GLAZKOV, P.G., inzh.; SLADKOSHTEYEV, V.I., kand.tekhn.nauk; [illegible], [illegible], inzh.; OPENGEYDEN, A.M., inzh.; [illegible], V.M., kand.tekhn.nauk; MOROZOV, P.F., inzh.; Prichimali uchastiye: MAKAROV, [illegible]; [illegible], I.I.; YELISEYEV, A.V.; YEVTUSHENKO, V.P.; SHILOV, V.[illegible]; [illegible], Yu.Z.; SHIMKO, A.N.; ZELENOV, S.N.; [illegible], V.Ya.; [illegible]; VYSOTSKAYA, T.M.

Investigating the operation of multiple-slit continuous steel casting arrangements. Trudy Ukr. nauch.-issl. inst. met. no.[illegible]-[illegible], '61. (Mira [illegible]

(Continuous casting--Equipment and supplies)

OSIPOV, V.S.

Evaluating the degree of deformation during simple compression tests. Trudy Inst.met. no.9:61-66 '62. (MIRA 16:5)
(Metals—Testing)

GLAZKOV, F.G., inzh., GRIGOR'YEV, F.N., inzh.; MURZOV, K.I., inzh.; SLAVKOVITYEV, V.T., inzh., Prinimali uchastiye: MALAKHA, A.V.; POKRASS, L.M.; DRUZHININ, I.I.; OSIPOV, V.G.; KOVRATYUK, A.M.; POLYAK, V.I., SOKOLYENKO, M.S.; PAVLOV, M.T.; KOPYTIN, A.V.; PARASHCHENKO, R.A.; POTAKIN, R.V.; AKHTYRSKIY, V.I.; BRUK, S.M.; YEVTUSHENKO, V.V.; LEYTES, A.V.; STRELETS, V.M.

Continuous casting of 14[illegible]-ton steel heats with four-channel equipment. Stal' 25 no. 6 (561-567 Je '65. (MIRA 18:7)

S/509/62/000/009/002/014
D207/D308

AUTHORS: Danil'chenko, A. N. and Osipov, V. G.

TITLE: Plasticity and reliability of low-alloy steel at high temperatures

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Trudy, no. 9, Moscow, 1962. Voprosy plasticheskoy deformatsii metalla, 78-81

TEXT: Rolling tests were carried out on the low-alloy steel НЛ-2 (NL-2) because low-alloy steels are recommended by the new standard ГОСТ 5058-57 (GOST 5058-57) for structural purposes instead of carbon steels of the СТ3 (ST3) type. The NL-2 steel corresponds to the 15ХСНД (15KhSND) chrome-nickel-copper steel in GOST 5058-57. Samples of NL-2 (45 x 100 x 300 or 45 x 50 x 300 mm in size) were deformed to various degrees (from 9 to 91%) by rolling between 400 mm diameter rolls at 1150 - 1200°C at the beginning of a pass and 700 - 900°C at the end of it. In some cases the initial temperature was 1000 - 1050°C. The following conclusions were drawn:

Card 1/2

GRIGOR'YEV, F.N.; DRUZHININ, I.I.; OSIPOV, V.G.

Pouring 26 tons of steel by continuous steel casting equipment without interrupting the flow. Metallurg 7 no.7:22 Jl '62. (MIRA 15:7)

1. Donetskiy metallurgicheskiy zavod.
(Continuous casting)

S/130/62/000/007/001/001
A006/A101

AUTHORS: Grigor'yev, F. N., Druzhinin, I. I., Osipov, V. G.

TITLE: Teeming 250 tons of steel on a continuous casting unit [illegible] (UNRS) without interrupting the steel stream

PERIODICAL: Metallurg, no. 7, 1962, 22

TEXT: At the Donetsk Metallurgical Plant a system became operative in March 1961 for the continuous teeming of steel on a four-runner unit. In the past year tests were successfully performed with continuous-casting two heats without interrupting the metal stream. A total amount of 257.17 tons of steel was cast under conditions given in a table, which shows that over 70 tons of metal were passed through each of the three nozzles of the intermediate ladles. Teeming was performed through zirconium nozzles 22 mm in diameter, 18.8 - 19.2% porosity, 2.97 - 3.01 g/cm^3 volumetric weight, 1,900°C heat resistance, and 53% ZrO_2 and 0.54% Fe_2O_3 content. Considering the successful casting of 140-ton heats with two runners (70 tons through each nozzle) the possibility of casting 250-ton heats with the aid of 4 runners is practically proved. There are 1 figure and 1 table.
ASSOCIATION: Donetskiy metallurgicheskiy zavod (Donetsk Metallurgical Plant)

Card 1/1

DANIL'CHENKO, A.N.; OSIPOV, V.G.

Plasticity and roll-ability of low-alloy steel at high temperatures.
Trudy Inst.met. no.9:78-81 '62. (MIRA 16:5)
(Steel--Testing)

PAVLOV, I.M. (Moskva); OSIPOV, V.G., (Moskva)

Consecutive patterns of the strained state in a disk under impact. Izv. AN SSSR. Otd. tekh. nauk. Met. i gor. delo no.2: 112-115 Mr-Ap '63. (MIRA 16:10)

L 63458-65 EWT(m)/EWP(w)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c)
ACCESSION NR: AR5015174 JD/HW UR/0137/65/000/005/D007/D007

SOURCE: Ref. zh. Metallurgiya, Abs. 5D41

AUTHOR: Osipov, V. G.

TITLE: Basic methods of studying the ductility of metals during pressure working

CITED SOURCE: Sb. Plast. deformatsiya met., M., Nauka, 1964, 36-42

TOPIC TAGS: ductility, metal temperature dependence, high temperature phenomenon, low temperature phenomenon, metal rolling, impact stress, torsion stress

TRANSLATION: A critical review is given of existing methods of determining ductility: a method for determining ductility at different temperatures is proposed. At room temperature, all the mechanical properties of a material are determined from analysis of flow curves, which it is expedient to construct in the form of belts of flow in the optimum coordinates (true octahedral stress and shift). Study of the ductility properties of a metal at high temperatures is generally carried out

Card 1/2

L 63458-65

ACCESSION NR: AR5015174

by methods which by their nature approach industrial tests, since at high temperatures it is difficult to carry out investigations under conditions of a homogeneous diagram of the state of stress. The method of S. I. Gubkin was adopted as the basis of the study. A method for the study of rollability is examined in detail. The advantages of the method of rolling wedge shaped samples with notches are pointed out. Impact viscosity is not suitable as a method for determining ductility. The torsion method does not yield good practical results for the ductility, but proves out well as a theoretical method. A new method involving resistance heating is proposed for investigating the ductility of high melting metals. In this method, the samples can be deformed according to various deformation schemes at temperatures up to 1800C. In the group of tests, it is proposed to carry out an investigation of the effect of cooling on ductility. V. Osipov

SUB CODE: MM ENCL: 00

Card 2/2

L 14968-65 EWT(m)/EWA(d)/EWP(k)/EWP(t)/EWP(b) Pf-4 MJW/JD/HW/MLK
ACCESSION NR: AT4047722 S/0000/64/000/000/0054/0062

AUTHOR: Osipov, V. G.

TITLE: Plasticity of EYa3S steel

SOURCE: AN SSSR. Institut metallurgii. Plasticheskaya deformatsiya metallov (Plastic deformation of metals). Moscow, Izd-vo Nauka, 1964, 54-62

TOPIC TAGS: high alloy steel, alloy steel, alloy steel strength, alloy steel ductility / steel EYa3S

ABSTRACT: Due to the wide use of EYa3S steel and its modifications, the author has investigated the plasticity of this steel at high temperatures in detail in order to determine its properties during pressure working. Steel containing 0.30% C, 0.018% P, 0.010% S, 0.69% Mn, 17.00% Cr, 21.20% Ni, and 2.54% Si was tested for rolling of wedge-shaped samples, static elongation, impact elongation, impact compression and impact bending with shear. The samples for rolling were 100 mm long, 20 mm wide, height 10 mm at one side and 2 mm at the other side. The samples for static elongation had 36 mm between heads, a working length of 30 mm, and a working part 6 mm in diameter; they were tested on a 5-ton GZIP machine at rates of 0.81 and 0.19 m/sec. Impact elongation and resilience were tested on the GZIP-MK-30 drop hammer with an inertia of 34 kgm and an initial impact velocity of 5.66

Card 1/2

L 14968-65

ACCESSION NR: AT4047722

m/sec. Impact compression was tested with a vertical drop hammer weighing 5, 10, 15, 20, 30, 40, 60 or 80 kg from heights of 5 and 2.5 m and a velocity at initial impact of 9.9 and 7.0 m/sec. The samples were 10 mm cubes. Besides, deformation resistance, ductility and other properties were tested. On the basis of the results obtained, the author concludes that EYa3S steel should be rolled at 1150-900C, which allows 50-60% compression without failure. Deformation resistance of steel while rolling should be calculated on the basis of tests of static and impact elongation, rather than from impact compression tests. Deformation resistance increases in direct proportion to the rate of deformation, especially at high temperatures. The plasticity of EYa3S steel does not depend significantly on the deformation rate. Finally, the deformability of EYa3S steel is negative at temperatures above 1240C. Orig. art. has: 12 figures, 8formulas and 1 table.

ASSOCIATION: Institut metallurgii AN SSSR (Institute of Metallurgy, AN SSSR)

SUBMITTED: 01Jul64 ENCL: 00 SUB CODE: MM

NO REF SOV: 004 OTHER: 000

Card 2/2

L 15190-65 EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(b) Pf-4 MJW/JD/HW/MLK
ACCESSION NR: AT4047723 S/0000/64/000/000/0063/0067

AUTHOR: Osipov, V. G.

TITLE: Plasticity of alloy E1435

SOURCE: AN SSSR. Institut metallurgii. Plasticheskaya deformatsiya metallov (Plastic deformation of metals). Moscow, Izd-vo Nauka, 1964, 63-67

TOPIC TAGS: alloy steel, alloy plasticity, alloy strength, alloy ductility / alloy E1435

ABSTRACT: Due to the wide use of alloy E1435, the author has studied the plasticity of this alloy at high temperatures under pressure working in some detail. The methods were the same as those used for testing EYa3S steel. Wedge-shaped samples 10 and 2 mm high were rolled to 2 mm during one pass, with compression thus varying from 80% to zero. Static elongation tests were performed on a pendulum drop hammer with viscous rupture at 700-900C, complex rupture at 900-1000C, and brittle rupture at 1100-1200C. Impact compression was tested with a vertical drop hammer with 10 mm cubes at 1300-1400C. Resilience was measured at 20-1300C. The deformation resistance was found to be determined more accurately during static tests. Ductility was determined from the plasticity curve under impact compression. The plasticity of the alloy at high temperatures (above 900C) was

Card 1/2

L 15190-65
ACCESSION NR: AT4047723

higher for static than for impact elongation but the relationship was reversed at 700-800C. The decrease in plasticity of the alloy at 1350-1390C is explained by the appearance of fluid eutectics due to additional heating during plastic impact deformation. The effect of deformation rate increases in direct proportion to the increase in temperature. "The study was carried out under the guidance of S. I. Gubkin, Acting Member of the AN BSSR. "Orig. art. has: 5 figures.

ASSOCIATION: Institut metallurgii AN SSSR (Institute of Metallurgy, AN SSSR)

SUBMITTED: 01Jul64 ENCL: 00 SUB CODE: MM

NO REF SOV: 008 OTHER: 000

Card 2/2

L 15192-65 EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(b) Pf-4 ASD(m)-3 MJW/JD/HW/MLK

ACCESSION NR: AT4047224 S/0000/64/000/000/0068/0072

AUTHOR: Osipov, V. G.

TITLE: Effect of cooling on plasticity

SOURCE: AN SSSR. Institut metallurgii. Plasticheskaya deformatsiya metallov (Plastic deformation of metals). Moscow, Izd-vo Nauka, 1964, 68-72

TOPIC TAGS: alloy steel, heat resistant steel, alloy plasticity, alloy ductility / alloy EI435, alloy EYa3S

ABSTRACT: When metals are worked at high temperatures under pressure, the metal is first cooled while being conveyed from the furnace to the mill, and then again during working and at the end of working. This alters the phase structure of the metal, varying the crystal lattice, the mixture composition and the metastability of the alloy. The author therefore investigated the effect of cooling on the properties of steel. Previous studies on E31, E10, EKh2 and chromium-molybdenum steel showed wide differences in the effect of cooling on plasticity. Cooling prior to deformation may either lower or increase plasticity and in some cases does not affect the mechanical properties. The present author employed similar methods and samples to study the effect of the rolling temperature on plasticity of EYa3S steel. Isotherms are shown which demonstrate that cooling during impact

Card 1/2

L 18192-65
ACCESSION NR: AT4047224

2

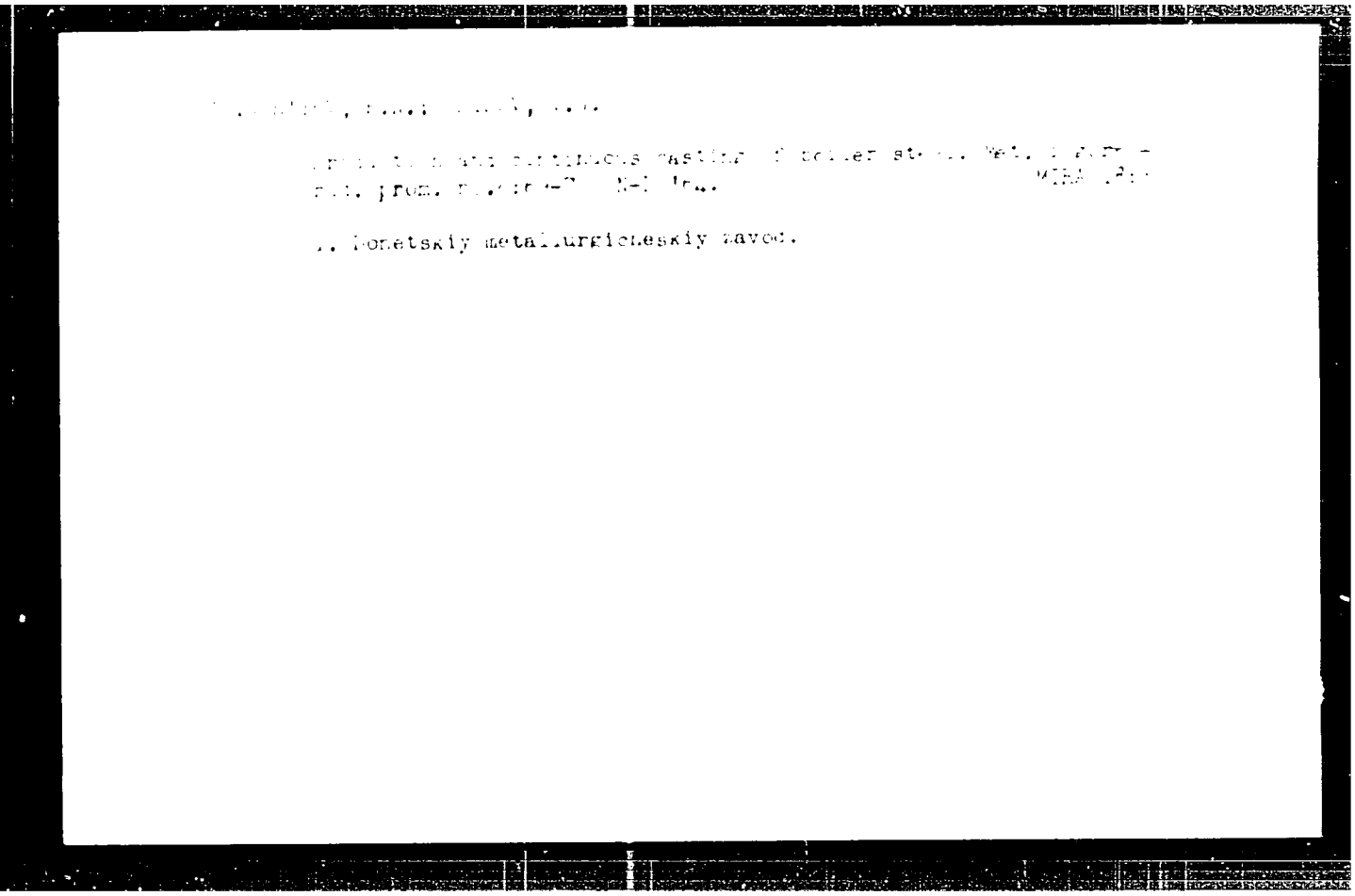
deformation of EYa3S steel lowers the plasticity under both tension and compression for all deformation temperatures. Pre-cooling, however, depending on its degree, the alloy structure and the deformation temperature, may either increase or decrease plasticity. At a deformation temperature of 1250C pre-cooling of 100C leads to lower plasticity (almost 50%), while at 1200C pre-cooling of 100C increases plasticity 3%, and at 1000C pre-cooling of 240C increases plasticity 14%. Anomalies of plasticity are connected with the crystal lattice of the alloys, as well as their metastability. Thus, studies on plasticity should be included in tests on the effect of cooling. The present studies on heat-resistant alloys showed that cooling of EYa3S steel leads to lowering of plasticity in almost all cases. Cooling of alloy E1435 may increase and decrease plasticity, depending on the deformation procedure and temperature. During deformation of E1435 alloy melts, it is advisable to pre-cool the billets before pressure working. "The study was carried out under the guidance of S. I. Gubkin, Acting Member of the AN BSSR." Orig. art. has: 4 figures.

ASSOCIATION: Institut metallurgii AN SSSR (Institute of Metallurgy, AN SSSR)

SUBMITTED: 01Jul64 ENCL: 00 SUB CODE: MM

NO REF SOV: 006 OTHER: 000

Card 2/2



.. Donetskiy metallurgicheskiy zavod.

L 15191-65 EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(b) Pf-4/Pad MJW/JD/HW/MLK
ACCESSION NR: AT4047725 S/0000/64/000/000/0073/0078

AUTHOR: Osipov, V. G.

TITLE: Plasticity of alloy E1437

SOURCE: AN SSSR. Institut metallurgii. Plasticheskaya deformatsiya metallov (Plastic deformation of metals). Moscow, Izd-vo Nauka, 1964, 73-78

TOPIC TAGS: alloy steel, alloy strength, alloy plasticity, alloy ductility / alloy E1437

ABSTRACT: Alloy E1437 was tested for plasticity in the same way as alloys EYa3S and E1435, after which static and impact elongation were determined by improved methods described in detail in the present paper. The samples and the devices for static and impact elongation testing are illustrated. For static elongation, the sample is enclosed in a furnace; after rupture, the sample is removed from the furnace and air hardened. Impact elongation was tested on the MK-30 machine, in which the sample is heated by a coil; the main deficiency of this method is cooling of the sample prior to impact. Consequently, a new device was attached for eliminating this defect. When the old and new methods were compared, the results showed that the old method gave incorrect results. It was found that the alloy has maximum plasticity at 1000-1150C, while at temperatures above 1200C the

Card 1/2

L 15191-65
ACCESSION NR: AT4047725

4

plasticity drops sharply, reaching zero at 1250C. This is explained by the low eutectic temperature of the Ni-Ni_3Ti components, which is very important for impact plasticity. On the basis of approximate data for static elongation, it was found that the metal is hardened at all testing temperatures. Increasing the deformation rate at 800 and 900C leads to an increase in plasticity. This may be explained by unknown phase transformations at these temperatures. At 1000C there are no changes, while at 1100C and over (especially at 1250C) the plasticity drops sharply with an increase in the deformation rate. The author concludes that the best procedure for hot mechanical working of alloy E1437 is a rolling temperature of 1000-1200C and a maximum compression of 45-50%. The effect of cooling during impact testing showed that pre-cooling lowers the plasticity at 1000C almost 50%. "The study was carried out under the guidance of S. I. Gubkin, Acting Member of the AN BSSR." Orig. art. has: 7 figures.

ASSOCIATION: Institut metallurgii AN SSSR (Institute of Metallurgy, AN SSSR)

SUBMITTED: 01Jul64 ENCL: 00 SUB CODE: MM

NO REF SOV: 000 OTHER: 000

Card 2/2

L 36724-65 EWP(k)/EWA(c)/EWT(m)/EWP(b)/EWA(d)/EWP(t) Pf-4/Pad IJP(c) MJW/JD/HW/JG/GS

ACCESSION NR: AT4047726 S/0000/64/000/000/0079/0080

37
B+1

AUTHOR: Osipov, V. G.

TITLE: Effect of titanium on the plasticity of a chromium-nickel alloy

SOURCE: AN SSSR. Institut metallurgii. Plasticheskaya deformatsiya metallov (Plastic deformation of metals), Moscow, Izd-vo Nauka, 1964, 79-80

TOPIC TAGS: titanium, chromium alloy, nickel alloy, dispersion hardening, alloy plasticity, plastic deformation, phase transformation / EI435 alloy, EI437 alloy

ABSTRACT: Previous investigations into the effect of titanium on the plasticity of the chromium-nickel alloys EI435 and EI437 lead to some important conclusions. Thus, the EI435 alloy differs from the EI437 alloy in the Ti content, the first containing 0.27% Ti and the second 2.7% Ti. Consequently, by comparing the plasticity of these alloys, the effect of Ti on plasticity at different stresses and varying temperatures can be evaluated. Analysis indicates that increasing Ti content lowers the plasticity at low temperatures under pressure, as well as at high temperatures. At intermediate temperatures (1000-1200C), however, plasticity increases; the temperature interval of pressure working is lowered; deformation re-

Card 1/2

L 36724-65

ACCESSION NR: AT4047726

sistance increases; hardening increases at high temperatures, while at 800-1000C plasticity is lowered as the deformation rate drops. Addition of titanium to the alloy, especially to nickel, leads to increased interatomic bonding, causing loss of plasticity at certain temperatures. Lowering of plasticity as the deformation rate drops contradicts existing theories of metals, this being caused by additional phase transformations. It was found that the dispersion hardening of this alloy is connected with separation of a new α' phase of the intermetallide type from the solid solution. At 600-800C the new phase is separated as dispersion formations concentrated at the grain boundaries and slippage planes. The alloy is therefore strengthened. It is obvious that the presence of the second phase lowers the plasticity of the alloy at temperatures below 900C, while intensive separation during slow plastic deformation creates a plasticity anomaly. Orig. art. has: 1 figure.

ASSOCIATION: None

SUBMITTED: 01Jul64 ENCL: 00 SUB CODE: MM

NO REF SOV: 002 OTHER: 000

Card 2/2

L 15189-65 EWT(m)/EWA(d)/EWF(t)/EWP(k)/EWP(b) Pf-4 MJW/JD/HW/MLK

ACCESSION NR: AT4047727 S/0000/64/000/000/0084/0087

AUTHOR: Osipov, V. G.; Drobyshsheva, Ye. K.

TITLE: Investigation of the plasticity of steel for valves by a new method of compression testing on a crank press

SOURCE: AN SSSR. Institut metallurgii. Plasticheskaya deformatsiya metallov (Plastic deformation of metals). Moscow, Izd-vo Nauka, 1964, 84-87

TOPIC TAGS: valve steel, compression testing, steel plasticity / steel E169, steel E166, steel KhSR

ABSTRACT: In testing grades E169, E166 and KhSR heat-resistant valve steel for plasticity, it is advisable to use only one testing method due to the insufficient quantities of metal. Since the valves are made by upsetting, impact compression testing seems suitable. Previously, a vertical drop hammer was used, but it has now been found that a crank press available in the laboratory can do the same job just as well. The advantage of this press is that it can be set for any degree of deformation, yielding a precise determination of plasticity. In the present work, a 100-ton crank press produced by the Barnaul Factory, type K-117A, with 75 strokes per minute was used. The samples, which had the same diameter as the valves, were heated in a 6 kW furnace. Both finished and rough rods were tested

Card 1/2

L 15189-65
ACCESSION NR: AT4047727

In order to consider rolling defects. It is known that failure of the samples starts at the middle with respect to height, where the sample diameter is the largest. This excludes inequality of deformation, and deformation can therefore be measured at the place of rupture. The sample diameter is measured before and after deformation by a gauge. Instead of deformation in height (usually shown in equations), the author uses deformation in diameter as measured on an actual sample. The results showed that the previously proposed method of plasticity calculation at the maximum diameter is completely valid, especially for upsetting. Investigations of E169, E166 and KhSR valve steel on a crank press showed that from the point of view of upsetting E169 steel has the highest plasticity and KhSR steel the lowest. Orig. art. has: 5 figures and 6 formulas.

ASSOCIATION: Institut metallurgii AN SSSR (Institute of Metallurgy, AN SSSR)

SUBMITTED: 01Jul64 ENCL: 00 SUB CODE: MM

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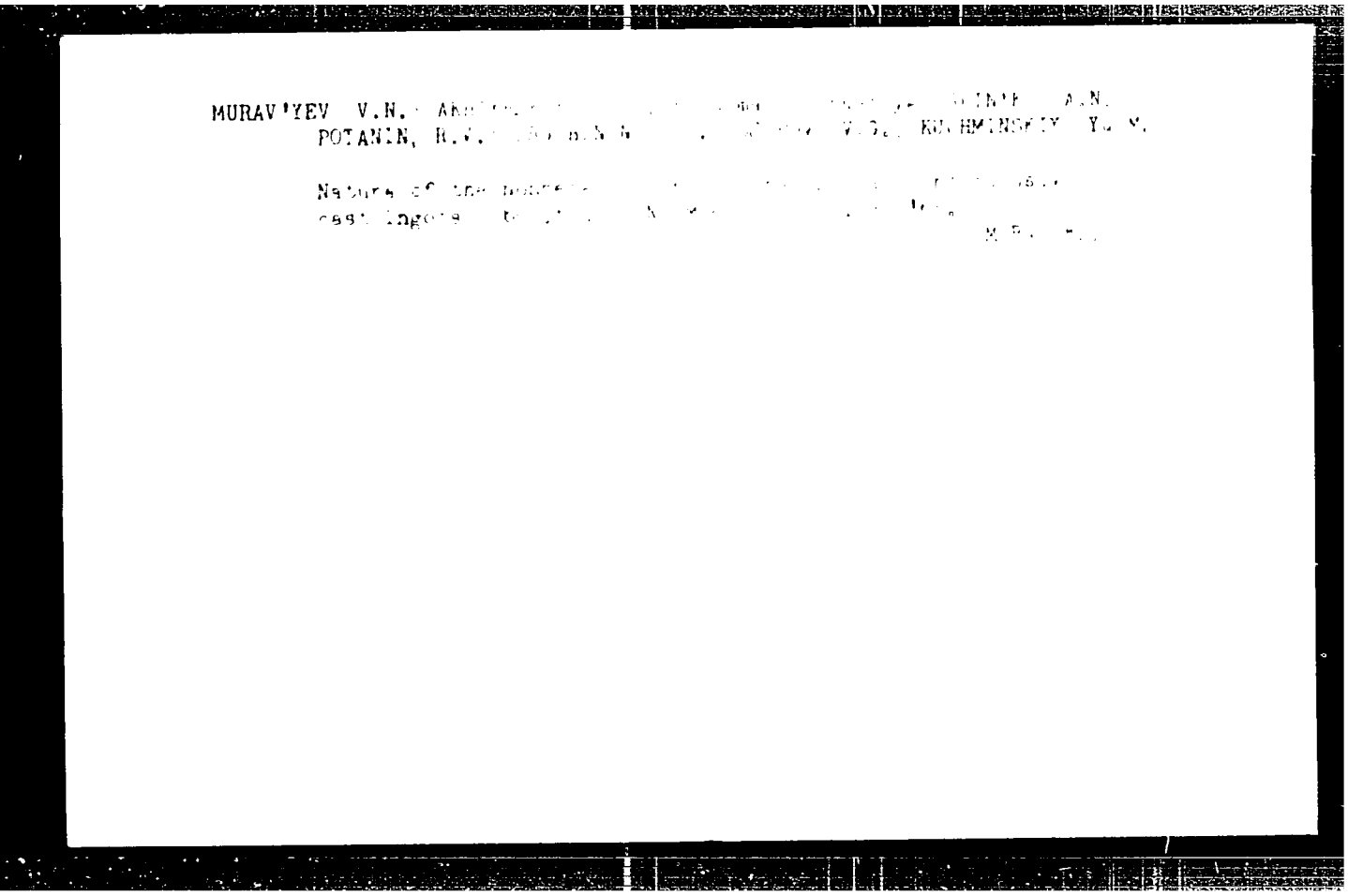
Card 2/2



MURAV'YEV V.N.
POTANIN, B.V.

SLADKOSHTEYEV, V.T.; ANKUDINOV, [illegible] [illegible] [illegible] Yu.M.; SHIN'KO, A.N.; Primachenko, [illegible] [illegible] F.N.; [illegible]SHININ, I.I.; OSIPOV, V.G.; TARA[illegible] [illegible] A.V.; [illegible], A.Ye.; KHAVALADZHI, V.I.; [illegible]

Material balance of sme[illegible] [illegible] [illegible]ating. Sbor.trud. UNIIM no.11:1[illegible]-130 '6[illegible].

(MIRA 18:[illegible])

L 46773-66 EWP(e)/EWT(m)/EWP(w)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/HW/JG
ACC NR: AP6031731 SOURCE CODE: UR/0182/66/000/009/0024/0025

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

ORG: none

TITLE: Mechanical properties and structure of sintered molybdenum sheets used for deep drawing

SOURCE: Kuznechno-shtampovochnoye proizvodstvo, no. 9, 1966, 24-25

TOPIC TAGS: sintered molybdenum, sintered molybdenum sheet, metal property, metal drawing, SOLID MECHANICAL PROPERTY, METAL FORMING, MOLYBDENUM, SHEET METAL

ABSTRACT: A series of experiments was conducted to determine the effect of heat treatment on the mechanical properties and deep drawing characteristics of sintered molybdenum sheets. Specimens, 0.5 mm thick and 5 mm wide, annealed at temperatures ranging from 800 to 1600C, were first subjected to tensile tests. It was found that the strength and hardness of molybdenum steadily decreases with increased temperature of annealing. Elongation first increases, reaches a maximum with an annealing temperature of 1300C, and then drops sharply. To determine the effect of heat treatment on the formability of molybdenum in deep drawing, the specimens annealed at temperatures from 800 to 1600C were deep drawn through a die 20 mm in diameter. The formability was evaluated from the coefficient of reduction $K_B = D_{max}/d$, where D is

UDC: 621.983.3

Card 1/2

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: molybdenum powder, molybdenum alloy, metal drawing, metal cupping, elongation / MCh 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

Card 1/2 UDC: 621.983.3

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

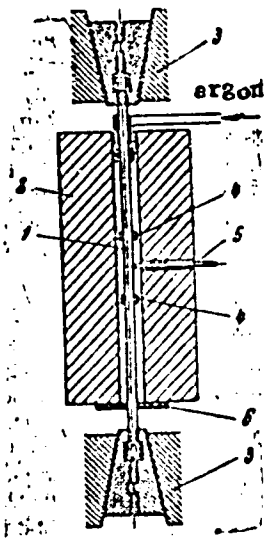
TITLE: Methods of tensile and torsion tests of thin rods at elevated temperatures

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 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

Card 1/3



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 air-tight 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 - thermo-couple; 6 - washer

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.

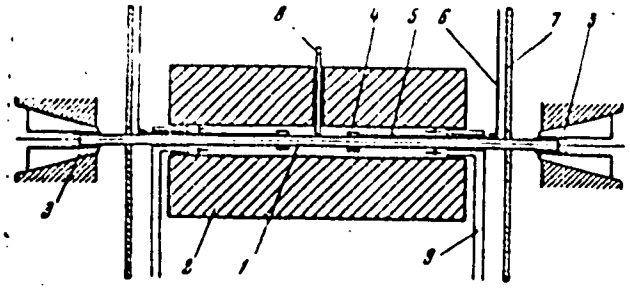


Fig. 2. Schematic of torsion test

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.

SUB CODE: 13, 20, 11/ SUBM DATE: 27Sep66/ ORIG REF: 003/ OTH REF: 001

Card 3/3

ACC NR: AT7004418 SOURCE CODE: UR/0000/66/000/000/0099/0102

AUTHOR: Osipov, V. G.; Drobysheva, Ye. K.; Khazanov, B. I.

ORG: none

TITLE: Device for observing plastic deformation and fracture under a microscope

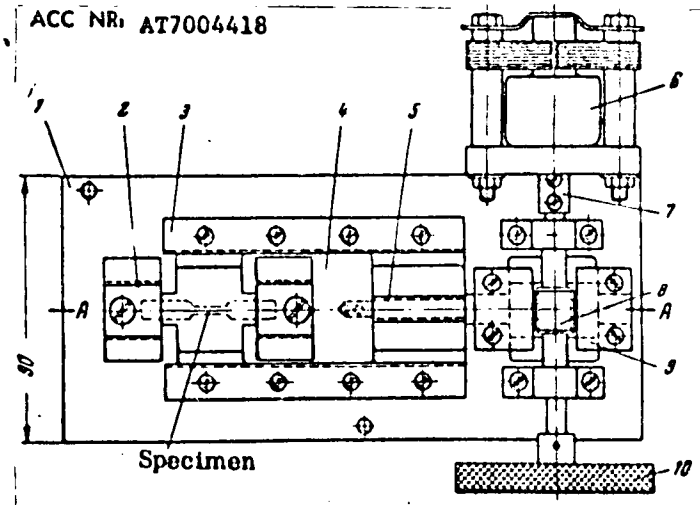
SOURCE: AN SSSR. Institut metallurgii. Napryazhennoye sostoyaniye i plastichnost' pri deformirovanii metallov (Stress condition and plasticity during metal deformation). Moscow, Izd-vo Nauka, 1966, 99-102

TOPIC TAGS: metallographic microscope, metallurgic ~~research~~ analysis, metallographic examination, plastic deformation, material fracture/ MIM-8M metallographic microscope

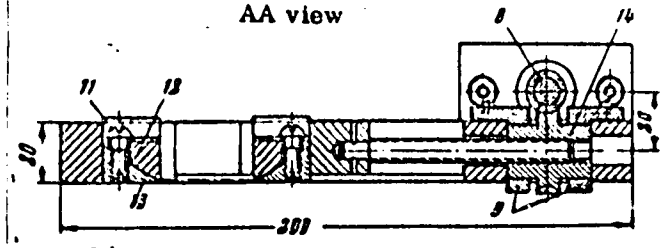
ABSTRACT: The authors developed an elementary device (Fig. 1) for scrutinizing the microstructure of specimens that are tensile-tested at room temperature by stretching with the aid of a worm gear drive (manually or by means of an electric motor). The device consists of frame 1 attached to the microscope mount. Slider 4 moves along the rectangular window of the frame. Rotation of worm wheel-nut 14 causes translational motion of the screw pulling the slider. The worm wheel-nut is carried by bearings 9 and rotated by worm 8 one end of which is linked by coupling 7 to electric motor 6 and the other end, to lever 10. Since in the existing metallographic microscopes the free distance of the lens at considerable magnification amounts to tenths of a milli-

Card 1/2

ACC NR: AT7004418



AA view



Cord 2/2

Fig. 1. Microscope attachment for observing the stretching of specimens

meter, the device is equipped with clamps for moving the plane of the specimen closer to the lens. Each clamp consists of upper wedge 12 and lower wedge 13, tightened by screw 11 and held together by plate 2. The edge of the upper wedge, adjoining the head of the specimen, is rounded so as to reduce stresses at the site of flexure of the specimen. The use of clamps of this kind admits the observation of the microstructure of specimens during deformation and fracture at a maximum magnification of 1350 times. Orig. art. has: 4 figures.

SUB CODE: 20/13/ SUBM DATE: 27Sep66

ORIG REF: 005/ OTH REF: 001

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

Card 1/2

ACC NR: AT7004419

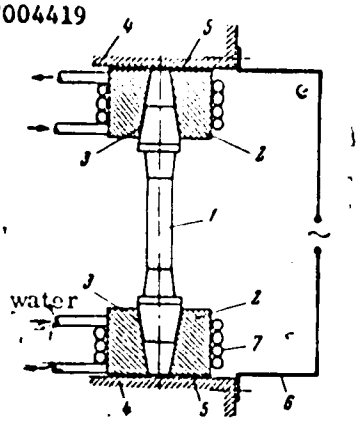


Fig. 1. Schematic of compressive test:

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: AT7004420 (A) SOURCE CODE: UR/0000/66/000/000/0117/0121

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

ORG: none

TITLE: Mechanical properties and formability of molybdenum sheets

SOURCE: AN SSSR. Institut metallurgii. Napryazhennoye sostoyaniye i plastichnost' pri deformirovanii metallov (Stress condition and plasticity during metal deformation). Moscow, Izd-vo Nauka, 1966, 117-121

TOPIC TAGS: SHEET METAL, ELONGATION, MOLYBDENUM PROPERTY, molybdenum, molybdenum thin sheet, ~~molybdenum~~ annealing, ~~molybdenum sheet~~ ductility, ~~molybdenum sheet formability~~/TsM2A molybdenum

ABSTRACT: Sheets (0.5 mm thick) of vacuum melted TsM2A molybdenum were annealed in a vacuum of $1 \cdot 10^{-3}$ mm Hg at 900—1400°C for 1 hr, cooled rapidly and investigated for ductility and formability. Test specimens were cut along, across, and at a 45 deg angle to the direction of sheet rolling. The elongation with tension was used as a criterion of ductility. The formability criterion was a maximum value K_{max} of the D/d ratio in the cup-drawing test in which a cup with an outside diameter d = 20 mm was

Card 1/2 UDC: none

ACC NR: AT7004420

drawn at a speed of 50 mm/min from a blank with a diameter D. The specimens annealed at 1100°C had the highest formability (K_{max} = 1.54). This temperature corresponded to the maximum elongation (13.6%) of the specimens cut out at an angle of 45 deg to the direction of rolling. The maximum elongation of the longitudinal and transverse specimens (9.5 and 8.6%, respectively) was obtained with annealing at 1200°C. In tension and drawing-cup tests of TsM2A alloy sheets of various thicknesses, the elongation was found to decrease from 12 to 7% as sheet thickness increased from 0.2 to 0.8 mm, while the formability factor increased from about 0.8 to 1.6 as sheet thickness increased from 0.1 to 0.8 mm. Orig. art. has: 2 figures. [MS]

SUB CODE: 11, 13/ SUBM DATE: 27Sep66/ ORIG REF: 007/ OTH REF: 008/
ATD PRESS: 5116

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, 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-

Card 1/2

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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 deformirovanii metallov (Stress condition and plasticity during metal deformation). Moscow, Izd-vo Nauka, 1966, 130-134

TOPIC TAGS: ~~sintered~~ tungsten, ~~sintered~~ ~~tungsten~~ rolling, ~~sintered~~ ~~tungsten~~ property, ~~sintered~~ ~~tungsten structure~~, 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. Hydr -sintered tungsten failed at a bend angle of 35 degrees, even at temperatures up to

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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

ACC NR: AT7004124 (A) SOURCE CODE: UR/0000/66/000/000/0176/0178

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

ORG: none

TITLE: Deep drawing of thin molybdenum sheets

SOURCE: AN SSSR. Institut metallurgii. Napryazhennoye sostoyaniye i plastichnost' pri deformirovanii metallov (Stress condition and plasticity during metal deformation). Moscow, Izd-vo Nauka, 1966, 176-178

TOPIC TAGS: molybdenum alloy, molybdenum, metal stamping, metal drawing

ABSTRACT: Sheet molybdenum rolled in two mutually perpendicular directions and displaying a lower anisotropy of mechanical properties is employed in the fabrication of parts of electrovacuum devices by the stamping-drawing method. In this connection, the authors investigated the stampability of 0.5 mm thick molybdenum sheets of the following types: 1) plain MCh powdered-metal molybdenum; 2) plain vacuum-arc-melted molybdenum deoxidized with carbon; 3) TsM2A vacuum-arc-melted molybdenum alloy; 4) molybdenum treated with Ti (0.04%) and Zr (0.08%). These sheets were obtained by cross-rolling at 150-250°C of hot-

Card 1/3

rolled 1 mm thick sheets. Stampability was determined according to the elongation coefficient $K_e = D/d$ (D = diameter of blank; d = mean diameter of the drawn cup) during the drawing of cylindrical cups in a die assembly equipped with a dynamometer. (Fig. 1.) These tests showed

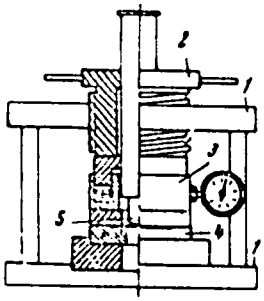

Fig. 1. Die assembly-device to determine the elongation coefficient:
1 - upper and lower platens; 2 - clamping device;
3 - hydraulic clamp-dynamometer with manometer;
4 - die; 5 - punch

that the maximum plasticity during drawing ($K_e = 1.7$) is displayed by plain MCh molybdenum and vacuum-arc-melted molybdenum deoxidized with carbon. For the two other types of molybdenum $K_e = 1.65$–1.45, which is yet another proof that impurities adversely affect the stampability of molybdenum sheets. Subsequent experiments with heating of molybdenum to 150–200°C prior to its stamping showed that such heating makes it possible to stabilize the results of the drawing, owing to the deformation of the material in the zone of temperatures ex-

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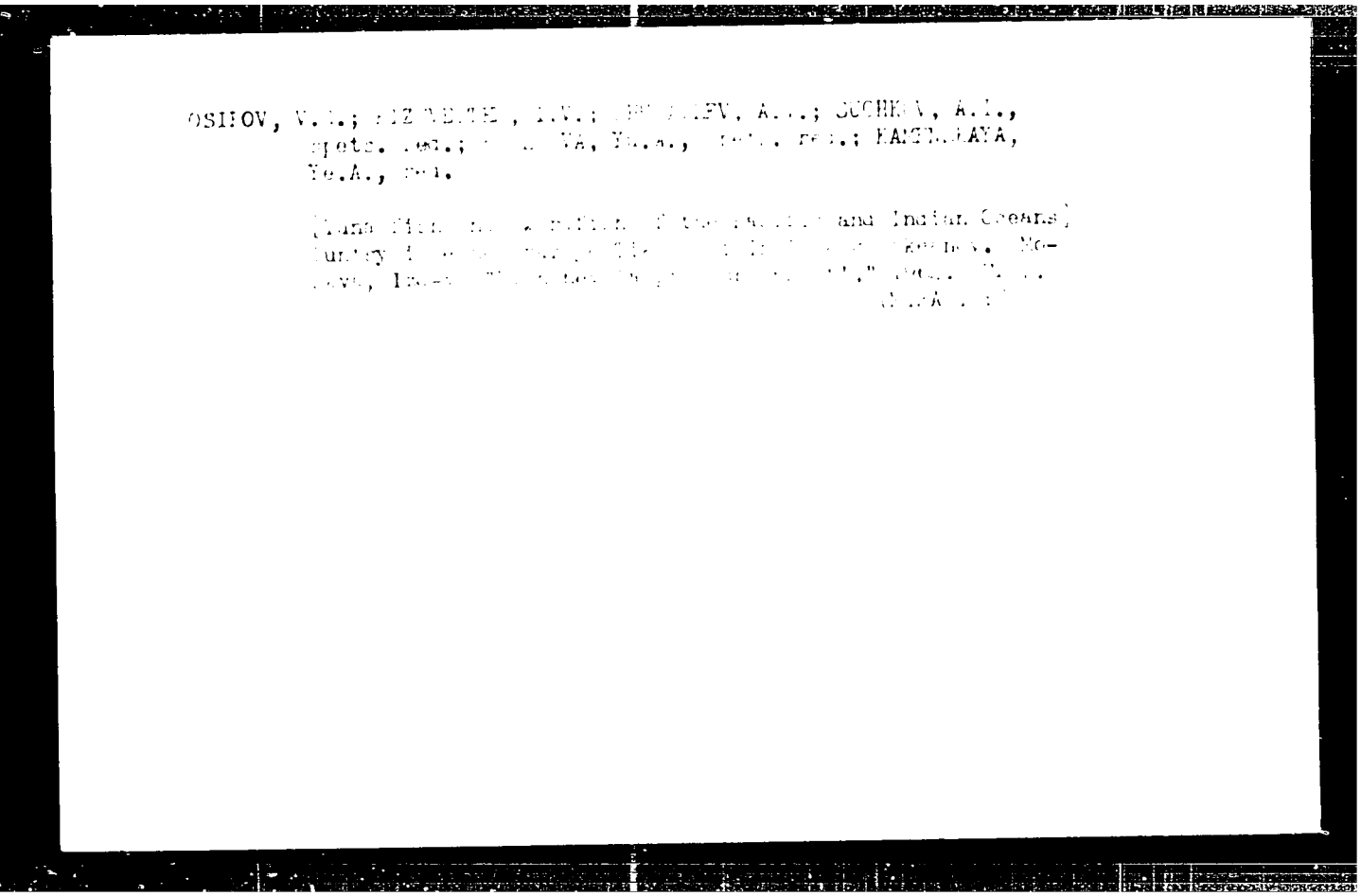
ceeding the brittleness threshold. Orig. art. has: 3 figures.

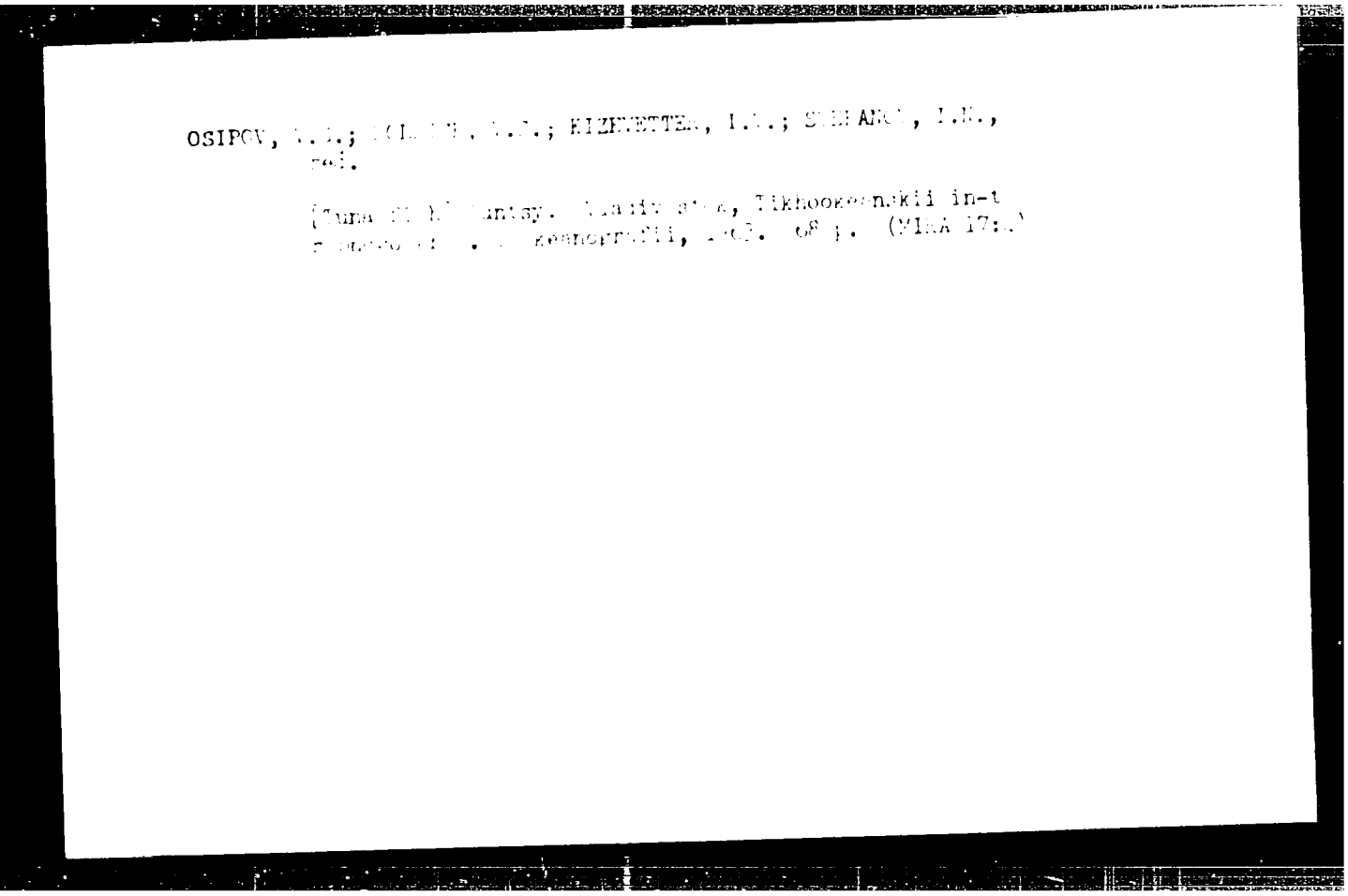
SUB CODE: 13, 11/ SUBM DATE: 27Sep66/ ORIG REF: 006

Card 3/3



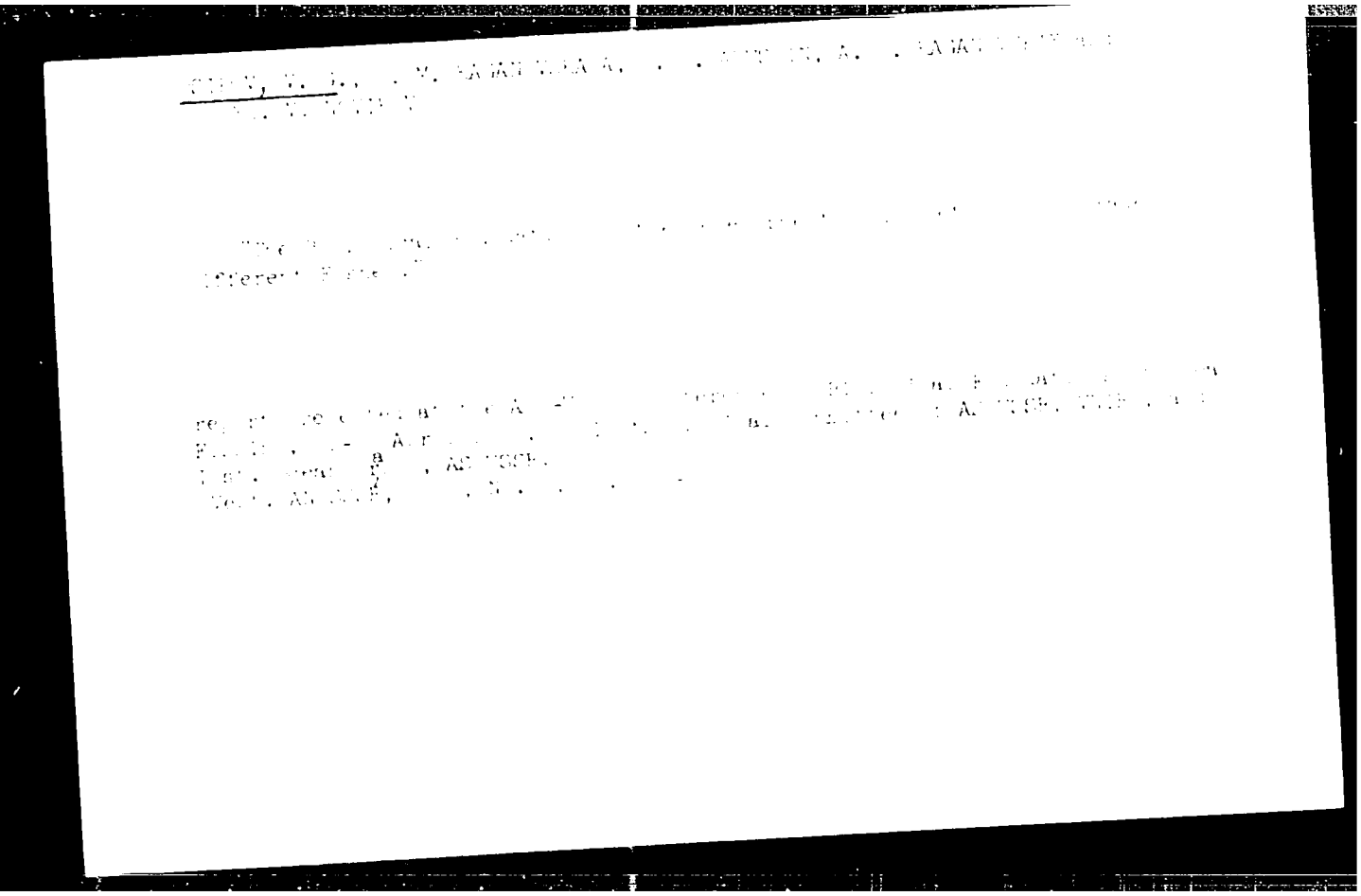
OSIPOV, V.I.; [illegible], A.V.; [illegible], A.I.; SOCHEVA, A.I., spets. red.; [illegible], Ye.A., red.; KAZELLAYA, Ye.A., red.

[Land fish and a fishing industry in the Caspian and Indian Oceans] Rybnoe khoziaistvo i rybnaia promyshlennost' Kaspiiskogo i Indiiskogo okeanov. Moskva, Izd-vo "Mysl'," 1965. [illegible] p. (MIRA [illegible])



OSIPOV, [illegible]; [illegible], [illegible]; KIZHNETTER, I.[illegible]; SHIRANOV, I.K., red.

[Summa [illegible] analiza. [illegible], Tikhookeanskii in-t [illegible] Akademii, [illegible]. 68 p. (MIRA 17:[illegible])



OSIPOV, V.G.

Distribution, biology, and fisheries of the Pacific tuna. Trudy sov. Ikht. kom. no.10:188-194 '60. (MIRA 13:10)

1. Tikhookeanskiy nauchno-issledovatel'skiy institut morskogo rybnogo khozyaystva i okeanografii (TINRO).
(Pacific Ocean--Tuna fish)

OSIPOV, V.I., inzh.; EPSHTEYN, S.I., inzh.

Experimental field laboratory system for studying the [illegible] of pulsed lights. Svetotekhnika 10 no.3:25-26 Mr '64. (MIRA 17:4)

1. Vsesoyuznyy svetotekhnicheskiy institut.

YEMEL'YANOV, V.A.; BESKIN, L.I.; OSIPOV, V.I.

Neutron method for measuring soil moisture and its prospects. Pochvovedenie no.7:109-115 Jl '63. (MIRA 16:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrotekhniki i melioratsii.
(Soil moisture) (Neutrons)

YEMELYANOV V. A.; SHIPOV, V. I.

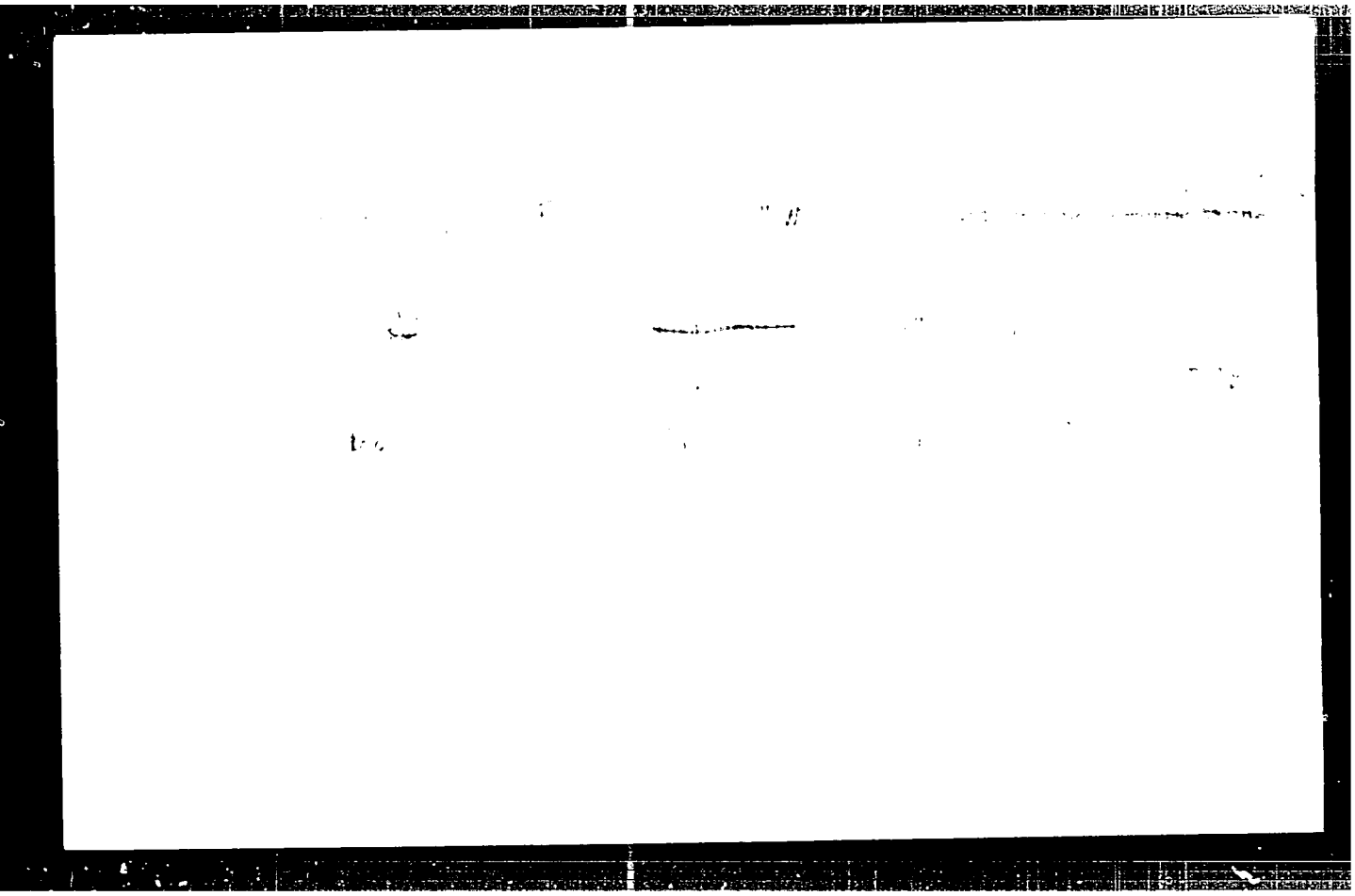
"The Effect of the Mineralogical Composition of the Soil on Neutron Moisture Meter Readings"
To be presented at the Symposium on the use of Radioisotopes in Soil-Plant Nutrition Studies, Bombay 26, February - 2 March 1962.

All-Union Hydrotechnology and Land Improvement Research Institute, USSR.

OSIPOV, V.K., prof.

Surgical treatment of cholelithiasis. Trudy TSIU 2:165-172 '61.
(MIRA 15:8)

(CALCULI, BILIARY)

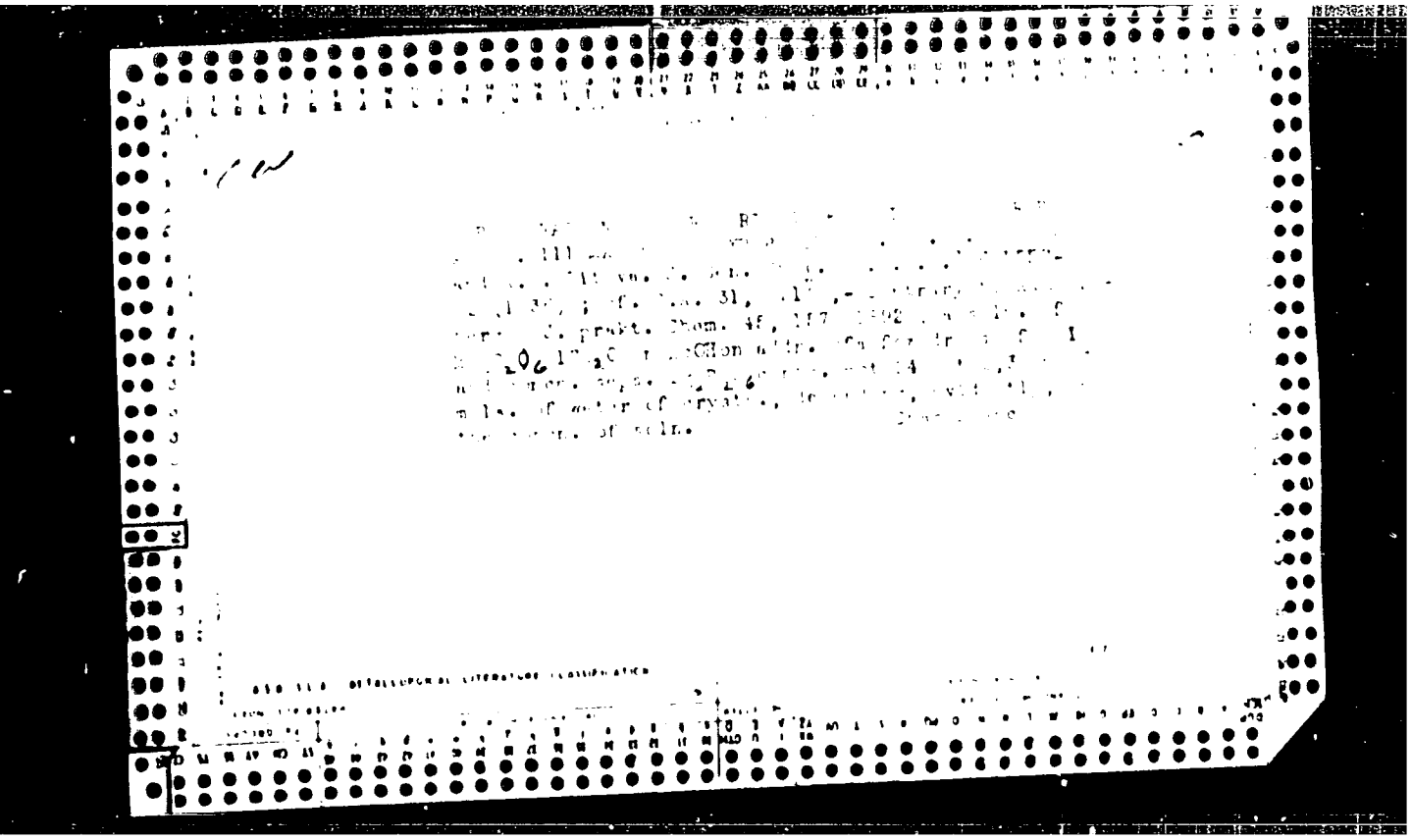


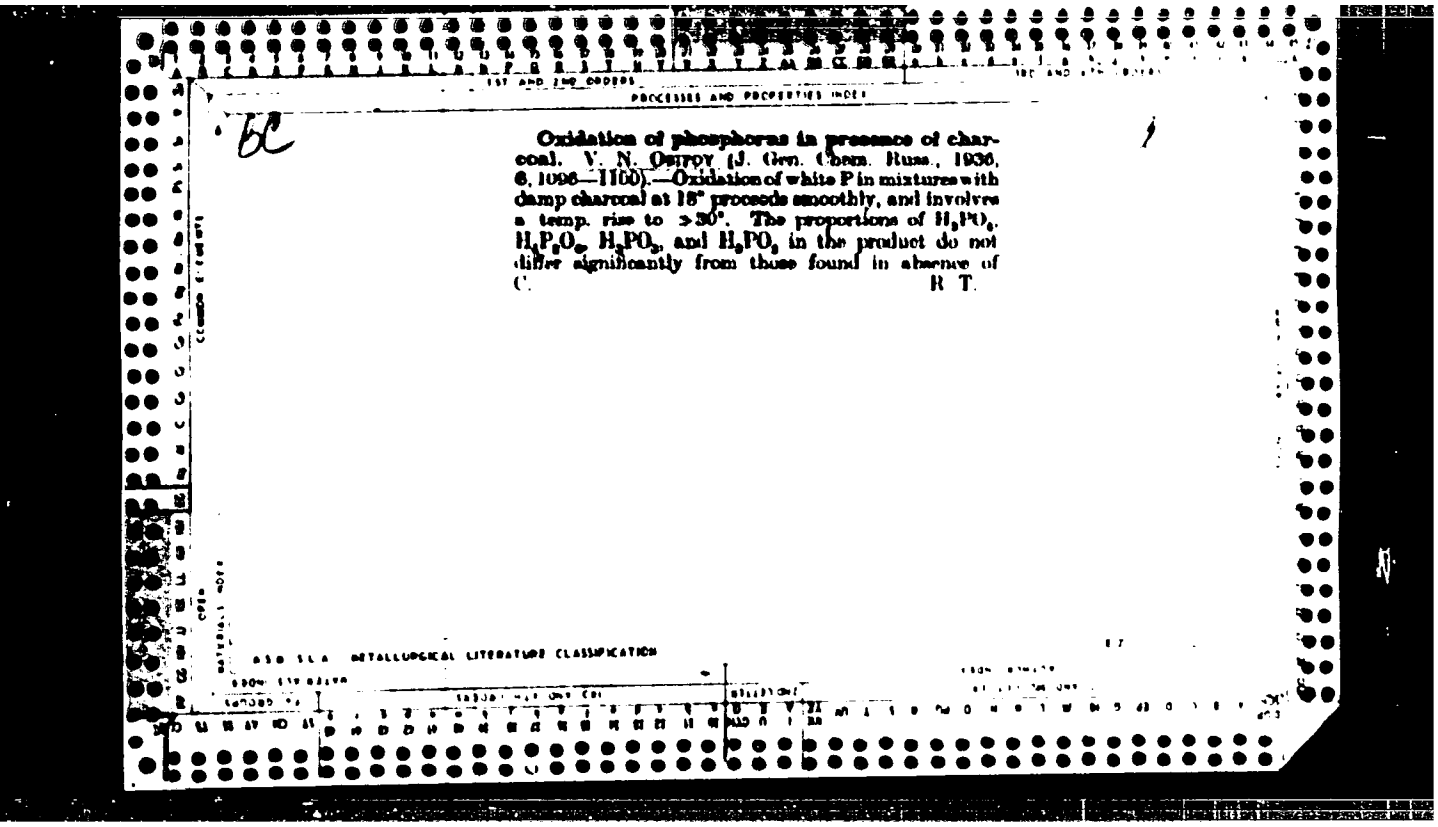
APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

OSIPOV, [illegible]ant

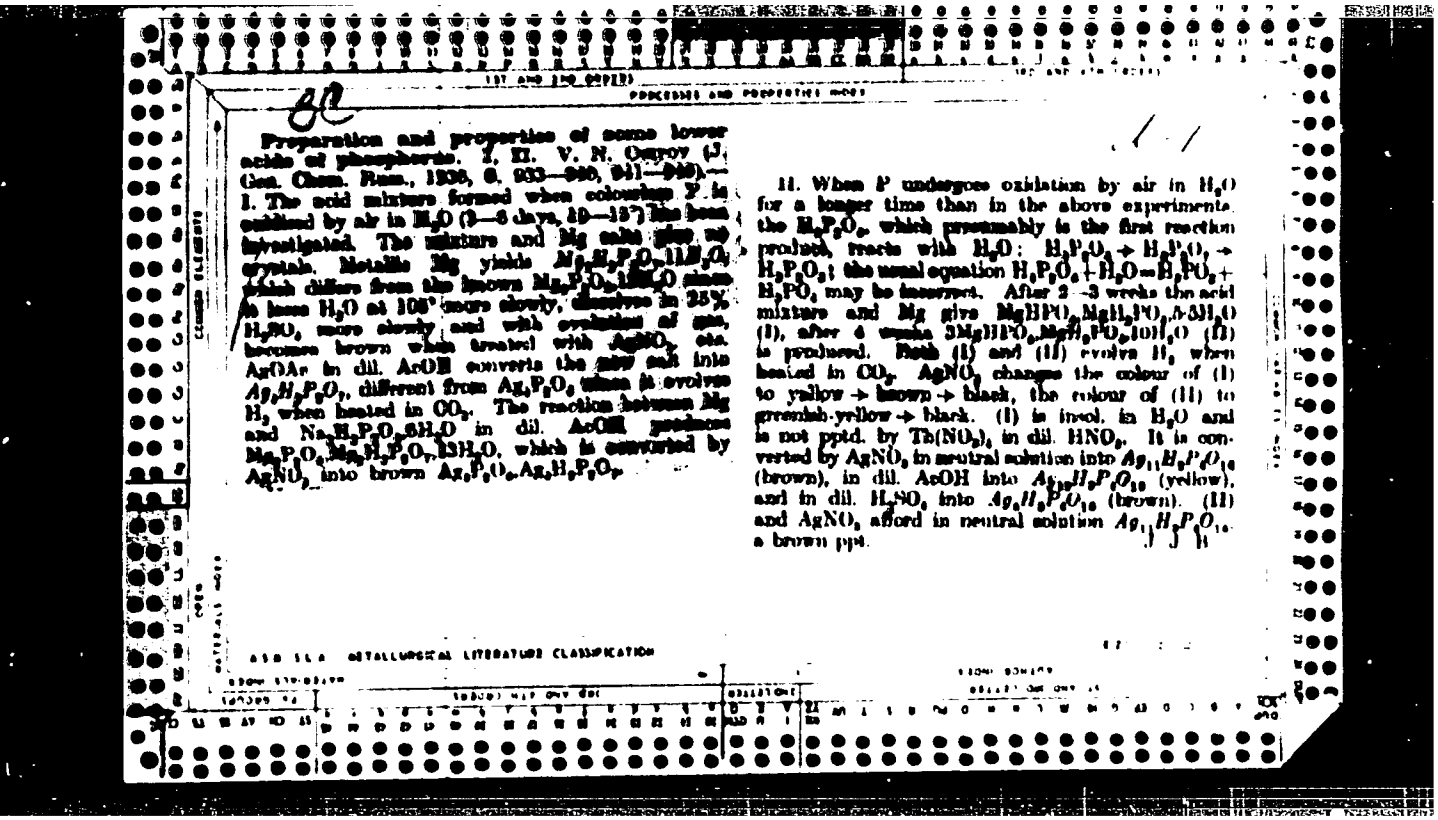
"Geological-prospect trenching by means of artificial mudflows. Izv
[illegible]a. uchab. zav.; geol i razv. 7 no.10:156-157 O '64. (MIRA 18:2

[illegible] Buryatskoye geologicheskoye upravleniye.



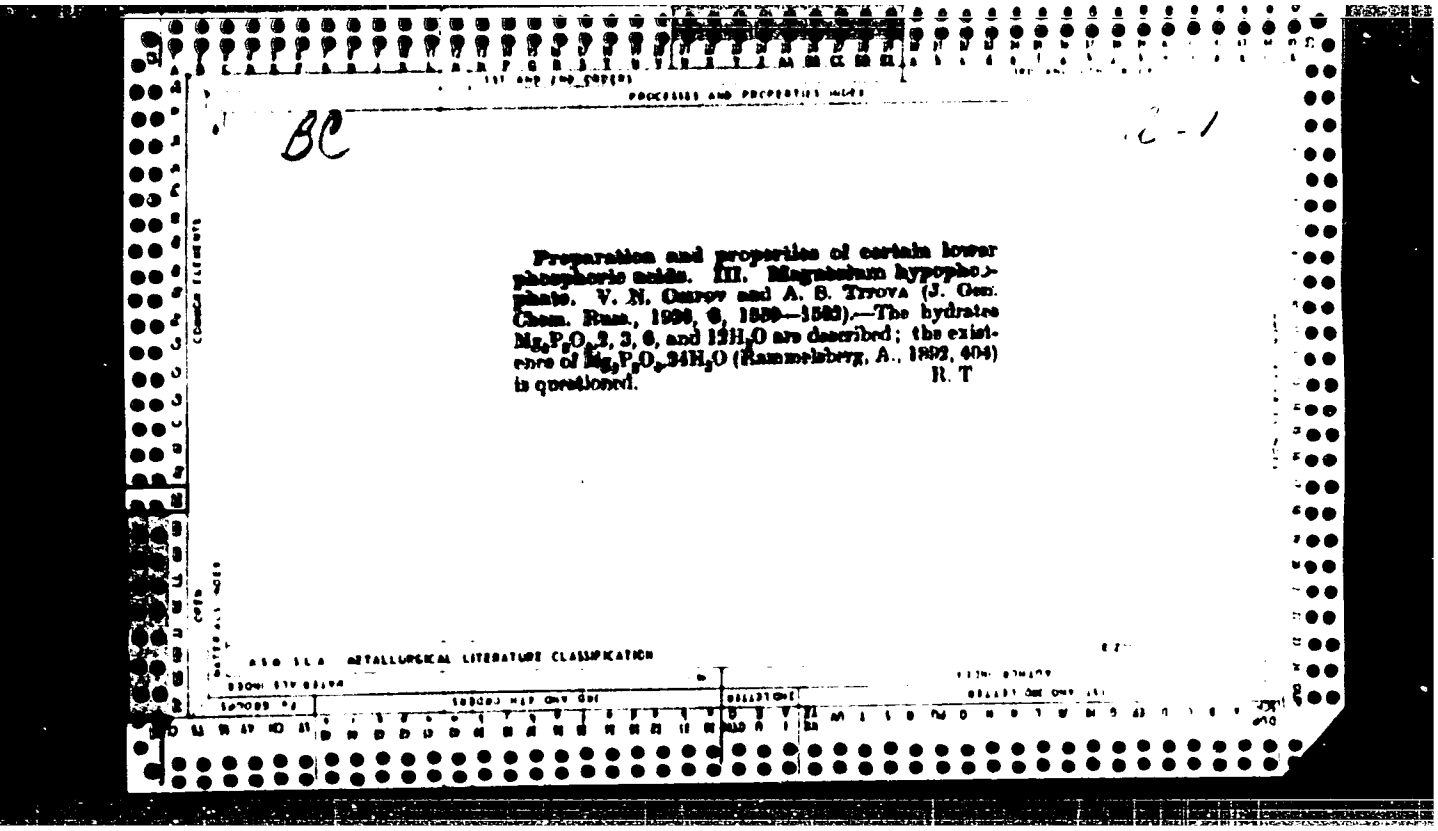


Oxidation of phosphorus in presence of charcoal. V. N. Ostroy (J. Gen. Chem. Russ., 1936, 6, 1096—1100).—Oxidation of white P in mixtures with damp charcoal at 18° proceeds smoothly, and involves a temp. rise to >30°. The proportions of H_3PO_4, $H_4P_2O_6$, H_3PO_3, and H_3PO_2 in the product do not differ significantly from those found in absence of C. R. T.



Preparation and properties of some lower acids of phosphorus. I, II. V. N. Ostrov (J. Gen. Chem. Russ., 1938, 8, 933—940, 941—948).—I. The acid mixture formed when colourless P is oxidised by air in H_2O (3—6 days, 10—15°) has been investigated. The mixture and Mg salts give no crystals. Metallic Mg yields $Mg_2H_2P_2O_6.11H_2O$, which differs from the known $Mg_2P_2O_6.13H_2O$ since in loses H_2O at 105° more slowly, dissolves in 25% H_2SO_4 more slowly and with evolution of gas, becomes brown when treated with $AgNO_3$, etc. Ag_2OAc in dil. AcOH converts the grey salt into $Ag_2H_2P_2O_6$, different from $Ag_4P_2O_6$ since it evolves H_2 when heated in CO_2. The reaction between Mg and $Na_2H_2P_2O_6.6H_2O$ in dil. AcOH produces $Mg_2P_2O_6.Mg_2H_2P_2O_6.13H_2O$, which is converted by $AgNO_3$ into brown $Ag_4P_2O_6.Ag_2H_2P_2O_6$.

II. When P undergoes oxidation by air in H_2O for a longer time than in the above experiments the $H_2P_2O_6$, which presumably is the first reaction product, reacts with H_2O: $H_2P_2O_6 \rightarrow H_3PO_4 + H_3P_3O_5$; the usual equation $H_2P_2O_6 + H_2O = H_3PO_4 + H_3PO_3$ may be inaccurate. After 2—3 weeks the acid mixture and Mg give $MgHPO_3.Mg(H_2PO_2)_2.5H_2O$ (I), after 4 weeks $3MgHPO_3.Mg_3H_2P_2O_8.10H_2O$ (II) is produced. Both (I) and (II) evolve H_2 when heated in CO_2. $AgNO_3$ changes the colour of (I) to yellow → brown → black, the colour of (II) to greenish-yellow → black. (I) is invol. in H_2O and is not ppd. by $Th(NO_3)_4$ in dil. HNO_3. It is converted by $AgNO_3$ in neutral solution into $Ag_{11}H_3P_4O_{16}$ (brown), in dil. AcOH into $Ag_{10}H_4P_4O_{16}$ (yellow), and in dil. H_2SO_4 into $Ag_6H_4P_4O_{16}$ (brown). (II) and $AgNO_3$ afford in neutral solution $Ag_{11}H_3P_4O_{16}$ a brown ppt.



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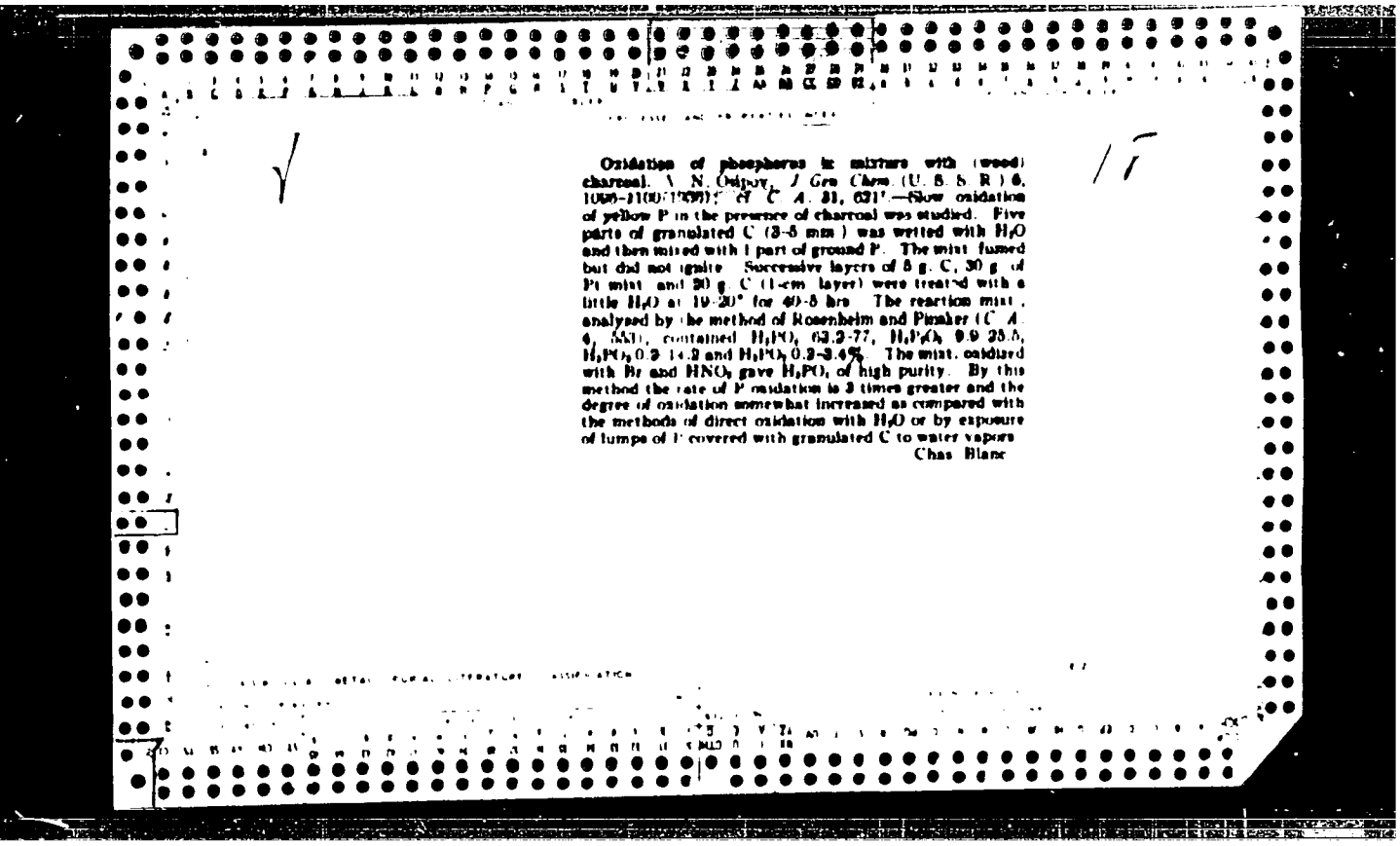
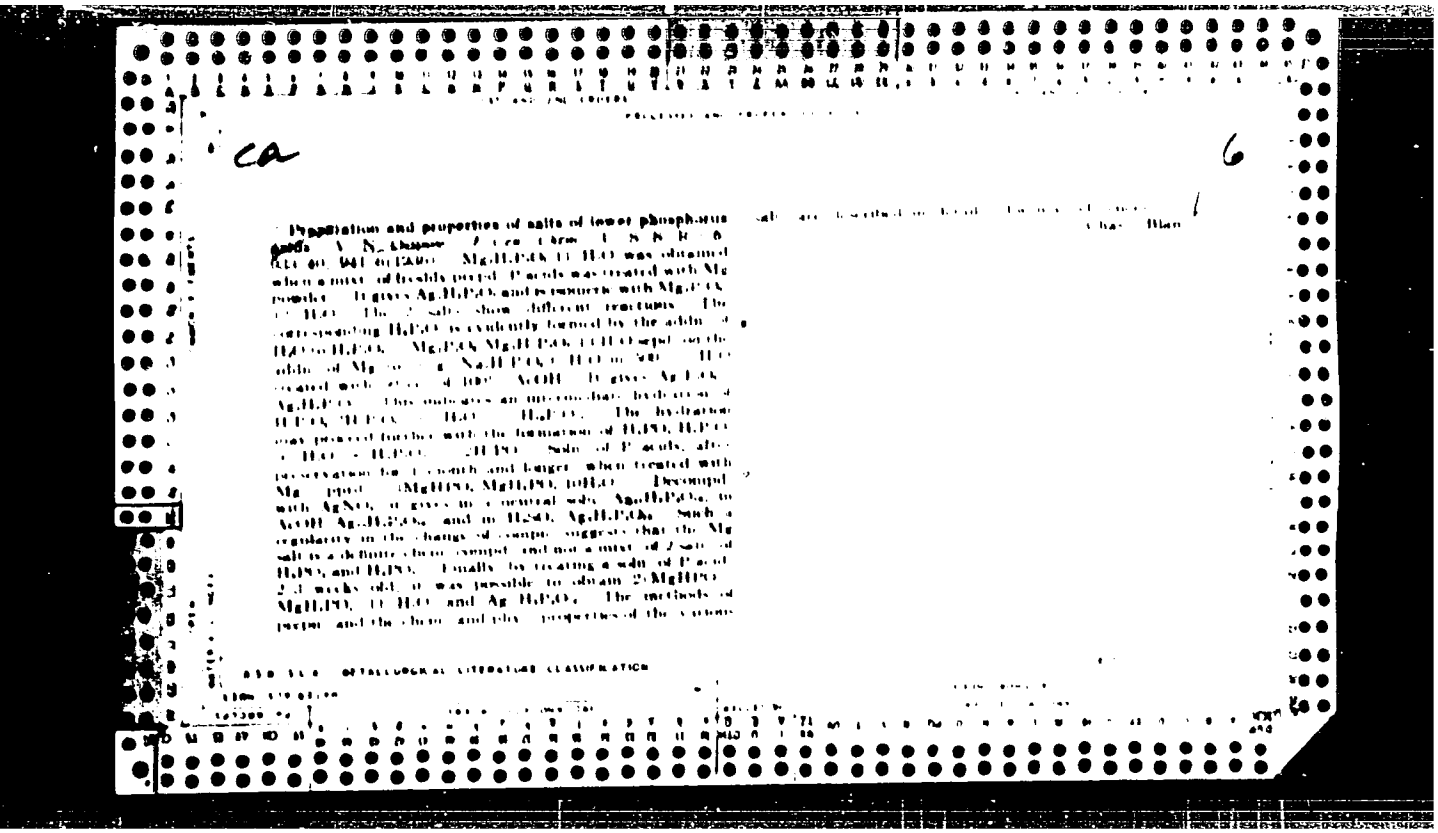
C-1

Preparation and properties of certain lower phosphoric acids. III. Magnesium hypophosphate. V. N. Ostrov and A. B. Titova (J. Gen. Chem. Russ., 1938, 8, 1559—1562).—The hydrates $Mg_2P_2O_6$,2, 3, 6, and $12H_2O$ are described; the existence of $Mg_2P_2O_6$,$24H_2O$ (Rammelsberg, A., 1892, 404) is questioned. R. T



Oxidation of phosphorus in mixture with (wood) charcoal. V. N. Odinov. *J. Gen. Chem.* (U. S. S. R.) 6, 1059–71(1936); *C. A.* 31, 621⁷.—Slow oxidation of yellow P in the presence of charcoal was studied. Five parts of granulated C (3–5 mm.) was wetted with H_2O and then mixed with 1 part of ground P. The mixt. fumed but did not ignite. Successive layers of 5 g. C, 30 g. of P mixt. and 30 g. C (1-cm. layer) were treated with a little H_2O at 19–20° for 40–5 hrs. The reaction mixt., analyzed by the method of Rosenheim and Pinsker (*C. A.* 4, 3311), contained H_3PO_3 63.2–77, H_3PO_4 9.9–25.5, $H_4P_2O_6$ 0.2–14.2 and H_3PO_2 0.2–3.4%. The mixt. oxidized with Br and HNO_3 gave H_3PO_4 of high purity. By this method the rate of P oxidation is 3 times greater and the degree of oxidation somewhat increased as compared with the methods of direct oxidation with H_2O or by exposure of lumps of P covered with granulated C to water vapors.

Chas. Blanc



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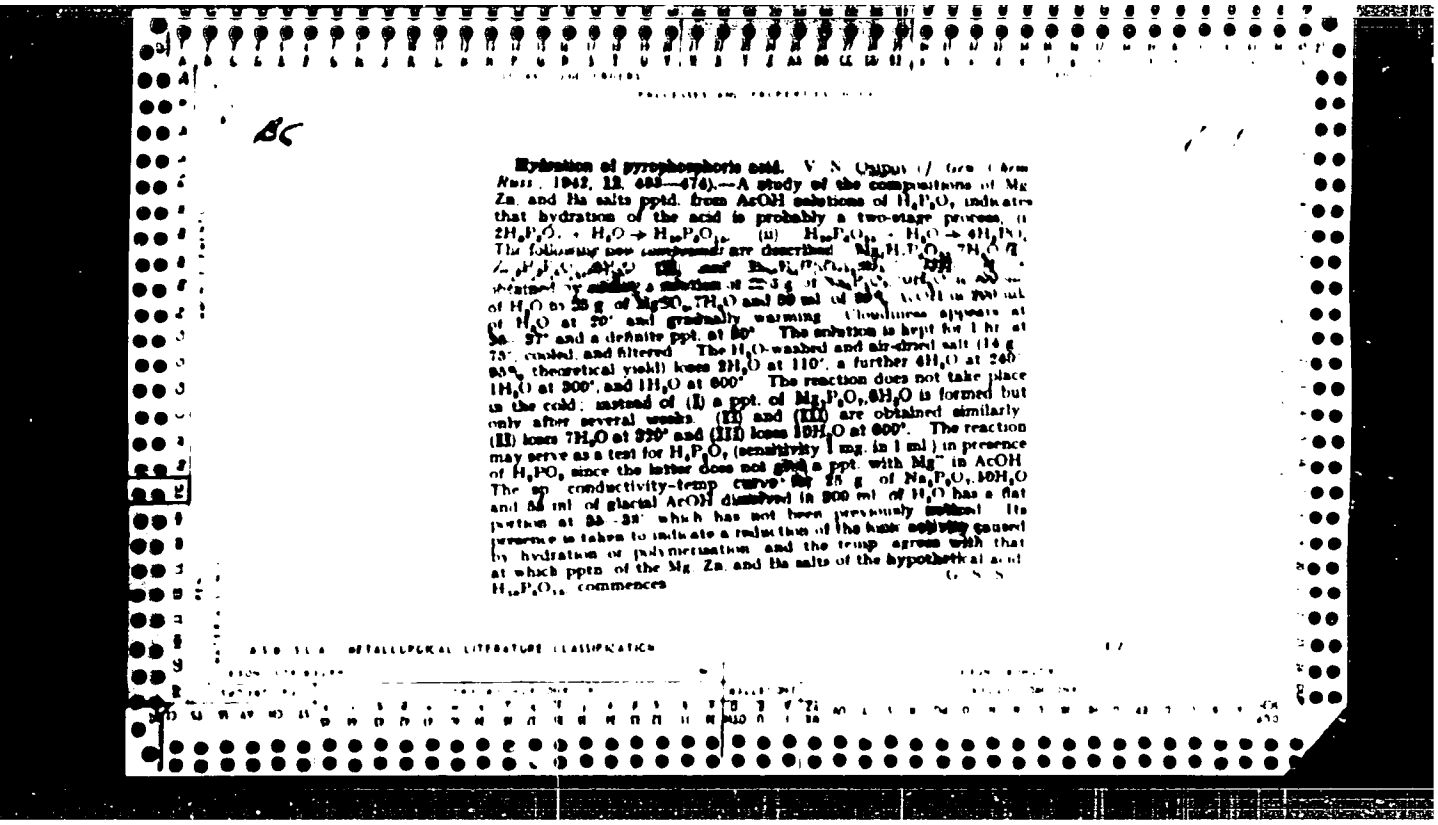
6

Preparation and properties of salts of lower phosphorus



Hydration of pyrophosphoric acid. V. N. Ostrovskii (Zhur. Obshchei Khim., 1942, 12, 685—676).—A study of the compositions of Mg, Zn, and Ba salts ppted. from AcOH solutions of $H_4P_2O_7$ indicates that hydration of the acid is probably a two-stage process, (i) $2H_4P_2O_7 + H_2O \rightarrow H_{10}P_4O_{13}$ (ii) $H_{10}P_4O_{13} + H_2O \rightarrow 4H_3PO_4$. The following new compounds are described: $Mg_2H_2P_2O_7.7H_2O$ (I), $Zn_2P_2O_7.3H_2O$ (II), and $Ba_2P_2O_7.2H_2O$ (III). [illegible] obtained by adding a solution of 25 g. of $Na_4P_2O_7$ (ppt. free) in 200 ml. of H_2O to 25 g. of $MgSO_4.7H_2O$ and 50 ml. of 80% AcOH in 200 ml. of H_2O at 20° and gradually warming. Cloudiness appears at 35—37° and a definite ppt. at 50°. The solution is kept for 1 hr. at 75°, cooled, and filtered. The H_2O-washed and air-dried salt (14 g. 85% theoretical yield) loses $2H_2O$ at 110°, a further $4H_2O$ at 240°, $1H_2O$ at 300°, and $1H_2O$ at 600°. The reaction does not take place in the cold; instead of (I) a ppt. of $Mg_2P_2O_7.6H_2O$ is formed but only after several weeks. (II) and (III) are obtained similarly. (II) loses $7H_2O$ at 320° and (III) loses $10H_2O$ at 600°. The reaction may serve as a test for $H_4P_2O_7$ (sensitivity 1 mg. in 1 ml.) in presence of H_3PO_4, since the latter does not give a ppt. with Mg^{++} in AcOH. The sp. conductivity–temp. curve for 25 g. of $Na_4P_2O_7.10H_2O$ and 50 ml. of glacial AcOH dissolved in 900 ml. of H_2O has a flat portion at 35—38° which has not been previously noticed. Its presence is taken to indicate a reaction of the basic salt used caused by hydration or polymerisation, and the temp. agrees with that at which ppts. of the Mg, Zn, and Ba salts of the hypothetical acid $H_{10}P_4O_{13}$ commences. G. S. S.

OSIPOV, V.N.

Building materials industry in the Ukhta Industrial District.
Trudy Komi fil.AN SSSR no.8:37-45 '59. (MIRA 13:11)
(Ukhta--Building materials industry)

OSIPOV, V.N.

RUP-3 machine. Torf. prom. 38 no. 3:30-31 '61. (MIRA 14:4)

1. Ozeretskoye torfopredpriyatiye Mosoblsovnarkhoza.
(Peat machinery)

KUSHNIR, Yu.M.; FETISOV, D.V.; RASPLETIN, K.K.; POCHTAREV, B.I.; SPEKTOR, F.U.; GUROVA, R.P.; TOKAREV, P.D.; OSIPOV, V.N.; PAVLOV, V.A.

Improving the scanning electron microscope -- X-ray local microanalyzer; some of its applications. Izv.AN SSSR.Ser.fiz. 27 no.3:415-419 Mr '63. (MIRA 16:2)
(X-ray spectroscopy)

KUSHNIR, Yu.M.; FETISOV, D.V.; DER-SHVARTS, G.V.; POCHTAREV, B.I.; TOKAREV, P.D.; RASPLETIN, K.K.; SPEKTOR, F.J.; GUROVA, R.F.; POSTNIKOV, Ye.B.; OSIPOV, V.N.; PAVLOV, V.A.; POGUDINA, M.V.

Combined scanning electron microscope and X-ray microanalyzer with magnetic electron optics. Izv. AN SSSR. Ser. fiz. 27 no.9: 1166-1172 S '63. (MIRA 16:9)
(Electron microscope) (X-ray spectroscopy)

YEVGRAFOV, G.K., doktor tekhnicheskikh nauk, professor; MAL'TSEV, P.V., kandidat tekhnicheskikh nauk; OSIPOV, V.O., inzhener.

Effect of external loading and yield point of a joint on the magnitude of residual stresses in H-shaped welded elements. Trudy MIIT no.85/86:5-28 '56. (MLRA 9:10)

(Girders--Welding) (Strains and stresses)

MAL'TSEV, P.V., kandidat tekhnicheskikh nauk; OSIPOV, V.O., inzhener;
POPOV, S.A., kandidat tekhnicheskikh nauk.

New design for standard test piles having rubber chambers. Trudy MIIT no.85/86:29-41 '56. (MLRA 9:10)

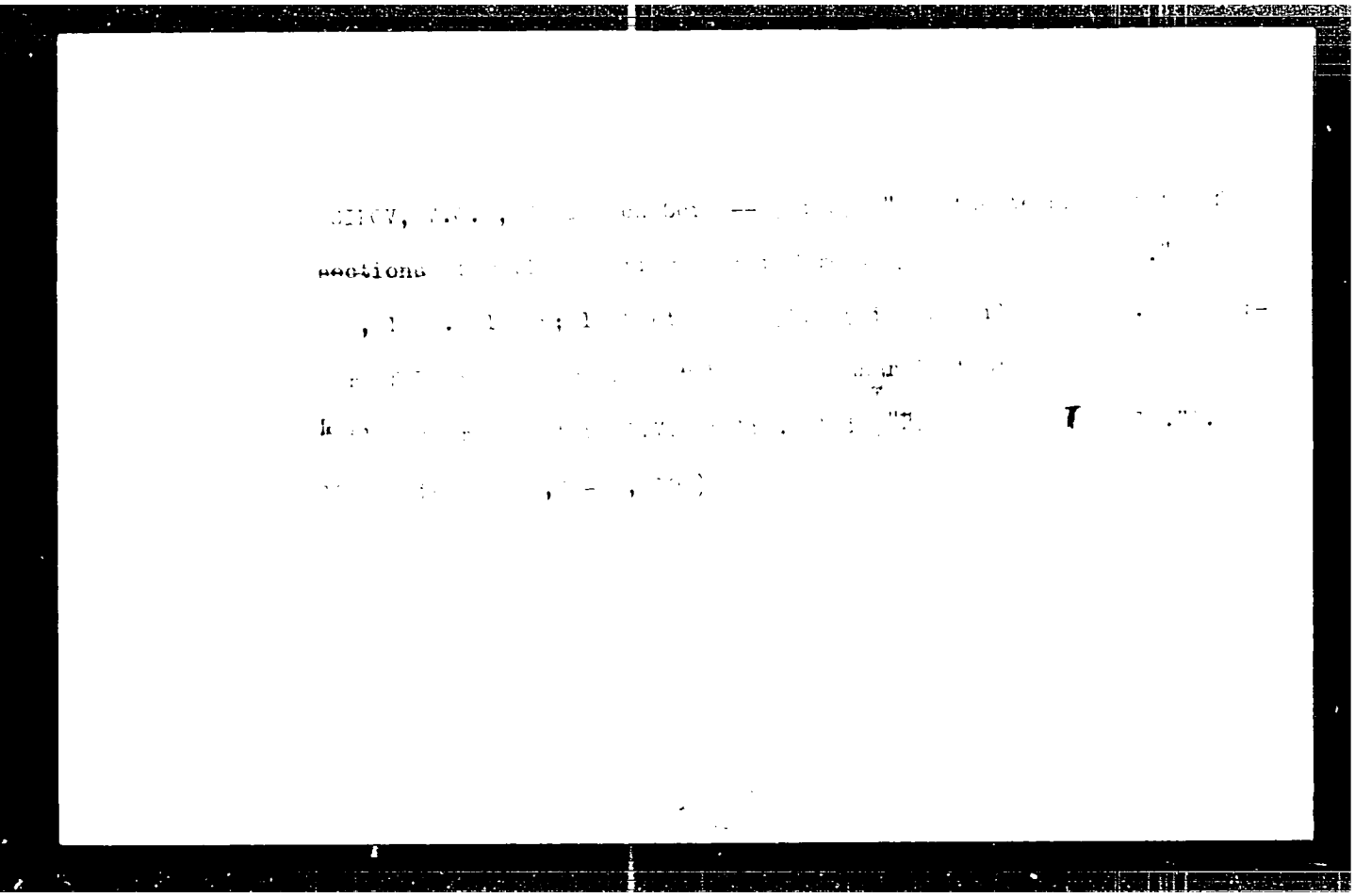
(Piling (Civil engineering))

OSIPOV, V.O., inzh.

Experimental investigation of residual stress relaxation, its addition to load stress, and some results of using this method. Trudy MIIT no.101:167-199 '58. (MIRA 11:6)
(Bridges--Welding--Testing) (Strains and stresses)

OSIPOV, V.O., inzh.

"Redistributing residual stresses in order to increase the strength of welded construction elements. Trudy MIIT 108:294-307 '59 (MIRA 13:3)
(Strains and stresses) (Steel, Structural)
(Gas welding and cutting)



YEVGRAFOV, G.K., prof.; OSIPOV, V.O., kand.tekhn.nauk; KOLOKOLOV, V.N., inzh.

Fatigue failure of bridge trusses. Put' i put.khoz. 4 no.7:28 Jl '60. (MIRA 13:7)
(Railroad bridges)

83829

11710 1144, 2208
18 7100 1045, 1413

S/135/60/000/010/016/019
A006/A001

AUTHORS: Yevgrafov, G. K., Professor, Academician of AS and A USSR, Osipov, V. O., Candidate of Technical Sciences

TITLE: Using Residual Stresses to Raise the Fatigue Strength of Welded Structures

PERIODICAL: Svarochnoye proizvodstvo, 1960, No. 10, pp. 7-10

TEXT: At the bridge-testing laboratory of MIIT a method was developed to raise the fatigue strength of welded structures by using compressive residual stresses developed by local heating. For this purpose a section of a structure located close to the zone where residual stresses are to be induced is heated up to 300 - 500°C by an acetylene-oxygen gas burner flame travelling parallel to the zone to be processed, at a certain distance from it and at a definite speed. The efficiency of local heat treatment was checked on various sections of a rivet-welded bridge span put out of service after 15 years of operation. Residual stresses of the characteristic sections were measured in one or two directions. When redistributing the residual stresses the problem was set up to select the optimum technology for certain types of joint depending on the location of the

Card 1/3

83829

S/135/60/000/010/014/018/XX
A006/A001

Using Residual Stresses to Raise the Fatigue Strength of Welded Structures

heated zone in respect to the processed zone. The results obtained show that local heat treatment of welded structures may cause advantageous redistribution of residual stresses, i e compressive residual stresses are developed instead of high tensile stresses acting in zones of stress concentrators (weld ends, seams, zones adjacent to seams). High residual tensile stresses arising during the heating process are then located in zones without dangerous stress concentrators and consequently do not considerably affect the strength of the structure. Experimental tests and theoretical analysis show that the main factors influencing the magnitude of residual stresses in zones subjected to local heating, are the temperature and the cross section dimensions of the heated zone and its location in respect to the processed zone. It was established that compressive residual stresses may be developed in almost any section of 20 mm thick welded low-carbon steel structures. Zones located at the edges of structures are heated by a burner travelling at a speed ensuring maximum heating to 300-500° at 30-60 mm distance. The heating of zones located at a remoter distance from the edge should be performed on two sides of the processed zone. It had been observed that the service life of heated СТ 3 (St 3) and М16С (M16S) steel

Card 2/3

Using Residual Stresses to Raise the Fatigue Strength of Welded Structures

specimens was raised by a factor of 2 to 7 in comparison to analogous specimens which were not subjected to local heat treatment. The described method is an effective means to raise the fatigue strength of "weak" sections in welded structures having dangerous stress concentrators which are difficult to remove. The results obtained have been confirmed by those submitted by other institutes such as TsNIITMASh, the Institute of Electric Welding imeni Paton, TsNIIS et. There are 2 tables, 4 figures, and 5 Soviet references.

ASSOCIATION: Moskovskiy institut inzhenerov zheleznodorozhnogo transporta (MIIT) (Moscow Institute of Railroad Transportation Engineers)

Card 3/3

OSIPOV, V.O., kand.tekhn.nauk

Determining the total principal stresses in flat stressed welded elements by the aperture method. Trudy MIIT no.126:110-119 '60.
(MIRA 13:10)

(Strains and stresses) (Elastic plates and shells)

OSIPOV, V.O., kand.tekhn.nauk

Investigating the relaxation of residual stresses and the summation of load stresses resulting from the plane stress. Trudy MIIT no.126: 120-133 '60. (MIRA 13:10)

(Strains and stresses)

OSIPOV, V.O., kand.tekhn.nauk; KOLOKOLOV, V.N., inzh.

Data on the effect of residual stresses on the formation of cracks in elements of steel bridges. Trudy MIIT no.126:134-142 '60.
(MIRA 13:10)

(Strains and stresses) (Bridges, Iron and steel)

YEVGRAFOV, G.K., akademik; OSIPOV, V.O., kand.tekhn.nauk

Using local heating to increase the strength of reinforced structures. Svar.proizv. no.5:16-18 My '62. (MIRA 15:12)

1. Moskovskiy institut inzhenerov zheleznodorozhnogo transporta.
2. Akademiya stroitel'stva i arkhitektury (for Yevgrafov).
(Structural frames—Welding)

YEVGRAFOV, G.K., prof., doktor tekhn.nauk; OSIPOV, V.O., kand.tekhn.nauk;
KOLOKOLOV, V.N., inzh.

Preventing fatigue failure of the parts of metal bridges. [illegible]
dor.transp. 44 no.4:50-52 Ap '62. (MIRA 15:4)
(Railroad bridges--Testing)

YEVGRAFOV, G.K., doktor tekhn.nauk, prof.; OSIPOV, V.O., kand.tekhn.nauk;
KOLOKOLOV, V.N., inzh.; ZENKEVICH, V.A., inzh.; IVANOV, A.V., inzh.

Fatigue destruction of the parts of riveted spans of old bridges.
Trudy MIIT no.154:5-63 '62. (MIRA 16:3)
(Railroad bridges--Testing) (Strains and stresses)

OSIPOV, V.O., kand.tekhn.nauk

Experience in the operation of steel span structures of railroad bridges reinforced with the use of welding. Trudy MIIT no.154:64-105 '62. (MIRA 16:3)
(Railroad bridges--Maintenance and repair) (Strains and stresses)

IVANOV, A.V., inzh.; OSIPOV, V.O., kand.tekhn.nauk

Experience in the reconditioning of members of riveted and welded spans. Trudy MIIT no.154:106-141 '62. (MIRA 16:3)
(Railroad bridges--Maintenance and repair)

OSIPOV, Valentin Osipovich; MIKHAYLOVA, V., red.; SAVEL'YEVA, V., tekhn. red.

[Commander of the 83rd] Komandir 83-go. Moskva, Molodaia gvardiia, 1963. 106 p. (MIRA 16:5)
(Virgin Territory--Tractors)
(Communist Youth League)

OSIPOV, V.C., inzh.-mekhanik

Improved snow removing machine. Put' i put. khoz. 7 no.10:32 '58.
(MIRA 16:12)

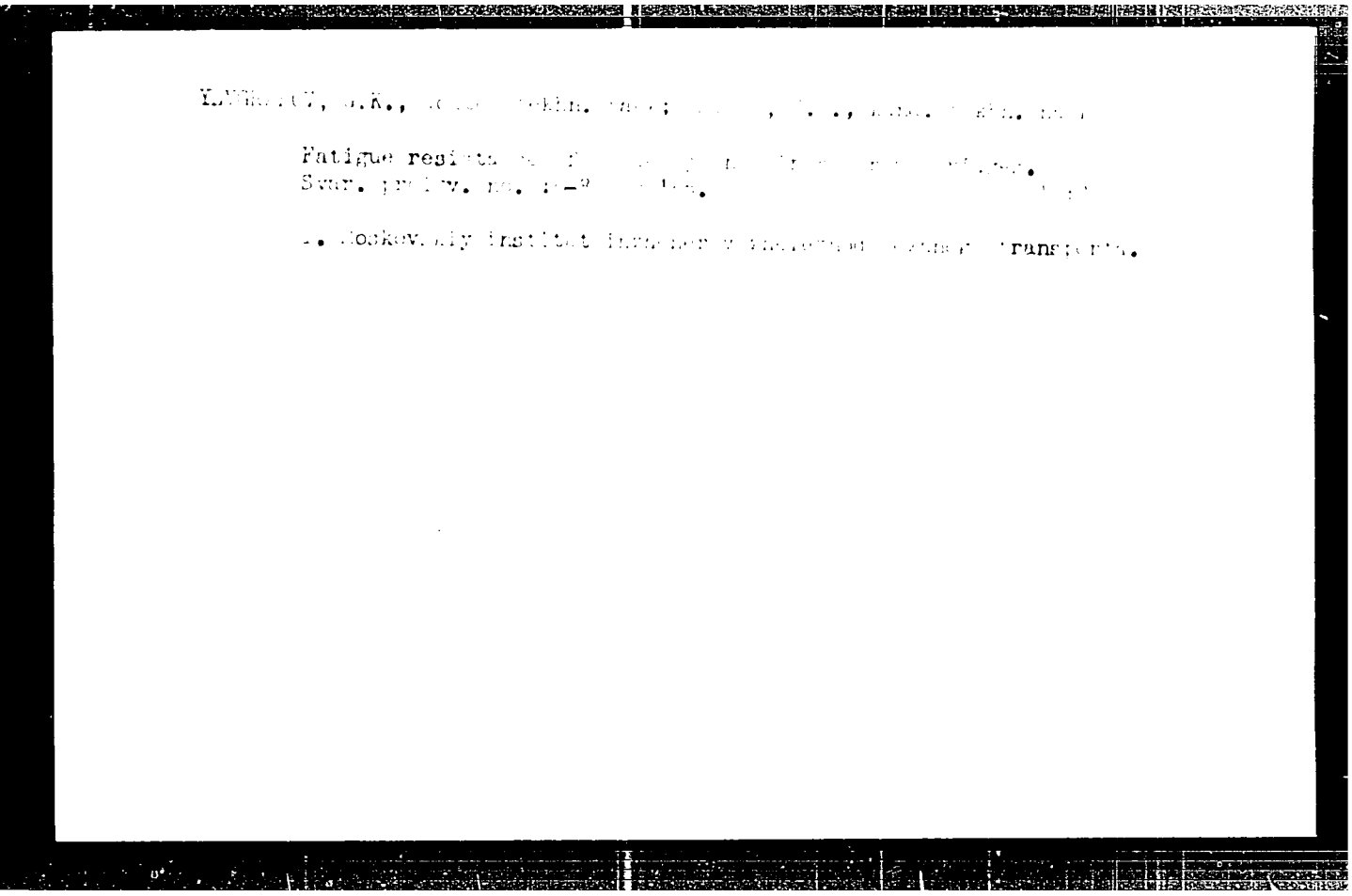
OSIPOV, V.O.

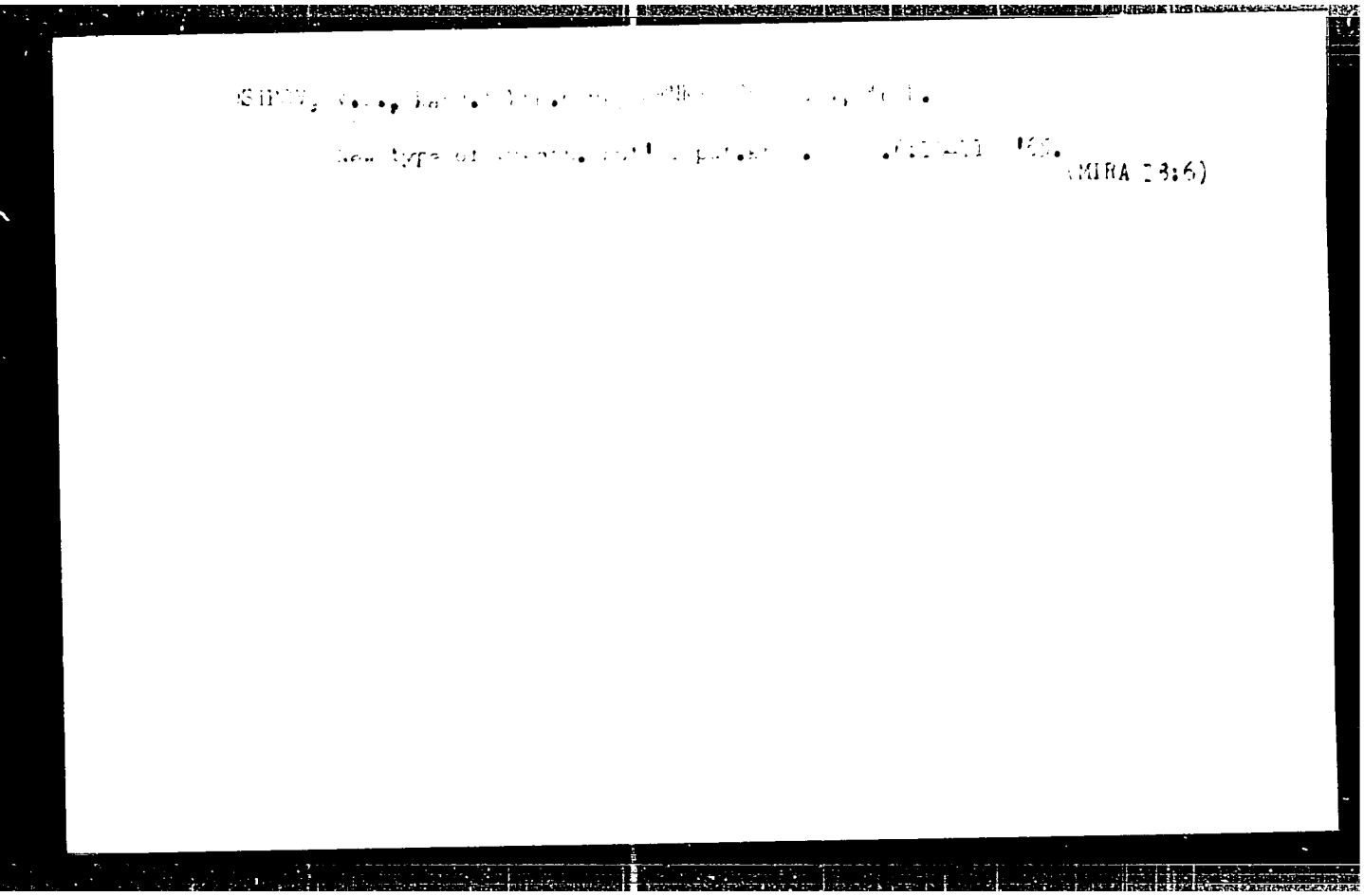
Small-base tensometer. Zav. lab. 29 no.10:1253-1254 '63.
(MIRA 16.12)

1. Moskovskiy institut inzhenerov zheleznodorozhnogo transporta.

YEVGRAFOV, Georgiy Konstantinovich, prof.; OSIPOV, Valentin Osipovich, kand. tekhn. nauk; NEKLEPAYEVA, Z.A., inzh., red.

[Maintenance and reconstruction of bridges] Soderzhanie i rekonstruktsiia mostov. Moskva, Izd-vo "Transport," 196[illegible]. 199 p. (MIRA 17:4)





(MIRA 13:6)

18(5) PHASE I BOOK EXPLOITATION SOV/1907

Akademiya nauk Ukrainskoy SSR. Liteyn Otdeleniye tekhnicheskiy sovet

Voprosy proizvodstva stali VYP.6 (Problems of Steel Production, Nr 6) Kiyev, Izd-vo AN Ukrainskoy SSR, 1958. 137 p. Errata slip inserted. 2,000 copies printed.

Resp. Ed.: I.N. Dobrokhotov, Academician, Ukr. SSR Academy of Sciences; Ed. of Publishing House: I.K. Labinova; Tech. Ed.: V.I. Tverdokhlib.

PURPOSE: This book is intended for engineers and scientific personnel in the field of steel production.

COVERAGE: This is a collection of articles dealing with various aspects of the production of steel, including the designing of open-hearth furnaces, thermal processes in the furnaces, thermodynamics of steel-making processes, technology of producing high-grade steel, and changes in the size and shape of ingots. Other topics discussed are the properties of chrome-manganese stainless steels, improvement of ball-bearing steel, ingot defects, ingot quality as determined by temperature of teeming and shape of mold, and certain aspects of steel rolling. Some of the articles are accompanied by references, both Soviet and non-Soviet.

AVAILABLE: Library of Congress

SO/mg
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Card 1/3

CSITCV, V. T.

Bee Culture - Equipment and Supplies

Waxing frames with artificial beeswax, Pchelovodstvo 29 No. 8, 1952.

9. Monthly List of Russian Accessions, Library of Congress, November 1952, Unc..

YEFIMOV, V.A.; SABIYEV, M.F.; GRUBBENYUK, V.I.; OSIPOV, V.P.

Steel shrinkage and deformation of the mold during the casting of sheet ingots. Vop.proizv.stali no.7:135-140 '60.
(MIRA 15:8)

(Steel ingots)
(Ingot molds)

S/133/61/000/005/004/009
A054/A133

AUTHORS: Osipov, V.P., Engineer; Yefimov, V.A., Candidate of Technical Sciences; Matevosyan, P.A., Engineer; Danilin, V.I., Engineer; Lapshova, M.P., Engineer; Selivanov, V.M., Engineer; Lisov, I.V., Engineer

TITLE: Pouring of high-alloy steels

PERIODICAL: Stal', no. 5, 1961, 415 - 418

TEXT: When stainless steel is poured, the surface layers of the ingot are deteriorated by folds, blisters and pock marks, which are mainly the result of oxides and gases in the metal. To avoid such defects, tests were carried out with pouring low-melting synthetic slags on the metal surface in the ingot mold. The hot- liquid slag decreases heat losses through radiation and checks the oxidation of the metal. The main purpose of the tests was to determine the effect of various factors on the formation of defects and the most suitable composition of synthetic slags to be used in this process. The slags were melted in a 20-ton single-phase arc furnace with conductive graphite bottom. The low-melting constituents (fluorite, cryolithe) were charged at first, on the bottom, next the

Pouring of high-alloy steels

other materials. The melting of a 50-kg batch of synthetic slag took 1 - 1 1/2 h. The slag was poured into a ladle and from this into the mold. When the metal level in the mold had risen to about 150 - 200 mm, about 15 - 16 kg slag was poured on its surface. In the tests Y23H18 (Kh23N18) and 1X18H9T (1Kh18N9T) steel was bottom-cas' into 4.1-ton ingots. Simultaneously with pouring into uncoated molds with syn.hetic slag, metal was also poured into lacquer-coated molds for comparison. Four types of slags were used with the following composition:

group	CaF_2	Na_3AlF_6	SiO_2	Al_2O_3	CaO	MgO	MnO
I	35—40	—	35—40	10—15	10—15	—	—
II	33,3	33,3	—	—	33,3	—	—
III	—	—	5)	—	20	15	15
IV	—	75	—	-	25	—	—

The best results were obtained with Group-I slags which are light grey-bluish when solid; when liquid, they humidify the metal very thoroughly. During smelting Kh18N9T steel, the slag composition changed as follows (numerator: composition before smelting; denominator: after smelting):

SiO_2	CaO	MnO	TiO_2	Cr_2O_3	FeO	Al_2O_3	F	Na
35,4	37,12	0,31	0,35	0,48	0,11	11,42	14,30	2,12
32,72	35,99	1,50	6,17	1,74	0,97	13,16	13,40	1,00

It can be seen that synthetic slag adsorbs chrome and titanium oxides, which is promoted by the presence of CaO, moreover by CaF_2, Na_3AlF_6 (cryolithe) and Na_2SiO_3

Card 2/4

S/133/61/000/005/004/009
A054/A133

Pouring of high-alloy steels

soluble glass). The adsorption of chrome and titanium oxides takes place also very rapidly. When 1Kh18N9T steel is poured into the mold to half its capacity, the titanium oxide content of slag increased from 0.6 to 2.5%, the chrome oxide content from 0.03 to 0.8%, while, when pouring was finished, the content of the above oxides increased to 3 and 1%, respectively. No folds were observed in the ingots which were poured under Group-I slags. The ingot surface was covered with a thin slag layer (like "enamel"), the thickness of which between ingot and mold-wall on the edges was 0.3 - 0.5 mm, on the angles 3 mm. The test ingots had a flawless, smooth surface, while in the check-ingots the usual folds in the upper part and blisters in the lower part were found. Due to the synthetic slag layer, the intensity of heat removal from the ingot surface decreased 1.4 times; the shrinkage stresses in the ingot case also became lower. The intensity of shrink-age decreased and, moreover, the liquid slag flowed into the pores of the mold, hereby eliminating the delay of shrinkage and promoting the contraction of the ingot along the mold wall. The mechanical properties of synthetic slag-treated steels are partly equal to those of the conventional steels (strength limit and relative elongation), in some respects they are even better. In the test speci-mens of synthetic slag-treated 1Kh18N9T and X18N12M2T (Kh18N12M2T) steels no in-tercrystalline corrosion could be observed during the tests. There are 2 figures,

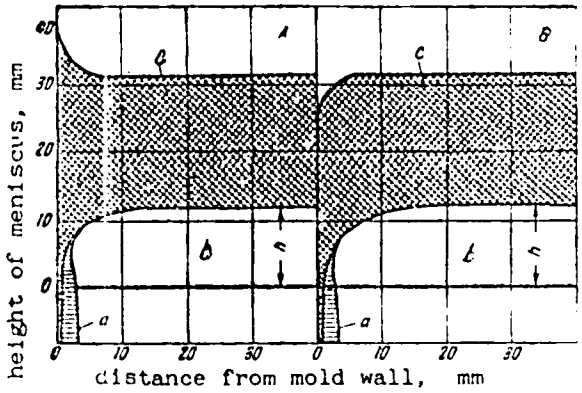
Card 3/4

S/133/61/000/005/004/009
A054/A133

Pouring of high-alloy steels

2 tables and 3 Soviet-bloc references.

Figure 2: Effect of coating on the forming of the external ingot surface when pouring under synthetic slag. A - without coating; B - the mold is graphite-coated (a - solidifying steel; 2 - liquid steel; 3 - liquid slag).



Card 4/4

S/137/61/000/012/018/145
A006/A101

AUTHORS: Osipov, V. F.; Lisov I. V. Nakonechnyy, N. P.

TITLE: Teeming of high-alloy steel grades under flux

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 12, 1961, 56. abstract 12V339 (V sb. "Vopr. proiz-va stali", no. 8, Kiyev AN UkrSSR, 1961, 88 - 95)

TEXT: Experiments on the use of synthetic slags during teeming, were made with X 23 H 18 (Kh23N18), 1 X 18 H 9T (1Kh18N9T), 0 X 18 H 9T (0Kh18N9T), and X 18 H 12 M 3T (Kh18N12M3T) steels melted in a 20-ton electric furnace. The metal was cast through 2 syphons in 4.1-ton ingots. For comparison the ingots of syphon 1 were cast by conventional technology into molds greased with varnish and with the use of wood frames; ingots of bottom plate 2 were cast under synthetic slag into ungreased molds. Liquid synthetic slag (15 - 16 kg) was poured into the mold on the open metal surface during its ascent in the mold to 150 - 200 mm height. Synthetic slags (melted in a single-phase arc furnace with a conducting bottom) of 2 groups were employed: 1) silicon-free fluxes containing in %: Na_3AlF_6 20 - 80, CaF_2 35 - 60, NaF 70, CaO 20 - 30, and 2) fluxes with SiO_2

Card 1/2

S/137/61/000/012/018/149
A006/A101

Teeming of high-alloy steel grades under flux

20 - 50% and Al_2O_3 5 - 15% and with admixture of CaO, CaF_2, MnO, MgO, Na_3AlF_6 and NaF. The former did slightly affect the formation of the crust and their use is difficult due to the considerable liberation of F-vapors. When testing the latter, good results were obtained during teeming with the use of flux containing in %: SiO_2 28 - 30; CaO 10 - 15; CaF_2 40 - 45; Al_2O_3 10 - 15. In this slag Cr and Ti oxides are sufficiently well diffused. Ingots cast under this flux did not show turnings of the crust. The surface quality of ingots and rolled metal was considerably improved. The amount of defects on ingots cast under flux was 1.7 - 2.1 times less than on conventional ingots

P. A.

[Abstracter's note: Complete translation]

Card 2/2

VOROBIKOV, R.M.; [illegible], M.I.; [illegible], N.N.; [illegible], .V.; [illegible], M.I.; KOROLEV, V.M.; [illegible], [illegible]; [illegible], V.F.

Linear 30 Mev. electron accelerator for neutron spectroscopy. Atom. energ. 13 no.4:327-336 O '62. (MIRA 15:10)
(Neutrons—Spectra) (Particle accelerators)

YEFIMOV, Viktor Alekseyevich; OSIPOV, Vladimir Prokof'yevich; GREBENYUK, Vladimir Pavlovich; CHERNYAKHOVSKIY, Yu.A., red.izd-va; ISLENT'YEVA, P.G., tekhn. red.

[Ways to improve the pouring of steel] Puti usovershenstvovaniia razlivki stali. Moskva, Metallurgizdat, 1963. 183 p. (MIRA 17:3)

OSIPOV, V.P.; KHODAS, M.Ya.

Changes in the oxygen tension of the cerebral cortex during controlled arterial hypotension. Eksp. khir. i anest. 8 no.5:72-74 S-O '63. (MIRA 17:6)

1. Laboratoriya anesteziologii (zav.- kand. med. nauk O.D. Kolyutskaya) na baze Gospital'noy khirurgicheskoy kliniki (direktor - deystvitel'nyy chlen AMN SSSR prof. B.V. Petrovskiy) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova.