NIKITIN, V.I.; TULYAGANOV, M.M.

Tertiary triatomic alcohols of the acetylene and ethylene series and their transformations. Part 23: Peracetic acid oxidation of 1,2,5-triols of the ethylene series: 2,3,6,-trimethyl-4-hepten-2,3,6-triol, 3,4,7-trimethyl-5-octen-3,4,7-triol, 5-methyl-2-(1-oxycyclohexyl)-3-hexen-2,5-diol, and 2,4-di (1-oxycyclohexyl)-3-buten-2-ol. Zhur.ob.khim. 31 no.8: 2534-2438 Ag '61. (MIRA 14:8)

1. Institut khimii Akademii nauk Tadzhikskoy SSR.
(Alcohols)

NIKITIN, V.I.; TULYAGANOV, N.M.

Tertiary **triatomic** alcohols of the acetylene and ethylene series and their transformations. Part 24: Peracetic acid oxidation of 1,2,5-triols of the ethylene series: 2,3,6-trimethyl-4-octen-2,3,6-triol, 3,4,7-trimethyl-5-nonen-3,4,7-triol, and 5-methyl-2-(1-oxycyclopentyl)-3-hexen-2,5-diol. Zhur.ob.khim. 31 no.8:2538-2541 Ag '61. (MIRA 14:8)

1. Institut khimii AN Tadzhikskoy SSR.
(Alcohols)

40070

S/138/62/000/008/001/007
A051/A126

15.9201

AUTHORS: Nikitin, V. I., Glazunova, Ye. M., Nagibina, T. D., Yasenkova, L. S., Alikberova, G. I., Grigina, I. N.

TITLE: Copolymers based on butadiene and glycols of the isopropenylacetylene row

PERIODICAL: Kauchuk i rezina, no. 8, 1962, 1 - 3

TEXT: The properties of copolymers containing a large number of hydroxyl groups were studied by investigating a copolymerization reaction between butadiene and glycols of the isopropenylacetylene row. The glycols used and produced by dehydration of the corresponding glycerines or by condensation of oxyketones with isopropenylacetylene, in the presence of potassium hydroxide, were: 2,3,6-trimethylheptene-6-in-4-diol-2,3 [glycol Г (G)], and 2-methyl-5(1-oxycyclopentyl)-hexene-1-in-3-ol-5 [glycol ЦГ (TsG)]. Experimental data showed the copolymer of butadiene and glycol G [ДГ-10 (DG-10)], to be non-soluble in ordinary organic solvents, and the copolymer of butadiene and glycol TsG [ДЦГ -10 (DTsG-10)], to be soluble in ether and benzene. The molecular weight of DTsG-10 (determined by

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NIKITIN, V.I.; MAYOROVA, N.V.

Tertiary triatomic alcohols of the acetylenic and ethylenic series and their chemical conversions. Part 25: Mechanism of the hydrogenation of polyhydroxyl-containing derivatives of acetylene. Zhur. ob. khim. 32 no.1:33-40 Ja '62. (MIRA 15:2)

1. Institut khimii AN Tadzhikskoy SSR.
(Acetylene) (Hydrogenation)

NIKITIN, V.I.; ZEGEL'MAN, A.B.

Tertiary triatomic alcohols of the acetylenic and ethylenic series and their chemical conversions. Part 26: Hydration of 5-methyl-2-(oxycyclopentyl)-hexyne-2,5-diol and 2,4-di(1-oxcyclopentyl)-3-butyne-2-ol. Zhur. ob. khim. 32 no.1:40-46 Ja '62. (MIRA 15:2)

1. Institut khimii AN Tadzhikskoy SSR.
(Alcohols) (Hydration)

NIKITIN, V.I.; TULYAGANOV, M.M.

Tertiary trihydric acetylenic and ethylenic alcohols and their chemical transfigurations. Part 27: Action of acetic acid on 2,3,6-trimethyloxido-4-heptane-2,3,6-triol, 3,4,7-trimethyloxido-5-octane-3,4,7-triol, and 5-methyl-2-(--hydroxycyclohexyl)oxido-3-hexane-2,5-diol. Zhur.ob.khim. 32 no.2: 413-417 F '62. (MIRA 15:2)

1. Institut khimii AN Tadzhikskoy SSR.
(Alcohols)
(Acetic acid)

NIKITIN, V.I.; TULYAGANOV, M.M.

Tertiary triatomic alconols of the acetylenic and ethylenic series and their chemical transformations. Part 28: Hydration of 2,3,6-octanetriol-3,4,7-trimethyl-5-oxido-3,4,7-nonanetriol and 5-methyl-2-(1-hydroxycyclopentyl)-3-oxido-2,5-hexanediol by acetic acid solution. Zhur.ob.khim. 32 no.5:1433-1435 My '62. (MIRA 15:5)

1. Institut khimii AN Tadzhikskoy SSR.
(Glycerol) (Hydration) (Glycols)

NIKITIN, V.I., doktor khim.nauk

New synthetic rubbers. Vest.AN SSSR 32 no.8:65-66 Ag '62.
(MIRA 15:8)

(Rubber, Synthetic)

NIKITIN, V.I.; TULYAGANOV, M.M.

Tertiary trihydric alcohols of the acetylene and ethylene series and their conversions. Part 2*: Action of acetic anhydride on α-oxides of 1,2,5-triols of the ethylene series. Zhur.ob.khim. 33 no.5:1733-1739 Je '63. (MIRA 16:7)

1. Institut khimii AN Tadzhikskoy SSR.
(Alcohols) (Acetic anhydride)

L 62965-65 EWT(m)/EPF(c)/EWA(d)/EWP(t)/EWP(z)/EWP(b) MJW/JD/JW/WB

ACCESSION NR: AP5017744 UR/0365/65/001/004/0385/0390

AUTHOR: Nikitin, V. I.

TITLE: Effect of temperature on corrosion of steel in liquid sodium containing oxygen

SOURCE: Zashchita metallov, v. 1, no. 4, 1965, 385-390

TOPIC TAGS: corrosion resistant steel, chromium steel, nickel steel, austenitic steel, metal oxidation, liquid sodium, sodium solid mechanical property/ 1Kh18N9T steel

ABSTRACT: The purpose of the tests was to confirm the assumption that the action of sodium containing oxygen is connected with internal oxidation of steel. The investigation was made on chrome nickel austenitic steel 1Kh18N9T with the following composition (in%): 0,08 carbon, 0.49 silicon, 0.46 manganese, 18.1 chromium, 9.73 nickel, 0.49 titanium. Corrosion tests were run for 100 hours at 300, 400, 500, 600, 650, 750, 800, and 900C. To take account of aging of the material, parallel tests were run in air at the same temperatures. Oxygen content in the sodium was 10%. At 900C the relative elongation after aging in air

Card 1/2

L 62965-65

ACCESSION NR: AP5017744

was 64.4%, and after the test in sodium 48.4%; the relative reduction in cross section was 78.6 and 61.3% respectively; the true fracture resistance was 176.9 and 125.2 kg/mm^2; and the impact toughness was 30.9 and 13.2 kgm/cm^2. At sufficiently low test temperatures in liquid sodium (300 and 400C) these properties did not change. It was established that worsening of the mechanical properties is bound up with the formation of surface diffusion zones with strongly etched grain boundaries. It is calculated that the activation energy of the process of boundary diffusion is equal to 0.7% of the activation energy of the volumetric diffusion of oxygen in gamma iron. Orig. art. has: 7 formulas and 5 figures

ASSOCIATION: None

SUBMITTED: 19Nov64 ENCL: 00 SUB CODE: MM

NR REF SOV: 007 OTHER: 007

Card 2/2

NIKITIN, V.I.; GLAZUNOVA, Ye.M.; POTAPOVA, I.M.; ZEGEL'MAN, A.B.

Tertiary [illegible] alcohols of the [illegible] and their transformations. Part 3. Synthesis and [illegible] of 2,3-dimethyl-4-octyne-2,3,6-triol and 2,3-dimethyl-4-[illegible]-2,3,6-triol. Zhur. org. khim. 1, [illegible] 1965

(MIRA [illegible])

1. Institut [illegible] Akademii nauk Tadzhikskoy SSR. [illegible], 1964.

ANISIMOV, I.S.; NIKITIN, V.I.; [illegible]

Total cross sections of neutron interaction with [illegible], [illegible], and sodium acetate in the energy range of [illegible] ev. At. energ. 18 no.3:277-[illegible] Mr '65.

CHERTAVSKIKH, A.K.; TIKHONOV, B.S.; NAUMKINA, I.V.; NIKITIN, V.I.

Nonoxidizing annealing of OTsS4-4-2,5 bronze in endothermal gas. Trudy Giprotsvetmetobrabotka no.24:307-313 '65.
(MIRA 18:11)

L 20750-66 EWA(h)/EWP(k)/EWT(l)/EWT(m)/T/EWP(v)/EWP(t) JD/HM

ACC NR: AP6010145 SOURCE CODE: UR/0125/66/000/003/0064/0066

AUTHOR: Krasulin, Yu. L. (Moscow); Nikitin, V. G. (Moscow); Kus'min, V. I. (Moscow)

ORG: none

TITLE: Welding of integrated circuits with indirect pulse heating

SOURCE: Avtomaticheskaya svarka, no. 3, 1966, 64-66

TOPIC TAGS: integrated circuit, circuit element, circuit microelement, microelement welding, circuit welding

ABSTRACT: A method for pressure welding the microelements of integrated circuits is suggested. In this method the microelements to be welded are heated to the required temperature indirectly by the punch (see Fig. 1) through which a short a-c or d-c pulse is passed. This power pulse brings the temperature in the contact point between the punch and element to be welded to 400—560C, at which only a small pressure is required to achieve a perfect bond. The method was successfully used for bonding aluminum, copper, and gold microwires 0.03—0.1 mm in diameter to aluminum, copper, or

Card 1/2 UDC: 621.791.89

L 20750-66

ACC NR: AP6010145

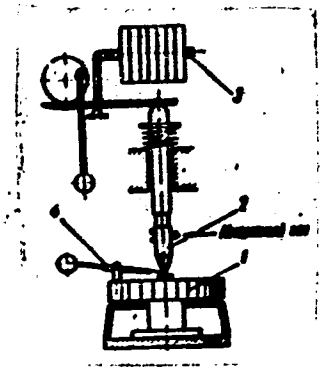

Fig. 1. Layout of the welding unit.

1 - Table; 2 - welding head with interchangeable punch; 3 - pressure producing mechanism; 4 - microwire feeding mechanism

gold films on sital substrates or gold films on silicon or kovar substrates, and to printed circuits on sital substrates. The weld strength was roughly equal to the strength of the microwire. Orig. art. has: 4 figures and 1 table. [DV]

SUB CODE: 09, 13 SUBM DATE: 14Aug65/ ORIG REF: 004/ OTH REF: 002/ ATD PRESS: 4225

Card 2/2

L 47142-66 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD

ACC NR: AR6000730 SOURCE CODE: UR/0124/65/000/009/V078/V079

AUTHORS: Stanyukovich, A. V.; Nikitin, V. I.

TITLE: Evaluation of fatigue resistance of steels in elastic-plastic regions at high temperature

SOURCE: Ref. zh. Mekhanika, Abs. 9V664

REF SOURCE: Sb. Vopr. mekhan. ustalosti. M., Mashinostroyeniye, 1964, 220-225

TOPIC TAGS: ~~steel~~, austenitic steel, fatigue test, fatigue strength, plastic deformation, YIELD STRESS, MATERIAL FRACTURE

ABSTRACT: The results of experiments are presented on fatigue at high temperature (700°) and symmetric periodic changes in deformation with low frequencies (20 min^{-1}) in the elastic-plastic region. Tests were made with rings of uniform deflection resistance, prepared from three austenitic nickel-chromium steels with differing yield stresses. The dependence of the logarithm of the number of cycles up to fracture on the logarithm of deformation after a cycle for the various steels is represented by parallel straight lines. With identical amplitudes the resistance of deformation of the steel with the higher yield stress sustained a larger number of cycles without fracture. For equal amplitudes plastic deformation of fatigue resistance is higher for the steels having the lower limit in yield stress. The experiments show that the longer the material remains unfractured the larger the general plasti

Card 1/2

L 47142-66
ACC NR: AR6000730

deformation it can sustain after the time preceding the fracture. / A. M. Lokoshchenko
/Translation of abstract/

SUB CODE: 11

Card 2/2 afs

L 04783-67 EWT(m)/EWP(w)/EWP(t)/ETI IJP(c) JD/WW/JG
ACC NR: AP6023449 (N) SOURCE CODE: UR/0369/66/002/003/0353/0356

AUTHOR: Nikitin, V. I.

ORG: Boiler and Turbine Institute, Leningrad (Kotloturbinnyy institut)

TITLE: Evaluation of the effect of electrical mass transfer on the stress-rupture strength of a material in liquid sodium

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 2, no. 3, 1966, 353-356

TOPIC TAGS: mass transfer, liquid metal, electromotive force, corrosion / EI869 alloy

ABSTRACT: Stress-rupture tests of the EI869 alloy in liquid sodium were performed by methods described in a previous investigation (V. I. Nikitin, ZL, 1964, no. 2), after this corrosive liquid metal moved convectively in the cavity of the specimen thus causing dissolution of material of the specimen at a low but fixed rate. It was found that a marked decrease in the stress-rupture strength of the alloy occurred in the convective flow of sodium. A careful investigation of the attendant mass transfer established that the presence of the liquid metal causes an e.m.f. to arise between the ends of the convection chamber and the elongated specimen. This was confirmed by the finding that the e.m.f. amounts to several mv when the

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liquid metal is present in the cavity of the specimen and a temperature difference of several hundred degrees exists between the hot and cold zones of the liquid-metal system, and to only 0.1-0.2 mv for the same temperature difference when the cavity of the specimen does not contain the liquid metal. This e.m.f. is of a thermoelectric rather than electrochemical nature. Nevertheless, Wees and Klamut (Proceedings of the Conference on the Corrosion of Reactor Materials, Vienna, 1962, 2, 105) believe that it may affect the corrosion process: owing to the high electrical conductivity of liquid metals, the action of the thermo-e.m.f. may cause high-intensity electrical current which results in the electrical mass transfer of the material. This raises the question of what causes the corrosion and decrease in stress-rupture strength of the material: thermo-e.m.f. and electrical mass transfer or thermal mass transfer? To resolve the question, tests of stress-rupture strength under conditions of mass transfer were carried out in the presence of a DC current source (190 a) connected to the specimen (Fig. 1). Findings: convectively flowing liquid sodium causes a decrease in the stress-rupture strength of specimens of EI869 alloy regardless of whether electrical current is or is not passed through the liquid-metal medium and regardless of the direction in which this current is passed. Thus, it may be concluded that the process of the thermal mass transfer of the EI869 alloy in liquid sodium, leading to premature fracture of the alloy specimen, is not af-

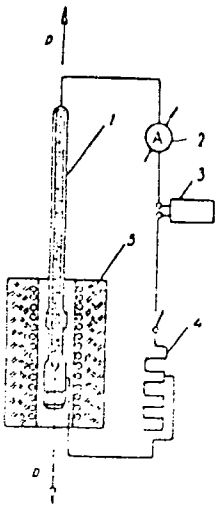

Fig. 1. Schematic diagram of stress-rupture tests of a specimen in liquid metal under conditions of thermal mass transfer and passage of current from an external power source through the specimen:

1 - specimen; 2 - ammeter; 3 - VSG-ZM type rectifier (power source); 4 - rheostat; 5 - electric furnace

fected by the electrical current caused by thermo-e.m.f., even when the current density is enhanced by one order of magnitude by connecting the liquid-metal system to an external DC current source. Orig. art. has: 3 figures, 1 table.

SUB CODE: 20, 13, 11/ SUBM DATE: 03May65/ ORIG REF: 007/ OTH REF: 001

KAMENSKIY, A.F. (Krasnoarmeysk); NIKITIN, V.I. (Krasnoarmeysk)

Equipment for hydrostatic pressing. Porosh. met. 4 no.6: 98-100 N-D '64. (MIRA 18:3)

YUDITSKIY, A.I., inzh.; TOLMACHEV, Ye.F., inzh.; NIKITIN, V.I., inzh.

New wear-resistant NKhFhL (N_3C_3) alloy. Mashinostroenie no.5: 37-38 S-O '64 (MIRA 18:2)

NIKITIN, V.I., inzh.

Tip losses in steam-turbine blading. Izv.vys.ucheb.zav.; energ. 2 no.4:91-95 Ap '59. (MIRA 12:9)

1. Ivanovskiy energeticheskiy institut imeni V.I.Lenina. Predstavlena kafedroy teplovykh dvigateley.
(Steam turbines--Blades)

NIKITIN, V.I., inzh.

Investigation of the annular grid of guide blades. Izv.vys. ucheb.zav.; energ. 2 no.6:66-73 Je '59. (MIRA 13:2)

1. Ivanovskiy energeticheskiy institut imeni V.I.Lenina. Predstavlena kafedroy teplovykh dvigateley.
(Turbines)

88285

S/032/61/027/001/016/037
B017/B054

15.2200

AUTHOR: Nikitin, V. I.

TITLE: Accurate Definition of the Parametric Dependence of Endurance

PERIODICAL: Zavodskaya laboratoriya, 1961, Vol. 27, No. 1, pp. 71-74

TEXT: Refractories should withstand the action of constant stress at high temperatures for a considerable period without destruction. A method of Larson and Miller (Ref. 1) is applied to determine this capability. The resistance of refractories to constant stress and high temperatures is expressed by a constant C. In the equation $C = \varphi - \gamma \ln\sigma$ (13), the coefficient C is represented as a linear function of the logarithm of time. To check this relationship, the alloy Inconel 700 was tested for endurance. Fig. 1 shows a diagram for the endurance of the alloy as a function $T\log\tau = f(T)$ at different σ and temperatures between 500 and 1100°C. Fig. 2 shows the coefficient C as a function of the stress σ. The quantity C greatly depends on the stress. A change in stress from 1 to 10 kg/mm² reduces the value of C from 33 to 20 units. The stress dependence of C alters the parametric curve. Fig. 3 shows the change in parametric

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88285

Accurate Definition of the Parametric Dependence of Endurance

S/032/61/027/001/018/037
B017/B054

dependence of the endurance of refractories at C = f(σ) and at C = const. An extrapolation of endurance data for materials in which C much depends on σ is not possible in Larson and Miller's equation. L. Ya. Liberman is mentioned. There are 7 references: 5 Soviet, 1 US, and 1 German.

ASSOCIATION: Tsentral'nyy kotloturbinnyy institut im. I. I. Polzunova (Central Boiler and Turbine Institute imeni I. I. Polzunov)

Card 2/2

S/096/62/000/002/008/008
E193/E383

AUTHOR: Nikitin, V.I., Engineer

TITLE: Interaction between constructional materials and liquid metals

PERIODICAL: Teploenergetika, no. 2, 1962, 90 - 92

TEXT: In an article, based exclusively on foreign sources, its author discusses factors which determine the performance of various metals and alloys used in the atomic-energy industry as materials of construction for parts operating in contact with molten metals (Pb, Bi, Na, Li). Various types of interaction between solid and molten metals discussed include: dissolution of a solid in liquid metals, diffusion of liquid into solids; formation of intermetallic compounds at the solid/liquid interface; intergranular penetration and mass transfer. The effect of factors such as operating conditions (static or dynamic), mutual solubility of the interacting phases, wetting characteristics of the solid/liquid systems and presence or absence of impurities in the

Card 1/2

NIKITIN, V. I.

Stress-rupture strength of steel in liquid sodium containing oxygen. Fiz. met. i metalloved. 14 no.4:613-617 O '62. (MIRA 15:10)

1. TSentral'nyy kotloturbinnyy institut imeni I. I. Polzunova.

(Steel—Testing)
(Metals at high temperatures)

NIKITIN, V.I.

Investigation and evaluation of the corrosive action of liquid metals (survey). Zav.lab. 28 no.8:951-954 '62. (MIRA 15:11)
(Metals--Corrosion) (Liquid metals)

NIKITIN, V.I.

Taking into account the inertion forces in the calculation of stresses in a specimen tested for fatigue. Zav.lab. 28 no.8: 986-987 '62. (MIRA 15:11)

1. TSentral'nyy nauchno-issledovatel'skiy kotloturbinnyy institut imeni I.I.Polzunova.

(Metals--Fatigue)

NIKITIN, V I.

AID Nr. 980-1 31 May

HIGH-TEMPERATURE LOOP FOR INVESTIGATING STRENGTH AND CORROSION OF CONSTRUCTION MATERIALS IN LIQUID SODIUM (USSR)

Nikitim, V. I. Teploenergetika, no. 5, May 1963, 80-83. S/096/63/000/005/009/011

The illustration shows the principal flow diagram of a loop designed for studying long-time strength at temperatures of up to 900°C and corrosion resistance at temperatures up to 1000°C. The heat exchanger consists of a tube 35 mm in inside diameter and 700 mm in length, inside of which are located 5 tubes along the axis. The latter have inside diameters of

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...bes at 1000°C. [AS]

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BR

ACCESSION NR: AT4013178 S/3059/63/000/000/0300/0306

AUTHOR: Nikitin, V.I.

TITLE: Influence of liquid sodium on stress relaxation in steel

SOURCE: Zhidkiye metally*. Sbornik statey. Moscow. Gosatomizdat, 1963, 300-306

TOPIC TAGS: steel stress, surfactant, steel deformation, steel relaxation, liquid sodium, steel, steel EI-853

ABSTRACT: The action of liquid metal heat carriers often leads to a change in the mechanical properties of structural materials. Since the strength and plasticity are often affected, it would not be surprising if the relaxation properties also changed. The author therefore devised a special chamber for investigating the relaxation resistance of materials in liquid metals and found that liquid sodium, on the basis of tests, influenced the stress relaxation of steel EI-853 in several ways. For all initial stresses the liquid metal accelerated the relaxation process, being most effective during the first stages of relaxation. The action of the liquid metal was increased when the initial stress rose. Acceleration of relaxation during testing in liquid sodium is probably explained by the adsorptive effect which facilitates transformation of elastic deformation into plastic deformation. It was found that the difference in deformation rates (or rate of decrease in stress during relaxation)

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ACCESSION NR: AT4013178

in surface-active media and in air should be highest when creep (relaxation) begins, gradually decreasing as the influence of the sliding processes is diminished. This was confirmed for the effect of liquid sodium on stress relaxation in steel. Orig. art. has: 4 figures and 3 formulas.

ASSOCIATION: none.

SUBMITTED: 00 DATE ACQ: 20Feb64 ENCL: 00

SUB CODE: MM NO REF SOV: 013 OTHER: 003

Card 2/2

NIKITIN, V.I. (Leningrad)

Determining the time necessary for metal failure under the effect of varying stresses and temperatures. Izv. AN SSSR. Met. i gor. delo no.5:116-120 S-O '63. (MIRA 16:11)

ACCESSION NR: AT4013177 S/3059/63/000/000/0292/0299

AUTHOR: Dy*kova, G. P.; Nikitin, V. I.

TITLE: Effect of liquid sodium on rupture strength of structural materials

SOURCE: Zhidkiye metally*. Sbornik statey. Moscow, Gosatomizdat, 1963, 292-299

TOPIC TAGS: alloy EI-437B, alloy EI869, steel EI851, nickel base alloy, chrome nickel steel, liquid sodium, metal rupture strength, alloy rupture strength, metal creep, alloy creep, liquid metal adsorption effect

ABSTRACT: Tubular specimens (outside diameter 11 mm, wall thickness 0.5 mm) of chrome-nickel steel EI-851, as well as the nickel base alloys EI869 and EI-437B, were tested for rupture strength at 700, 750 and 800C, respectively, in the presence of liquid Na or in free air. The latter was used as a control, while the former was used to fill the tubular specimens, which were then sealed by welding on plugs of the basic material at tube ends. Results are presented graphically (see Figs. 1, 2 and 3 in the Enclosure). The liquid metal did not affect the rupture strength or creep characteristics of EI851 and EI869. Rupture strength and plasticity decreased for EI-437B in the presence of a liquid metal, while rate of creep increased. The dependence of rate of creep and time to rupture on the applied stress was found to be similar in pattern, i.e. stage-like, for

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ACCESSION NR: AT4013177

both the liquid metal and air. Adsorption characteristics of the environment are responsible for these effects of liquid Na on EI-437B at 800C. The determined adsorptive effect of the liquid metal confirms concepts on a mechanism of dislocation over-creep in the presence of creep phenomena. Orig. art. has: 4 graphs.

ASSOCIATION: none

SUBMITTED: 00	DATE ACQ: 20Feb64	ENCL: 03
SUB CODE:	NO REF SOV: 006	OTHER: 005

Card 2/2

L 13804-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD

ACCESSION NR: AP3002849 S/0126/63/015/006/0900/0907

AUTHOR: Nikitin, V. I.

TITLE: Adsorption action of liquid metal on a solid metal during deformation

SOURCE: Fizika metallov i metallovedeniye, v. 15, no. 6, 1963, 900-907

TOPIC TAGS: nickel-base alloy, EI437B alloy, Nimonic 80A, creep behavior, creep rate, rupture strength, ductile failure, brittle failure, liquid sodium, organic surface-active media, adsorption effect, critical stress

ABSTRACT: The creep behavior of the EI437B alloy [AISI Nimonic 80A] at 800C in contact with liquid sodium has been studied on tubular specimens with 11-mm outside diameters and 0.5-mm-thick walls, filled with liquid sodium and hermetically sealed at both ends. Test results showed that liquid sodium lowers the rupture strength of the alloy (see Fig. 1 of Enclosure), especially at low stresses. It also accelerates the creep in all three stages, but especially in the first and third, and sharply increases the total elongation in the third stage. The total elongation in the first and the second stages of creep is the same in liquid Na as in air. These effects also are more pronounced at lower stress levels. No corrosion action or diffusion into the alloy of the liquid metal was detected by

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L 39991-65 EWP(z)/EWT(d)/EWT(m)/EWP(b)/T/EWA(d)/EWP(w)/EWP(t) EM/MJW/JD/GS

ACCESSION NR: AT5007861 S/0000/64/000/000/0220/0225

AUTHOR: Stanyukovich, A. V.; Nikitin, V. I.

TITLE: Estimation of the fatigue strength of steels in the elastoplastic region at high temperatures

SOURCE: Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Tsentral'noye pravleniye. Voprosy mekhanicheskoy ustalosti (Problems in mechanical fatigue). Moscow, Izd-vo Mashinostroyeniye, 1964, 220-225

TOPIC TAGS: fatigue strength, nickel steel, yield point, chromium steel, cyclic stress, elastoplastic deformation, steel high temperature strength / EI850 steel, EI855 steel, 1Kh18N9T steel

ABSTRACT: In order to estimate the strength of metal at high temperatures and with a cyclic change of low-frequency, high-amplitude (above the yield point) stresses, the authors used a device which made it possible to fatigue test a ring of equal bending strength (the so-called ring of I.A. Oding) at a frequency of stress alternations of 20 cycles per minute. Three austenitic chromium-nickel steels (EI850, EI855, and 1Kh18N9T) were tested at 700C. All tested steels had approximately the same change in life (number of cycles to fracture) depending

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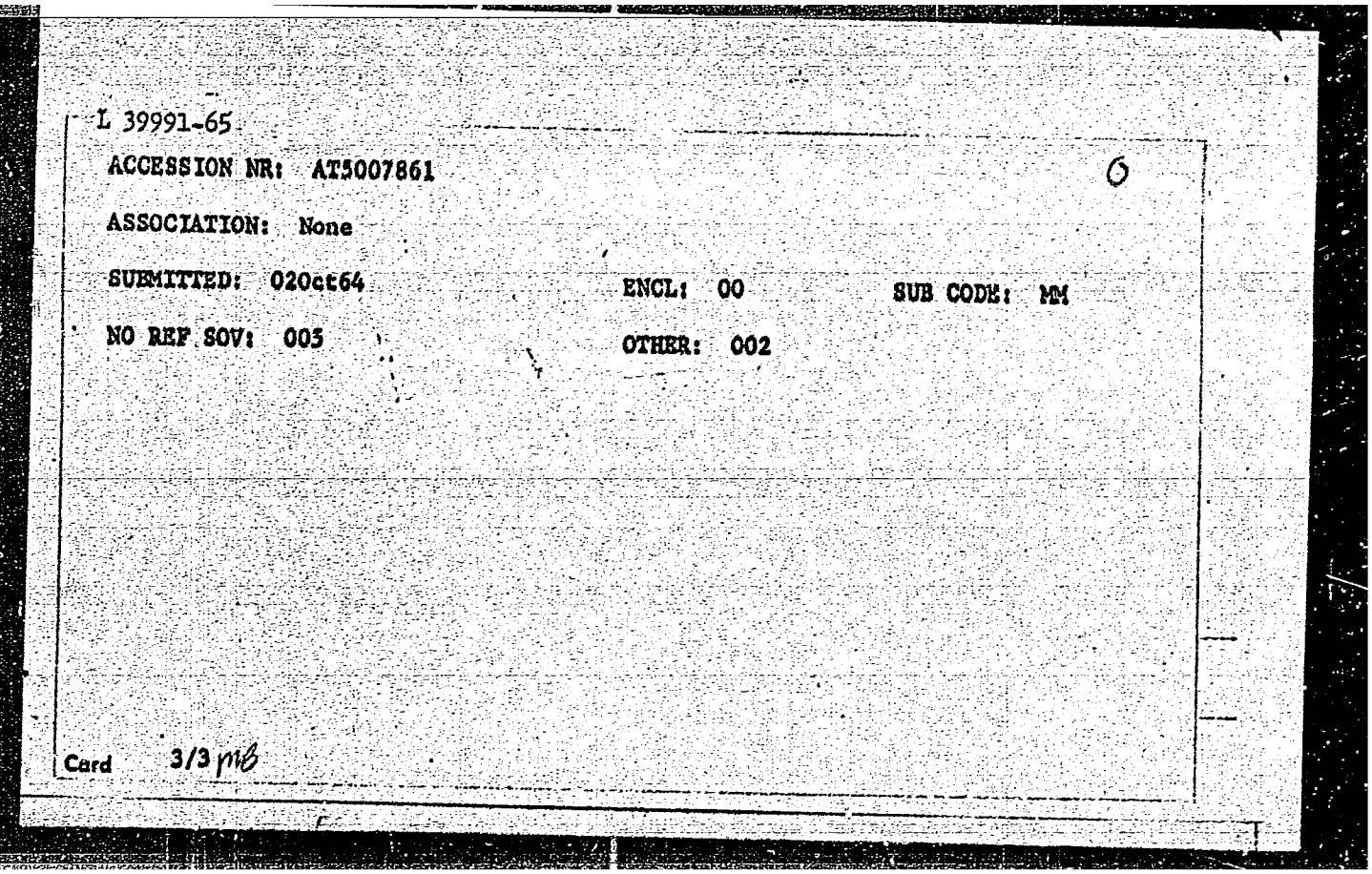
ACCESSION NR: AT5007861

on the amplitude of total deformation. The absence of a true fatigue limit was also characteristic of these steels. The strength of the metals dropped continuously during fatigue testing in the elastic region at high temperatures. After comparing the yield points of the steels and the fatigue test data, the authors concluded that at the same amplitude of total deformation the steels with a high yield point endure a greater number of cycles without fracture. The amplitude of plastic deformation was calculated with the assumption that the stresses during cyclic deformation in the elastoplastic region remained at the level of the yield point. The authors examined L.F. Coffin's method of estimating the resistance of metals to thermal fatigue by the magnitude of total plastic deformation, and concluded that this method can be considered only as a first approximation when solving the problem of determining damages inflicted on metal by cyclic deformation. The authors found that steels with a low yield point are capable of greater plastic deformation under fatigue testing conditions in the elastoplastic region than steels with a high yield point, and that the onset of fracture is determined by the magnitude of the elastic and plastic portions of the amplitude of deformation. Orig. art. has: 1 table, 5 figures and 5 formulas.



L 39991-65

ACCESSION NR: AT5007861

ASSOCIATION: None

SUBMITTED: 020ct64 ENCL: 00 SUB CODE: MM

NO REF SOV: 005 OTHER: 002

Card 3/3 mb

ACCESSION NR: AP4018617 S/0114/64/000/002/0035/0039

AUTHOR: Nikitin, V. I. (Candidate of technical sciences)

TITLE: Nickel alloy for liquid-sodium-cooled moving blades of a high-temperature gas turbine

SOURCE: Energomashinostroyeniye, no. 2, 1964, 35-39

TOPIC TAGS: nickel alloy, EI869 alloy, gas turbine, high temperature gas turbine, rotor blade, Na cooling, Na cooled rotor blade

ABSTRACT: Results are reported of an investigation of the effect of liquid sodium convection upon EI869 nickel alloy (0.03% C, 15.25% Cr, 0.79% Fe, 1.7% Ti, 1.14% Nb, 1.32% Al, 0.36% Si, 0.69% Mn, balance Ni). The alloy was tested by a thermal treatment that consisted of water quenching at 1,100C and subsequent aging for 2 hrs at 1,000C, with cooling down to 900C — holding for 1 hr, cooling down to 800C — holding for 2 hrs, free-air cooling to 750C — holding for 20 hrs, free-air cooling. The convection-corrosion tests were conducted in a welded-up 1Kh18N9T-steel chamber heated to 750C and with the

Card 1/2

ACCESSION NR: AP4018617

cool-Na at 400C: (a) with 0.01% oxygen, for 375, 750, 1,500, and 3,000 hrs and (b) with the max possible 0.38% oxygen, for 250, 500, and 1,000 hrs. The rate of EI869 corrosion in Na with 0.01% oxygen was found to be 0.023 mm/year; in the case of oxygen-saturated Na, the specimen weights showed a slight increase during the initial 250 hrs. It was also found that the hot hardness of the EI869 alloy remains the same in air or in Na with 0.01% oxygen at 750 and 800C; nor did 1% oxygen cause any reduction of continuous strength at 750C. However, at 10% oxygen, the metal strength was badly affected. No penetration of Na through a 1-mm wall of EI869 was observed at 650C, 155 atma for 1,250 hrs. It is believed that the EI869 alloy is suitable for turbine rotor blades operating at 750C Na temperature with an oxygen content of 0.01% or less. Orig. art. has: 5 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 19Mar64 ENCL: 00

SUB CODE: PR, AP NO REF SOV: 005 OTHER: 003

Card 2/2

L 15740-65 EPA(s)-2/EWT(m)/EPF(n)-2/EWA(d)/EWP(t)/EPA(bb)-2/EWP(b) Pad/
Pt-10/Pu-4 IJP(c)/ASD(p)-3 JD/WW/HW/JG/WB
ACCESSION NR: AP4040992 S/0279/64/000/003/0163/0168

AUTHOR: Nikitin, V. I.

TITLE: Selective corrosion of alloys in liquid metals 18 18 B

SOURCE: AN SSSR. Izvestiya. Metallurgiya i gornoye delo, no. 3, 1964, 163-168

TOPIC TAGS: alloy, selective corrosion, iron alloy, liquid metal, nickel containing alloy 27 27

ABSTRACT: A theoretical analysis of the selective corrosion of alloys in liquid metals is made for a binary alloy whose components have different solubility in liquid metal. Equations which describe the corrosion process under isothermal conditions are derived for various ratios between the rate of solubility of the easily soluble component of the alloy and the rate of the outward diffusion of this component. Similarly, the corrosion process under nonisothermal conditions is analyzed, and the critical value of the mass transfer rate, above which no corrosion occurs, is determined. The equation for the critical rate of mass transfer is used to determine the range

Card 1/2

L 15740-65
ACCESSION NR: AP4040992

of susceptibility of an iron-nickel alloy with 30% nickel to selective corrosion at 500—1000 C. Orig. art. has: 5 figures and 17 equations.

ASSOCIATION: none

SUBMITTED: 19Apr63 ENCL: 00 SUB CODE: MM

NO REF SOV: 005 OTHER: 002

Card 2/2

L 56558-65 EWT(m)/EWA(d)/EWP(t)/EWP(z)/EWP(b) MJW/JD
ACCESSION NR: AP5018808 UR/0304/64/000/005/0037/0038

AUTHOR: Yuditskiy, A. I. (Engineer); Tolmachev, Ye. P. (Engineer); Nikitin, V. I. (Engineer)

TITLE: New 1ChKh17N3G3 wear-resistant alloy

SOURCE: Mashinostroyeniye, no. 5, 1964, 37-38

TOPIC TAGS: wear resistant metal, metal hardness, annealing

Translation: UkrNIIgidrougol' Ukrainian /Scientific Research Institute for the Hydraulic Extraction of Coal/ and a mine repair plant have developed the new 1ChKh17N3G3 wear-resisting alloy for manufacturing parts subjected to hydraulic abrasion and abrasive wear during operation.

Studies were made of 12 experimental heats the chemical composition of which are given in the table.

The presence of an austenitic phase in the cast structure of the alloy makes it possible to change the hardness of the alloy over a wide range of values by means of heat treatment, which is very important for parts operating in various conditions of abrasive wear.

Of all the types of heat treatment of this alloy, ordinary annealing is the most feasible. Double annealing gives a slight additional increase in

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L 56558-65
ACCESSION NR: AP5018808

hardness, and for this reason, it can be conducted in exceptional circumstances.

To determine the relation of the influence of annealing temperature to the hardness, samples of heat No 505, were heated to various temperatures with the same cooling conditions and a constant soaking periods.

If annealing takes place at temperatures below 700°C, the hardness of the alloy does not change and will be equal to Bhn 444.

The greatest hardness (Bhn601) is acquired by the samples when annealed at 870°C.

Further increase in annealing temperature is not feasible since the hardness drops gradually (from Bhn 601 at 870°C to Bhn 444 at 1,200°C).

Cooling of all samples studied took place in the furnace.

It should be noted that in annealing parts in the 800-900°C temperature range, a slight increase of their sizes was noted. For 160-mm diameter parts, the increase was 0.3 mm, and for 400-mm diameter parts, 0.6 mm.

Data on size changes has to be taken into account so that polishing operations do not have to be conducted after machining.

It was possible with the use of ICHKh17N3G3 alloy to more than double the wear resistance of replaceable centrifuge windings which will bring about a savings of 400 thousand rubles annually to the Luganskaya Oblast alone.

The wear resistance of the blades of a shot-blasting apparatus made of this alloy was increased eightfold.

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L 56558-65

ACCESSION NR: AP5018808

2

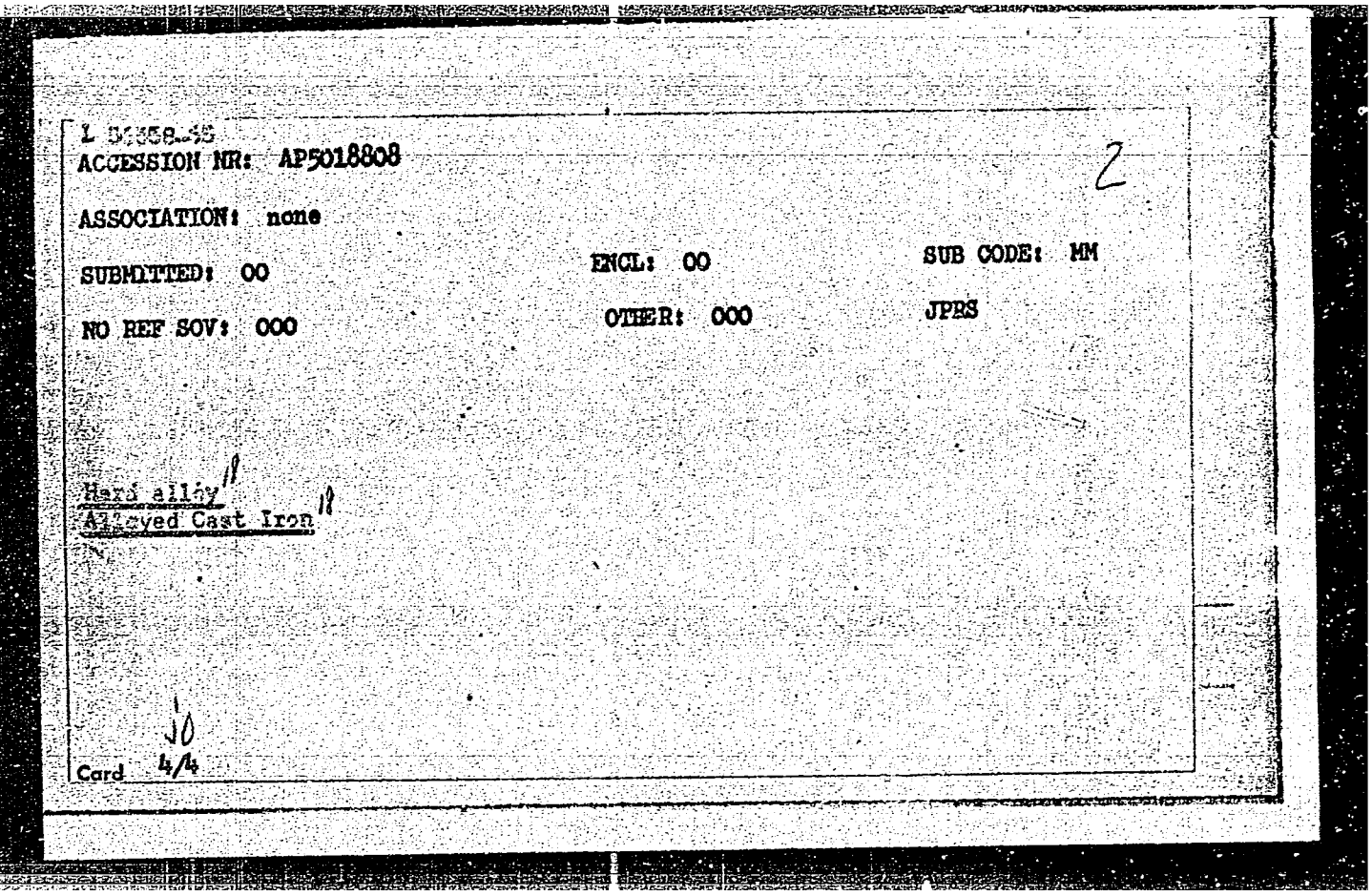
The use of ICh Kh17N3G3 alloy made it possible to significantly lower labor input for the machining of parts.

Chemical composition of melt, %

No of melt	C	Mn	Si	Cr	Ni	S	P	Bhn hardness
270	3.10	2.7	0.78	12.31	3.84	--	--	362
278	3.42	2.49	1.22	14.56	3.83	--	--	477
500	2.96	2.35	0.48	17.43	3.24	0.031	0.068	445
501	2.48	2.34	0.47	15.07	2.44	0.036	0.08	415
502	2.98	1.27	0.86	17.09	2.42	--	0.058	415
503	2.80	3.54	1.80	15.86	3.15	--	--	444
504	2.52	1.21	0.77	18.20	3.54	0.024	0.09	478
505	2.64	2.1	0.76	18.79	2.22	0.064	0.064	444
1263	2.65	3.1	0.74	16.2	2.93	0.029	0.064	401
2098	2.8	1.84	0.56	19.5	3.01	0.068	0.070	444
2160	2.24	2.19	1.12	20.5	2.67	0.049	0.070	444
2291	2.4	1.4	0.76	15.7	2.61	0.038	0.05	441

Orig. art. has 1 table.

Card 3/4



L 5[illegible]-65
ACCESSION NR: AP5018808

2

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NO REF SOV: 000 OTHER: 000 JPRS

Hard alloy 18
Alloyed Cast Iron 18

10

Card 4/4

NIKITIN, V.I., kand. tekhn. nauk

Nickel alloy for the runner blades of a high temperature gas turbine with liquid sodium cooling. Energomashinostroenie 10 no.2:35-39 F '64. (MIRA 17:6)

ACCESSION NR: AP4013309

S/0032/64/030/002/0213/0215

AUTHOR: Nikitin, V. I.

TITLE: Stress rupture test of materials in liquid metal under the conditions of mass transfer

SOURCE: Zavodskaya laboratoriya, v. 30, no. 2, 1964, 213-215

TOPIC TAGS: strength of material, sustained strength, stress-rupture test, liquid metal, mass transfer, steel, stainless steel, chromium steel, steel heat resistance

ABSTRACT: A procedure for evaluating the strength of materials at the temperature of liquid metals is described. The test specimens represented hermetically sealed tubes made of stainless chromium steel. They were tested under three conditions: a) filled with air; b) filled with liquid metal at rest; c) filled with liquid metal in motion (mass transfer). In the last case the temperature of the "hot" and of the "cool" zones in the samples were 700 and 400C. The tensile strength of the stainless steel was found to be equal in the first two cases, while in the third case if was lowered from 2.8 to 1.4 kg/mm^2 in 1000 hours. It was established that the lines showing the strength of steel in air and filled with liquid metal (with

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ACCESSION NR: AP4013309

mass transfer) diverged with the increase in the test duration. A parabolic relation between the stress applied and the metal yield time was observed. Orig. art. has: 2 figures.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy kotloturbinnyy institut (Central Scientific Research Institute of Boilers and Turbines)

SUBMITTED: 00	DATE ACQ: 26Feb64	ENCL: 00
SUB CODE: ML	NO REF SOV: 000	OTHER: 001

Card 2/2

NIKITIN, V.I.; KONONENKO, Yu.L.

Machine for fatigue testing in the plastoelastic zone of active liquid media. Zav.lab. 30 no.3:371 '64. (MIRA 17:4)

1. TSentral'nyy nauchno-issledovatel'skiy kotloturbinnyy institut.

ACCESSION NR: AP4039621 S/0076/64/038/005/1210/1215

AUTHOR: Nikitin, V. I. (Leningrad)

TITLE: Investigation of thermal mass transfer in liquid sodium

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 5, 1964, 1210-1215

TOPIC TAGS: multicomponent stainless steel, stainless steel, EI869 steel, heat resistant steel, steel corrosion, liquid sodium corrosive property, thermal mass transfer, liquid sodium

ABSTRACT: Heat-treated specimens of EI869 nickel-base alloy (0.03% C, 15.25% Cr, 1.7% Ti, 1.14% Nb, 1.32% Al, 0.79% Fe, 0.36% Si, 0.69% Mn) were held for 375, 750, 1500, and 3000 hr in a convection chamber filled with liquid sodium containing 0.01% oxygen, or, in another series of experiments, for 250,500 and 1000 hr in oxygen-saturated liquid sodium (0.38% oxygen at 750C). In all experiments, conditions for thermal mass transfer were ensured by maintaining the lower and upper zones of the vertical convection chamber at 750 and 400C respectively. Under these conditions, the thermal mass transfer for EI869 alloy in relatively pure (0.01% O_2) sodium follows a linear rate

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ACCESSION NR: AP4039621

and can be described by a linear equation

$$g = -0.021T$$

where g is the weight loss in g/m^2, T —time in hours (see Fig. 1. of the Enclosure). The corrosion rate is 0.023 mm/year. No increase in mass transfer was observed when the oxygen content of the liquid sodium was increased. This is explained by the slow movement of the liquid metal and the consequent absence of erosion of the alloy. Liquid sodium with 0.01% O_2 had no effect on the microstructure of the EI869 alloy, regardless of the duration of exposure. Neither did it have any effect on the mechanical properties; all changes in mechanical properties which occurred were within the limits of changes caused by aging. For oxygen-saturated liquid sodium, however, 1000 hr of exposure resulted in intercrystalline corrosion which could, with further development, impair the mechanical properties of the alloy. Orig. art. has: 5 figures.

ASSOCIATION: Kotloturbinnyy institut (Boiler and Turbine Institute)

Card 2/4

ACCESSION NR: AP4039621

SUBMITTED: 11Jun63 DATE ACQ: 19Jun64 ENCL: 01

SUB CODE: ME NO REF SOV: 003 OTHER: 009

Card 3/4

ACCESSION NR: AP4039621

ENCLOSURE: 01

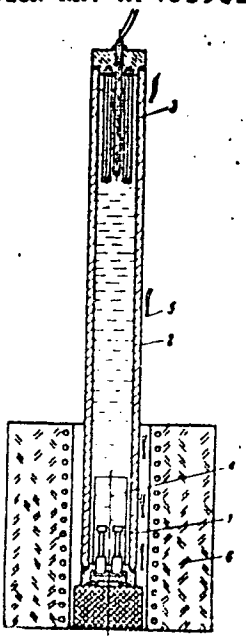

Fig. 1. Diagram of the convection chamber

1 - Sample; 2 - chamber; 3 - crystallizer; 4 - shield; 5 - thermocouple; 6 - electric furnace.

Card 4/4

NIKITIN, V.I.

Initial steps. Mashinostroitel' no.6:45 Je '65. (MIRA 18:7)

NIKITIN, V.I. (Leningrad)

Nonselective corrosion of alloyed steel in liquid low-melting metals. Izv. AN SSSR. Met. no.6:153-160 N-D '65.

(MIRA 19:1)

L 40718-65 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(z)
ACCESSION NR: AP5008821 S/0096/65/000/004/0052/0057
Pf-4/Pad IJP(c) MJW/JD/HW/JG
AUTHOR: Nikitin, V. I. (Engineer); Taubina, M. G. (Engineer)

TITLE: Size factor effect at high temperature under static load

SOURCE: Teploenergetika, no. 4, 1965, 52-57

TOPIC TAGS: nickel base alloy, austenitic chromium nickel steel, ferritic chromium steel, creep rate, rupture strength, scale effect/EI827 alloy, EI437B alloy, EI211 steel, 1Kh18N9T steel, EI851 steel, EI853 steel, EI854 steel

ABSTRACT: Solid specimens (80 mm long, 8 mm in diameter) and tubular specimens (50 mm long, 11 mm in outside diameter, wall thickness of 0.5 mm) of EI827 and EI437B [AISI Nimonic 80A] nickel-base alloys, EI211, 1Kh18N9T [AISI 321], EI851, and EI854 austenitic steels, and EI853 ferritic-carbidic chromium steel have been subjected to creep tests at 700C to determine the size factor effect. The test results showed that, except for the EI853 steel, the rupture strength of tubular specimens was lower than that of solid specimens. The size factor effect was found to increase with prolongation of the test. The size factor also affected the creep rate. Tubular specimens of EI827 and EI437B alloys had a higher creep rate in all creep stages than that of solid specimens. In tubular specimens of all other investigated steels, the mean creep rate was the same in the first and second stages,

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*[Alloy designation should be 1Kh18N9T]

L 40718-65
ACCESSION NR: AP5008821

but lower in the third stage as compared with solid specimens. Tubular specimens of all investigated materials had a lower total elongation. The size factor effect in creep is determined by differences in the conditions of deformation and failure of the material of tubular and solid specimens; the size factor effect increases as the thickness of the specimen decreases and the properties of the polycrystalline material approach those of the single crystal material. The susceptibility to the size factor effect is a specific property of each material; hence creep and stress rupture tests of structural materials should be made with specimens of a varied cross section. Orig. art. has: 5 figures and 3 tables. [MS]

ASSOCIATION: Tsentral'nyy kotloturbinnyy institut (Central Boiler and Turbine Institute)

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NO REF SOV: 006 OTHER: 001 ATD PRESS: 3231

Nimonic alloys

Card 2/2

L 51070-65 EWT(m)/EPF(c)/EPF(n)-2/EWG(m)/EPR/EWP(j) Pc-4/Pr-4/Ps-4/
Pu-4 WW/DM/RM
ACCESSION NR: AP5009123 S/0089/65/018/003/0277/0278

AUTHOR: Anisimov, I. S.; Nikitin, V. I.; Saukov, A. I.; Ugodenko, A. A.

TITLE: Total cross sections for the interaction of neutrons with benzene, toluol, and sodium acetate in the energy interval 0.03--0.5 eV

SOURCE: Atomnaya energiya, v. 18, no. 3, 1965, 277-278

TOPIC TAGS: neutron slowing down, organic moderator, benzene, toluol, sodium acetate, neutron cross section

ABSTRACT: The investigation described is of interest because the chemical bond of the hydrogen atoms in moderator molecules must be taken into account in calculations of the slowing down of neutrons with energies lower then 1 eV in hydrogen-containing moderators. The total cross sections of interaction between the neutrons and benzene, toluol, and sodium acetate was measured by the transmission method. The neutrons were produced by the $T(d, n)He^4$ reaction on a tritium target in a pulsed accelerator tube. The neutron detector was a mixture of 30% LiF enriched with Li^6 and 70% ZnS. The neutron spectra before and after passing through the investigated substances were measured by the time of flight method.

Card 1/2

L 51070-65

ACCESSION NR: AP5009123 O

The ratio of the corss sections of the bound and free hydrogen was found to be the same for all substances, and very close to that obtained elsewhere for water and benzene. The ratio can be described by the empirical formula $F(E) = 1 + 0.073/E - 0.00076/E^2$ (E - neutron energy, eV). The relative energy losses in the three substances as functions of the initial energy, per single collision, were also calculated under the assumption that the dependence of the neutron losses on the cross section is the same for the investigated substances and for water. Orig. art. has: 2 figures and 1 formula.

ASSOCIATION: None

SUBMITTED: 12Feb64 ENCL: 00 SUB CODE: NP

NR REF SOV: 002 OTHER: 006

Card 2/2

L 01125-66 EWG(j)/EPA(s)-2/EWT(m)/EWP(w)/EPF(c)/EPF(n)-2/EWA(d)/T/EWP(t)/EWP(z)/EWP(b)/EWA(c) IJP(c) JD/WW/JG/WB

ACCESSION NR: AP5019663 UR/0369/65/001/003/0361/0368

AUTHOR: Nikitin, V. I. (Leningrad)

TITLE: Oxygen-containing liquid sodium: the nature of its corrosive effect on steel

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 1, no. 3, 1965, 361-368

TOPIC TAGS: oxygen containing liquid sodium, steel corrosion, austenitic steel, sodium peroxide, pure liquid sodium, internal oxidation, oxygen diffusion, oxide film

ABSTRACT: Oxygen is known to enhance the corrosive effect of liquid sodium on structural metal. In this connection, the authors present the results of an investigation of the degree and nature of the effect of corrosion of steel in liquid sodium containing different percentages of oxygen. The steel investigated was chrome-nickel austenitic steel (0.09% C, 0.41% Si, 0.59% Mn, 13.6% Cr, 18.9% Ni, 2.3% W, 1.2% Nb) quenched in water from 1100°C and aged at 800°C for 10 hr. Cylindrical specimens of this steel were checked to determine the change in their weight as a result of immersion in pure sodium and in a mixture of Na and Na_2O_2

Card 1/3

at 700°C for 100, 200, and 500 hr, and subsequently subjected to tensile tests. There was no change in the weight of specimens tested in pure sodium (with 0.01% oxygen) and their surface remained shining, whereas in all specimens tested in Na_2O_2 the weight increased with increasing content of oxygen in the sodium and the surface was dulled and covered with a corrosion film and a dense network of cracks. Similarly, the tensile strength of specimens immersed in pure sodium (containing up to 0.1% wt O_2) was the same as that of the specimens aged in air, whereas the tensile strength of specimens in Na_2O_2 (1 and 10% wt O_2), as well as their strength and plasticity, decreased. Subsequent microstructural examination of the specimens indicates that corrosion in sodium containing 0.01% O_2 leaves no metallographically detectable traces in the structure, whereas corrosion in Na containing 1 and 10% O_2 damages the surface due to chemical interaction with the medium. Laminar spectral analysis of the specimens revealed that the Na content of structure is not increased as a result of immersion in sodium with different percentages of O_2. Thus, the observed decrease in the strength and plasticity of steel cannot be attributed to the effect of sodium; it is rather attributable to internal oxidation due to the oxygen contained in the sodium, since, moreover, oxygen readily diffuses in the particular alloy elements of the steel investigated. The reason why internal oxidation does not occur in the case of specimens ex-

L 01125-66

ACCESSION NR: AP5019663

posed to the air by contrast with those immersed in O_2-containing liquid sodium is because, first, oxygen in Na is present in nearly ionized state, whereas in air it is present in molecular state. As a result, interaction between components of steel and the oxygen in sodium is facilitated and takes place without the intermediate stage of dissociation of the O_2 molecule. Second, the partial pressure of oxygen in air is much higher than in sodium. In such conditions, not only the alloy elements, with their high affinity for oxygen, but also the matrix itself readily interact with oxygen. That is why in the case of steel exposed in air there occurs the intensive formation of a surface oxide film rather than internal oxidation. Orig. art. has: 4 figures, 3 tables.

ASSOCIATION: none

SUBMITTED: 25Nov64 ENCL: 00 SUB CODE: MM

NO REF SOV: 011 OTHER: 008

Card 3/3

NIKITIN, V.I.

Effect of temperature on steel corrosion in liquid sodium containing oxygen. Zasch.met. 1 no.4:385-390 Jl-Ag '65. (MIRA 18:8)

NIKITIN, V.I. (Leningrad)

Effect of the adsorption of a liquid metal media on the process of creep under compression. Fiz.-khim. mekh. mat. 1 no.5:608-611 (MIRA 19:1) '65.

1. Submitted Feb. 5, 1965.

L 40332-66 EWT(m)/T/EWP(t)/ETI IJP(c) WW/JD/JG/WB SOURCE CODE: UR/0370/65/000/006/0153/0160

ACC NR: AP6011121

AUTHOR: Nikitin, V. I. (Leningrad)

ORG: none

TITLE: Nonselective corrosion of alloyed steels in liquid low temperature melting metals

SOURCE: AN SSSR. Izvestiya. Metally, no. 6, 1965, 153-160

TOPIC TAGS: corrosion, corrosion rate, metal property, austenite steel, chrome steel / Kh15N35V3T austenite steel, Kh20N12S2 austenite steel, 1Kh18N9T austenite steel, 15Kh12VMF chrome steel

ABSTRACT: After preliminary experiments on the corrosion of steel 1Kh18N9T in liquid tin, bismuth, cadmium, sodium and lithium, the corrosion of Kh15N35V3T, Kh20N12S2, 1Kh18N9T, and 15Kh12VMF specimens in liquid bismuth was investigated. The specimens were kept at the bottom of a natural convection chamber (70 mm high) for 100 and 300 hours at a temperature of 700C (400C at top of chamber). The resulting weight loss and depth of corrosion as a function of time are shown in Fig. 1. Pictures of the microstructure of the corrosion region are presented, showing an unstructured layer with a pronounced boundary between this layer and the unaffected metal. The possibility that this represents selective corrosion is discussed in some detail but is rejected on the basis that the speed (or depth) of

UDC: 669:541.8

Card 1/2

EWT(m)/EWP(w)/EWP(t)/ETI IJP(c) JD

SOURCE CODE: UR/0126/66/021/[illegible]

[illegible]

[illegible] Polzunov (TsKTI)

[illegible]: Influence of compression on defects in steel exposed to creep conditions

[illegible]: Fizika metallov i metallovedeniye, v. 21, no. 4, 1966, 560-564

[illegible] TAGS: steel, alloy steel, chromium steel, nickel steel / Kh20N12S2 steel, [illegible] steel

[illegible]: The effect of periodic elongations and compressions on the long-term [illegible] of steels Kh20N12S2 and 1Kh18N10T was studied. The study supplements the results of M. Ya. Pines and A. F. Sirenko (DAN SSSR, 1960, 131, 1312). The specimens were quenched at 1100C in water and aged at 600C for 10 hours. The mechanical experiments were carried out at 700C. The experimental results are summarized in graphs and tables (see Fig. 1). It was found that periodic compressions at relatively high temperatures do not lead to a healing of creep defects which

Card 1/2 UDC: 539.376:669.15.26'6

L 08775-67

ACC NR: AP6023703

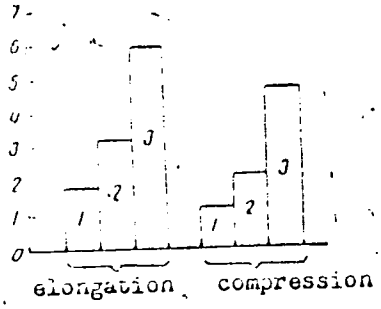


Fig. 1. Dependence of creep deformation in steel Kh20N12S2 over a 20-hour period during elongation and compression on the number of compression cycles.

originate in heat-resistant steels during elongation. Orig. art. has: 1 table and 4 graphs.

SUB CODE: 11/ SUBM DATE: 19Nov64/ ORIG REF: 009/ OTH REF: 001

ACC NR: AP6031297 SOURCE CODE: UR/0366/66/002/009/1549/1553

AUTHOR: Nikitin, V. I.; Sidorenko, V. K.

ORG: Chemistry Institute, Academy of Sciences, Tadzhikskaya SSR (Institut khimii Akademii nauk Tadzhikskoy SSR)

TITLE: Tertiary trihydric alcohols of the acetylene and ethylene series and their conversions. Part 33: Synthesis of acetylenic 1,2,5-glycerins containing a phenyl radical and of their chlorohydrins

SOURCE: Zhurnal organicheskoy khimii, v. 2, no. 9, 1966, 1549-1553

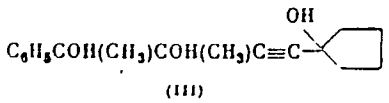
TOPIC TAGS: acetylene compound, chlorohydrin, glycerin

ABSTRACT: The study was undertaken in order to obtain acetylenic glycerins containing a phenyl radical and determine whether this has a substantial influence on the course of subsequent chemical conversions of such glycerins. The tritertiary acetylenic glycerins

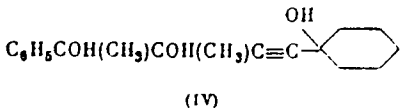
$$C_6H_5COH(CH_3)COH(CH_3)C{\equiv}CCOH(CH_3)_2 \quad (I)$$

$$C_6H_5COH(CH_3)COH(CH_3)C{\equiv}CCOH(CH_3)C_2H_5 \quad (II)$$

 UDC: 547.426.314.2+546.185'131



(III)



(IV)

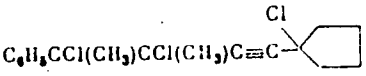
were synthesized by condensing methylphenylacetylcarbinol with the corresponding tertiary ethynylcarbinols. The glycerins are stable compounds; they can be distilled under reduced pressure and can be stored without appreciable change. Glycerins I-IV were then converted into the corresponding chlorohydrins by the action of phosphorus pentoxide, with which they reacted readily. The chlorohydrins formed were:

$C_6H_5CCl(CH_3)CCl(CH_3)C{\equiv}CCCl(CH_3)_2$
(V)

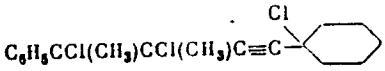
$C_6H_5COH(CH_3)CCl(CH_3)C{\equiv}CCCl(CH_3)_2$
(VI)

$C_6H_5CCl(CH_3)CCl(CH_3)C{\equiv}CCCl(CH_3)C_2H_5$
(VII)

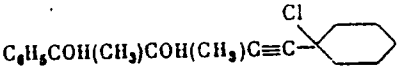
$C_6H_5COH(CH_3)CCl(CH_3)C{\equiv}CCCl(CH_3)C_2H_5$
(VIII)



(IX)



(X)



(XI)

ACC NR: AP6031297

On heating or prolonged storage, the chlorohydrins evolve hydrogen chloride, converting into a dark polymeric mass.

SUB CODE: 07/ SUBM DATE: 11Oct65/ ORIG REF: 005

Card 3/3

ACC NR: AP6036451 SOURCE CODE: UR/0370/66/000/006/0160/0168

AUTHOR: Nikitin, V. I. (Leningrad)

ORG: none

TITLE: The mechanism for decrease of long-range stability of metals exposed to surface-active liquid metal media

SOURCE: AN SSSR. Izvestiya. Metally, no. 6, 1966, 160-168

TOPIC TAGS: copper, bismuth, metal test, metal aging, metallurgic research / M-1 copper

ABSTRACT: The effect of liquid bismuth on the long-range stability of copper was investigated. The study was carried out at 350C, using copper pipe specimens of 10-mm diameter with a wall thickness of 0.5 mm and a length of 50 mm. The experimental procedure followed that described by V. I. Nikitin (Mashiny i ustanovki dlya issledovaniya korrozii i prochnosti konstruktsionnykh materialov v zhidkikh metallakh. GOSINTI, 1964). The experimental results are presented graphically (see Fig. 1). The observed time dependence of the applied stress in M-1 copper specimens exposed to liquid bismuth is explained in terms of a crack propagation model

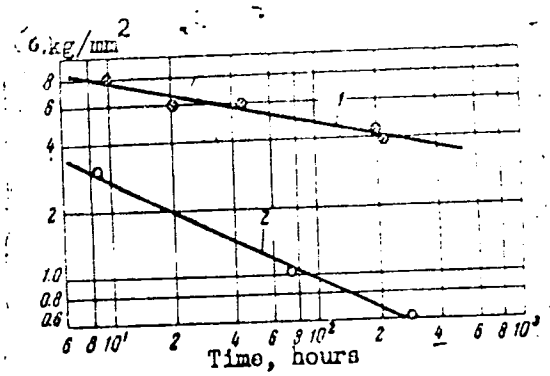
$$\tau = \frac{8\beta}{\omega a^3}\left(\frac{kT}{a}\right)^2 e^{\frac{Q+2\omega^2\gamma_a}{kT}}\sigma^{-m\gamma_a-3}$$

UDC: 539.4.015/019

Card 1/2

ACC NR: AP6036451

Fig. 1. Time dependence (up to the time of failure) of applied stress for copper of type M-1: (a) in air; (b) liquid bismuth at 350C respectively.



where τ is the metal failure time, β and m are constants, ω is a characteristic frequency, T - the absolute temperature, k - the Boltzmann constant, α - width of crack, σ - applied stress, Q - heat loss in the specimen, and γ_a - the surface tension of the solid-liquid interface. It was found that the derived equation was in good agreement with the experimental results. Orig. art. has: 5 graphs and 10 equations.

SUB CODE: 11/ SUBM DATE: 13Nov64/ ORIG REF: 013/ OTH REF: 001

Card 2/2

L 22441-66 EWT(m)/EWP(j)/T IJP(c) RM
ACC NR: AP6006362 (A) SOURCE CODE: UR/0413/66/000/002/0095/0095

AUTHOR: Nikitin, V. I.; Glazunova, Ye. M.; Narnitskaya, M. A.; Nagibina, T. D.; Yasenkova, L. S.

ORG: none

TITLE: Preparation of synthetic rubber. Class 39, No. 178107

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 2, 1966, 95

TOPIC TAGS: synthetic rubber, copolymerization , butadiene

ABSTRACT: This Author Certificate concerns a method for preparing synthetic rubber by water-emulsion copolymerization of butadiene with vinylethynyl compounds at reduced temperatures in the presence of peroxide initiators. In order to increase the number of types of synthetic rubbers, 3,4,7-trimethylocten-7-yne-5-diol is proposed for use as a vinylethynyl compound. [LD]

SUB CODE: 11/ SUBM DATE: 15Jun64

Card 1/1 UDC: 678.762.2-136.93

L-20453-66 EWT(m)/EWP(w)/EWA(d)/T/EWP(t) IJP(c) JD/HW
ACC NR: AP6009807 (N) SOURCE CODE: UR/0096/66/000/004/0006/0009

AUTHOR: Nikitin, V. I. (Engineer)

ORG: Central Boiler and Turbine Institute (Tsentral'nyy kotloturbinnyy institut)

TITLE: Relationship between the fatigue strength and rupture strength of materials at high temperature

SOURCE: Teploenergetika, no. 4, 1966, 6-9

TOPIC TAGS: heat resistant steel, heat resistant alloy, steel strength, alloy strength, fatigue strength, rupture strength, high temperature strength

ABSTRACT: Two nickel-base alloys EI437B and EI855 and three austenitic chromium-nickel steels 1Kh18N9T, EI211, and EI850 have been subjected to stress-rupture tests and low-frequency (20 cycles/min) fatigue tests at 700C in order to determine which stresses play the major part in causing the failure. It was found that in both cases the time-to-failure stress dependence is exponential. The relationship between the values of fatigue strength and rupture strength was found to depend on the tensile strength of the material tested. In the case of a high-strength material such as EI437B, the rupture strength was higher than the fatigue strength. The rupture strength of other materials tested was lower than the fatigue strength, and the difference between the two become progressively greater as the time-to-failure increased (see Fig. 1). The fracture in stress-rupture tests in all cases was intergranular, and

Card 1/2 UDC: 620.1.669.15—194

L 20453-66

ACC NR: AP6009807

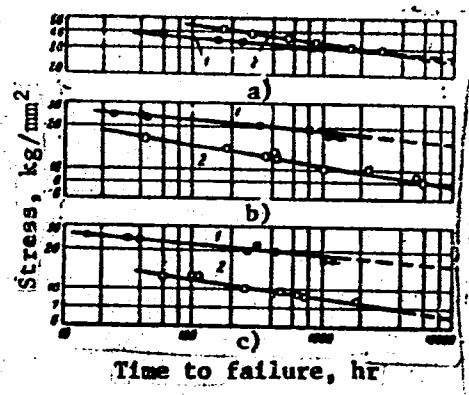


Fig. 1. Cyclic strength

1 - Rupture strength; 2 - time dependence for EI437B(a), EI855(b) and 1Kh18N9T(c) at 700C.

in fatigue tests transgranular. Only in EI437B alloy was the mixed type of fracture observed in fatigue tests. Orig. art. has: 4 figures and 2 tables. [DV]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 012/ OTH REF: 001/ ATD PRESS: 4222

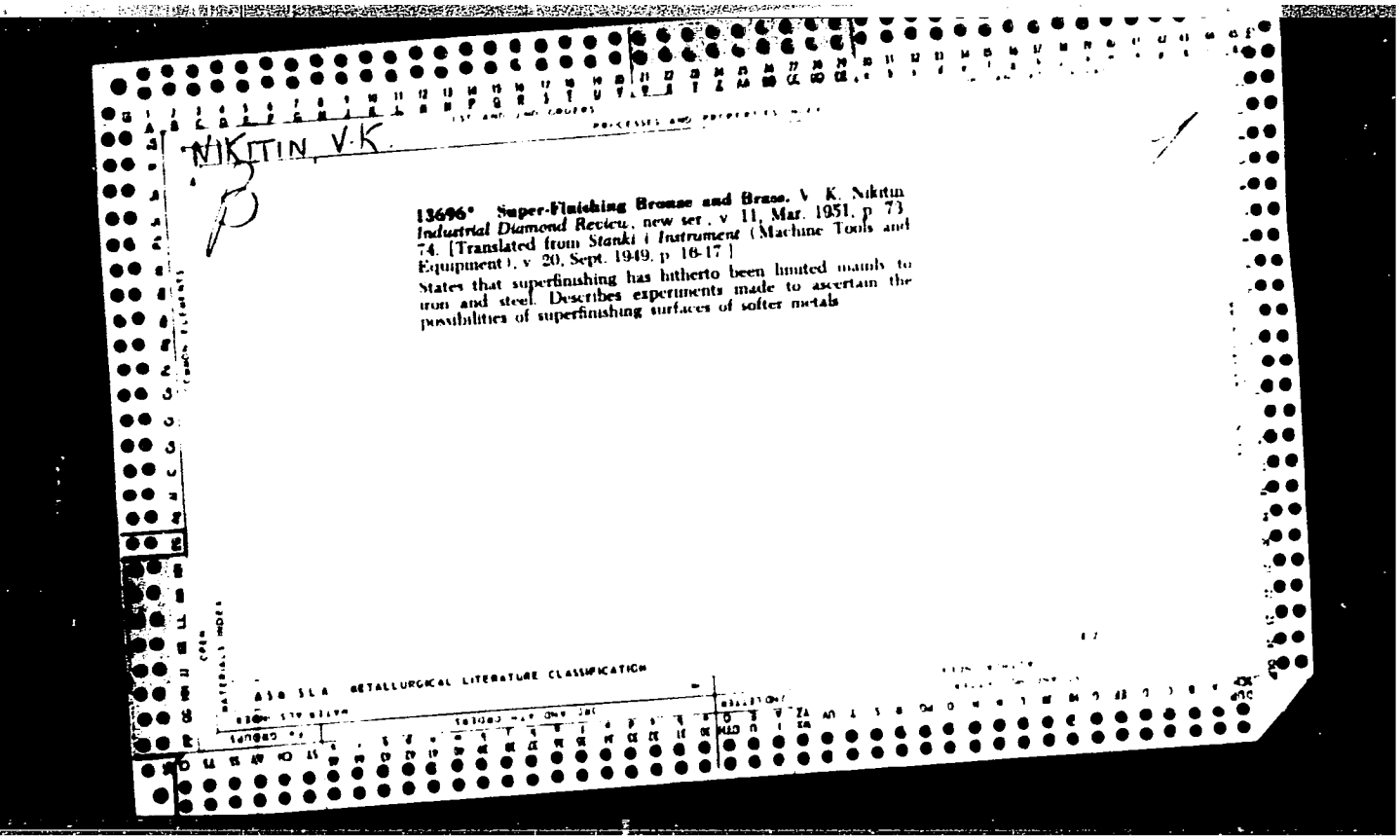
Card 2/2 MQ

GENCHIKOV, A.F.; NIKITIN, V.K., zamestitel' nachal'nika sluzhby puti; YAKOBSON, S.I.

The P.D.M.S. (track and roadway machinery station) carries out major repair work. Put' i put. khoz. no.5:23-27 My '57. (MLRA 10:6)

1. Glavnyy inzhener Putevoy dorozhnoy mashinnoy stantsii No.2 Belorusskoy dorogi (for Genchikov). 2. Nachal'nik Putevoy dorozhnoy mshinnoy stantsii No.2 Belorusskoy dorogi (for Yakobson).

(Railroads--Maintenance and repair)



NIKITIN, V.K.

13696* **Super-Finishing Bronze and Brass.** V. K. Nikitin. *Industrial Diamond Review*, new ser., v. 11, Mar. 1951, p. 73-74. [Translated from *Stanki i Instrument* (Machine Tools and Equipment), v. 20, Sept. 1949, p. 16-17.]
States that superfinishing has hitherto been limited mainly to iron and steel. Describes experiments made to ascertain the possibilities of superfinishing surfaces of softer metals.

A3a 5L4 METALLURGICAL LITERATURE CLASSIFICATION

GULIN, V.S.; MITYUSHIN, L.A. ; NIKITIN, V.K.; MISSALOV, V.I.

Modernization of the rotary polishing machine. Der. prom. 10 no.8:22-23 Ag '61. (MIRA 14:8)

1. Moskovskiy mebel'no-sborochnyy kombinat No.2.
(Grinding machines)

NIKITIN, V.K.; SHVEDKOV, L.K.; SKORODUMOV, B.A.

Thread profile undercutting in vortex milling. Stan.i instr. 25 no.4: 22-25 Ap '54. (MLRA 7:6)
(Milling machinery) (Screw threads)

NIKITIN, Vasilii Konstantinovich; SKORODUMOV, Boris Aleksandrovich, SHVEDKOV, Leonid Konstantinovich; SHNEYDERMAN, I.Ya., inzhener, retsenzent; SOROKA, M.S., redaktor; RUDENSKIY, Ya.V., tekhnicheskiy redaktor

[Vertical cutting of threads in nuts] Vikhrevoe narezanie rez'by v gaikakh. Kiev, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1956. 41 p. (MIRA 9:7)
(Bolts and nuts) (Screw cutting)

NIKITIN, V.K.; SKORODUMOV, B.A.

Milling threads in nuts on lathes. Stan.i instr. 27 no.12:31-32 D '56. (MLRA 10:2)
(Bolts and nuts) (Screw--cutting machines)

NIKITIN, V.K.

Swedish SAAB-93 small cylinder capacity automobile. Avt.i trakt. prom. no.10:45-47 O '57. (MIRA 10:12)
(Sweden--Automobiles--Design and construction)

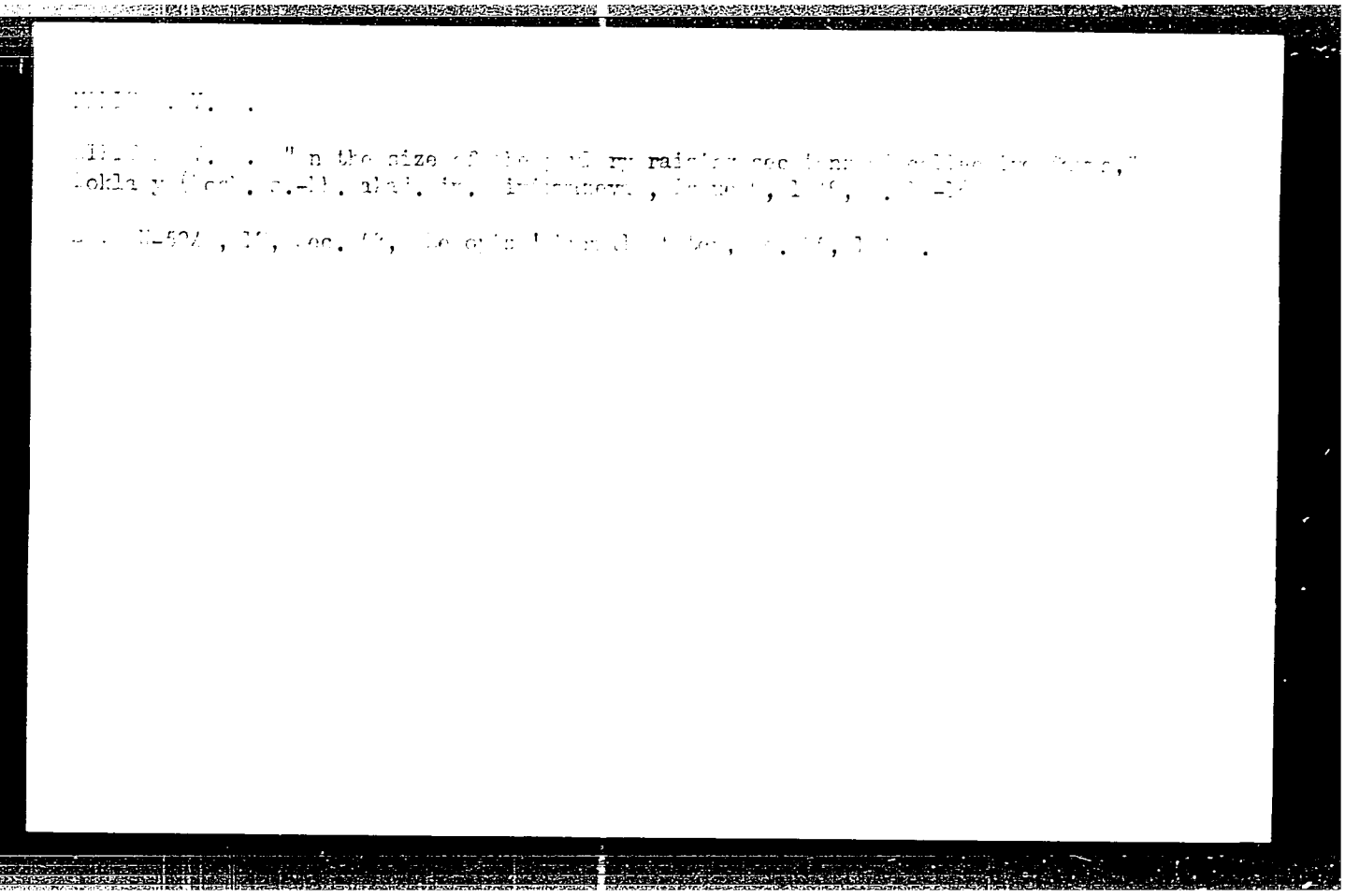
NIKITIN, V.K.

Carburetors with overflow-type steady-pressure chambers. Avt. prom. no.1:42 Ja '59. (MIRA 12:1)

1. Sibirskiy avtomobil'no-dorozhnyy institut.
(Automobiles--Engines--Carburetors)

NIKITIN, V.K.

The new Austin-7 British car with small displacement. Avt.prom. no.7:42-45 Jl '60. (MIRA13:7)
(Great Britain--Automobiles)



L 37789-66

ACC NR: AP6028835 SOURCE CODE: UR/0097/66/000/003/0035/0038

AUTHOR: Pirozhkov, G. I. (Candidate of technical sciences); Nikitin, V. L. (Engineer)

ORG: none

TITLE: Experimental investigation of the behavior of round reinforced-concrete elements subject to bending

SOURCE: Beton i zhelezobeton, no. 3, 1966, 35-38

TOPIC TAGS: reinforced concrete, pipe, material deformation, tensile strength, compressive strength, steel/35GS steel

ABSTRACT: At the Novosibirsk Rail Transport Engineers Institute tests were made on 20 reinforced-concrete pipes intended to function as elements subject to bending in the design of a coal tunnel shield. Designs for such a shield were suggested at one time by the Mining Institute of the Siberian Department of the Academy of Sciences USSR. Experimental investigations were carried out to find the peculiarities in the actual operation of round monolithic and precast reinforced-concrete beams. The article presents the principal findings of these investigations. The calculated carrying capacity of zero-effect pipes was found in all cases to be below actual breaking moments. The closest approximation of experimental data to calculated results was obtained in the determination of theoretical breaking moments with allowance for reinforcement tensile and compressive strength about equal to the mean yield point for 35GS steel (given the corres-

Card 1/2 UDC: 666.982.2-462

pondingly increased ultimate compressibility of concrete). The carrying capacity of a pipe was found to be not appreciably affected by rapid application of a load or by a 180° turn of the pipe around the longitudinal axis after the load is brought to a normative level or by the presence or absence of a joint. The grade of concrete was found to have a somewhat greater effect on the strength of tubular elements in bending than follows from theory. This effect increases with an increase in the quantity of reinforcement, and the higher the grade of concrete, the greater of the relative effect. An increase in the reinforcement of annular sections was found to effect a greater increase in carrying capacity for stronger concrete than was to be expected from theory. A change in the concrete strength or in the amount of longitudinal reinforcement was found to have no marked effect on rigidity. The height of the compressed zone in the sections of pure bending was in every instance less than half the section height and did not vary significantly with an increase in the load. Cracks appeared gradually as the pipes were loaded, and the distances between the cracks diminished quite regularly, tending towards a certain minimum for rather significant loads.

The authors conclude, "The results of the experiment indicated the possibility of using such pipes in reinforced-concrete tunnel shields. This was subsequently confirmed by production tests." Orig. art. has: 8 figures and 3 tables.
[JPRS: 36,581]

SUB CODE: 11, 13, 20 / SUBM DATE: none / ORIG REF: 006

NIKITIN, Vladimir Leonidovich

[Advice for poultry breeders] Sovety ptichnitse. [Moskva] Moskovskii rabochii, 1956. 119 p. (MLRA 10:3)
(Poultry)

NIKITIN, Vladimir Leonidovich

[Advice to poultry raisers] Sovety ptichnitse. 2. izd., dop. Moskovskii rabochii, 1958. 125 p. (MIRA 12:2)
(Poultry)

ACC NR: AP7002394 SOURCE CODE: UR/0363/66/002/012/2089/2095

AUTHOR: Turovskiy, B. M.; Nikitin, V. M.

ORG: Giredmet

TITLE: Method of calculating the distribution of resistivity along the length of crystals during the joint migration of donor and acceptor impurities into semiconductor crystals grown by Czochralski's method

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 12, 1966, 2089-2095

TOPIC TAGS: semiconductor crystal, resistivity, phosphorus, boron, silicon single crystal

ABSTRACT: The concept of the apparent distribution coefficient K_D is used to analyze the distribution of resistivity in silicon crystals grown by Czochralski's method, taking the concentration of impurities of opposite conductivity types into account. For the case of doping of silicon with phosphorus and boron or phosphorus and aluminum, values of the quantity $m = c_{donor}/c_{acceptor}$ (measure of the degree of compensation) were measured at which the joint migration of various types of impurities into the crystal has practically no effect on the distribution of the resistivity along the length of the ingot. K_D was found to change with the growth of the compensated and slightly doped silicon single crystals. In particular, the decrease of K_D suggests

Card 1/2 UDC: 537.311.33

ACC NR: AP7002394

that the main compensating impurity in these crystals is Al, which causes the apparent distribution coefficient of the donor impurity (phosphorus) to decrease. Orig. art. has: 2 figures, 4 tables and 8 formulas.

SUB CODE: 20/ SUBM DATE: 27Oct65/ ORIG REF: 004/ OTH REF: 003

Card 2/2

NIKITIN, V. M.

Nikitin, V. M. - "The methodlogy and practice of establishing a follow-up system by graphs in the machine-building industry," Trudy Sarat. dkon. in-ta, Vol II, 1949, p. 237-52

SO: U-5240, 17, Dec. 53, (Letopis 'Zhurnal 'nykh Statey, No. 25, 1949).

NIKITIN, V. M.

"Investigation of the Process of Arc Welding of Aluminum Alloys wit a Metallic Electrode." Sub 30 Jun 51, Moscow Aviation Technological Inst
Cd of Technical Sci

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

NIKITIN, V.M., inzh.

Designing efficient air-blast separators. [Trudy] MVTU no.94:164-170 '58. (MIRA 12:3)

(Separators (Machines)

[illegible]

129-58-6-3/19

AUTHORS: Alov, A.A., Doctor of Technical Sciences, Professor; and Nikitin, V.M., Candidate of Technical Sciences

TITLE: Several Metallurgical Problems of Arc Welding With the Alloys "AL-4" and "AL-5" (Nekotoryye voprosy metallurgii dugovoy svarki splavov AL-4 i AL-5)

PERIODICAL: Svarochnoye Proizvodstvo, 1958, Nr 6, pp 28-30 (USSR)

ABSTRACT: The article presents results of welding experiments with the aluminum alloys "AL-4" and "AL-5", the chemical composition of which is given (Table 1). It was found that electrode coating containing cryolite can cause transition of sodium into the weld metal, which produces microscopic gas pores. Addition of aluminum fluoride into the coating reduces the transition of sodium and correspondingly decreases the microscopic porosity of weld metal. Coatings "MATI-1" and "MATI-2" were developed which assures a stable arc in the welding process and satisfactory formation of the weld with an easily removable slag crust. The "MATI-2" coating with an addition of aluminum fluoride applied on the electrode wire of the

Card 1/2

Several Metallurgic Problems of Arc Welding With the Alloys "AL-4" and "AL-5"

same composition as the base metal, produces welded joints of a strength practically equal to the strength of the base metal. The article gives detailed information (table 2) on the electrodes "MATI-1" and "MATI-2": the composition and thickness of the coating: the grades of electrode wire; the temperature and duration of drying; the optimum electric parameters of the welding process. There are 5 tables and 6 Soviet references.

ASSOCIATION: Moskovskiy aviatsionnyy tekhnologicheskiy institut (Moscow Institute of Aviation Technology)

AVAILABLE: Library of Congress

Card 2/2