warm-rolling temperatures (750°C and below), the scale formation proceeds slowly or ceases, but gas saturation continues even at these temperatures. The authors investigated thermal expansions of titanium BT-1 (VT1) and of alloy VT5 in the pure state and after complete gas saturation of dilatometric specimens. They found that the gas-saturated specimens do not undergo a phase transformation and have a somewhat higher coefficient of thermal expansion than the pure metal. On cooling, the difference between the coefficients of thermal expansion of the α-layer and the basis metal can lead to the formation of microcracks on the surface. These cracks, acting as stress concentrators, deteriorate the mechanical properties of Ti articles, and on further cold rolling, can be one of the reasons for the failure of the metal. There are 5 figures and 8 tables.

S/509/62/000/009/011/014
D207/D308

1/1300

AUTHORS: Pavlov, I. M., Shelest, A. Ye., Tarasevich, Yu. F. and Shakhov, V. L.

TITLE: A study of the hot and warm rolling conditions for some titanium alloys

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Trudy, no. 9, Moscow, 1962. Voprosy plasticheskoy deformatsii metalla, 159-163

TEXT: Conditions of rolling, at 500 - 1100°C, of pure BT-1 (VT-1) titanium and alloys 1, 2 and 3 were studied at the Laboratoriya obrabotki metallov davleniyem Instituta metallurgii AN SSSR (Laboratory for Pressure Treatment of Metals, Institute of Metallurgy, AS USSR) /Abstracter's note: Compositions of the alloys not specified/. Samples of 10 x 15 x 150 and 13 x 65 x 180 mm dimensions were rolled in a laboratory mill "duo 200" with polished steel rolls. The rate of rolling was 0.5 m/sec and the reduction of thickness was 20, 40 and 60% for samples of 10 x 15 mm cross-section,

/B

Card 1/2

and 13 or 35% for samples of 13 x 65 mm cross-section. The titanium alloys showed high plasticity: 60% reduction of thickness was reached at 800°C without fracture. The temperature dependence of the lateral spread is shown graphically for various degrees of deformation. The allotropic transformation, at about 800°C produced a sudden decrease of the average pressure of the metal on the rolls. The displacement of the resultant pressure was investigated as a function of deformation and temperature. There are 5 figures.

PAVLOV, I.M.; GUREVICH, Ya.B.; ORZHEKHOVSKIY, V.L.; SHELEST, A.Ye.; BASHCHENKO, A.P.

Effect of conditions of titanium heating on the indices of hot rolling. TSvet. met. 35 no.7:75-79 Jl '62. (MIRA 15:11)

(Titanium)
(Rolling (Metalwork))

S/509/62/000/009/013/014
D207/D308

1,1300

AUTHORS: Pavlov, I. M., Tarasevich, Yu. F. and Shelest, A. Ye.

TITLE : Determining specific pressures during cold rolling of aluminum

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Trudy, no. 9, Moscow, 1962. Voprosy plasticheskoy deformatsii metalla, 169-176

TEXT: Strips of АД-1(AD-1) aluminum, 4.5 mm thick and 32 - 34 mm wide, were cold-rolled on an experimental mill "200" at 0.5 mm/sec. The reduction of thickness was 0.5 mm per pass. The "specific pressure" (defined as the average force, exterted over unit area, by the metal on the rolls) was measured with instruments developed by A. I. Grishkov. A d.c. amplifier ЭТ-4-55 (ET-4-55) and an oscillograph МПО-2(MPO-2) were used to record variations of pressure at several points across the width of the strip. The oscillograms were corrected using Yu. F. Tarasevich's technique. The specific pressures were peaked at the center of the strip; they were always

Card 1/2

Determining specific pressures ... S/509/62/000/009/013/014
D207/D308

greater for cold-worked samples than for the annealed ones. There are 9 figures and 2 tables.

Card 2/2

S/279/63/000/001/001/023
E193/E383

AUTHORS: Pavlov, I.M., Orzhekhovskiy, V.L., Gurevich, Ya.B. and Shelest, A.Ye. (Moscow)

TITLE: The effect of the roll material and surface finish on some parameters of hot-rolling in vacuum

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i gornoye delo, no. 1, 1963, 14 - 17

TEXT: Cast iron and steel (ШХ15 (ShKh15) and 3Х2В8 (3Kh2V8)) rolls, 85 mm in diameter, were used in the experiments conducted in a vacuum of $\sim 10^{-5}$ mm Hg on steel 20 test pieces, preheated to 1100 °C. Various surface finishes of the rolls, corresponding to class 4, 7 and 10 of the degree of flatness (as specified in ГОСТ (GOST) 2789-59) were obtained by turning, grinding and polishing the rolls. Test pieces with various surface finishes were prepared by grinding, milling or planing in either longitudinal or transverse directions. A constant reduction of 30% per pass was used in the experiments conducted at a rolling speed of 6.5 m/min. The roll pressure, roll torque, peripheral roll speed, forward

Card 1/3

The effect of ....

slip and the speed of metal leaving the rolls were measured in each experiment. The lateral-spread coefficient was calculated on the basis of the constant-volume law. The friction coefficients were determined with the aid of a braking device and calculated from data on the forward slip. Some of the typical results obtained on ground test pieces are reproduced in Fig. 4, where the histograms show the variation in (a) friction force τ_s, kg/mm^2, (б) roll pressure P, kg/mm^2, (в) lateral-spread coefficient a, (г) friction coefficient f and (д) forward slip S_h, blocks 1-6 relating to: 1 - ground cast-iron rolls; 2 - turned cast-iron rolls; 3 - polished steel ShKh15 rolls; 4 - ground steel ShKh15 rolls; 5 - ground steel 3Kh2V8 rolls; 6 - turned steel ShKh15 rolls. The general conclusion was that the friction coefficient in hot rolling was affected more by the material and surface finish of the rolls than by the surface condition of the metal rolled. There are 4 figures.

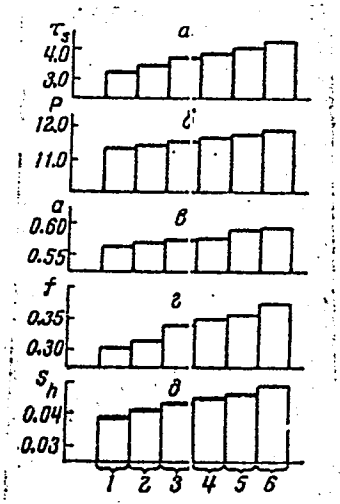
SUBMITTED: July 17, 1962

Card 2/3

S/279/63/000/001/001/023
E193/E383

The effect of ....

Fig. 4:



Card 3/3

PAVLOV, I.M.; SHELEST, A.Ye.; TARASEVICH, Yu.F.; SHAKHOV, V.L.

Investigating conditions for hot and warm rolling of certain titanium alloys. Trudy Inst.met. no.9:159-163 '62. (MIRA 16:5)

(Rolling (Metalwork)) (Titanium alloys—Testing)

PAVLOV, I.M.; TARASEVICH, Yu.F.; SHELEST, A.Ye.

Determining specific pressures during cold rolling of aluminum. Trudy Inst.met. no.9:169-176 '62. (MIRA 16:5)
(Aluminum) (Rolling (Metalwork))

L 12937-63 EWP(k)/EWP(q)/EWT(m)/BDS AFFTC/ASD Pf-4 JD/HM/HW/JG 70
ACCESSION NR: AP3002391 S/0279/63/000/003/0123/0126 68

AUTHOR: Pavlov, I. M. (Moscow); Bashchenko, A. P. (Moscow); Gurevich, Ya. B. (Moscow); Orzhekhovskiy, V. L. (Moscow); Shelest, A. Ye. (Moscow)

TITLE: Dependence of the friction coefficient on temperature and ambient medium in rolling of iron, titanium, molybdenum, and niobium

SOURCE: AN SSSR. Izv. Otd. tekhnicheskikh nauk. Metallurgiya i gornoye delo, no. 3, 1963, 123-126

TOPIC TAGS: hot rolling, vacuum, inert atmosphere, argon, iron, titanium, molybdenum, n i o b i u m, friction coefficient, temperature dependence, scale formation

ABSTRACT: The temperature dependence of the friction coefficient in the hot rolling of iron, titanium, molybdenum, and niobium under different conditions has been studied. Specimens were rolled at a constant speed of 6 m/min at a temperature varying from 800 to 1200C in a vacuum, in an argon atmosphere (0.005% O_2, 0.01% N), or in the air. Test results showed that with rolling in air the friction coefficient for iron, which is about 0.38 at 800C, increases to a maximum of 0.45 at 900C and then decreases gradually to 0.22 at 1200C.

Card 1/3

The initial increase is explained by the decreasing resistance of iron to deformation, and the subsequent decrease, by the effect of iron scale, which softens appreciably above 1000C and acts as a lubricant. The friction coefficient of titanium increases slightly as temperature increases from 800 to 900C, probably owing to some peculiarities of the α-to-β-transformation. Increasing the temperature to 1200C increases the friction coefficient, probably because of decreasing specific pressure. Titanium scale does not soften in the temperature range investigated and hence does not act as a lubricant but rather increases the friction. The increase in the friction coefficient of molybdenum rolled in air, from about 0.35 at 1000C to 0.45 at 1200C, is probably caused by the increasing surface roughness associated with the increasing volatility of molybdenum oxides and the consequent surface cleanliness. The friction coefficient of niobium in air drops from 0.42 at 1000C at 0.37 at 1250C, owing to the action of the scale which, in this temperature range, spreads on the metal and forms a dense, smooth surface. The effect of the scale on the relationship of the rolling temperature and friction coefficient is confirmed by the data on rolling in vacuum or in argon (the latter corresponds roughly to a vacuum of 0.1 mm Hg). As atmospheric pressure decreases from 760 to 0.00001 mm Hg, the friction coefficient of titanium decreases, while those of iron, molybdenum, and

L 12937-63

ACCESSION NR: AP3002391

niobium increase. The changing conditions of contact friction should thus be taken into account in developing the technology of the hot rolling of refractory metals in vacuum or an inert atmosphere. Orig. art. has: 3 figures and 2 formulas.

ASSOCIATION: none

SUBMITTED: 27Jul62 DATE ACQ: 12Jul63 ENCL: 00

SUB CODE: MA, ML NO REF SOV: 014 OTHER: 000

Card 3/3

ACCESSION NR: AT4007030 S/2598/63/000/010/0095/0099

AUTHOR: Mints, R. S.; Shelest, A. Ye.; Malkov, Yu. S.

TITLE: Dilatometric study of titanium

SOURCE: AN SSSR. Institut metallurgii, Titan i yego splavy*, no. 10, 1963. Issledovaniya titanovy*kh splavov, 95-99

TOPIC TAGS: thermal expansion, titanium thermal expansion, titanium powder sintering, titanium sintering, titanium isothermal sintering, titanium cyclic sintering, dilatometry, titanium dilatometry

ABSTRACT: Using the universal DTs-4 high-temperature vacuum dilatometer developed at the Institut metallurgii A. A. Baykova (Metallurgical Institute), the authors investigated the coefficient of thermal expansion in the temperature range 400-1100C and the kinetics of the sintering process of commercial grade VT-1 Ti. This device permits temperatures up to 2200C and rapid heating or hardening of the tested specimens (500 degrees/min). The linear thermal expansion was determined directly by an arrow indicator furnished with a timing device. A cross-section of this device is shown. Specimen rods were rolled, subjected to deformation in the temperature range 900-1100C, and hardened in air. The rate of heating or cooling was 30 degrees/minute. Analysis of the microstructure revealed the α' phase in the

Card 1/2

ACCESSION NR: AT4007030

specimen before dilatometric investigation, and Ti after this process. The dilatometric curve shows that α'-β transformation of titanium occurs at 890C, and that the transformation of α-Ti into β-Ti is accompanied by a marked increase in volume, an endothermic effect and evolution of gaseous compounds at temperatures of 850-900C. Values are presented for the coefficients of linear and thermal expansion of wrought Ti in the temperature range 400-1100C. The kinetics of the sintering process were also studied. When a powdered specimen was pressed under a pressure of 800 kg/mm^2, the compact Ti obtained, with a specific gravity of 4.25 and Brinell hardness of 250 kg/mm^2, showed a microstructure qualifying the metal for coldworking. It was proved that isothermic sintering can be replaced with thermocyclic sintering by repeated cyclic heating and cooling. The optimal conditions for cyclic sintering can be determined by the dilatometer. Orig. art. has: 6 figures and 1 table.

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

SUBMITTED: 00 DATE ACQ: 27Dec63 ENCL: 00

SUB CODE: ML NO REF SOV: 003 OTHER: 001

Card 2/2

ACCESSION NR: AT4007047 S/2598/63/000/010/0245/0250

AUTHOR: Shelest, A. Ye.; Falaleyeva, Z. S.; Pavlov, I. M.

TITLE: Effect of cold working and annealing on the mechanical properties of AT-3 titanium alloy

SOURCE: AN SSSR. Institut metallurgii. Titan i yego splavy*, no. 10, 1963. Issledovaniya titanovy*kh splavov, 245-250

TOPIC TAGS: titanium alloy, AT-3 titanium alloy, AT-3 titanium alloy property, cold worked AT-3 alloy, annealed AT-3 alloy, strain hardening effect, annealing effect, titanium aluminum chromium alloy, iron containing alloy, silicon containing alloy, boron containing alloy

ABSTRACT: The authors investigated the effect of annealing temperature and the % deformation during cold working on the structure and mechanical properties of titanium alloy AT-3 (2.8-2.9% Al, 0.3% Fe, 0.41 Si, 0.78-0.80% Cr, 0.01% B) by means of X-ray analysis and tests of ultimate strength and relative elongation. Roentgenograms of samples annealed under various conditions are presented, as well as graphs relating the mechanical properties to % deformation during cold rolling and to annealing temperature following varying degrees of deformation. Before

Card 1/3

ACCESSION NR: AT4007047

annealing, the cold worked specimens showed a deformed structure; recrystallization began after annealing at 750C for 1 hr. followed by quenching in air, and was complete in samples annealed at 800C for 1 hr. and quenched either in air or in the furnace. In general, the strength increased and plasticity decreased with increasing deformation during cold rolling, while an increase in the annealing temperature had the opposite effect. The relationship between relative elongation and ultimate strength of AT-3 alloys shown in Fig. 1 of the Enclosure may be important in selecting the proper conditions for the manufacture of pipe from these alloys. Orig. art. has: 11 graphs and 4 roentgenograms.

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

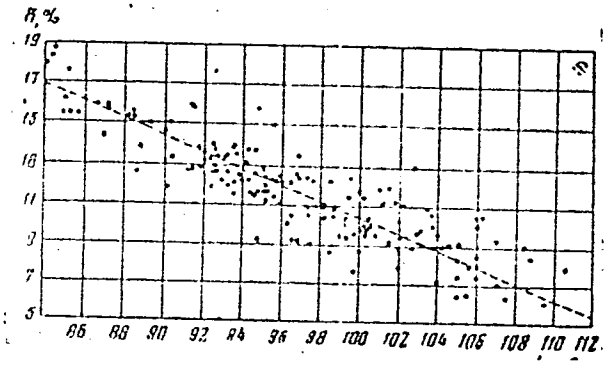
SUBMITTED: 00 DATE ACQ: 27Dec63 ENCL: 01

SUB CODE: MM NO REF SOV: 004 OTHER: 000

Card 2/3

ACCESSION NR: AT4007047

ENCLOSURE: 01



Relationship between relative elongation and ultimate strength of titanium alloy AT-3. Ordinate in %, abscissa in kg/mm^2.

Card 3/3

ACCESSION NR: AT4007049 S/2598 /63/000/010/0262/0264

AUTHOR: Gulyayev, A. P., Shelest, A. Ye.; Mishin, V. I., Kossakovskaya, N. N., Pavlov, I. M.

TITLE: Effect of furnace atmosphere on notch toughness of commercial grade titanium

SOURCE: AN SSSR. Institut metallurgii. Titan i yego splavy*, no. 10, 1963. Issledovaniya titanovy*kh splavov, 262-264

TOPIC TAGS: titanium, titanium property, titanium notch toughness, titanium embrittlement, titanium heat treatment, heat treating furnace, furace atmosphere, oxidizing atmosphere, protective atmosphere, protective coating

ABSTRACT: Specimens of hot-rolled titanium sheet with an initial impact toughness of 6 kg-m/cm^2 were heated in quartz ampules in an atmosphere of air, oxygen or nitrogen or in a vacuum (0.01 mm Hg) at temperatures of 700-1200C for 10, 60 or 120 minutes, after which the specimens were tested for impact toughness, microhardness and weight of oxide film formed. Heating in a vacuum had no significant effect on either weight or impact toughness. Determination of sample weight after removal of the scale showed that oxidation increases with time and increasing temperature, and is markedly decreased in a

Card 1/3

ACCESSION NR: AT4007049

nitrogen atmosphere, especially at high temperatures. However, as shown in Fig. 1 of the Enclosure, prolonged heating in nitrogen at 900C or above reduces the impact toughness, so that nitrogen atmospheres also cannot be recommended. The impact toughness, which increased somewhat on heating at low temperatures due to recrystallization, decreased sharply at 800-1200C in all media. Measurements of the depth of the gas-saturated layer, evaluated from the microhardness, showed that the depth increased uniformly with time and temperature in all media. In alpha-titanium (below 900C), however, nitrogen diffused less rapidly than oxygen, while after transformation to beta-titanium (above 900C) the opposite was true. Orig. art. has: 3 figures.

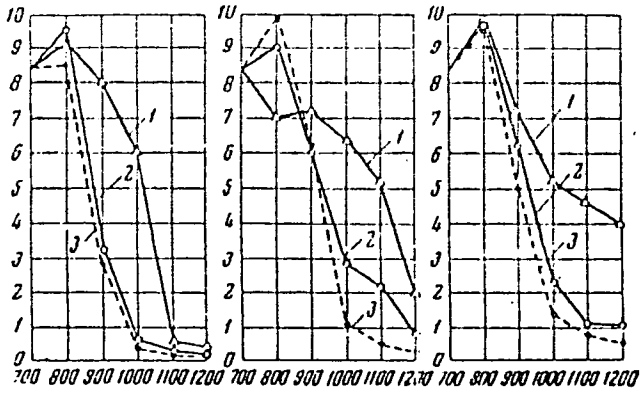
ASSOCIATION: Institut metallurgii AN SSSR (Metallurgical Institute, AN SSSR)

SUBMITTED: 00	DATE ACQ: 27Dec63	ENCL: 01
SUB CODE: MM	NO REF SOV: 006	OTHER: 000

Card 2/3

ACCESSION NR: AT4007049

ENCLOSURE: 01



a b c

Fig. 1. Effect of temperature, duration of heating and furnace atmosphere on the impact toughness of commercial grade titanium. a. heating in air, b. heating in oxygen, c. heating in nitrogen; 1 - heated for 10 min.; 2 - heated for 60 min.; 3 - heated for 120 min. Ordinate = impact toughness in kg-m/cm^2; abscissa = temperature of heating in °C.

Card 3/3

L 25368-65 EWT(m)/EWA(d)/EWP(t)/EWP(b) IJP(c) MJW/JD

ACCESSION NR: AR5005074 S/0277/64/000/011/0019/0020

SOURCE: Ref zh. Mashinostroitel'nyye materialy, konstruktsii i raschet detaley mashin. Otd. vyp., Abs. 11.48.125

AUTHOR: Pavlov, I. M.; Konstantinov, Ye. G.; Shelest, A. Ye.; Tarasevich, Yu. F.

TITLE: Force conditions for deformation of some titanium alloys

CITED SOURCE: Tr. Mosk. in-ta metallurgii, Mosk. energ. in-ta i Mosk. in-ta stali i splavov, vyp. 44, 1963, 22-28

TOPIC TAGS: allotropic transformation, metal mechanical property, titanium alloy/ VT1 alloy, OT4 alloy, VT6 alloy, VT14 alloy

TRANSLATION: The resistance to deformation of VT1, OT4, VT6 and VT14 titanium alloys was determined as a function of the temperature at relative reductions of 20, 40 and 60%. It is established that there is a stepwise change in the specific pressure in the allotropic transformation temperature interval. For OT4 alloy (at rolling temperatures lower than 600°) and for VT6 and VT14 alloys (at rolling temperatures lower than 800°), a decrease in resistance to deformation is observed with an increase in rolling reduction. This is explained by the formation of

Card 1/2

L 25368-65

ACCESSION NR: AR5005074

cracks in the metal. Industrially pure VT1 titanium has good ductility throughout the entire range of temperatures and rolling reductions studied; titanium alloys have less ductility. At temperatures of 1100-900°, the specific pressures for all alloys studied are low. With a reduction in temperature, there is a sharp increase in the difference between the specific pressures for VT1 and the remaining alloys.

SUB CODE: MM ENCL: 00

Card 2/2

PAVLOV, I.M.; GUREVICH, Ya.B.; SHEIEST, A.Ye.; ORZHEKHOVSKIY, V.L.; BASHCHENKO, A.P.

Investigating certain conditions for the hot rolling of molybdenum, in vacuum, in an argon atmosphere, and in air. TSvet.met. 36 no.2:68-71 F '63. (MIRA 16:2)
(Molybdenum) (Rolling (Metalwork)) (Protective atmospheres)

L 10082-63 EWP(k)/EWP(q)/EWT(m)/BDS--AFFTC/ASD--Pf-4--JD/HM/EWP(t)/JO
ACCESSION NR: AP3000203 S/0136/63/000/005/0063/0067 66 65

AUTHOR: Pavlov, I. M.; Shelest, A. Ye.; Gurevich, Ya. B.; Orzhekhovskiy, V. L.; Bashchenko, A. P.

TITLE: Hot rolling of niobium in vacuum and in a protective atmosphere

SOURCE: Tsvetny*ye metally, no. 5, 1963, 63-67

TOPIC TAGS: niobium rolling, rolling in air, rolling in vacuum, rolling in argon, oxidation, sealing, surface hardness, spread, forward slip, friction, roll pressure

ABSTRACT: The effect of temperature and environment on the behavior of Nb in hot rolling has been studied. Specimens 10 x 10 x 150 mm of commercial grade Nb cut out of rolled plate were vacuum (approximately 10 sup -4 mm Hg) annealed at 1400C for 1 hr and rolled at 1000--1250C with a reduction of 20%. Several specimens were heated and rolled in vacuum (approximately 10 sup -5 mm Hg) or in argon, several were heated in vacuum (in ampules evacuated to 10 sup -2 mm Hg) and rolled in air, and several were heated and rolled in air. Heating in air caused

Card 1/3

L 10087-63
ACCESSION NR: AP3000203

intensive sealing and a sharp increase of surface hardness due to the absorption of active gases, especially oxygen. Nb held for 90 min in air at 1100C had a surface hardness of approximately 310 kg/mm sup 2 compared with an initial hardness of approximately 130 kg/mm sup 2. Heating in vacuum or in evacuated ampules under the same conditions increased the surface hardness only to approximately 140 or 160 kg/mm sup 2. Higher temperature and prolonged holding increased surface hardness and the depth of oxygen penetration. Spread, forward slip, specific friction, and the friction coefficient tend to decrease in rolling in air and are generally lower than in rolling in vacuum; specific roll pressure and torque decrease with increasing temperature but are higher than in vacuum. In vacuum, spread tends to increase with increasing temperature, while forward slip remains constant. Rolling in argon occupies an intermediate position between vacuum and air rolling with regard to the effect on rolling parameters. Intensive oxidation of specimens heated in evacuated ampules occurred during rolling in air. It is therefore recommended to heat, roll, and cool niobium in vacuum. Orig. art. has: 7 figures.

Card 2/3

L 10087-63
ACCESSION NR: AP3000203

0

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 14Jun63 ENCL: 00

SUB CODE: 00 NO REF SOV: 008 OTHER: 001

ph/04

Card 3/3

L 13060-65 EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(b) Pf-4 IJP(c)/ASD(m)-3/ASD(f)-2
MJW/JD/HW/MLK
ACCESSION NR: AT4047720 S/0000/64/000/000/0028/0031

AUTHOR: Pavlov, I.M., (Corresponding member AN SSSR), Konstantinov, Ye. G., Shelest, A. Ye

TITLE: Investigation of strain resistance during plastic deformation of titanium alloys

SOURCE: AN SSSR. Institut metallurgii. Plasticheskaya deformatsiya metallov (Plastic deformation of metals). Moscow, Izd-vo Nauka, 1964, 28-31

TOPIC TAGS: titanium alloy, titanium alloy strain resistance, titanium alloy plastic deformation/alloy VT1, alloy OT4, alloy VT6, alloy VT14

ABSTRACT: Solution of the problems connected with the design and operation of rolling mills requires knowledge of metal strength characteristics which are needed for calculation of the metal pressure on the rolls and the rolling torque. The present paper considers the determination of strain resistance and compares the strain resistance of several titanium alloys during rolling and when testing under static and impact tensile loads. The samples were rolled on a 200 rolling mill (roll diameter 212 mm, rolling rate 0.5 m/sec, polished steel rolls, Rockwell hardness 50) with dynamometers for measuring the total metal pressure on the rolls and torque meters for measuring the total rolling torque. VT1, OT4, VT6 and BT14 titanium alloys were tested,

Card 1/3

L 13060-65
ACCESSION NR: AT4047720

the samples being heated for 15-35 minutes for 500-1100C rolling intervals (every 100C). Static tests were performed on a R-5 machine with electric drive and a strain rate of 0.003-0.0045 sec^{-1}. The samples were heated in a special furnace with temperature deviations not exceeding over ±10C. The heating time was 15-35 minutes. The method for finding the strain resistance (proposed by S.I. Gubkin) on the basis of strain equilibrium under static and impact tensile loads consists of calculating the indicator diagram coefficient under ultimate static tension as the ratio of the areas of the diagram and the inscribed rectangle. The ultimate impact toughness was tested on the MK-30 machine with an initial impact speed of 5.6 m/sec and a strain rate depending on the degree of deformation of 150-190 sec^{-1}. The samples were preheated and tested in an asbestos packing. The tests demonstrated the strength and plasticity of VT1, OT4, VT6 and VT14 titanium alloys. Comparison of data for these alloys showed that the static ultimate strength may be used in equations for hot pressure working at 700-1000C. The ultimate impact toughness determined experimentally in the same temperature range is higher than the actual and theoretical strain resistance, this being explained by the high strain rates during impact elongation. The plastic properties of these alloys are lowered as the strain rate increases. Orig. art. has: 4 figures and 3 equations.

Card 2/3

L 13060-65
ACCESSION NR: AT4047720

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

SUBMITTED: 01Jul64 ENCL: 00 SUB CODE: MM

NO REF SOV: 006 OTHER: 000

Card 3/3

L 16589-65 EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(b) Pf-4 IJP(c)/ASD(f)-2/ASD(m)-3
JD/HM/WB/MLK

ACCESSION NR: AT4048061 S/0000/64/000/000/0128/0131

B+1

AUTHOR: Pavlov, I.M., Shelest, A. Ye., Konstantinov, Ye. G.

TITLE: Characteristics of the oxidation of several titanium alloys when heated prior to plastic deformation 16 16 27

SOURCE: Soveshchaniye po metallurgii, metallovedeniyu i primeneniyu titana i yego splavov. 5th, Moscow, 1963. Metallovedeniye titana (Metallography of titanium); trudy* soveshchaniya. Moscow, Izd-vo Nauka, 1964, 128-131

TOPIC TAGS: titanium alloy, titanium alloy rolling, titanium alloy oxidation, plastic deformation/alloy OT, alloy VT

ABSTRACT: At high temperatures, the scale formation and gas saturation taking place at the surface of titanium alloys depend on the rate of chemical reactions at the border between the liquid and solid phases, as well as on the diffusion rate. The present paper considers the results of a study of the kinetics of oxidation of several Ti alloys under conditions of plastic deformation. The most precise method of testing is the continuous weighing process. However, intermediate samples cannot be taken. Therefore, separate samples were taken for each testing temperature. The samples (10-16 mm cubes) were placed in porcelain crucibles with access to air ensured from all sides and heated to 800-

Card 1/6

1200C (every 100C) for durations of 15, 30, 60, 120 and 240 minutes. The samples were then weighed both with and without the crucibles and with the scale removed. The change in weight was related to sample area prior to oxidation. Fig. 1 of the Enclosure illustrates the kinetic curves of oxidation of the tested Ti alloys. The tests showed that the oxidation rate depends on the oxygen concentration gradient in the surface layer of the metal. The value of the oxidation rate was determined by graphic differentiation of the kinetic curves for prolonged oxidation. Generally, the rate changes gradually and reaches a constant, known as the characteristic rate. This rate changed from 0.17 for VT-1 at 800C to 12.00 at 1200C, from 0.03 for OT4-1 at 800C to 16.00 at 1200C, from 0.33 for OT4 at 800C to 18.00 at 1200C, from 0.10 for VT6 at 800C to 13.00 at 1200C, and from 0.10 for VT14 at 800C to 10.25 at 1200C. Attention should be paid to the fact that for the $\alpha + \beta$ and β alloys VT6, VT14 and VT15, the oxidation rate increases with the temperature at a constant rate, while for VT1 and OT4-1 alloys a sharp increase in oxidation rate is observed. Fig. 2 of the Enclosure shows the kinetic oxidation curves and variations in scale formation. The data obtained in this paper may be used to compare the heat resistance of Ti alloys and estimate the effect of alloying elements on this important property. Orig. art. has: 2 figures and 1 table.

L 16589-65
ACCESSION NR: AT4048061

ASSOCIATION: Laboratoriya plasticheskoy deformatsii metallov i splavov Instituta metallurgii im. A. A. Baykova (Laboratory of Plastic Deformation of Metals and Alloys, Institute of Metallurgy)

SUBMITTED: 15Jul64 ENCL: 03 SUB CODE: MM, AS

NO REF SOV: 005 OTHER: 000

Card 3/6

L 16589-65
ACCESSION NR: AT4048061

ENCLOSURE: 01

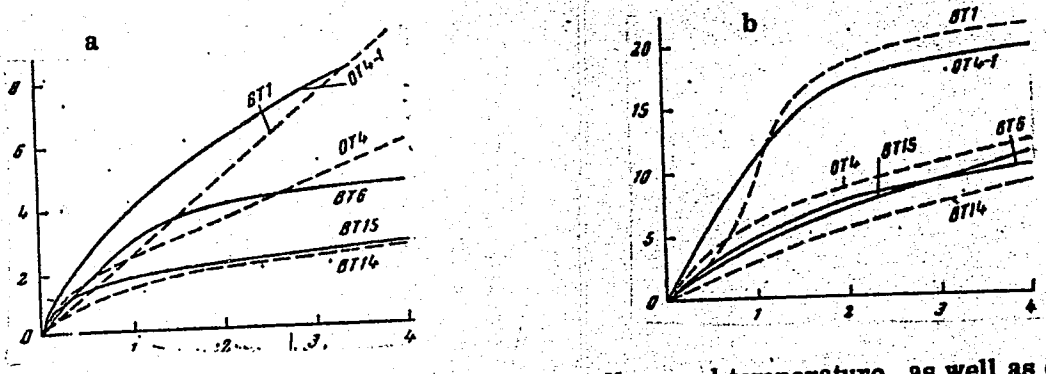


Fig. 1. Relationship between oxidation of Ti alloys and temperature, as well as duration of heating: a - at 900C, b - at 1000C; c - at 1100C; d - at 1200C.

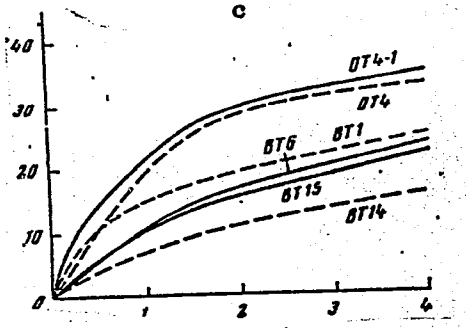
In each graph, ordinate = wt. gain in mg/cm^2; abscissa = duration of heating in hrs.

Card 4/6

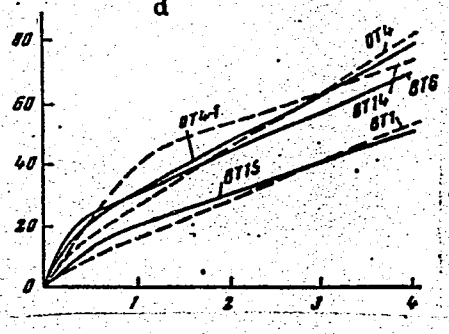
L 16589-65
ACCESSION NR: AT4048061

ENCLOSURE: 02

c



d



Card 5/6

L 16589-65
ACCESSION NR: AT4048061

ENCLOSURE: 03

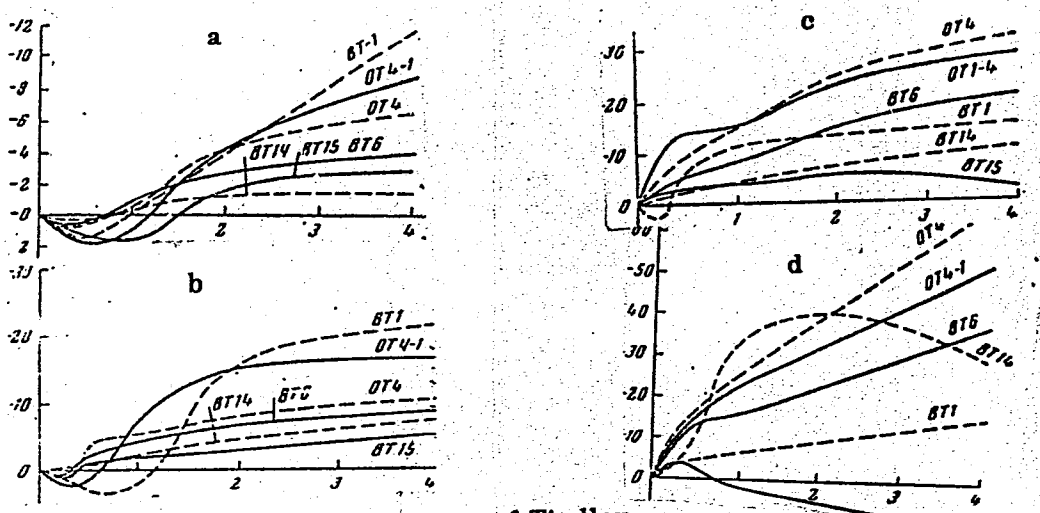


Fig. 2. Relationship between weight change of Ti alloy samples after scale removal and the temperature and duration of heating: a - at 900C; b-at 1000C; c-at 1100C; d-at 1200C. In each graph, ordinate = wt. change in ng/cm^2; abscissa = duration of heating in hrs.

Card 6/6

L 15665-65 EWT(m)/EWP(w)/EWA(d)/EWP(t)/EWP(k)/EWP(b) Pf-4 ASD-3/AFFTC/ESB-3/IJP(c)/ASD(f)-2/ASD(m)-3 MJW/JD/HW/MLK

ACCESSION NR: AT4048081 S/0000/64/000/000/0249/0254

AUTHOR: Pavlov, I.M., Tarasevich, Yu. F., Shelest, A. Ye.

TITLE: Effect of the conditions of plastic deformation and further working on the properties of several titanium alloys

SOURCE: Soveshchaniye po metallurgii, metallovedeniyu i primeneniyu titana i yego splavov. 5th, Moscow, 1963. Metallovedeniye titana (Metallography of titanium); trudy* soveshchaniya, Moscow, Izd-vo Nauka, 1964, 249-254

TOPIC TAGS: titanium alloy, titanium alloy working, plastic deformation, cooling rate, titanium alloy strength, titanium alloy hardness, titanium alloy rolling/alloy OT4, alloy VT6, alloy VT14

ABSTRACT: The authors investigated the effect of plastic deformation and subsequent cooling at different rates on the mechanical properties of several $\alpha+\beta$ b titanium alloys (martensite, types OT4, VT6 and VT14), where the β phase may be partially set at room temperature. The alloys were rolled at a rate of 0.5 m/sec followed by cooling either in water, asbestos or air. The cooling rate as measured by thermocouples was 60-70 deg/sec in water, 4.3-5 deg/sec in asbestos and 6-6.5 deg/sec in air for the VT14 alloy. Mechanical properties were then determined. The tests showed differences in

Card 1/3

L 15665-65
ACCESSION NR: AT4048081

hardness of VT14 alloy samples cooled under different conditions. All alloys showed slight variations in hardness when cooled from 500-800C with 20% compression under the roller. Hardness was increased significantly by 40% compression and lowering of the temperature from 800C. The effect of cooling rate on strength was noticeable only at rolling temperatures above 900C. For 20% compression the ultimate strength changed smoothly as the rolling temperature varied. This was not observed for higher compression values, confirming the effect of plastic deformation on the mechanical properties of the alloy. Relative narrowing was increased with compression at all rolling temperatures and cooling rates, while the temperature relationship was constant with a minimum at 1000C and maximum at 700C. Elongation was lowered during rolling at temperatures below 800C with maximum elongation at moderate cooling rates beginning with 1100C. The data obtained make it possible to plan methods for improving the mechanical properties of titanium alloys by thermomechanical working. However, the thermal stability of the alloys after working will be low and the alloys will be used successfully only at normal temperatures. Additional research is required to find ways of employing titanium alloys at higher temperatures. "Ye. G. Konstantinov took part in the investigations." Orig. art. has: 4 figures.

Card 2/3

L 15665-65

ACCESSION NR: AT4048081

0

ASSOCIATION: none

SUBMITTED: 15Jul64 ENCL: 00 SUB CODE: MM

NO REF SOV: 003 OTHER: 000

Card 3/3

L 34518-65 EWP(k)/EWA(c)/EWT(m)/EWP(b)/T/EWA(d)/EWP(t) Pf-4 IJP(c) 32 30 B+1
MJW/JD/HW/GS S/0000/64/000/000/0255/0262

ACCESSION NR: AT4048082

AUTHOR: Pavlov, I.M., Konstantinov, Ye. G., Taresevich, Yu. F., Shelest, A. Ye.

TITLE: Investigation of the principal parameters of hot and warm rolling of several titanium alloys under peculiar conditions of stress

SOURCE: Soveshchaniye po metallurgii, metallovedeniyu i primeneniyu titana i yego splavov. 5th, Moscow, 1963. Metallovedeniye titana (Metallography of titanium); trudy* soveshchaniya. Moscow, Izd-vo Nauka, 1964, 255-262

TOPIC TAGS: titanium alloy, titanium alloy rolling, titanium alloy stress, titanium alloy plasticity/alloy OT4, alloy VT6, alloy VT14, alloy VT15, alloy VT1

ABSTRACT: The aim of this investigation was to study the plasticity, stress and deformation of titanium alloys on a "200" rolling mill (roll diameter 213 mm, rolling rate 0.5 m/sec, steel rolls) equipped with dynamometers for measuring the pressure on the rolls and torque meters for measuring the torque of the rolls. Type OT4, VT1, VT6, VT14 and VT15 alloys were selected; after being heated uniformly for 15-35 minutes, depending on the temperature of the rolls, the samples were rolled with an average compression of 20, 40 and 60% (with similar initial depth and variable final depth) at 500-1100C (every 100C). The tests showed that at rolling temperatures above 900C the specific

Card 1/3

ACCESSION NR: AT4048082

pressure was relatively low. Only the VT15 alloy at a rolling temperature of 1100C and compression of 20% had a specific pressure of about 9 kg/mm^2. The specific pressure increased more rapidly for the tested alloys than with technical titanium when the temperature dropped from 1100 to 900C. As the compression increased, the specific pressure increased due to friction. Lowering of specific pressure as the degree of deformation rises may be explained by crack formation in the metal due to unequal deformation because of the stressed condition in the narrow strips. This leads to higher lateral deformation in comparison with longitudinal deformation. The OT4, VT6, VT14 and VT15 alloys showed a lower plasticity than the VT1 alloy, the VT15 alloy having the lowest. The strips were widened by motion of the lateral surfaces onto the contact surface, although widening was also caused by slipping along the contact surface, which was insignificant. Maximum widening at 20, 40 and 60% compression was obtained with VT1 and VT15 alloys and at 900C with VT6 and VT14 alloys at 800C. As the degree of deformation increased, the widening rose for all alloys. Rolling of samples of various widths (8-60 mm) with 20% and 40% compression at 900C resulted in increased specific

L 34518-65

ACCESSION NR: AT4048082

2

pressure together with the width, specific pressure increasing together with compression and in inverse proportion to width increase. The curves in the paper show that the absolute widening of the sample for all compression values first increases (for narrow widths), reaches a maximum value, and then drops as the width increases. Orig. art. has: 4 figures and 6 tables.

ASSOCIATION: Laboratoriya plasticheskoy deformatsii Instituta metallurgii im. A. A. Baykova (Laboratory of Plastic Deformation, Institute of Metallurgy)

SUBMITTED: 15Jul64 ENCL: 00 SUB CODE: MM

NO REF SOV: 006 OTHER: 000

Card 3/3

L 20368-66 EWP(k)/EWT(d)/EWT(m)/EWP(h)/T/EWP(l)/EWP(v)/EWP(t)/ETI IJP(c) JD/GD

ACC NR: AT6012386 SOURCE CODE: UR/0000/65/000/000/0163/0166

58
54
B+1

AUTHORS: Pavlov, I. M.; Shelest, A. Ye.

ORG: none

TITLE: Peculiarities of gas saturation of some titanium alloys

SOURCE: Soveshchaniye po metallokhimii, metallovedeniyu i primeneniyu titana i yego splavov, 6th. Novyye issledovaniya titanovykh splavov (New research on titanium alloys); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 163-166

TOPIC TAGS: HARDNESS, titanium, titanium alloy, gas absorption, plasticity, phase composition, gas diffusion, ~~temperature~~/ VT1 titanium, OT4-1 titanium alloy, OT4 titanium alloy, VT6 titanium alloy, VT14 titanium alloy, VT15 titanium alloy

ABSTRACT: The characteristics of gas saturation of titanium alloys are studied. The work is based on an earlier study by I. M. Pavlov, A. Ye. Shelest, and Ye. G. Konstantinov (Osobennosti okisleniya nekotorykh titanovykh splavov pri nagreve pered plasticheskoy deformatsiyey. Sb. Titan i yego splavy. Metallovedeniye titana, Izd-vo Nauka, 1964). Titanium alloys VT1, OT4-1, OT4, VT6, VT14, and VT15 were studied. The specimens were heated in an electric furnace to 800--1200C (every 100C) for 15, 30,

Card 1/2

L [illegible]
ACC NR: AT6012386

60, 120, and 240 min. The microhardness was measured with a PMT-3 instrument. It was found that in technically pure VT1 titanium and VT14 and VT15 alloys the thicknesses of the highly brittle gas-saturated layer were approximately the same. The depth of the zone of decreased plasticity permits the effect of the gases that have diffused into the metal on the mechanical properties to be evaluated. Orig. art. has: 1 table and 2 figures.

SUB CODE: 11/ SUBM DATE: 02Dec65/ ORIG REF: 002

Card 2/2

L 07815-67 EWT(m)/EWP(t)/ETI/EWP(k) IJP(c) FDN/JD/HW

ACC NR: AR6017[illegible] SOURCE CODE: UR/0137/66/000/001/D007/D008

AUTHOR: Pavlov, V. M.; Konstantinov, Ye. G.; Shelest, A. Ye.; Tarasevich, Yu. F.

TITLE: Conditions for hot and warm rolling of some titanium alloys 28 B

SOURCE: Ref. zh. Metallurgiya, Abs. 1D42

REF SOURCE: Tr. Mosk. in-ta stali i splavov i Mosk energ. in-ta, vyp. 61, ch. 1, 1965, 181-193

TOPIC TAGS: hot rolling, warm rolling, titanium alloy

ABSTRACT: It was found during this investigation that an increase in reduction (with H=const) increases the widening index for all alloys studied, where widening is basically due to barrel distortion. Due to the narrow width of the specimens under the conditions of this investigation, transverse deformation $\Psi=B_2/B_1$ was greater than longitudinal deformation $\mu=L_2/L_1$ in nearly all cases, which corresponded to the particular conditions for the stressed state of the metal at the source of deformation. An increase in reduction resulted chiefly in development of transverse deformation relative to drawing deformation. A. Leont'yev. [Translation of abstract]

SUB CODE: 13, 11

Card 1/1 mc UDC: 621.771.001

L 38; 1-66 T(d)/[illegible](m)/[illegible](w)/[illegible]P(v)/T/[illegible](t)/ETI/[illegible](k)/[illegible](h)/[illegible](l)

ACC NR: AT6012409 IJP(c) JD/HW/GD SOURCE CODE: UR/0000/65/000/000/0312/0316

AUTHORS: Pavlov, I. M.; Konstantinov, Ye. G.; Shelest, A. Ye.; Tarasevich, Yu. F.

ORG: none

TITLE: Several rolling conditions for titanium alloys

SOURCE: Soveshchaniye po metallokhimii, metallovedeniyu i primeneniyu titana i yego splavov, 6th. Novyye issledovaniya titanovykh splavov (New research on titanium alloys); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 312-316

TOPIC TAGS: FRICTION COEFFICIENT, metal rolling, titanium alloy, rolling mill, metal friction / VT1 titanium alloy, OT4 titanium alloy, VT6 titanium alloy, VT14 titanium alloy, VT15 titanium alloy, duo 200 rolling mill

ABSTRACT: The coefficient of external friction during rolling of rectangular titanium alloy slabs under a wide range of temperature and deformation conditions was investigated. Specimens (12 x 10 x 150 mm) of titanium alloys VT1, OT4, VT6, VT14, and VT15 were preheated to 500--1100C (at 100C intervals), rolled on a duo 200 rolling mill with relative reductions of 20, 40, and 60%. The forward flow and coefficient of friction were measured and tabulated for these rolling conditions. The coefficient of friction over the temperature interval 500--1100C was found to be ≈ 0.15, while the forward flow was found to vary considerably. Curves of the forward flow and friction coefficient as a function of strip width are presented for alloy VT5 (20 and 40%

Card 1/2

L 38661-66

ACC NR: AT6012409

deformation); both increase almost linearly with increasing width. An equation for finding the rolling torque on a single roll as a function of rolling parameters is derived. The results of the investigation can be used to determine rational rolling parameters for titanium alloys. Orig. art. has: 4 figures and 1 table.

SUB CODE: 11, 13/ SUBM DATE: 02Dec65/ ORIG REF: 003

Card 2/2

L 29192-66 EWT(m)/EWP(w)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/HW/JG
ACC NR: AP6016583 (A) SOURCE CODE: UR/0129/65/000/005/0012/0014

AUTHOR: Ageyev, N. V.; Glazunov, S. G.; Petrova, L. A.; Tarasenko, G. N.; Grankova, L. P.; Shelest, A. Ye.

ORG: none

TITLE: High-temperature thermomechanical treatment of β-alloy of the Ti-Mo-Cr-Fe-Al system

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 5, 1966, 12-14

TOPIC TAGS: thermomechanical treatment, titanium alloy, titanium beta alloy, molybdenum containing alloy, iron containing alloy, aluminum containing alloy, alloy thermomechanical treatment, alloy mechanical property, alloy structure

ABSTRACT: Forged specimens of complex titanium-base alloy containing 7%Mo, 5.5%Cr, 3%Fe, and 3%Al were subjected to high-temperature thermomechanical treatment (HTMT), rolled at 850, 950, and 1050C with a 20, 40, and 60% reduction in one pass and 80% in two passes, immediately water quenched, and then aged at 450C for 15 and 25 hr, at 500C for 5 and 10 hr, or at 525C for 5 hr. HTMT increased alloy strength without affecting ductility. For example, prior to aging the tensile strength of alloy hot rolled at 950C with a reduction of 20, 40, 60, and 80% was 96.5, 105.0, 96.7, and 99.5 kg/mm^2, respectively, compared with 77.3 kg/mm^2 for alloy quenched from the same temperature without deformation. The corresponding figures for elongation were

Card 1/2 UDC: 295:621.771:621.735.61'74

16.6, 18.4, 17.7, and 18%, respectively, compared with 16.9%. The increased strength of the alloy after HTMT is explained by strain hardening and fragmentation of the β-alloy grains. Aging produced a further significant increase of strength. The best combination of strength and ductility was obtained after HTMT with 60—80% reduction at 850C and aging at 500C for 10 hr or 525C for 5 hr, after which the alloy had a tensile strength of 164—177 kg/mm^2, an elongation of 4.5—9.0%, and a reduction of area of 8—15%. This effect of aging was found to result from the precipitation of the finely dispersed α-phase. Orig. art. has: 3 figures and 1 table. [MS]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 008/ ATD PRESS: 5004

Card 2/2 BLG

SH LEST, G.M.

Microbiological diagnosis of diphtheria using a new culture medium. Zhur. mikrobiol., epid. i immun. 40 no.9:52-54 S'63. (MIRA 17:5)

1. Iz bakteriologicheskoy laboratorii 3-y klinicheskoy bol'nitsy Kemerova.

SHELEST, I., master sporta, letchik-ispytatel'

Glider with a removable engine. Kryl.rod. 14 no.1:24 Ja '63.
(MIRA 16:1)

(Gliders (Aeronautics))

SHE[illegible] [illegible] letchik-tipytatel'

Airplane refueling in the upper atmosphere. Izn.tekh. 7 no.[illegible] [illegible] [illegible]6). ([illegible])

(Airplanes--Refueling)

1

SHELEST, L. A., Engr

"An Investigation of Effective Systems of Mass Mining Very Thin Veins." Cand Tech Sci, Moscow Inst of Nonferrous Metals and Gold imeni M. I. Kalinin, 19 Jan 55. (VM, 10 Jan 55)

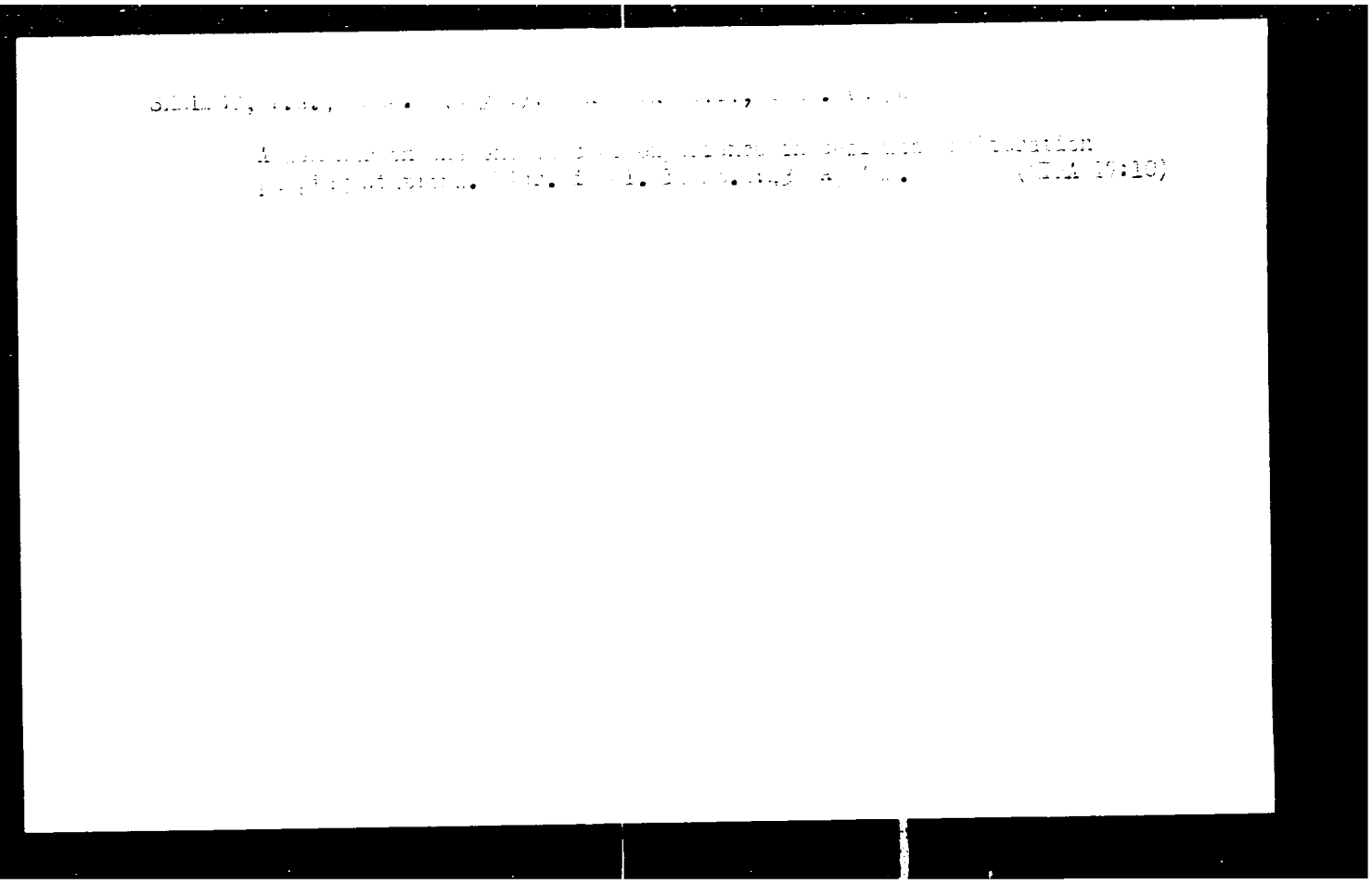
Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

SHELEST, L.A.; ANDREYEV, D.T.

Mining dipping seams with the use of square-set timbering. Gor. zhur. no.2:33-34 F'55. (MLRA 8:7)
(Mine timbering)

LEONENKO, I.A., prof., red.; SHELEST, L.A., kand. tekhn. nauk, red.; BUNIN, A.I., retsenzent; BURSHTEYN, P.S., retsenzent; KAPITANOV, T.V., retsenzent; KUZ'MIN, A.V., retsenzent; TARASOV, L.Ya., otv. red.; KOVALEV, I.A., otv. red.

[Development of mineral resources in Eastern Siberia] Razrabotka mestorozhdenii poleznykh iskopaemykh Vostochnoi Sibiri. Moskva, Nedra, 1964. 382 p. (MIRA 17:12)



ZUBOVA, M.; MERKULOVA, N.; SHELEST, M.

The miracle of our century. Standartizatsiia 29 no.8: 52-53 '65. (MIRA 18:10)

SHELEST, P. A. DECEASED 1963/1

c. 1960

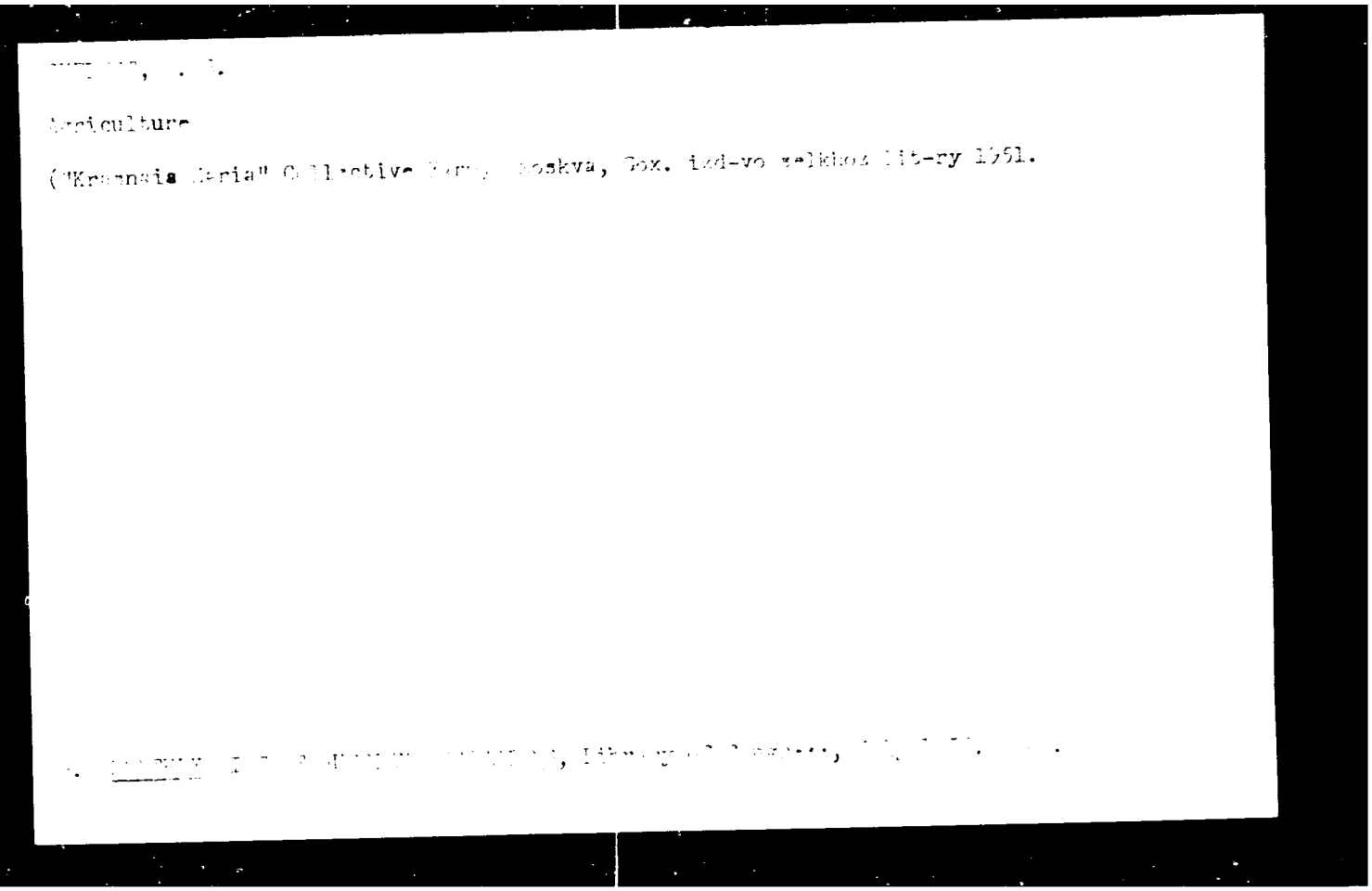
MECHANICS

SEE ILC

SHELEST, P.A., kand.tekhn.nauk, dotsent

Calculating the self-igniting lag in diesel engines. Izv.vys. ucheb.zav.; mashinostr. no.8:197-204 '63. (MIRA 16:11)

1. Moskovskoye vysshoye tekhnicheskoye uchilishche imeni Baumana.



Agriculture

("Krupnaia Zeria" Collective Farms) Moskva, Gos. izd-vo selkhoz lit-ry 1951.

1. SHIMAN, V. A. ; P. S. SHELEST.
2. U.SR (600)
4. Agriculture
7. "Krasnaia Zaria Collective Farm." Dost. sel'khoz, no. 3, 1952

9. Monthly List of Russian Accessions, Library of Congress, January, 1953. Unclassified.

KUZNETSOV, A.V.; LAPIDUS, M.A.; LEKOMTSEV, A.S., SKRIMOV, B.F., SHELEST, P.S. BERGAUZ, P.I., redaktor; GUREVICH, M.M., tekhnicheskiy redaktor.

[Composite crews on collective farms] Kompleksnye proizvodstvennye brigady v kolkhozakh. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1956.172 p. (MLRA 10:6)

(Collective farms)

SHELEST, Pavel Zalmanovich

[The old and the new; a story of the Pskov villages of Logovino and Maksakov Bor, their past and present] Byloe i nov'; rasskaz o pskovskikh derevniakh Logovino i Maksakov Bor, ikh proshlom i nastoiashchem. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1957. 107 p. (MIRA 11:5)

(Pskov Province--Villages)

SHELEST, S.L.

Blue-eyed grass (Sisyrinchium angustifolium Mill.) and other interesting species of plants in the Ponikovitskiy region of the Lvov Province. Bot. zhur.[Ukr.] 10 no.3:91-92 '53. (MLRA 6:8)

1. Kolhosp im. Bud'onnoho, sela Ponykovytsya, L'vivs'koyi oblasti. (Ponikovitskiy region--Blue-eyed grass) (Blue-eyed grass--Ponikovitskiy region)

SHELEST, S.L.

Some rare plants of Lvov Province. Ukr.bot.zhur.13 no.4:45-46 '56. (MLRA 10:1)

1. Kolgos imeni S.M. Bud'onnogo, s.Ponikovitsya Zabolottsivs'kogo rayonu L'vivs'koi oblasti.

(Lvov Province--Botany)

SHELIST, S., inzh.

Reconditioning sieve cleaners for grain sizing machines.
Muk.-elev. prom. 24 no.9:17-18 S '58. (MIRA 11:10)

1. Novo-Moskovskiy zavod po obrabotke gibridnykh i sortovykh semyan kukuruzy.
(Grain--Grading)

YAKIMOVICH, V., inzh.; MAGONIN, P.; SHELEST, S.; OSNOVIKOV, G.; KALACHEV, O., inzh.; DOKTORMAN, M.; ZHITYAYEV, S.; FARBER, A., inzh.

Suggestions of efficiency operators introduced at grain procurement stations and grain-milling enterprises. Muk.-elev. prom. 25 no.4:23-29 Ap '59. (MIRA 13:1)

1.Ministerstvo khleboproduktov Kazakhskoy SSSR (for Yakimovich). 2.Chelyabinskoye upravleniye khleboproduktov (for Magonin). 3.Glavnyy inzhener Novomoskovskogo zavoda po obrabotke semyan kukuruzy (for Shelest). 4.Altayskoye upravleniye khleboproduktov (for Osnovikov). 5.Ministerstvo khleboproduktov BSSR (for Kalachev). 6.Luganskoye upravleniye khleboproduktov (for Doktorman). 7.Kuybyshevskoye upravleniye khleboproduktov (for Zhityayev).
(Grain elevators) (Grain milling)

SHELEST, S., inzh.

Device for accelerated reconditioning of the sieve cleaners of corn sizing machines. Muk.-elev. prom. 25 no.8:23 Ag '59. (MIRA 13:1)

1. Novo-Moskovskiy zavod po obrabotke gibridnykh i sortovykh semyan kukuruzy.

(Corn (Maize)--Grading))

[illegible] ... G.A. [illegible]; [illegible], V.P.

Analyticity of the amplitude of [illegible] particle in a field.
Ukr. fiz. zhur. [illegible] no.7:708-714 Jl '65. (MIRA 18:8)

1. Institut fiziki AN [illegible], Kiyev.

SHELEST, V. (Alma-Ata).

Increase airplane dusting work. Grazhd.av. 13 no.9:34 S '56.
(Kazakhstan--Aeronautics in agriculture) (MLRA 9:11)

NEKRASOV, N.N.; SHELEST, V.A.

Soviet-Chinese research in the Amur Basin. Izv.Sib.otd.AN SSSR no.10:5-14 '59. (MIRA 13:4)

1. Sovet po izucheniyu proizvoditel'nykh sil pri Prezidiume AN SSSR.

(Amur Valley)

SHELEST, V.A.; KHAPOHIN, I.I.; [illegible]YUMTAL', Yu.L.; [illegible]OVLEBSENSKIY, A.N., prof., otv. red.

[Problems of the development and distribution of electric power in Central Asia] Problemy razvitiia i razmeshcheniia elektroenergetiki v Srednei Azii. Moskva, Nauka, 1964. 169 p. (MIRA 17:9)

L 11822-65 EWT(1) IJP(c)/ASD(a)-5/ESD(1)
ACCESSION NR: AP4048034 S/0020/64/158/006/1302/1305

AUTHORS: Vashakidze, I. Sh.; Muradyan, R. M.; Tavkhelidze, A. N.; Chilashvili, G. A.; Shelest, V. P.

TITLE: Investigation of the analytic properties of the scattering amplitude in the nonrelativistic three-body problem

SOURCE: AN SSSR. Doklady*, v. 158, no. 6, 1964, 1302-1305

TOPIC TAGS: analytic function, meromorphic function, Regge pole, scattering amplitude, angular momentum

ABSTRACT: The authors indicate that earlier attempts to determine the singularities, especially moving branch points, of the scattering amplitude in the complex angular momentum plane are still inconclusive, and investigate the analyticity of the scattering amplitude for the three-body problem in which a free particle is scattered by the bound state of the two other particles. It is shown that formal

Card 1/3

continuation of the kernels of the appropriate integral equations leads to incorrect results, for reasons which are spelled out. It is shown, however, that if the matrix element that determines the probability of scattering by the bound state is expanded in a perturbation theory series, each term of the expansion, taken in the impulse approximation, can be set in correspondence with a Feynman diagram, from which it can be deduced that the scattering amplitude is meromorphic in the complex angular momentum plane. The result is of interest in the sense that each term of the perturbation theory series may have a cut, whereas the series as a whole is a meromorphic function. A detailed exposition of the result is contained in Preprint R-1662 of the Joint Institute of Nuclear Research. "In conclusion, we thank N. N. Bogolyubov and A. A. Logunov for discussions, and also B. A. Arbuzov, A. V. Yefremov, I. T. Todorov, and O. A. Khrustalev for fruitful discussions." This report was presented by N. N. Bogolyubov. Orig. art. has: 21 formulas.

L 14822-65
ACCESSION NR: AP4048034

ASSOCIATION: Ob"yedinenny*y institut yaderny*kh issledovaniy
(Joint Institute of Nuclear Research)

SUBMITTED: 18Apr64 ENCL: 00

SUB CODE: MA, NP NR REF SOV: 003 OTHER: 004

Card 3/3

SHELEST, V.Yu.

Conference on planning, work organization and wages. Ugol' Ukr. 5 no.5:46-47 My '61. (MIRA 14:5)
(Coal mines and mining)

SHELEST, V.Yu.

Mechanization and automation in underground transportation. Ugol' Ukr. no.11:46 N '61. (MIRA 14:11)
(Mine haulage) (Automatic control)

STRELYUKHIN, A.K., prof.; SHELEST, Ye.N.; SHCHEVBAKOVA, N.I.; GRIGOR'YEV, V.I.; MAROCHKIN, V.V.

Examination of the higher nervous activity in workers of the carbon disulfide department of the Ryazan Combine of Artificial Fibers. Nauch. trudy Riaz.med.inst. 23:99-103 '63.
(MIRA 18:12)

1. Kafedra psikhiatrii (zav. kafedroy - prof. A.K.Strelyukhin) Ryazanskogo meditsinskogo instituta imeni akademika I.P. Pavlova.

124-11-13411

Translation from: Referativnyy Zhurnal, Mekhanika, 1957, Nr 11, p 155 (USSR)

AUTHOR: Shelestenko, L. N.

TITLE: The Stability of Compression Elements Made of NL2 Steel. (Ustoychivost' szhatykh elementov iz stali NL2.)

PERIODICAL: Tr. Vses. n.-i. in-ta zh.-d. str-va i proyektirovaniya, 1955, No 16, pp 86-123.

ABSTRACT: A detailed account is given of the thoroughly conducted tests, within the range of non-elastic deformations, of large models (half- to full-scale) of low-alloy steel NL2 (also, S. Kh. L. 2) widely employed in the building of bridges.

Compressive and tensile tests of standard samples showed that the proportional elastic limit the yield points, and relative elongation were within the limits of GOST specifications.

Compression tests of H-shaped models were performed on the 500-ton press with special test rigs that ensured good centering of the load and hinged supports. The critical load P_* was determined with the aid of the stress-strain diagram, namely, as that load at which an increase in strain is obtained without any increase in stress.

Card 1/2

The Stability of Compression Elements Made of NL2 Steel. (Continued)

For models requiring P_* > 500 tons, eccentric loads were used and P_* computed according tc Southwell's method (ref. Timoshenko, S. P., "The Stability of Elastic Systems", 1955, p. 191).

The tests showed that tne critical stress for slenderness ratio of from 40 to 100 is not less than those specified by the TYPM-47 standards. The phenomenon of buckling failure was not observed.

I. K. Snitko

SHELESTENKO, L. P., KANDIDATY TEKHN. NAUK

NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT ZHELEZNODOROZHNOGO STROITEL'STVA I PROYEKTIROVANIYA.

USTOYCHIVOST' VNETSENTRENNO SZHATYKH ELEMENTOV S N-OBRAZNYM SECHENIYEM. PAGE 35

SO: SBORNIK ANNOTATSIY NAUCHNO-ISSLEDOVATEL'SKIKH RABOT PO STROITEL'STVU, MOSCOW, 1951

SHELESTENKO, L.P., kandidat tekhnicheskikh nauk

Experimental study of the performance of bridge floor elements.
Trudy TSNIS no.3:180-208 '51. (MLRA 8:11)
(Bridges, Wooden)

SHELESTENKO, L.P., kandidat tekhnicheskikh nauk

Resistance of compressed elements made of NL_2 steel. Trudy TSNIS no.16:86-123 '55. (MLRA 8:11)
(Steel, Structural--Testing)

KHLEBNIKOV, Ye.L. professor; ANDREYEV, O.V., kandidat tekhnicheskikh nauk; BEGAM, L.G., kandidat tekhnicheskikh nauk; BERG, O.Ya., kandidat tekhnicheskikh nauk; GAMAYUNOV, A.I., kandidat tekhnicheskikh nauk; DUCHINSKIY, B.N., kandidat tekhnicheskikh nauk; KAZEY, I.I., kandidat tekhnicheskikh nauk; LESOKHIN, B.F., kandidat tekhnicheskikh nauk; LUGA, A.A., kandidat tekhnicheskikh nauk; LYALIN, N.B., kandidat tekhnicheskikh nauk; MEL'NIKOV, Yu.L., kandidat tekhnicheskikh nauk; POL'YEVKO, V.P., kandidat tekhnicheskikh nauk; PROKOPOVICH, I. G., kandidat tekhnicheskikh nauk; STRELETSKIY, N.N., kandidat tekhnicheskikh nauk; TYULENEV, Ye.A., kandidat tekhnicheskikh nauk; KHROMETS, Yu.N., kandidat tekhnicheskikh nauk; SHELESTENKO, L.P., kandidat tekhnicheskikh nauk; SHPIRO, G.S., kandidat tekhnicheskikh nauk; YAROSHENKO, V.A., kandidat tekhnicheskikh nauk; ZELEVICH, P.M., inzhener; CHEGODAYEV, N.N.; BOBROVA, Ye.N., tekhnicheskiy redaktor.

[Technical specifications for designing bridges and pipes for railroads of a normal gauge (TUPM-56). Effective July 1, 1957 by order of Ministry of Means of Communication and the Ministry of Transportation Construction, September 15, 1956] Tekhnicheskie usloviia proektirovaniia mostov i trub na zheleznykh dorogakh normal'noi kolei (TUPM-56). Vvedeny v kachestve vremennykh s 1 iiulia 1957 g. prikazom Ministerstva putei soobshcheniia i Ministerstva transportnogo stroitel'stva of 15 sentiabria 1956 g. No.250/TsZ/213. Moskva, Gos.transp.zhel-dor.izd-vo, 1957. 221 p.
(MLRA 10:5)

1. Russia (1923- U.S.S.R.), Ministerstvo putey soobshcheniya.
(Railroad bridges--Design)

SHELESTENKO, L.P., kandidat tekhnicheskikh nauk

Investigation of the performance of riveted bridge joints having indirect transmission of forces. Trudy TSNIS no.3:146-179 '51. (MLRA 8:11)
(Bridges, Iron and steel)

ACCESSION NR: AR4015550 S/0137/63/000/011/I075/I075

SOURCE: RZh. Metallurgiya, Abs. 11I526

AUTHOR: Shelestenko, L.P.; Nagevich, Yu.M.

TITLE: Mechanical properties of D1-T, D16-T, AMr-61, and D16A g/k aluminum alloys

CITED SOURCE: Sb. nauchn. soobshch. Vses. n.-i. in-ta transp. str-va. M., 1962, 6-23

TOPIC TAGS: aluminum alloy

TRANSLATION: The authors studied the mechanical properties of the D1-T, D16-T, AMr-61, and D16Ag/k alloys with extension (E) and compression (C) and determined the degree of variation of mechanical properties depending on the type of profile, direction of rolling, sheet thickness, and position of the sample with respect to the profile cross-section and length. The primary E and C diagrams of the alloys investigated do not have flow areas. In comparison with the E diagrams, the C diagrams have much more developed transition curves from σ_p to $\sigma_{0.2}$. For the

Card 1/2

ACCESSION NR: AR4015550

D1-T, D16-T, and AMr-61 alloys, the ratios of the mean statistical values of σ_p to $\sigma_{0.2}$, equal to 0.82; 0.86; 0.78 respectively, as well as the ratios of the mean statistical values of $\sigma_{0.2}$ to σ_b, equal respectively to 0.79, 0.77, and 0.78 approach the analogous values for carbon steels. The values of the mean statistical δ for the D1-T, D16-T, and AMr-61 alloys are equal to 11.3; 10.8 and 10.7%, which is close to the GOST standard values. The mean statistical values of E for extension and compression for the D1-t, D16-T, and AMr-61 alloys are close to each other (737,770, and 767 tons/cm^2, respectively) and about 3 times less than for steel. The mechanical properties of D16Ag/k sheets along and across the direction of rolling are practically the same, which advantageously distinguishes the alloy from carbon and low-alloy steels. The values of σ and $\sigma_{0.2}$ of the D1-T, D16-T, and AMr-61 alloys with C is considerably less than with E. E. Kadaner.

DATE ACQ: 09Dec63 SUB CODE: ML ENCL: 00

Card 2/2

S/839/62/000/000/003/004
E193/E383

AUTHORS: Shelestenko, L.P., Candidate of Technical Sciences and Nagevich, Yu.M., Engineer

TITLE: A study of the physicomechanical properties of aluminium-base alloys A1-T (D1-T), A16-T (D16-T), [illegible]61 (AMg61) and [illegible]16-[illegible] (D16-A(g/k))

SOURCE: Stroitel'nyye konstruktsii iz alyuminiyevykh splavov. Ed. by S. V. Taranovskiy. Moscow, Gosstroyizdat, 1962. 57 - 77

TEXT: In the design calculations of aluminium-alloy structures it is usual to assume that the pertinent mechanical properties of the alloys when in tension and compression are similar. The object of the present investigation was to check the validity of this assumption, to provide accurate data on some more important properties such as the limit of proportionality and the yield point and to establish the degree of uniformity of various semifinished, wrought products in respect of their mechanical properties. To this end, a large number of tensile and compressive stress/strain diagrams were obtained for the alloys studied. The

Card 1/3

A study of the ....

S/839/62/000/000/003/004
E193/E383

standard test pieces were cut from a wide range of semifinished products (profiles, sheet) allowing also - when appropriate - for the directional properties of the alloys. Alloy D16-A(g/k) was tested mainly to study the effect of the sheet thickness on its mechanical properties. The results of statistical analysis of the experimental data obtained can be summarized as follows. 1) Alloys D1-T, D16-T and AMg-61 have a sufficiently high capacity to carry both the tensile and compressive loads to meet the requirements of materials for constructions such as bridge spans, etc. 2) The proportionality limit/0.2% proof stress ratio ($\sigma_p/\sigma_{0.2}$) in tension for alloys D1-T, D16-T and AMg-61 is, respectively, 0.82, 0.86 and 0.78, the corresponding figures for the $\sigma_{0.2}$/UTS ratio being 0.79, 0.77 and 0.73. 3) Alloys D1-T, D16-T and AMg-61 have, respectively, elongation of 11.31, 10.8 and 10.7% and elastic modulus (in tension) of 737, 770 and 766 t/cm^2. 4) The compressive stress/strain diamgrams differ considerably from those obtained in tension in that the transition from σ_p to $\sigma_{0.2}$ in the former is more gradual than in the latter. 5) The values of $\sigma_{0.2}$ and,

Card 2/3

[redacted], Kand.tekhn.nauk

[redacted] of residual stresses on the local stability of compressed [redacted] of open. Trudy TSNIIS no.46:59-71 '62. (MIRA 15:9)
(Strains and stresses)

[redacted], I.

[redacted]

[redacted]

Month List of Russian Accessions, Library of Congress, December 1953. UNCLASSIFIED.

AID P - 2763

Subject : USSR/Engineering

Card 1/2 Pub. 110-a - 5/14

Authors : Khitrin, L. N., Corr. Mem., Academy of Sciences, Shelestin, Yu. P., Eng.

Title : Using cyclone furnaces in steam-power and processed steam installations operated with solid fuel

Periodical : Teploenerg., 9, 26-32, S 1955

Abstract : The Institute of Power Engineering of the Academy of Sciences of the USSR designed a forced draft furnace with 2 stages (a firing unit and a furnace where the forced circulation of fuel particles is created by air draft) for the combustion of small size fuel. The article gives a detailed description and diagrams of this installation. Results of experiments made with half-coking machine-cut peat with fluid clinker removal tested in this furnace are reported with diagrams and tables. This type

PHASE I BOOK EXPLOITATION SOV/3407

Akademiya nauk SSSR. Energeticheskiy institut im. G.M. Krzhizhanovskogo

Problemy energetiki; sbornik posvyashchayetsya akademiku G.M. Krzhizhanovskomu (Problems of Power Engineering; Collection of Articles Dedicated to Academician G.M. Krzhizhanovskiy) Moscow, 1959. 851 p. Errata slip inserted. 2,500 copies printed.

Eds. of Publishing House: B.D. Antrushin, P.V. Dubkov, F.I. Zubkov, and S.M. Moyshes; Tech. Ed.: T.A. Prusakova; Editorial Board: A.V. Vinter, Academician (Deceased), V.I. Popkov (Resp. Ed.) Corresponding Member, Academy of Sciences USSR, V.I. Veyts, A.S. Predvoditelev, M.A. Styrikovich, Z.F. Chukhanov, N.B. Bogdanova, Candidate of Technical Sciences, B.K. Kozlov, Candidate of Technical Sciences, M.M. Lebedev, Candidate of Technical Sciences, and I.N. Sundukov.

PURPOSE: This collection of articles is intended as a tribute to the memory of Academician G.M. Krzhizhanovskiy.

COVERAGE: The collection contains sixty articles by former students and coworkers of the deceased Academician. The articles deal with problems of a wide range of subjects in the field of power engineering: problems of the regional development of electrical and thermal power engineering, power engineering technology, and the physics of combustion. No personalities are mentioned. References are given after most articles.

3/2

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549020003-7"

SHELESTOV, M.N.

Introduction pump blocks at the Zyryanovsk Plant. TSvet.met. 33 no.1:82 Ja '60. (MIRA 13:5)

1. Kazgiprotsvetmet.
(Zyryanovsk--Ore dressing)

SOV / 137-58-7-14023

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 5 (USSR)

AUTHORS: Shpil'berg, B. A., Shelestov, M. S., Gruzdeva, A. K., Pravednykh, Ye. Z., Filichkin, I. Ye., Zhavoronok, V. I.

TITLE: Experiences in the Concentration of the Polymetallic Sulfide Ores of the Zyryanovskoye Deposit in Heavy Suspensions (Opyt obogashcheniya v tyazhelykh suspenziyakh sul'fidnoy polimetallicheskoy rudy Zyryanovskogo mestorozhdeniya)

PERIODICAL: Byul. tsvetn. metallurgii, 1957, Nr 19-20, pp 34-39

ABSTRACT: Laboratory investigations have proved the possibility of concentrating the -30+4 mm class in suspensions, in which the tailings take 43.5% of the ore, with 0.04% Cu, 0.13% Pb, and 0.14% Zn. Losses in the tailings are: 4.9% Cu, 3.2% Pb, and 2% Zn. The concentration in the concentrate consisted of 0.57% Cu, 3.11% Pb, and 4.98% Zn. The Zyryanovsk Kombinat has built an experimental plant to handle 80-100 t/day. A description is offered of the I. L. Denisov mushroom valve for automatic maintenance of the level in the suspension feeder. The work of the plant has demonstrated the possibility of removing 45% of the ore in the tailings (of the original, or 61% of the

Card 1/2

Experiences in the Concentration of the Polymetallic (cont.)

class) with a content of 0.04% Cu, 0.16% Pb, and 0.19% Zn, with extraction (from the 35-5 mm class) respectively of 7.5%, 6.5%, and 4.5%. In the concentrate, the Cu, Pb, and Zn contents were 0.8%, 3.62%, and 6.19%, with recovery of 92.5%, 93.5%, and 95.5% of the class. It was found desirable to have separate concentration of the 10-5 and 10-35 mm classes. Losses of PbS in the tailings were 45 g per t starting ore.

I. M.

1. Sulfide ores--Processing 2. Sulfide ores--Separation

Card 2/2

MIL'SKIY, O.V. [Mil'skyy, O.V.]; [illegible]VICH, Kh.Ya. [Haidukhevych, Kh.IA.]; SHELESTOVA, S.V.

Refractometric method for determining sugar content of gingerbread. Khlarch.prom. no.[illegible]53 [illegible]63. (MIRA 17:1)

DEGTYAREVA, A.S.; MEYSAKHOVICH, Ya.A.; MINASYAN, G.D.; CHIZH, M.A.; SHELESTOVA, V.S.

Using the OPV sprayer in low-volume spraying of orchards. Zashch. rast. ot vred. i bol. 6 no.7:20-22 Jl '61. (MIRA 16:5)
(Spraying and dusting in agriculture)

DEGTYAREVA, A.S., kand.biolog.nauk; SHELESTOVA, V.S., assistent

Using chlorophos in orchards. Zashch. rast. ot vred. i bol. 8 no.7: 25 Jl '63. (MIRA 16:9)

1. Ukrainskiy nauchno-issledovatel'skiy institut zashchity rasteniy (for Degtyareva). 2. Kafedra entomologii Ukrainskogo nauchno-issledovatel'skogo instituta zashchity rasteniy (for Shelestova).