastic fork 6. The sample is altogether prevented from bending. Fork 6 is fastened onto bar 7 which moves in guide 8 and which carries a pressure cell which records the sample resistance to shift, viz. the frictional force. Bar 7 is put into motion by the already turning flywheel 9. The mobile end of bar 10 is connected to armature 13 of electromagnet 14 via 11 and 12, and, when 14 is switched on, it is lowered to the position indicated by a dashed line. Striker 15 of the flywheel shifts bar 7 so far ahead that the sample is pushed out of its position between the plates. Flywheel 9 is driven by friction step pulley 16 which is fixed to shaft 17 of a weighted rocking lever 18. Wheel 16 is pressed onto flywheel 9 by the weight. Shaft 17 is driven by an electric motor. By means of this mechanism the sample can be shifted at a rate of up to 4 m/sec. Fig. 2 presents the device serving to produce lower speeds (0.05-0.8 m/sec). The bent lever 1 has a shoe 2 which is pressed onto eccentric 3. The mechanism is inserted into the position indicated by the solid line by folding of 2. The rough adjustment is done by means of step pulley 16 (Fig. 1), the fine adjustment by a partial braking of flywheel 9. The frictional forces are recorded

X

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21159
S/032/61/027/004/019/028
B103/B201

Device for studying the external ...

by a wire strain gauge as well as by an amplifying recording apparatus (MPO-2 (MPO-2) oscilloscope and tensometric electronic amplifier). The apparatus is used to study the dependence of frictional forces on the rubbing speed, on pressure, and other factors. Fig. 3 presents, as an example, the coefficient of friction as a function of the relative rubbing speed of aluminum on a hardened steel surface (type III X 15 (ShKh15)) with castor oil as a lubricant, and at constant pressure (14.1-13.5 kg/mm²). There are 3 figures and 3 Soviet-bloc references.

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

X

Card 3/5

21159

S/032/61/027/004/019/028
B103/E201

J

Device for studying the external ...

Legend to Figs. 1 and 2: see the text.

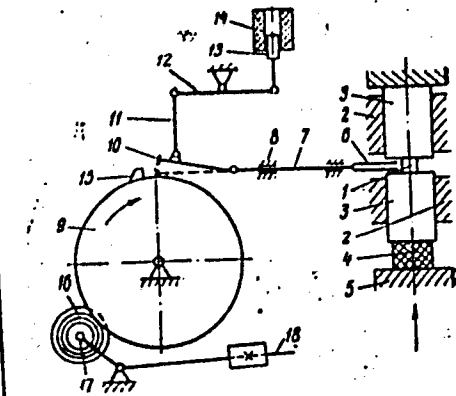


Рис. 1. Схема установки для исследования.

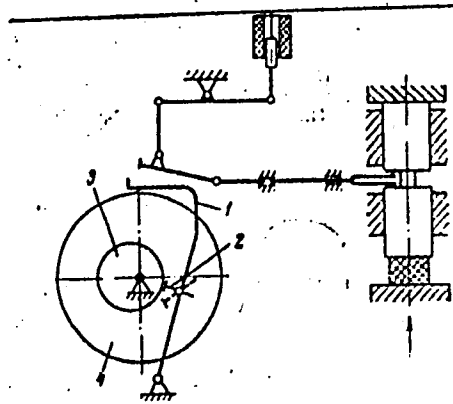


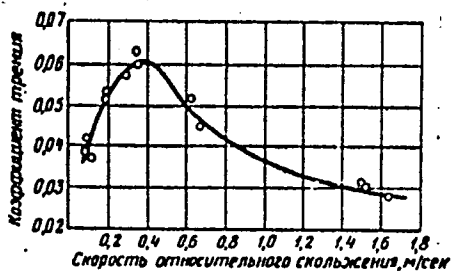
Рис. 2. Схема механизма для получения мм/сек скоростей скольжения (0,05—0,8 м/сек)

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Device for studying the external ...

S/032/61/027/004/019/020
B103/B201

Legend to Fig. 3: Abscissae: rate m/sec, ordinates: coefficient of friction.



Card 5/5

S/509/62/000/009/001/014
D207/D308

AUTHORS: Pavlov, I. M. and Ushakov, Ye. V.

TITLE: Determining the true resistance to deformation by extrapolation of the curves resistance to deformation - coefficient of friction

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Trudy. no.9, Moscow, 1962. Voprosy plasticheskoy deformatsii metalla, 67-71

TEXT: Annealed Armco iron cylinders (12 mm diameter and 6 mm height) were compressed between two steel plates. The contact between the plates and the samples were lubricated with one of the following: CY (SU) engine oil, oleic acid, purified vaseline, graphite mixed with engine oil, etc. The tests were carried out on a universal ИМЧ-30 (IMCh-30) machine and the rate of deformation was 0.003 - 0.004 sec⁻¹. Simultaneously with the axial stress, the lateral friction was measured at the contacts of the samples with the plates. The resistance to deformation (axial stress) plotted ag-

Card 1/2

Determining the true ...

S/509/62/000/003/001/014
D207/D308

against the coefficient of friction for different degrees of deformation (defined here as the natural logarithm of the ratio of the initial to final height of the sample) gave straight lines which were only partially matched by the theoretical formulas of Unksov, Petrov and Siebel. Following I. M. Pavlov and Ya. S. Gallay the stresses were extrapolated to zero coefficient of friction and the resultant values of the axial stress were called the "true resistances to deformation". The resistances to deformation obtained in this way agreed satisfactorily with the values found by the method of M. V. Rastegayev (cylindrical samples with recesses at the two plane ends filled with stearic acid to reduce the friction with the steel plates). There are 5 figures.

Card 2/2

PAVLOV, I.M.; USHAKOV, Ye.V.

Device for measuring friction forces during upsetting. Trudy
Inst.met. no.9:72-77 '62. (MIRA 16:5)
(Forging) (Friction forces--Measurement)

USHAKOV, Ye.V.; PAVLOV, I.M.

Equipment for synchronous recording of stresses and dimensions of specimen subjected to compression and stretching. Trudy Inst.net. no.9:87-89 '62. (MIRA 16:5)

(Testing machines)

PAVLOV, I.M.; BELOSEVICH, V.K.; Primalni uchastiye: USHAKOV, Ye.V., inzh.;
KOZLOV, V.S., laborant

Investigating the relationship between the friction coefficient and
speed and pressure on a special unit. Trudy Inst.met. no.9:139-146
'62. (MIRA 16:5)

(Friction)

37692
S/509/62/000/009/012/014
D207/D308

19.8200
AUTHORS:

Pavlov, I. M. and Ushakov, Ye. V.

TITLE:

On determining the true resistance to deformation by shock compression of samples with recesses in their ends

SOURCE:

Akademiya nauk SSSR. Institut metallurgii. Trudy, no. 9, Moscow, 1962. Voprosy plasticheskoy deformatsii metalla, 164-168

TEXT: M. V. Rastegayev's method was used to study the resistance to deformation (plasticity) of Armco iron cylinders 12 mm in diameter and 15 mm high. The purpose was to find the conditions which produced the most uniform compression on dropping a hammer on the sample. The optimum conditions were obtained when cylindrical recesses of 0.5 mm depth and 11 mm diameter were cut in the two plane ends of a sample and filled with stearic acid, or palmitic acid or with Wood's alloy. Filling the recesses with other lubricants produced less uniform deformation. Under optimum conditions fric- ✓

Card 1/2

On determining the true...

S/509/62/000/009/012/014
D207/D308

tion between the compressing plates and the sample ends was practically eliminated and uniform compression was obtained up to deformations of 30%. Even for deformations of 70% the central (nearest to the axis) portion of the cylinder exhibited uniform compression. The authors followed V. G. Isopov's suggestion and used the ratio D/D_0 as the measure of plasticity: Here D_0 is the initial diameter in the plane at right angles to the cylinder axis and situated at an equal distance from the two plane ends; D is the final diameter. D/D_0 values were found to be more reliable than h/h_0 (h = height) which is normally employed. There are 6 figures. ✓

Card 2/2

S/032/62/028/002/026/037
B124/B101

AUTHORS: Pavlov, I. M., and Ushakov, Ye. V.

TITLE: Determination of the true resistance to compressive deformation

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 2, 1962, 224-226

TEXT: The mean values of stresses and deformations along the height of the sample on contraction are generally used to plot compression diagrams which give, however, no true values for the resistance to plastic deformation in any part of the non-uniformly strained sample. A method also used by V. G. Osipov (Zavodskaya laboratoriya 21, 9 (1957); ibid., 24, 6 (1958)) was suggested for eliminating the effect of friction. The sample was placed between two auxiliary samples of the same diameters, which transmitted the pressure obtained from pressure plates to the sample, and absorbed irregular deformation due to friction. This method is, however, inaccurate, particularly at medium and high deformations. When high samples of regular shape are studied, and deformation and stresses are determined from the change of diameter in the central part of the

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Determination of the true resistance ...

S/032/62/026/002/026/937
B124/B101

sample, most of the defects of this method can be overcome. The true deformation ϵ can be calculated from $\epsilon = 2 \ln(D_2/D_1)$, where D_1 is the diameter of the initial sample, and D_2 is that of the strained sample, measured at half the height from the faces. A series of experiments were performed by the authors to verify the possibility of determining the true resistance to deformation from the stress and deformation measured in the central part of the high sample (Fig. 1). There are 2 figures and 7 references: 4 Soviet and 3 non-Soviet. ✓

ASSOCIATION: Institut metallurgii im. A. A. Baykova (Institute of Metallurgy imeni A. A. Baykov)

Fig. 1. Compression diagrams of Armco iron plotted with measured sample diameters at a distance of half the height from its faces, compared with data on the contraction of lathe-worked samples: (1) - (4) D/H equal to 0.36; 0.57; 0.8; and 2, respectively. Legend: (α) kg/mm².

Card 2/3₂

ACC NR: AP6032156

(A)

SOURCE CODE: UR/0182/66/000/007/0022/0024

AUTHOR: Osipov, V. G.; Mutovin, V. D.; Ushakov, Ye. V.

ORG: none

TITLE: Evaluating the deep-drawability of sheet molybdenum

SOURCE: Kuznechno-shtampovochnoye proizvodstvo, no. 7, 1966, 22-24

TOPIC TAGS: METAL POWDER, SHEET METAL, molybdenum powder, molybdenum alloy, metal drawing, metal cupping, elongation / MCh ~~metal~~ powder, Tsm2A molybdenum alloy

ABSTRACT: The drawability of blanks of cast Mo treated with Zr(0.07%) and Ti (0.1%) as well as of MCh powder-metal Mo, cross-rolled from a thickness of 1 mm to thicknesses of 0.8, 0.6, 0.4, 0.2 and 0.1 mm, was determined as a function of their elongation coefficient $K = \frac{D_{max}}{d_{av}}$ (D_{max} is the maximum diameter of specimen until fracture, d_{av} is the mean diameter of cupped blank). The tests were performed in a die set with a hydraulic blankholder. The findings (Fig. 1) indicate that the deep-drawability of sheet Mo improves with increase in its degree of deformation (reduction in its thickness). The scatter of curves for the material 0.1-0.2 mm thick (hatched region, Fig. 1) is apparently attributable to the considerable

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UDC: 621.983.3

ACC NR: AP6032156

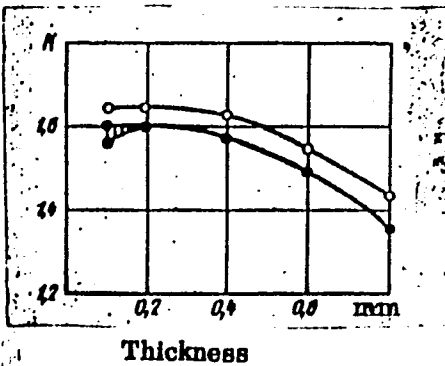


Fig. 1 Elongation coefficient $K = \frac{D_{max}}{d_{av}}$ as a function of sheet thickness:

O - elongation coefficient of MCh molybdenum; ● - elongation coefficient of TaM2A molybdenum.

influence of surface impurities for such thin sheets. The determination of the deep-drawability of sheet Mo according to uniaxial tensile tests is difficult owing to the marked anisotropy of mechanical properties in the plane of the Mo sheet; hence sheets rolled in two mutually perpendicular directions must be used for the drawing of axially symmetric products, so as to equalize the indicators of plasticity and strength in both the longitudinal and the transverse directions. Orig. art. has: 2 figures.

SUB CODE: 13, 11/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 002

Cord 2/2

ACC NR: AT7004416

(A)

SOURCE CODE: UR/0000/66/000/000/0083/0085

AUTHOR: Osipov, V. G.; Drobysheva, Ye. K.; Ushakov, Ye. V.; Amosov, V. M.; Zelentsova, N. M.; Borisov, A. G.

ORG: none

TITLE: Methods of tensile and torsion tests of thin rods at elevated temperatures

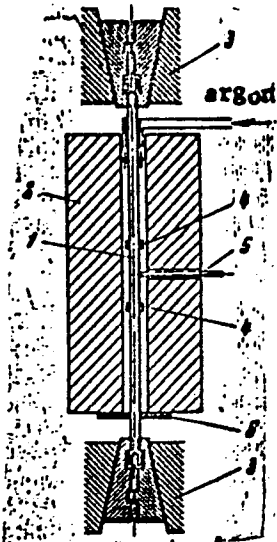
SOURCE: AN SSSR. Institut metallurgii. Napryazhennoye sostoyaniye i plastichnost' pri deformirovanii metallov (Stress condition and plasticity during metal deformation). Moscow, Izd-vo Nauka, 1966, 83-85

TOPIC TAGS: ^{metal test} ~~all-purpose~~ metal testing machine, tensile test, torsion test, torsion stress, temperature test/ R-5 ~~all-purpose~~ metal testing machine

ABSTRACT: Tests of this kind require a vacuum or a protective atmosphere, which involves considerable technical difficulties. However, in cases where complete prevention of oxidation of the specimen is not required an airtight working chamber does not have to be constructed. Furthermore, the need to use scarce high-temperature materials for the clamps can be obviated if during the tests only the middle portion of the specimen is heated and the deformation is measured over a segment for which the temperature gradient is within permissible limits. On the basis of these considerations the following method of high-temperature tensile tests was developed: an argon-atmosphere electrical resistance furnace (Fig. 1) is attached between the clamps of

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ACC NR: AT7004416



an R-5 all-purpose testing machine. Mounted in the central part of the specimen at a distance of 40 mm from each other are two bushings serving to identify the working length of the specimen and facilitate measurements of the degree of deformation. A specimen measuring 3 or 6 mm in diameter and 250 mm in length is inserted in the furnace so that its both ends protrude 50 mm each from the furnace. Tensile tests of such specimens at up to 1300°C demonstrated that, despite the absence of an airtight chamber, there is virtually no oxidation. However, the formation of a neck, which complicates the evaluation of test results, is a major shortcoming of tensile tests. From this standpoint, torsion is superior to stretching, since it assures a more uniform lengthwise distribution of deformations in the specimen, which is particularly important to the tests of metals in a state of low plasticity. Accordingly, the following method

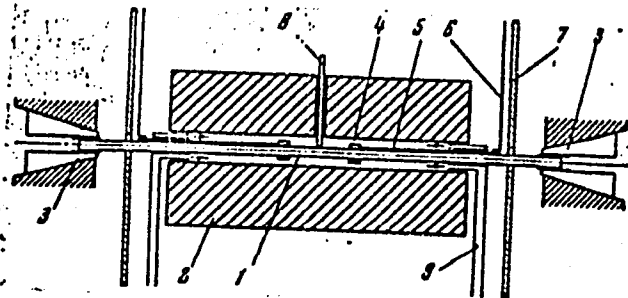
Fig. 1. Schematic of tensile test:

1 - specimen; 2 - furnace; 3 - clamp; 4 - bushing; 5 - thermocouple; 6 - washer

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ACC NR: AT7004416

of high-temperature torsion tests was developed: specimen 1 is placed in furnace 2 (Fig. 2) and its ends are held tight in clamps 3.



Mounted in the central portion of the specimen, at a distance of 40 mm from each other, are two bushings 4 clamping the ends of two high-temperature steel plates 5 whose opposite ends protruding for 20 mm outside the furnace display arrows 6. The angle of twist over the 40 mm length is determined according to the difference in the angles of rotation of the arrows and reckoned from fixed disks 7.

These methods in principle admit the possibility of performing tensile and torsion tests at temperatures as high as desired, since the clamps are outside the furnace. The material of bushings 4 and plates 5 may be selected according to test temperature. Orig. art. has: 4 figures.

Fig. 2. Schematic of torsion test

SUB CODE: 13, ~~22~~, 11/ SUBM DATE: 27Sep66/ ORIG REF: 003/ OTH REF: 001

Card 3/3

ACC NR: AT7004419

(A)

SOURCE CODE: UR/0000/66/000/000/0103/0106

AUTHOR: Pavlov, I. M.; Osipov, V. G.; Ushakov, Ye. V.

ORG: none

TITLE: Compressive tests at elevated temperatures

SOURCE: AN SSSR. Institut metallurgii. Napryazhennoye sostoyaniye i plastichnost' pri deformirovanii metallov (Stress condition and plasticity during metal deformation). Moscow, Izd-vo Nauka, 1966, 103-106

TOPIC TAGS: metal test, metallurgic research, compressive stress, temperature test

ABSTRACT: A new method of compressive tests of this kind is described. The tapered heads of specimen 1 (see figure) are inserted in the sockets of two dies having the same cone angle. To improve contact and eliminate the possibility of burnout, copper-foil linings 3 are inserted between the dies and platens 4. The current for heating the specimens is supplied to the platens via busbars 6. Coils 7 for the passage of water serve to prevent overheating of the dies. This device can be used to perform compressive tests of specimens at temperatures of up to 1000°C and it is superior to its previous counterparts in that it assures a greater uniformity of deformation of the specimen owing to a more uniform temperature field and stress-strain diagram in the middle cylindrical segment of the specimen. This is due to the presence of colder

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ACC NR:

AT7004419

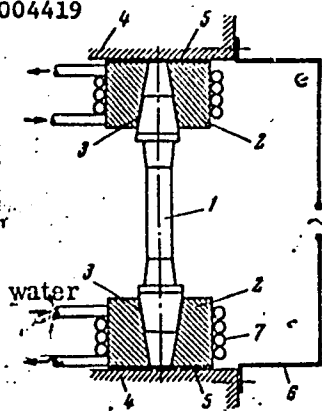


Fig. 1. Schematic of compressive test:

- 1 - specimen; 2 - die; 3 - lining;
 4 - platen; 5 - lining; 6 - busbar;
 7 - coolant coil

metal at both ends of the specimen and to the automatic decrease in current density in areas with higher temperature and increase in this density in areas with lower temperature; a rise in temperature in some cross sectional area of the specimen causes a decrease in deformation resistance in that area. (During compression the hotter sections of the specimen will undergo greater deformation, the cross sectional area of the specimen will increase and the current density will decrease.) A major advantage of this test method is the absence of any limitations on the heating temperature. Furthermore, it not only eliminates the adverse effect of friction forces on the uniformity of deformation but also preserves the strength of the press tools by preventing heat transfer from the test specimen to the tools. Orig. art. has: 6 figures.

SUB CODE: 13, 11/ SUBM DATE: 27Sep66/ ORIG REF: 003/

Card 2/2

ACC NR: AT7004421

(A)

SOURCE CODE: UR/0000/66/000/000/0122/0130

AUTHOR: Osipov, V. G.; Drobysheva, Ye. K.; Amosov, V. M.; Ushakov, Ye. V.; Zelentsova, N. M.; Borisov, A. G.

ORG: none

TITLE: Investigation of the plasticity of VA tungsten during the initial stages of its thermomechanical treatment

SOURCE: AN SSSR. Institut metallurgii. Napryazhennoye sostoyaniye i plastichnost' pri deformirovanii metallov (Stress condition and plasticity during metal deformation). Moscow, Izd-vo Nauka, 1966, 122-130

TOPIC TAGS: tungsten, ~~powder~~ ^{metal powder}, plasticity, hot forging, filament wound construction / VA tungsten powder

ABSTRACT: The processing of VA tungsten-powder rods involves the occurrence of small transverse surface cracks which may lead to the formation of defects during the drawing and spiralization of these rods into electric-bulb filaments. To uncover and eliminate the causes of this phenomenon tungsten bars measuring 10.5x10.5 mm in cross-sectional area as well as rods with diameters of 3, 5.6 and 10 mm, rotary-forged by different regimes (at 1300, 1450 and 1600°C) with different degrees of reduction of area (7.0 to 36.0%), were subjected to various mechanical tests. The effect of ther-

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ACC NR: AT7004421

momechanical pressworking on the plasticity of tungsten is best revealed by test methods for which the shear stresses are equal or close to normal stresses (i.e. the torsion test). Flattening tests of rods of 10 mm diameter (performed on a crank press) showed that the rods forged at 1300°C with considerable reduction of area display the greatest plasticity over a broad range of temperatures, while bending tests showed that rods forged at 1600°C with normal reduction of area also display satisfactory plasticity. Torsion tests of rods with diameters of 5.6 and 3 mm revealed a decrease in plasticity with increase in test temperature and in reduction of area. The test findings indicate that there exists no direct relationship between the number of surface cracks on the rods and the plasticity and strength properties of the metal. The plasticity of this metal is largely determined by its stressed state and hence the plasticity tests must insofar as possible simulate a stressed state corresponding to a given forging regime. Orig. art. has: 10 fig. and 5 tables.

SUB CODE: 13, 11/ |SUBM DATE: 27Sep66/ ORIG REF: 004

2/2

Card

ACC NR: AT7004422

SOURCE CODE: UR/0000/66/000/000/0130/0134

AUTHOR: Gurevich, Ya. B.; Ushakov, Ye. V.; Drobysheva, Ye. K.; Osipov, V. G.; Orzhekhovskiy, V. L.

ORG: none

TITLE: Plasticity of tungsten in vacuum rolling

SOURCE: AN SSSR. Institut metallurgii. Napryazhennoye sostoyaniye i plastichnost' pro deformirovani metallov (Stress condition and plasticity during metal deformation). Moscow, Izd-vo Nauka, 1966, 130-134

TOPIC TAGS: ~~sintered tungsten~~, ~~sintered tungsten~~ ^{metal} rolling, ~~sintered tungsten~~ ^{metal} property, ~~sintered tungsten~~ ^{metal} structure, ~~sintered tungsten~~ ^{metal} powder ^{metal} ~~sintering~~

ABSTRACT: The plastic properties of hydrogen-or vacuum-sintered tungsten and vacuum-arc melted tungsten have been investigated. Specimens 12 x 12 mm were sintered at 1200°C for 2 hr in a hydrogen atmosphere and then in vacuum. An ingot 50 mm in diameter was vacuum-arc melted with a consumable electrode from hydrogen-sintered tungsten. Hydrogen-sintered tungsten failed at a bend angle of 35 degrees, even at temperatures up to

Card 1/2

UDC: none

ACC NR: AT7004422

1100°C, and remained brittle at room temperature. Cast tungsten has an elongation of 1% and reduction of area 3.5%. The respective elongation and reduction of area at 400°C were 2 and 6% for hydrogen-sintered tungsten and 3 and 5% for vacuum-sintered tungsten. The latter has the highest plasticity and can be vacuum rolled with a 61% reduction at 1300°C without failure, compared to 45% for hydrogen-sintered tungsten. Orig. art. has: 2 figures. [AZ]

SUB CODE: 11,13/ SUBM DATE: 27Sep66/ ORIG REF: 002/ ATD PRESS:5117

Card 2/2

USHAKOV, Yu.A., insh.

From experience of testing zeroing devices. Prom. energ. 14 no.1:18-19
Ja '59. (MIRA 12:1)

(Electric measurements)

S/137/61/000/002/024/046
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1961, No. 2, p. 26 #2E207

AUTHORS: Kanter, I.I., Timofeyev, V. V., Ushakov, Yu. A.

TITLE: A New Circuit of Ion Frequency Changer for Welding

PERIODICAL: "Tr. Saratovsk. in-ta mekhaniz. s. kh.", 1960, No. 20, pp. 33-41

TEXT: Information is given on new circuits of ion frequency changers, employed for feeding welding tongs with built-in transformer, and multi-spot resistance welding machines, for the purpose of reducing the dimensions of transformers. For the feed of welding tongs a single-phase circuit is recommended and a 3-phase circuit for multi-spot machines. The operation of the circuits is analyzed in detail. Experimental investigation was made on the single-phase circuit with a 13 kvamp transformer and 300 cycles operational frequency. The secondary winding of the transformer was fastened to the holders of the MTP-25 (MTR-25) machine. The tests have shown that the transformer assures reliable welding of up to 3 mm thick St.3 steel sheets. Minimum duration of pulses is 0.01 sec.

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

Card 1/1

KANTER, I.I., kand.tekhn.nauk; TIMOFEYEV, V.V., inzh.; USHAKOV, Yu.A., inzh.

Ionic frequency converter circuit with four rectifiers for
electric welding apparatus. Vest. elektroprom. 32 no.12:45-
47 D '61. (MIRA 14:12)

(Electric welding)
(Frequency converters)

USHAKOVA A.A.
STADNIKOV, G. L., USHAKOVA, A. A., and SUISKOV, K. I.

"Humic Acids," Khim. Tverdogo Topliva, 5, 581-90, 1934.

In the reaction of humic acid solns. with $\text{Ca}(\text{OH})_2$, salts are formed not only from the humic acids but also from phenols. In studies of lignin and humic acid preps. the magnitude of the final adsorption, as well as the process of double decompn., may be used in the characterization of the humic acids. This characteristic must be utilized in the investigation of the weathering phenomena of the coals under natural conditions.

USHAKOVA, A.A.

Central State Sci, Control Inst., (-1944-)

"The study of newly isolated strains of B parvifingens,"

Zhur. Mikrobiol., Epidemiol., i Immunobiol., No. 9, 1944.

ASEEVA, N.P.; GRISHKUN, G.I.; USHAKOVA, A.A., zaveduyushchaya; SHIROKOV, V.N.,
zasluzhennyy vrach RSFSR, glavnyy vrach; FAYERMAN, I.L., professor, za-
sluzhennyy deyatel' nauki, direktor.

Two cases of calcified hydatid cyst of rare location. Vest.rent.1 rad. (MLRA 6:6)
no.2:66-67 Mr-Ap '53.

1. Rentgenologicheskoye otdeleniye Ryazanskoy oblastnoy klinicheskoy bol'-
nitsy imeni N.A.Semashko (for Aseyeva, Grishkun, Ushakova). 2. Ryazan-
skaya oblastnaya klinicheskaya bol'nitsa imeni N.A.Semashko (for Shirokov).
3. Kafedra propedevticheskoy khirurgii Ryazanskogo meditsinskogo instituta
imeni akademika I.P.Pavlova (for Aseyeva, Grishkun and Fayerman).
(Spleen--Hydatids) (Peritoneum--Hydatids)

USHAKOVA, A.A.

CHERTKOVA, F.A.; DIDENKO, S.I.; USHAKOVA, A.A.

Anaphylactogenic properties of thrombin from horse plasma and
native horse sera. Zhur.mikrobiol.epid. i immun. 28 no.8:107-110
Ag '57. (MIRA 11:2)

1. Iz Gosudarstvennogo kontrol'nogo instituta imeni Tarasevicha.
(ALLERGY, experimental,
anaphylactogenic eff. of thrombin from horse plasma &
native serum (Rus))
(THROMBIN, effects,
same)

CHERTKOVA, G.A.; USHAKOVA, A.A.; KOLCHURINA, A.A.

White mice as objects for the experimental determination of anaphylactogenic properties of therapeutic sera. Zhur.mikrobiol., epid.i immun. 30 no.12:33-36 D '59. (MIRA 13:5)

1. Iz Gosudarstvennogo kontrol'nogo instituta imeni Tarasevicha.
(IMMUNE SERUMS pharmacol.)
(ALLERGY)

USHAKOVA, A. A.

SOV/16-60-A-21/47

17 (6, 12)

AUTHOR: Chertkova, P.A., Grodtko, N.S., Ushakova, A.A., Denisova, I.Ya., Kats, P.M. and Dudarenko, G.V.

TITLE: Standard Botulism Antiserum Type E

PERIODICAL: Zhurnal mikrobiologii, epidemiologii i immunologii, 1960, Nr 4, pp 84 - 87 (USSR)

ABSTRACT: The authors made a study of the standard botulism antiserum type E (batch 216/2) prepared at the Khar'kovskiy Institut vaktain i sыворотok imeni Mechnikova (Institute of Vaccine and Sera imeni Mechnikov, Khar'kov) and also of two other batches of antiserum - batch 355/1, also prepared by the same institute, and batch 16/3 prepared at the Institut epidemiologii i mikrobiologii imeni Gamalei ANU SSSR (Institute of Epidemiology and Microbiology imeni Gamaleya of the ANU, USSR). A standard for the botulism antiserum type E was worked out and the size of one antitoxic unit (AU) set at 0.03 mg of dry substance. An experimental toxin dose was determined and titration of antisera was recommended at 1/10 of this experimental dose (L/10). It was found that the experimental dose of the three batches of toxins prepared on different nutrient media contained different amounts of MLD (minimum lethal dose). Two of the three toxin

Card 1/2

ASSOCIATION: Gosudarstvennyy kontrol'nyy Institut meditsinskikh biologicheskikh preparatov imeni Tarasavicha (State Control Institute for Medical Biological Preparations imeni Tarasavich); Khar'kovskiy Institut vaktain i sыворотok imeni Mechnikova (Institute of Vaccines and Sera imeni Mechnikov, Khar'kov)

SUBMITTED: September 24, 1958

Card 2/2

CHERTKOVA, F.A.; USHAKOVA, A.A.; LUZINA, A.G.

Possibility of determining the reaction-producing qualities of whooping cough-diphtheria vaccine under experimental conditions. Report No. 1. Zhur.mikrobiol.epid.i immun. 33 no.5:27-31 My '62. (MIRA 15:8)

1. Iz Gosudarstvennogo kontrol'nogo instituta meditsinskikh biologicheskikh preparatov imeni Tarasevicha.
(WHOOPING COUGH--PREVENTIVE INOCULATION)
(DIPHTHERIA--PREVENTIVE INOCULATION)

KAZAKOV, Aleksey Tikhonovich; GLOTOV, O.K., red.; USHAKOVA, A.F., ved.
red.; POLOSTINA, A.S., tekhn. red.

[Blasting methods and techniques in seismic prospecting] Metodika
i tekhnika vzryvnykh rabot pri seismorazvedke. Moskva, Gos.
nauchno-tekhn.izd-vo neft.i gorno-toplivnoi lit-ry, 1961. 217 p.
(MIRA 14:12)

(Seismic prospecting) (Blasting)

MAMIKONYANTS, Grazdan Mushegovich; USHAKOVA, A.F., ved. red.;
VOROB'YEVA, L.V., tekhn. red.

[Fire extinction of powerful gas, gas and oil, and oil free-
flowing wells with water streams and by means of explosives]
Tushenie pozharov moshchnykh gazovykh, gazonaftnykh i nef-
tianykh fontanov vodianymi struiami i pri pomoshchi vzryva za-
riada VV. Moskva, Gostoptekhizdat, 1962. 70 p. (MIRA 15:9)
(Oil fields—Fires and fire prevention)

KRIVENKO, M.G., red.; SIROTTA, B.L., red.; USHAKOVA, A.F., ved. red.;
VORONOVA, V.V., tekhn. red.

[Uniform time norms for drilling exploratory, structural,
and geological wells] Edinye normy vremeni na burenie raz-
vedochnykh, strukturno-poiskovykh i kartirovochnykh skvazhin.
Moskva, Gostoptekhizdat, 1963. 127 p. (MIRA 16:7)

1. Moscow. Tsentral'noye byuro promyshlennykh normativoy po
trudu.

(Boring)

ZHOLNEROVICH, B.G., red.; SMOLYAKOV, M.I., red.; USHAKOVA, A.F.,
ved. red.; VORONOVA, V.V., tekhn. red.

[Unified time norms for bench repairing of boring machinery]
Edinye normy vremeni na slesarnyi remont burovyogo oborudovaniia.
Moskva, Gostoptekhizdat, 1963. 178 p. (MIRA 16:8)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po voprosam truda i zarabotnoy platy.
(Boring machinery--Maintenance and repair)

RYABTSEV, N.I., red.; BUKHIN, V.Ye., red.; VIGDORCHIK, D.Ya., red.;
IVANOV, N.P., red.; KNAPP, K.K., red.; KOZLOV, S.S., red.;
PROFERANSOV, V.P., red.; SLOBODKIN, M.S., red.; SHAPOVATOV,
L.P., red.; B KOVA, L.B., ved. red.; KORSUN, Ye.P., red.;
USHAKOVA, A.F., ved. red.; POLOSINA, A.S., tekhn. red.

[Gas equipment, apparatus, and fittings; reference book]Ga-
zovoe oborudovanie, pribory i armatura; spravocnoe rukovod-
stvo. Moskva, Gostoptekhizdat, 1963. 469 p. (MIRA 16:4)
(Gas, Natural--Pipelines) (Gas appliances)

USHAKOVA, A.F., ved. red.

[Standards for servicing equipment and quantity norms for workers in the drilling bureau] Normy obsluzhivaniia oborudovaniia i normativy chislennosti rabochikh dlia kontor bureniia. Moskva, Izd-vo "Nedra," 1964. 70 p.
(MIRA 17:5)

1. Moscow. Tsentral'noye byuro promyshlennykh normativov po trudu.

USHAKOVA, A.G.; ZHARKOV, V.V.; MIRONOVA, V.N.

Quantitative determination of the reaction products obtained
in the preparation of butyric anhydride. Zav. lab. 29 no.6:
699-701 '63. (MIRA 16:6)

1. Vladimirskiy nauchno-issledovatel'skiy institut sinte-
ticheskikh smol.
(Butyric anhydride) (Spectrum, Infrared)

USHAKOVA, A. I.

Ushakova, A. I. -- "Pregnancy, Childbirth, and the Puerperal Period in Ascariidosis." Ivanovo State Medical Inst. Ivanovo, 1956. (Dissertation For the Degree of Candidate in Medical Sciences).

So: Knizhnaya Letopis', No. 11, 1956, pp 103-114

USHAKOVA, A.I., assistant

Capillaroscopic changes in late pregnancy toxemia. Sbor. nauch. trud. Ivan. gos. med. inst. no.28:318-322 '63.

(MIRA 19:1)

1. Iz kafedry akusherstva i ginekologii (ispolnyayushchiy obyazannosti zav. kafedroy - dotsent M.A. Timokhina) Ivanovskogo gosudarstvennogo meditsinskogo instituta (rektor - dotsent Ya.M. Romanov), na baze 3-go roditel'nogo doma (glavnyy vrach N.K. Beransevich).

USHAKOVA, A.I.

Pregnancy in woman with ascariasis. Med.paraz. i paraz.bol. 27 no.3
360 My-Je '58 (MIRA 11:7)

1. Iz kafedry akusherstva i ginekologii Ivanovskogo meditsinskogo
instituta (zav.kafedroy - prof. I.B. Levit).
(PREGNANCY, COMPLICATIONS OF)
(ASCARDIS AND ASCARIASIS)

YEMALOVA, A. S., LUKASHIN, A. I., GIBLIN, A. A., FRIEDL, V. H., KAMIN, A. T., SCOTNIK, S. I., KROKHIN, K. V., STRANDEL, L. S.

"Experience of psychological substantiation and indication of rational nutrition for workers in hot shops."

report submitted at the 13th All-Union Congress of Hygienists, Epidemiologists and Infectionists, 1969.

USHAKOVA, A.M.

Luminescence method for determining small quantities of uranium
in potassium salts. Ukr. khim. zhur. 24 no.4:495-498 '58.

1. Kiyevskiy gosudarstvennyy universitet im. T.G. Shevchenko.
(Uranium--Analysis) (Potassium salts--Analysis)

USHAKOVA, A.M.

Radioactivity of rocks in the Perzhanskiy intrusive complex.
Geokhimiia no.4:354-357 '61. (MIRA 14:5)
(Ukraine--Granite)
(Radioactive substances)

S/075/63/018/001/008/010
E075/E436

AUTHOR: Ushakova, A.M.

TITLE: The luminescent determination of uranium, cerium and niobium

PERIODICAL: Zhurnal analiticheskoy khimii, v.18, no.1, 1963, 79-81

TEXT: The author investigated the effect of Ca, Mg, Th, Mn, Zn, Nd, Nb and Ce on the luminescence of beads of NaF with dissolved U irradiated with ultraviolet light. Different concentrations of the impurities (0.001 to 1%) were added to the beads containing 5×10^{-7} g U per 50 mg of NaF. Mg, Ca and Mn inhibited the luminescence more than the other elements and Th, Zn and Nd had little effect. The extinction gradients for Mg and Ca are 1.2 g U/0.01% Mn and 2.0 g U/0.01% Ca respectively (at concentrations of 0.05 to 0.1%). At 0.01 to 0.05% concentrations Mg and Ca give gradients equal to 0.55 g U/0.01% Mg and 0.72 g U/0.01% Ca respectively. Ce in amounts greater than 0.001% has a red luminescence. The luminescence intensity depends on the cerium concentration. There is no luminescence at concentrations of Ce equal to or less than 0.001%. This may permit the determination

Card 1/2

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The luminescent determination ...

S/075/63/018/002/008/010
E075/E436

of more than 0.001% Ce by the luminescence method. Nb gives a characteristic luminescence different from that of U, which can be used for its determination at concentrations greater than $5 \times 10^{-5}\%$. There is 1 figure.

ASSOCIATION: Institut geologicheskikh nauk AN UkrSSR, Kiyev
(Institute of Geological Sciences AS UkrSSR, Kiyev)

SUBMITTED: May 29, 1962

Card 2/2

KANTER, D.TS.; USHAKOVA, A.N.; SOKOLOVA, V.A.

Waterless combing oil preparation for treating acetate silk. Khim.-
volok. no.6:44-46 '61. (MIRA 14:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo
volokna.

(Rayon)

USHAKOVA, A.M.

Use of microradiographic methods in the radiological study of rocks.
Min.sbor. 18 no.2:217-218 '64. (MIRA 18.5)

1. Institut geologicheskikh nauk AN UkrSSR, Kiev.

USHAKOVA, A.P.

Advantage of the ammonium base is obvious. Bum.prom. 37 no.1:
8-9 Ja '62. (MIRA 15:1)

1. Nachal'nik laboratorii i otdela tekhnicheskogo kontrolya
Voloshskogo zavoda.
(Voloskoye—Woodpulp)
(Ammonium salts)

USHAKOVA, A.S.,
E. S. SAVTCH, Ukrain. Biokhem. Zhur. 9, 765-77 (1936)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

1ST AND 2ND CODES

PROCESSES AND PROPERTIES INDEX

117

The influence of the urine of pregnant animals on the development of the growing organism. E. K. Kratinova and A. S. Ushakova. *J. Physiol. (U. S. S. R.)* 22, 698-703 (in English 703) (1957). Chicks receiving injections of urine prepn. of pregnant and nonpregnant women, mares in and out of foal and cows with calf showed a greater increase in wt. and muscle fat than control chicks. The urine prepn. of cows without calf had no effect. S. A. Karjala

COMMON ELEMENTS

NATURAL MOIST

ASPH. SLA METALLURGICAL LITERATURE CLASSIFICATION

REGION SYMBOL

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USHAKOVA, A.S.,
O.I. FAINSHMIDT, Biokhimiya 5, No. 1, 12-24 (1940)

USKOV, A.S.

63

PHASE I BOOK EXPLOITATION

SOV/4986

Solodovnikov, Vladimir Viktorovich

Statisticheskaya dinamika lineynykh sistem avtomaticheskogo upravleniya (Statistical Dynamics of Linear Systems in Automatic Control) Moscow, Fizmatgiz, 1960. 655 p. 10,000 copies printed.

Ed.: O. K. Sobolev; Tech. Ed.: N. Ya. Muratova.

PURPOSE: This advanced textbook is intended for university engineering students, research scientists, and practicing engineers concerned with the design and calculation of the performance of linear control systems, particularly those subject to random inputs.

COVERAGE: The book deals with the mathematical theory, operating characteristics, and the design of linear servo-control systems, particularly those required to operate under conditions of random inputs. The book develops the usual theory of linear systems subject to specified input functions and then proceeds to extend

Card 1/19

Statistical Dynamics (Cont.)

SOV/4986

this theory with the methods of mathematical statistics and the theory of random processes. It is partially based on the contents of an earlier book of the author, entitled Vvedeniye v statisticheskuyu dinamiku sistem avtomaticheskogo upravleniya (Introduction Into The Statistical Dynamics Of Automatic Control Systems), published in 1952. This volume, however, has been enlarged to about twice the size of the previous text, and many chapters have been entirely rewritten. Included are completely new chapters dealing with problems of analysis and synthesis of systems with variable parameters, discrete systems, devices and methods of treatment of experimental data, the general theory of synthesis on the basis of the concepts of the theory of games and decision functions, the synthesis of servosystems, and the analysis and synthesis of variable and discrete systems. The following scientists participated in the writing of this book: A. M. Batkov (Chapters X and XI) and L. T. Kuzin (Chapters XII and XIII). A number of sections were written by the author jointly with other scientists: section 9 of Chapter IV, and sections 6 to 9 of Chapter V

Card 2/19

. Statistical Dynamics (Cont.)

SOV/4986

with A. S. Uskov; section 18 Chapter VII with Yu. S. Val'denberg; sections 1, 2, 9 to 14 of Chapter VIII, and sections 1, 2, 6, of Chapter IX with P. S. Matveyev; and section 5 of Chapter IX with V. P. Alekperov. Section 4 of Chapter IX was written by E. N. Sorenkov. In addition to a very large number of footnotes, there are 154 references: 91 Soviet (18 of which are translations), 42 English, and 3 French.

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Card 9/19

RYABKOV, G.Ye.; GARDIN, A.S.; MYSTIKOVA, G.G.; TSIKOVA, A.V.

Clinical aspects and laboratory diagnosis of liver angiofibrosis in horses producing therapeutic sera. *Vet. Zh.* 1983. (MIRA 18:8)

1. *Prilozheniye k zhurnalu "Vet. Zh."* Gamalet AMN SSSR.

USPARKOVA, N. V.; *SHEVJUNOVA, Ye. A.; ZASUKHIN, D.M. and MISHCHENKO, N.K.

"Serological Research of Domestic Animals for Toxoplasmosis"

Voprosy toksoplazmoza, report theses of a conference on toxoplasmosis,
Moscow, 3-5 April, 1961; publ. by Inst Epidemiology and Microbiology
im. N. F. Gamaleya, Acad. Med. Sci USSR, Moscow, 1961, 69pp.

*IEM im Gamaleya AMN SSSR, Moscow

SHAPOSHNIKOVA, O.A., st. nauchnyy sotr.; USHAKOVA, A.V., st. nauchnyy sotr.; DERGACHEVA, A.G., st. nauchnyy sotr.; VANCHIKOV, A.N., prof.; PLETNIKOVA, K.N.; IVANOVA, L.G.; LABUZOVA, Z.I.; DERYUZHIN, V.G., red.; NOSKOVA, P.F., red.; POTAPOVA, N.L., tekhn. red.

[Processing of lavsan in a blend with cotton and viscose fibers] Pererabotka lavsana v smesi s khlopkom i viskoznyim voloknom. Moskva, 1962. 55 p. (MIRA 16:4)

1. Tsentral'nyy institut nauchno-tekhnicheskoy informatsii legkoy promyshlennosti.
(Spinning) (Synthetic fabrics)

GINDIN, A.P.; OGIYENKO, N.M.; USHAKOVA, A.V.

Ribonucleic acid in the blood lymphocytes in adrenaline
lymphocytosis. *Biul. eksp. biol. i med.* 54 no.9:62-64
S. '62. (MIRA 17:9)

1. Iz Instituta epidemiologii i mikrobiologii imeni N.F.
Gamalei (dir.- prof. P.A. Vershilova) AMN SSSR, Moskva.
Predstavleno deystvitel'nym chlenom AMN SSSR. G.V.
Vygodchikovym.

USHAKOVA, A. Ye.

RUSAKOVA, M.S., meditsinskaya sestra; USHAKOVA, A.Ye., meditsinskaya sestra

Care of patients with congenital and acquired heart defects. Med.
sestra 16 no.9:23-25 S '57. (MIRA 11:1)

1. Iz 1-go khirurgicheskogo otdeleniya Instituta khirurgii imeni
A.V.Vishnevskogo AMN SSSR.
(HEART--DISEASES AND DEFECTS)
(NURSES AND NURSING)