ESKIN, G.I. (Moskva); FRIDLYANDER, I.N. (Moskva); RUBLEVA, M.K. (Moskva)

Formation of structural components in aluminum alloys under the effect of ultrasonic waves. Izv. AN SSSR. Otd. tekh. nauk. Met. i gor. delo no.1: 109-112 Ja-F '63. (MIRA 16:3)

(Aluminum alloys—Metallography)
(Ultrasonic waves—Industrial applications)

SHAMRAY, V.F.; FRIDLYANDER, I.N.; SOKOLOV, A.N.

Studing transformations during the crystallization of alloys in the system aluminum - copper - lithium. Issl. splav. tsvet. met. no.4:100-107 '63. (MIRA 16:8)

(Aluminum-copper-lithium alloys--Metallography)
(Phase rule and equilibrium)

ACCESSION NR: AP4005828 S/0129/63/000/012/0026/0028

AUTHOR: Fridlyander, I. N.; Zaytseva, N. I.; Artemova, M. S.

TITLE: Effect of multistage aging on properties of alloys of aluminum-zinc-magnesium system

SOURCE: Metalloved. i. termich. obrab. metallov, no. 12, 1963, 26-28

TOPIC TAGS: manganese alloy, zinc alloy, magnesium alloy, V92 alloy, mechanical property, stress corrosion, corrosion resistance, artificial aging, natural aging, multistage aging, alloy aging, aluminum base alloy

ABSTRACT: Although V92 aluminum alloy has generally high corrosion resistance, it is susceptible to stress corrosion. Experiments were conducted to rectify this deficiency by two-stage aging while retaining adequate mechanical properties. Specimens containing 2.9% Zn, 4.4% Mg, and 0.7% Mn were subjected to various aging regimes and then to a 3% solution of NaCl. Specimen "life" was the time required for the formation of macroscopic cracks. The highest stress corrosion resistance (120 hours) was achieved with aging at 60 C for 24 hours followed by additional aging either at 180 C for 10 hours or at 200 C for 1, 3, and 10 hours. By way of

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ACCESSION NR: AP4005828

comparison, tests were also run on an alloy containing 4.6% Zn, 1.5% Mg, 0.3% Mn, 0.12% Cr, and larger contents of Zn with respect to Mg. High mechanical properties and satisfactory stress corrosion resistance were achieved by aging at 100 C for 5 hours plus 150 C for 12-16 hours. Data are presented for both types of alloys detailing the trade-off of mechanical properties for corrosion resistance under various aging regimes. Orig. art. has: 4 tables.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 09Jan64 ENCL: 00

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

Card 2/2

ACCESSION NR: AP4005830 S/0129/63/000/012/0035/0037

AUTHOR: Sidorin, I. I.; Fridlyander, I. N.; Silayeva, V. I.; Kuznetsova, Ye. A.

TITLE: Investigation of the structure and properties of SAP-1 material

SOURCE: Metalloved. i termich. obrab. metallov, no. 12, 1963, 35-37

TOPIC TAGS: sintered aluminum powder, SAP sheet, SAP sheet structure, SAP sheet strength, SAP sheet ductility, SAP cold rolling, SAP hot rolling, SAP sintering SAP annealing, SAP structure, SAP property, SAP alloy

ABSTRACT: The authors have investigated the effect of technological conditions, especially the temperature of preliminary sintering and annealing, on the structure and mechanical properties of sintered aluminum powder products at higher temperatures (especially above 500C). The tested material was first sintered at temperatures of 500 and 650C for 2 hours, hot pressed at 500C under a specific pressure of 55 kg/mm^2, pressed at 500-550C with 89.5% deformation, hot rolled at 500C with 70% deformation, and cold rolled with a deformation of 50%. Preliminary sintering at higher temperatures (650C) decreased the strength and hardness of the semifinished product and increased the percentage of elongation. This effect may be due to recrystallization in microvolumes. The texture formed as a result of pressing and hot and cold rolling of this material was very stable up

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ACCESSION NR: AP4005830

to 650C. The mechanical properties of pressed and rolled SAP-1 material deteriorated after annealing, and microcracks appeared. The temperature of annealing leading to microcracks depends on the temperature of preliminary sintering of the briquets. It was concluded that an increase in the sintering temperature up to 650C markedly increases the degasification coefficient and consequently reduces the tendency to microcrack formation during annealing while widening the temperature interval of the stability of the mechanical properties of the annealed and rolled sheet of SAP-1. Orig. art. has: 1 figure and 1 table.

ASSOCIATION: none

SUBMITTED: 00	DATE ACQ: 09Jan64	ENCL: 00
SUB CODE: ML, MA	NO REF SOV: 000	OTHER: 000

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L 8913-65 EWT(m)/EPR/T/EWP(k)/EWP(q)/EWP(b) Pf-4/Pg-4 EAEM(t)/ASD(m)-3/
AFETR/ESD/AFTC(p) MJW/JD

ACCESSION NR: AT4012729 S/2981/63/000/002/0169/0174

AUTHOR: Fridlyander, I. N.; Agarkov, G. D.; Klyagina, N. S.; Krivenko, R. A. B

TITLE: Preparation of standard aluminum alloys by the powder method 27

SOURCE: Alyuminiyevyye splavy*. Sbornik statey, no. 2, Spechennyye splavy*. Moscow, 1963, 169-174

TOPIC TAGS: powdered aluminum, powder metallurgy, aluminum alloy, mechanical property 18 18

ABSTRACT: V96 and D16 aluminum alloys, prepared by a newly developed powder method, were tested for the effect of homogenization, thermal treatment, Al_2O_3 admixture, and structural changes on their mechanical properties. The 3-stage powder process consists of cold powder briquetting at a maximum pressure of 100 kg/mm^2 for 1.0-1.5 min., hot briquet precompressing and rod compacting at 400C for 1.5-2.0 hrs. The effect of thermal treatment was found to depend on the Al_2O_3 content and was found to increase the strength of both alloys when the Al_2O_3 content is low. Homogenization reduced, to a certain degree, the strength of V96. Powdered alloys prepared by atomization were of a higher quality than those prepared by mixing the individual components. The smaller the powder particles, the higher the mechanical properties of D16, while V96 was not affected. Techno-

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L 8913-65
ACCESSION NR: AT4012729

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logically, powdered V96 and D16 with aluminum contents in excess of 10% are nearly equal to SAP; they resemble in behavior ordinary cast alloys when the aluminum content is low but have a more homogeneous structure. The microstructure of both alloys is discussed and is found to be highly dispersed and homogeneous. Orig art. has: 2 tables, 2 figures, and 5 graphs.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00

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

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L 23872-65 EWT(m)/EPF(n)-2/EPR/EWP(t)/EWP(b) Ps-4/Pu-4 IJP(c) JD/
JG/MLK

ACCESSION NR: AT5002775 S/0000/64/000/000/0172/0175

AUTHOR: Nagorskaya, N. D.; Simanov, Yu. P. (Deceased); Nikolayeva, V. V.; Novoselova, A. V.; Fridlyander, I. N.; Yatsenko, K. P.; Savostin, A. P.

TITLE: Investigation of the interaction of beryllium with rhenium

SOURCE: Vsesoyuznoye soveshchaniye po probleme reniya, 2d, Moscow, 1962. Reniy (Rhenium); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1964, 172-175

TOPIC TAGS: beryllium, rhenium, beryllium rhenium system, beryllium alloy, rhenium containing alloy, microstructure, hardness

ABSTRACT: The microstructure and hardness of cast, annealed, and quenched Be-Re alloys containing up to 45 wt (3.79 at)% Re have been investigated. The alloys were induction melted from 99.5%-pure Be and 99.95% pure Re. Microstructure examination showed that alloys at the investigated portion of the Be-Re system crystallize according to eutectic type diagrams. In hypoeutectic alloys the grains of Be-base solid solution are contained in a binary eutectic. In the eu-

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L 23872-65

ACCESSION NR: AT5002775

tectic which contains 8.8 wt% (0.45 at%) Re, the γ-phase based on $Be_{20}Re$ compound forms a finely branched network. The primary formations of the γ-phase in hypereutectoid alloys are scattered within the solid solution of Be. In the investigated alloys Be is present in the form of the α-modification and in an f.c.c. γ-phase on a $Be_{20}Re$ base which has a theoretical Re content of 50.78 wt%. The solubility of Re in Be is less than 1.0 wt% at the eutectic temperature, and less than 0.7 wt% at 600C. The cast alloys containing 2—12% Re have a considerably higher hardness than that according to the additivity rule, which is ascribed to the presence of mechanical stresses in the finely branched eutectic crystallized under conditions of rapid cooling. As the amount of the eutectic decreases and the amount of the γ-phase increases, the hardness of the alloys drops, and in alloys containing more than 12% Re it is equal to the mean arithmetic value of the hardnesses of individual phases. Orig. art. has: 2 figures and 1 table. [MS]

ASSOCIATION: none

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ACCESSION NR: AT4037643 S/2981/64/000/003/0005/0026

AUTHOR: Edel'man, N. M.; Fridlyander, I. N.; Starostina, Z. I.

TITLE: A study of the properties of alloys in the Al-Mg-Si system

SOURCE: Alyuminiyevy*ye splavy*, no. 3, 1964. Deformiruyemy*ye splavy* (Malleable alloys), 5-26

TOPIC TAGS: aluminum alloy, aluminum magnesium silicon alloy, alloy AV, alloy AD31, alloy AD33, alloy AD35, alloy mechanical property, alloy chemical composition, alloy corrosion resistance, alloy weldability, alloy heat treatment, alloy stampability, silicon containing alloy, magnesium containing alloy

ABSTRACT: Tests were carried out on sheet samples (1.5 mm thick) of 87 alloy compositions to determine the effects of alloy composition and heat treatment conditions on mechanical properties, the effects of composition on corrosion resistance, and the weldability. Content of Mg varied by 0.2% from 0 to 2.0%, Si by 0.2 or 0.4% from 0.0 or 0.2% to 2.0% for each Mg content. The samples were annealed (1 hr. at 370C, cooled in a furnace to 150C, then in free air) or hardened (530C, niter bath) and tested either prior to aging, after 15 days of natural aging or after 12 hrs. of artificial aging at 160C. Machine welding operations were in a argon atmosphere, using a nonconsumable electrode and welding rods of the basic

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ACCESSION NR: AT4037643

material. Analysis of concentration triangles plotted for the system indicates that peak strength for all hardening procedures used applies to alloys in the triphasic area α + Mg_2Si + Si at Mg + Si = 2.5 to 4% total. The alloys exhibited good plasticity after annealing, as well as after hardening with artificial aging or prior to aging. Stamping, cupping, flanging and extrusion are possible at high levels of deformation. Corrosion resistance to immersion in 3% NaCl with 0.1% H_2O_2 added decreased with an increase in Si and the Mg_2Si phase, was relatively unaffected by an increase in Mg, and deteriorated sharply in the direction from excess Mg to excess Si where Mg_2Si was constant. Weldability was adequate for argon arc roll or spot welding, tensile strength of seams was 60-70% of initial material levels and was restored to 90-95% by subsequent heat treatment. Tendency to crystallization cracking was high when using welding rods of original material (cracking coefficient 60-80%), but use of SVAK5 rods (5% Si, balance Al) reduced that value to 0-20%. Use of such rods did not affect strength, plasticity or corrosion resistance. Alloys in this system are recommended for applications requiring high corrosion resistance, high yield points (compared to magnalium), good weldability and a decorative appearance in riveted or cemented constructions,

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ACCESSION NR: AT4037643

as well as welded structures where lowered strength of weld joints can be tolerated. Three alloys (AD31, AD33 and AD35, composition and mechanical properties given) were submitted for industrial use as a result of this study. "Ye. A. Gubarova, Ye. I. Burova, L. A. Agapova, Yu. P. Arbuzov and R. N. Naumova also took part in the work." Orig. art. has: 3 tables and 16 graphs.

ASSOCIATION: none

SUBMITTED: 00	DATE ACQ: 04Jun64	ENCL: 00
SUB CODE: MM	NO REF SOV: 008	OTHER: 002

Card 3/3

ARBUZOV, Yu.P.; Prinimali uchastiye: FRIDLYANDER, I.N.; EDEL'MAN, N.M.; BUROVA, Ye.I.; SOLOV'YEVA, V.V.; STAROSTINA, Z.I.; GUBAREVA, Ye.A.

Properties of welded joints in AD31 and AD33 aluminum alloys. Alium. splavy no.3:36-45 '64. (MIRA 17:6)

ACCESSION NR: AT4037647 S/2981/64/000/003/0051/0065

AUTHOR: Fridlyander, I. N.; Zaytseva, N. I.; Burova, Ye. I.; Arbuzov, Yu. P.

TITLE: Principles of variation in the weldability and mechanical and corrosion properties of Al-Zn-Mg alloys

SOURCE: Alyuminiyevy*ye splavy*, no. 3, 1964. Deformiruyemy*ye splavy* (Malleable alloys), 51-65

TOPIC TAGS: aluminum alloy, aluminum zinc magnesium alloy, alloy heat treatment, alloy mechanical property, alloy corrosion resistance, alloy weldability, maganese admixture, zinc, magnesium

ABSTRACT: A group of alloys with 1.5-6% Zn, 1.5-8% Mg and 0.6-1.0% Mn was tested for mechanical properties, corrosion resistance and weldability in relation to composition, heat treatment and aging procedure. Sheets (2 mm thick) were annealed for 2 hrs. at 400C and furnace cooled at 30°/hr. to 200C, then in free air, or water quenched from 440-460C and aged naturally for 1 month or artificially for 96 hrs. at 100C. Corrosion tests involved compositions with 2.5-6.0% Zn and 1.0-3.0% Mg, immersed for 3 months in 3% NaCl solution plus 0.1% H_2O_2 or exposed to corrosion in an industrial atmosphere. The tendency of welded joints to cracking was studied in relation to composition. The results are illustrated

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ACCESSION NR: AT4037647

graphically and led the authors to submit alloys with a total Zn plus Mg content of 7.0-8.0% (2.9-3.6% Zn, 3.9-4.6% Mg, Zn : Mg ~ 0.8 : 1) and 0.6-1.0% Mn for further testing and development. "M. S. Artemova and L. I. Agapova took part in the experimental part of the work." Orig. art. has 9 graphs and 4 tables.

ASSOCIATION: none

SUBMITTED: 00	DATE ACQ: 04Jun64	ENCL: 00
SUB CODE: MM	NO REF SOV: 002	OTHER: 001

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TBR

ACCESSION NR: AT4037648 S/2981/64/000/003/0066/0075

AUTHOR: Fridlyander, I. N.; Zaytseva, N. I.; Burova, Ye. I.; Arbuzov, Yu. P.

TITLE: Effect of various additives on properties of alloys of the system Al-Zn-Mg

SOURCE: Alyuminiyevy*ye splavy*, no. 3, 1964. Deformiruyemy*ye splavy* (Malleable alloys), 66-75

TOPIC TAGS: aluminum alloy, aluminum zinc magnesium alloy, alloying additive, alloy mechanical property, alloy corrosion resistance, alloy weldability, beryllium additive, zirconium additive, cerium additive, calcium additive, manganese additive, iron additive, silicon additive, titanium additive, copper additive

ABSTRACT: Admixtures of 0.002 - 0.3% Be, 0.05 - 0.3% Zr, 0.1 - 2.0% Ce and 0.2 - 0.8% Ca were analyzed for their effect on the properties of aluminum alloys containing 3% Zn, 3.7% Mg and 0.8% Mn. Other experiments involved admixtures of 0.6 - 1.0% Mn, 0.1 - 0.5% Fe, 0.1 - 0.3% Si, up to 0.2% Ti and 0.05 - 0.3% Cu to an aluminum alloy containing 2.7% Zn, 3.7% Mg and 0.002% Be (the

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effect of last four admixtures was verified on an alloy with 0.8% Mn). Mechanical tests used 2 mm sheet samples, either annealed (2 hours at 400C, cooled to 200C at 30°/hr. or slower), freshly hardened or hardened (water quenching from 445 ± 5C) and naturally (1 week- 3 months) or artificially (96 hrs., 100C) aged. Hardened and naturally aged welded sheet samples were tested for corrosion resistance one month after welding by intermittent immersion in a 3% NaCl solution over a period of three months. Other tests concerned weldability of the alloys. Results are mostly tabulated or plotted on graphs and indicate, in summary form, that addition of Zr, Be and Mn to these systems is useful, while the content of Cu, Fe and Si should be severely controlled. "M. S. Artemova and L. I. Agapova also took part in the work." Orig. art. has: 3 tables and 8 graphs.

ASSOCIATION: None

SUBMITTED: 00	DATE ACQ: 04Jun64	ENCL: 00
SUB CODE: MM	NO REF SOV: 000	OTHER: 000

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ACCESSION NR: AT4037649 S/2981/64/000/003/0076/0079

AUTHOR: Fridlyander, I. N.; Zaytseva, N. I.; Burova, Ye. I.; Arbuzov, Yu. P.

TITLE: The V92 weldable aluminum alloy

SOURCE: Alyuminiyevy*ye splavy*, no. 3, 1964, Deformiruyemy*ye splavy* (Malleable alloys), 76-79

TOPIC TAGS: aluminum alloy, weldable aluminum alloy, heat resistant alloy, V92 alloy, heat treatable alloy, wrought alloy, alloy weldability, alloy corrosion, resistance alloy property

ABSTRACT: The V92 aluminum base alloy contains the following principal components: Mg, 3.9—4.6%; Zn, 2.9—3.6%; Mn, 0.6—1.0%; and Be, 0.0001—0.005%. The optimum combination of properties is obtained at a Zn + Mg sum of 7—8% and a Zn:Mg ratio of 0.75. The alloy is heat treatable: it is solution heat treated at 450—470C and artificially aged at 60C for 24 hrs and then at 200C for 1—2 hr.

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The natural aging proceeds rather slowly and is not completed in 30 days. In 3 months of natural aging the tensile strength and yield strength increase by 2—3 kg/mm^2. The alloy is annealed at 320—350C for 2—3 hr with furnace cooling to 200C to room temperature. The annealed alloy has a tensile strength of 27—30 kg/mm^2, a yield strength of 13—17 kg/mm^2, and elongation of 18—22%. The tensile strength of the solution heat treated and artificially aged alloy is 43—48 kg/mm^2, yield strength 29—35 kg/mm^2, and elongation 18—21% at room temperature; 28 kg/mm^2, 22 kg/mm^2, and 25—30%, respectively, at 200C; and 9 kg/mm^2, 6 kg/mm^2, and 70%, respectively, at 300C. The tensile and yield strengths of naturally aged alloy are somewhat lower, but the difference becomes smaller with increasing temperature. The alloy can be extruded and cold formed. V92 alloy is welded satisfactorily by argon shielded arc welding; filler wire of the same alloy with 0.2—0.5% Zr and increased Mg and Zn content is recommended. No heat treatment is necessary after welding since the "critical cooling rate" of the alloy is rather low. The strength of welded joints is approximately 0.8 of that of the base metal. Corrosion resistance of V92 alloy is satisfactory. Orig. art. has: 5 tables.

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ARBUZOV, Yu.P.; Prinimali uchastiye: FRIDLY'NDER, I.N.; ZAYTSEVA, N.I.; BUROVA Ye.I.; SOLOV'YEVA, V.V.; ARTEM'YEVA, N.F.; ARTEM'YEVA, M.S.

Properties of welded joints in the B92 aluminum alloy. Alium. splavy no.3:80-91 '64. (MIRA 17:6)

ZHUKOV, V.D.; YAKOVLEV, V.I.; POTAPOVA, V.I.; AYUPOVA, Ye.O.;
FRIDLYANDER, I.N., rukovoditel' raboty

Technology of production and the properties of semifinished products from the highly resistant B92 alloy. Alium. splavy no.3:92-104 '64. (MIRA 17:6)

ACCESSION NR: AT4037655 S/2981/64/000/003/0145/0152

AUTHOR: Fridlyander, I. N.; Khol'nova, V. I.; Yelagina, Z. A.

TITLE: Effect of iron and silicon admixtures on the microstructure of alloy V93

SOURCE: Alyuminiyevy*ye splavy*, no. 3, 1964. Deformiruyemy* ye splavy* (Malleable alloys), 145-152

TOPIC TAGS: aluminum alloy, alloy V93, alloy microstructure, hot pressed aluminum alloy, heat treated aluminum alloy, alloy grain growth, iron admixture, silicon admixture

ABSTRACT: Ingots (diameter 70 mm) were dip-cast, then homogenized (48 hrs., 445-465C) and eventually pressed into strips (cross section 10x40 mm) after preheating for 3 hours at 400-415C, to study the effect of Fe and Si concentration on alloy microstructure. The numerous tested compositions were all based on Al (grade AV000) and contained 5.7-7.03% Zn, 1.41-1.96% Mg, 0.77-1.68% Cu, traces to 0.31% Si and 0.073-0.5% Fe. Samples were either hot pressed or heat treated (water quenched from 470 ± 5C, aged 3 hours at 120C and 4 hours at 165C). Increase of Fe to levels above 0.10% results in a finer grained and more equant structure of hot pressed samples. The heat treated material showed significantly reduced grain size and greater homogeneity with an increase in Fe.

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It is concluded that ferrous components can act as recrystallization nuclei and that Fe can inhibit grain growth by forming a supersaturated solid solution in the Al. Orig. art. has: 1 table and 11 photomicrographs.

ASSOCIATION: none.

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ACCESSION NR: AT4037658 S/2981/64/000/003/0175/0181

AUTHOR: Romanova, O. A.; Fridlyander, I. N.

TITLE: Development and analysis of the heat resistant, ductile aluminum alloy D21

SOURCE: Alyuminiyevy*ye splavy*, no. 3, 1964. Deformiruyemy*ye splavy* (Malleable alloys), 175-181

TOPIC TAGS: aluminum alloy, alloy D21, alloy D20, modification, alloy D16, alloy AK4-1, ductile aluminum alloy, alloy mechanical property, heat resistant alloy, alloy corrosion resistance

ABSTRACT: Zr, Cr, Ti, Mg and other elements were added experimentally to base alloys D16, AK4-1 and D20 in an attempt to develop a heat resistant and ductile alloy for use at 225-250C. D20 was selected as the best base and modified by adding 0.25-0.45% Mg. The modified alloy obtained was designated D21 (sp. gr. = 2.84 g/cm^3, α = 19.0·10^{-6} at 20-100C to 33.74 · 10^{-6} 1/°C at 300-400C, ρ = 0.054 ohm · mm^2/m, C = 0.18 at 50C to 0.24 cal/g ·°C at 400C). Creep strength = 20 kg/mm^2 (0.2%, 100 hrs, 200C). Fatigue limit σ_{25} = 23 kg/mm^2 at 200C to 12 kg/mm^2 at 270C, σ_{100} = 22 and 11 kg/mm^2, respectively, 7 kg/mm^2 at 300C. Corrosion resistance of stressed forgings was high (5 months) in

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hardened or artificially aged material. Tensile strength = 43 kg/mm^2 at 20C to 21 (0.5 hrs) or 16 (100 hrs) kg/mm^2 at 275C, elongation 9, 9 and 8%, respectively. "The authors express gratitude to V. I. Dobatkin and N. F. Anoshkin for their assistance and valuable advice." Orig. art. has: 5 tables.

ASSOCIATION: none

SUBMITTED: 00	DATE ACQ: 04Jun64	ENCL: 00
SUB CODE: MM	NO REF SOV: 000	OTHER: 000

Card 2/2

ACCESSION NR: AT4037659 S/2981/64/000/003/0182/0193

AUTHOR: Fridlyander, I. N.; Andreyev, A. D.; Pavlova, I. K.; Romanova, O. A.; Archakova, Z. N.

TITLE: Selection of a fabrication process and a study of the effects of technological factors on the structure and properties of alloy VAD23

SOURCE: Alyuminiyevy*ye splavy*, no. 3, 1964. Deformiruyemy*ye splavy* (Malleable alloys), 182-193

TOPIC TAGS: aluminum alloy, alloy VAD23, alloy structure, alloy mechanical property, alloy hardening, alloy aging, alloy casting, alloy hot pressing, alloy hot rolling, alloy cold rolling, alloy forging, alloy semiproduct anisotropy, high strength aluminum alloy, heat resistant aluminum alloy

ABSTRACT: Ingots (diameter 300 mm, length 1000 mm) of alloy VAD23 were factory dip-cast (flux refined, kept 60 min. at 745-780C, poured, 1.4% Li and 0.15% Cd added in mold, liquid flux 46% LiCl plus 54% KCl, mixed, settled at 750-770C, dip rate 15-18 mm/min), then homogenized for 24 hrs. at 510 ± 10C. The ingots were then hot pressed into PR306-7 sections (deformation 94%, 420-440C; hardened 60 min. at 525 ± 5C, aged 12 hrs. at 170C), panels (wall thickness 4-15 mm;

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ACCESSION NR: AT4037659

pressed at 420C from forgings 550 x 150 x 600 mm; 525 ± 5C, then aged 16 hours at 170C), 0.8 - 8.0 mm thick sheets (hot rolled at 370-390C to 8 or 4 mm, then cold rolled after annealing to 40-60% reductions; hardened as above) and forgings measuring 90 or 120 x 200 x 400 mm (forged after 24 hrs. at 400-450C, hardened 4 hrs. at 525 ± 5C, aged 16 hours at 170C). Results of mechanical tests are tabulated for all intermediate products and show that pressing or rolling temperatures exert no significant effects on mechanical properties of rods and sheets in the respective ranges of 380-480 and 290-400C. Drawing did not affect tensile strength or yield of hot pressed rods, but relative elongation increased. Tensile strength of sheets increased somewhat with deformation in cold rolling (56 kg/mm^2 at 12% to 58 at 32%), relative elongation increased from 0.5% at 12% to 5.6% at 51%. The optimal hardening temperature was found to be 525C, and the best aging procedure was 12-16 hours at 170C. Precooling during hardening reduces tensile strength sharply when exceeding 30 sec., while relative elongation increased at first. The crosswise-lengthwise tensile strength variation ranged from 1-3 kg/mm^2 for twice pressed samples to 10-13 kg/mm^2 for once pressed rods, and is related to a more or less pronounced pressing effect. "K. N. Fomin, V. I. Potapova and Ye. N. Kalinina also took part in the work." Orig. art. has: 13 figures and 5 tables.

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ACCESSION NR: AT4037660 S/2981/64/000/003/0194/0200

AUTHOR: Fridlyander, I. N.; Romanova, O. A.; Archakova, Z. N.; Gur'yev, I. I.; Dronova, N. P.; Petrova, A. A.; By*chkova, Z. S.

TITLE: Preparation and testing of intermediate shapes from high-strength heat resistant aluminum alloy VAD23

SOURCE: Alyuminiyevy*ye splavy*, no. 3, 1964. Deformiruyemy*ye splavy* (Malleable alloys), 194-200

TOPIC TAGS: aluminum alloy, alloy VAD23, heat resistant aluminum alloy, high strength aluminum alloy, alloy mechanical property, hot pressed rod, hot pressed section, hot pressed strip, hot rolled sheet, cold rolled sheet, forged piece, double pressing

ABSTRACT: Immersion-cast ingots (diameter 260 mm) of alloy VAD23 (5.1-5.7% Cu, 1.2-1.4% Li, 0.096-0.11% Cd, 0.60-0.7% Mn, 0.15-0.25% Ti) were hot pressed (430-450C) into rods (intermediate diameter 127 mm or final diameter 30 mm), sections PR306-7, strips with 25x210 mm cross section and pressed panels. The pieces were water quenched from 525±5C, then aged 16 hours at 170C. Sheets 1.0, 1.5 and 2.0 mm thick were hot

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ACCESSION NR: AT4037660

rolled from strips to 6.0-5.5 mm, then cold rolled to desired thickness with intermediate annealing and finally heat treated (water quenched from 523±5C, aged 16 hours at 170±5C). Forgings (90 or 120x200x400 mm) were forged on a vertical press (deformation 65%, preheating 3 hours to 420-440C) from rods (diameter 180 mm) and heat treated as for sheets. Pressed shapes exhibited high tensile strength (66-70 kg/mm^2) at a relative elongation of 3-4%. It was noted that double pressing (i.e., into intermediate diameter rods, then final shape) reduced the tensile strength and increased the plasticity. Mechanical properties of sheets and forgings were lower than those of the pressed shapes. "K. N. Fomin, N. S. Lebedeva, P. G. Reznik, N. Averkina, L. S. Zheltovskaya, Yu. A. Vorob'yev and N. N. Tyurin also took part in the work." Orig. art. has: 7 tables.

ASSOCIATION: none

SUBMITTED: 00	DATE ACQ: 04Jun64	ENCL: 00
SUB CODE: MM	NO REF SOV: 000	OTHER: 000

Card 2/2

ACCESSION NR: AT4037667 S/2981/64/000/003/0263/0270

AUTHOR: Galatskiy, B. D.; Afanas'yeva, I. S.; Fridlyander, I. N.

TITLE: A study of the rate of Cu, Mg and Mn diffusion in aluminum in relation to the degree of deformation during extrusion

SOURCE: Alyuminiyevy*ye splavy*, no. 3, 1964. Deformiruyemy*ye splavy* (Malleable alloys), 263-270

TOPIC TAGS: aluminum alloy, duralumin, alloy Al, alloy D16, copper diffusion, manganese diffusion, magnesium diffusion, component diffusion analysis, extrusion related diffusion, temperature diffusion dependence, deformation, aluminum extrusion

ABSTRACT: Samples (150 mm long) cut from hexagonal bars extruded at 380C from twinned ingots (see Fig. 1 in the Enclosure) of alloys A1 and D16 (containing, respectively, in %: 0.015 - 4.1 Cu, 0.016 - 1.62 Mg, 0.008 - 0.44 Mn, 0.19 - 0.43 Fe, 0.18 - 0.36 Si) were preheated for 10^2 to 10^5 sec. in a niter bath at 470, 490 or 510C and spectrally analyzed along diagonal sections (1° to 1°30') to determine depth of diffusion and dependence of diffusion coefficients on temperature and coefficients of elongation ($\lambda = 3.7$, 10.0, 21.0 and 47.0). Results are tabulated (see Table 1 in the Enclosure) and indicate that the

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ACCESSION NR: AT4037667

diffusion coefficient D, expressed as $D = D_1 \cdot \lambda^n$ (where D_1 is the diffusion coefficient of the cast material and n is an exponent), is governed principally by D_1 at small degrees of deformation and by the degree of deformation as λ increases. Orig. art. has: 3 tables and 8 graphs.

ASSOCIATION: None

SUBMITTED: 00 DATE ACQ: 04Jun64 ENCL: 02

SUB CODE: MM NO REF SOV: 006 OTHER: 003

2/4

Card

ACCESSION NR: AT4037667

ENCLOSURE: 01

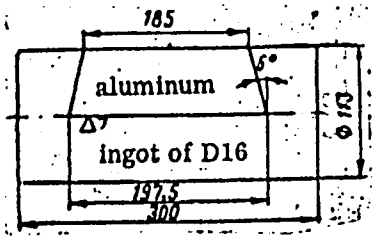

Fig. 1 - Twinned ingot of D16 and Al

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ACCESSION NR: AT4037667 ENCLOSURE: 02

Mean values of the diffusion coefficients $D\left(\frac{cm^2}{sec}\right)$ of Cu, Mg and Mn from D16 into aluminum

Temperature, °C	Component	Coefficient of elongation λ			
		3,7	10,0	21,0	47,0
510	Cu	$1,7\times10^{-10}$	$5,0\times10^{-10}$	$1,6\times10^{-9}$	$5,5\times10^{-9}$
	Mg	$3,1\times10^{-10}$	$5,0\times10^{-10}$	$9,4\times10^{-10}$	$2,9\times10^{-9}$
	Mn	$3,6\times10^{-10}$	$7,7\times10^{-10}$	$2,4\times10^{-9}$	$8,3\times10^{-9}$
490	Cu	$1,0\times10^{-10}$	$2,3\times10^{-10}$	$6,3\times10^{-10}$	$2,0\times10^{-9}$
	Mg	$2,7\times10^{-10}$	$3,8\times10^{-10}$	$6,5\times10^{-10}$	$1,6\times10^{-9}$
	Mn	$1,8\times10^{-10}$	$3,7\times10^{-10}$	$1,0\times10^{-9}$	$3,0\times10^{-9}$
470	Cu	$5,2\times10^{-11}$	$9,0\times10^{-11}$	$2,4\times10^{-10}$	$7,2\times10^{-10}$
	Mg	$2,0\times10^{-10}$	$2,5\times10^{-10}$	$4,1\times10^{-10}$	$9,7\times10^{-10}$
	Mn	$9,9\times10^{-11}$	$1,5\times10^{-10}$	$3,6\times10^{-10}$	$9,9\times10^{-10}$

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FRIDLYANDER, I.N.; ISTRIN, M.A.; GOL'DBUKHT, G.Ye.

Utilizing scrap from ductile aluminum alloys. Alium. splavy no.3:326-329 '64. (MIRA 17:6)

ACCESSION NR: AP4040687 S/0129/64/000/006/0012/0015

AUTHOR: Nagorskaya, N. D.; Molchanova, L. V.; Rayevskaya, M. V.; Novoselova, A. V.; Fridlyander, I. N.; Yatsenko, K. P.; Rogova, L. K.

TITLE: Crystallization in the Be-Nb system

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 6, 1964, 12-15, and insert facing p. 25

TOPIC TAGS: beryllium niobium system, beryllium niobium alloy, alloy crystallization, alloy structure, alloy phase composition, alloy hardness, niobium beryllide, niobium beryllium solubility

ABSTRACT: Investigation of alloys of the Be-Nb system containing up to 58% Nb showed the existence of three phases: the beryllium base α-phase, the Nb-Be_{12} compound γ-phase, and the $NbBe_{17}$ compound δ-phase. In the alloys containing up to 46% Nb, the α- and γ-phases form a eutectic with a very limited amount of the latter phase. The Vickers hardness of the alloy annealed at 850C for 14 days and water quenched increases from 121 at 0.7% niobium to 1108 at 58% niobium.

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ACCESSION NR: AP4040687

The cast alloy had roughly the same hardness as alloys annealed for 29 days. The Vickers hardness of individual phases (annealed and water quenched) was found to be 110 for the α-phase, 160 for the eutectic, 480 for the γ-phase, and 1060 for the δ-phase. The solid state solubility of niobium in beryllium is low. A considerable amount of $NbBe_{12}$ was found in an alloy containing as little as 0.7% Nb. The eutectic of the α- and γ-phases contains 2.5% Nb. The eutectic temperature is close to the melting temperature of pure beryllium. Alloys of the eutectic and hypoeutectic compositions have a fine structure, but at a certain amount of primary formations of intermetallic compounds, the fine structure disappears. In hypereutectic alloys the structures of the upper and lower parts of ingots are different due to segregation. Orig. art. has: 3 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 00	ATD PRESS: 3051	ENCL: 00
SUB CODE: MM	NO REF SOV: 004	OTHER: 006

Card 2/2

DRITS, M.Ye., doktor tekhn. nauk, otv. red.; BOCHVAR, A.A., akademik, red.; BELOV, A.F., doktor tekhn. nauk, red.; DOBATKIN, V.I., doktor tekhn. nauk, red.; MAL'TSEV, M.V., doktor tekhn. nauk, red.; FRIDLYANDER, I.N., doktor tekhn. nauk, red.; SVIDERSKAYA, Z.A., kand. tekhn. nauk, red.; YELAGIN, V.I., kand. tekhn. nauk, red.; BARBANEL', R.I., kand. tekhn. nauk, red.; SHAROV, M.V., kand. tekhn. nauk, red.; KADANER, E.S., kand. tekhn.nauk, red.; TROKHOVA, V.F., red.; CHERNOV, A.N., red.

[Metallography of light alloys] Metallovedenie legkikh splavov. Moskva, Nauka, 1965. 226 p. (MIRA 18:10)

1. Moscow. Institut metallurgii.

L 40715-65 EPF(c)/EPR/EPA(s)-2/EWP(k)/EWP(z)/EWA(c)/EWT(m)/EWP(b)/T/EWA(d)/EWP(w)/EWP(v)/EWP(t) Pf-4/Ps-4 IJP(c) EM/MJW/JD/HM/HW/JG/WB

ACCESSION NR: AP5006998 S/0129/65/000/003/0002/0005

AUTHOR: Fridlyander, I. N.; Yatsenko, K. P.; Semenova, Z. G.; Nekrasova, Ye. A. 51 44 13

TITLE: Aluminum-beryllium-base alloys

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 3, 1965, 2-5, and top half of insert facing p. 24

TOPIC TAGS: aluminum alloy, complex aluminum alloy, beryllium containing alloy, high elasticity alloy, alloy workability

ABSTRACT: Alloying beryllium is the most effective means of increasing the specific elasticity modulus (the elasticity modulus-to-density ratio) of aluminum alloys. High-modulus aluminum-beryllium alloys have an adequate fabricability and yield better to pressure working than pure beryllium. The heterogeneity of their structure strongly impedes the grain growth even with prolonged holding at high temperatures. However, binary Al-Be alloys, even with a high Be content, have a low tensile and creep strength. Two types of high-strength

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L 40715-65

ACCESSION NR: AP5006998

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high-elasticity AlBe-base alloys have been developed. Alloys of the first type are nonheat treatable, contain 15—60% Be and up to 15% of other alloying elements, and have a tensile strength σ_b = 40—60 kg/mm^2, an elongation δ = 8—20%, and E = 10,000—18,000 kg/mm^2. Alloys of the second type are heat treatable, contain 15—40% Be and up to 10% of other alloying elements, and have σ_b = 52—69 kg/mm^2, δ = 8—12%, and E = 11,500—14,000 kg/mm^2. Alloys of the first type have a better formability, sustain prolonged holding at temperatures up to 500C without impairing the room-temperature mechanical properties, and have a higher specific modulus of elasticity than any of the structural materials presently used, including aluminum or titanium-base alloys and steels. These alloys can be used at temperatures up to 450C; they have a tensile strength of 30—36, 20—34, 12—16, and 3—8 kg/mm^2 at 200, 300, 400, and 500C, respectively; the corresponding figures for elongation are 11—35, 9—30, 7—37, and 4—31%. At 20C, work-hardened sheets of the alloys of this type with the highest Be content have σ_b = 70—75 kg/mm^2, δ = 2—5.6% and E = 18,000 kg/mm^2. Hot, extruded or rolled, complex-alloyed, Al-Be alloys have a cyclic strength and notch sensitivity comparable to those of D 16 [U.S., 2024] aluminum alloy. Annealing of work-hardened sheets at a temperature above 350C

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L 40715-65

ACCESSION NR: AP5006998

restores the plastic properties of the alloys without increasing the grain size; the cooling rate after annealing has no effect on the mechanical properties of the alloys. The AlBe-base alloys are not susceptible to intercrystalline and stress corrosion, and their general corrosion resistance is higher than that of unclad D16 aluminum alloy. The alloys can be extruded or rolled. Parts of a complex shape can be made from these alloys by die forging or sheet forming. They can be joined by riveting, and spot, seam, and automatic and manual argon shielded-arc welding. The argon shielded-arc welded joints with reinforcement have a tensile strength equal to 90% of the strength of the base metal, with the weld ductility equal to that of the base metal; the weld strength is 5 kg/mm^2 at 500C. The alloys can readily be welded with other materials. The use of Al-Be alloys is particularly effective in structures requiring high rigidity. When the alloys are used in combination with other materials, a saving of 20—50% in the weight of a structure can be achieved. Orig. art. has: 1 figure and 2 tables. [MS]

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FRIDLYANDER, I. N.

Investigating the aging of aluminum alloys in systems Al - Zn - Mg and Al - Zn - Mg - Cu. Metalloved. i term. obr. met. no.8:43-48 Ag '65. (MIRA 18:9)

L 00857-66 EWT(m)/EWP(w)/EPF c)/EPF(n)-2/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b)/EWA(c)
IJP(c) JD/AT/WW/JW/JG/AP

ACCESSION NR: AP5020700 UR/0129/65/000/008/0043/0048
669.715'72'5'3:621.785.76

AUTHOR: Fridlyander, I. N. 44,55

TITLE: Investigation of aging in aluminum alloys of the Al-Zn-Mg and Al-Zn-Mg-Cu systems

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 8, 1965, 43-48

TOPIC TAGS: aging stage, zone aging, phase aging, aluminum alloy, ternary alloy, metastable phase, Guinier zone, Preston zone, preliminary aging, additional aging, prolonged aging, alloy weldment, stress corrosion

ABSTRACT: The strongest aluminum alloys are those containing Zn and Mg or Zn, Mo, and Cu as alloy elements along with small additions of Mn, Cr or Zr. The high strength of these alloys is chiefly due to their aging. There exist two different aging stages: zone aging, where hardening is caused by the Guinier-Preston zones (natural aging), and phase aging, where hardening is produced by particles of metastable phases (artificial aging). The characteristic features of the zone-aging stage are: a relatively low ratio of strength to yield point (0.6-0.7), a high and constant (20%) elongation, and an increasing electrical resistance. At 80-200°C the strength curves display two maxima. The phase-aging stage is charac-

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ACCESSION NR: AP5020708

terized by a higher ratio of strength to yield point (0.8-0.95) and a smaller elongation and electrical resistance; the transition from zone to phase stages occurs in between the first and second maxima. Preliminary aging at 20°C has a definite effect on subsequent aging at higher temperatures. Thus, for example, following its brief aging at 20°C, an alloy immediately begins to harden when heated to 160°C. By contrast, if the aging at 20°C is prolonged, the alloy at first begins to soften when subsequently aged at 160°C but ultimately its strength turns out to be higher than that of the alloy briefly aged a priori at 20°C and the alloy aged at 160°C without preliminary low-temperature aging. Similarly, an alloy aged at 195°C immediately after quenching gets softened, clearly owing to the segregation of a stable phase. Preliminary prolonged aging of this alloy at 20°C or 60°C, by contrast, assures higher stability of metastable segregations, as well as higher strength, higher yield point, and lower elongation, on subsequent aging at 195°C. Only the concept of the existence of two essentially different metastable particles, forming directly from the matrix as a result of interaction with previously formed zones can account for such a considerable effect of preliminary low-temperature aging on the properties of alloys subsequently aged at higher temperatures. A reversal of the procedure, namely, preliminary high-temperature aging followed by subsequent aging at lower temperatures can also be highly effective and warrants further investigation. It is particularly important to

L 00851-66

ACCESSION NR: AP5020708

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investigate the effect of extremely prolonged aging at 40-80°C, which more or less corresponds to possible insolation in the summer (for thousands of hours), on the crack proneness of Al-Zn-Mg alloy weldments. Analogously, in metallurgy, different aging stages and prolonged additional heatings at 70°C markedly affect the fracture strength and stress corrosion of welded specimens of high-strength Al-Zn-Mg alloys. The aging of Al-Zn-Mg alloys creates an unusual diversity of structures; the structures which had formed earlier, in the presence of lower or higher temperatures, influence considerably the subsequently forming structures. Orig. art. has: 1 photo, 3 figures, 2 tables.

ASSOCIATION: none

SUBMITTED: 00 ENC: 00 SUB CODE: MM, SS

NO SOV REF: 004 OTHER: 000

Card 3/3

L 10951-66 EWT(m)/EWP(k)/T/EWP(w)/EWP(t)/ETI IJP(c) JH/JD/HW
ACC NR: AT6024907 (A) SOURCE CODE: UR/2981/66/000/004/0005/0014

AUTHOR: Fridlyander, I. N. (Doctor of technical sciences); Romanova, O. A.; Archakova, Z. N.

ORG: none

TITLE: Properties of VAD23 alloy

SOURCE: Alyuminiyevyye splavy, no. 4, 1966, Zharoprochnyye i vysokoprochnyye splavy (Heat-resistant and high-strength alloys), 5-14

TOPIC TAGS: aluminum alloy, copper containing alloy, lithium containing alloy, cadmium containing alloy, manganese containing alloy, titanium containing alloy, alloy composition, metal property/VAD23 aluminum alloy

ABSTRACT: The effects of copper, lithium, cadmium, manganese, titanium, iron, and silicon on the properties of VAD23 aluminum alloy have been studied under laboratory conditions. Ingots 70 mm in diameter, cast in a water-cooled mold, were extruded into round bars 10 mm in diameter, which were machined into the test specimens. In one series of ingots lithium content varied from 0 to 3.0% at copper contents of 4.0%, 5.0%, and 6.0%, and constant cadmium (0.15%), manganese (0.6%), and titanium (0.15%) content. In the other series of ingots at a constant lithium (1.3%) and copper (5.2%) content, the manganese content was varied from 0 to 2.0%, cadmium from 0 to 5.0%, titanium from 0 to 0.3%, and iron and silicon from 0 to 0.9%. It was

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L 40951-66
ACC NR: AT6024907 2

found that: lithium intensifies the effects of aging; copper at contents of 4%—5% increases strength; manganese at contents up to 1.0% improves strength and ductility; up to 0.2% cadmium increases strength of aged alloys and intensifies the effects of artificial aging; and titanium at contents of up to 0.3% has no effect on tensile strength but improves rupture strength. Iron and silicon were found to be harmful impurities. On the basis of these results the optimum composition of VAD23 alloy was established as follows: 4.9—5.8% copper: 1.0—1.4% lithium, 0.1—0.25% cadmium: 0.4—0.8% manganese; a maximum of 0.3% each of iron and silicon: and a maximum of 0.15% titanium. Artificial aging at 150—160C for 10—12 hr produces the best combination of mechanical properties: tensile strength, 51—54 kg/mm^2; yield strength, 36—44 kg/mm^2 with an elongation 10—15%. Cold rolling prior to heat treatment, with reductions from 4% to 10%, promotes intensive grain growth and lowers strength and ductility. At the present, round and flat ingots are produced by continuous casting and processed by rolling and extrusion. Orig. art. has: 10 figures. [TD]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 006/ ATD PRESS: 5056

Card 2/2 hs

L 40954-66 EWT(m)/EWP(k)/T/EWP(v)/EWP(t)/ETI IJP(c) JH/JD/HM/WB

ACC NR: AT6024921 SOURCE CODE: UP/2981/66/000/004/0120/0134

AUTHOR: Fridlyander, I. N. (Doctor of technical sciences); Kuznetsova, Ye. A.; Davydova, N. A.; Bubenshchikov, V. S.; Nabatova, I. A.

ORG: none

TITLE: Delayed failure of Al-Zn-Mg alloy welds

SOURCE: Alyuminiyevyye splavy, no. 4, 1966. Zharoprochnyye i vysokoprochnyye splavy (Heat-resistant and high-strength alloys), 120-134

TOPIC TAGS: aluminum alloy, high strength alloy, metal weld, ~~weld failure~~, mechanical failure, ~~delayed failure~~, ~~metal failure~~, metal property, zinc containing alloy, manganese containing alloy, ~~ATsM aluminum alloy~~, ATsMU aluminum alloy

ABSTRACT: The behavior of ATsM and ATsMU alloy welds under stress in air and in argon has been investigated. The respective content of alloying elements in alloys was: zinc 4.5 and 4.3%, magnesium 1.8 and 1.5%, manganese 0.6 and 0.3%, and copper 0.75 and 0.1%. The contents of zirconium (0.17%), iron (0.3%), and silicon (0.25%) were the same in both alloys. The welds were made with AMg6 and AMg4 alloy filler wire. The specimens were stressed (below the yield strength) by bending in a special device. It was found that the duration and temperature of aging affects the susceptibility to delayed failure, especially in ATsM alloy welds. Specimens of this alloy aged at 20C or at 90C were not susceptible to delayed failure, while specimens aged

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L 40954-66

ACC NR: AT6024921

2

at 100 (100 hr) or 120 (10 hr) and 175 (1 hr) were very susceptible. The susceptibility of ATsM was also affected by the filler wire. The specimens welded with AMg6 alloy filler wire were less susceptible to delayed failure than those welded with AMg4 alloy wire. The susceptibility of ATsMU alloy was lower than that of ATsM alloy and failure was observed only on the specimens welded with AMg4 filler wire and aged at 120C for 10 hr + at 175 for 1 hr. Specimens of ATsM and ATsMU alloys tested in argon remained intact for 50-60 days. Even when removed from argon and left under stress in air, no cracking occurred within 90 days. It appears that the delayed failure of ATsM and ATsMU alloy welds is a result of stress corrosion under the effect of air mositure. The optimum aging conditions for both alloys were 90C for 100 hr. Orig. art. has: 6 figures and 9 tables. [TD]

SUB CODE: 11, 13/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 006/ ATD PRESS: 5056

Card 2/2 hs

L 47040-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JH
ACC NR: AT6024922 (A, N) SOURCE CODE: UR/2981/66/000/004/0135/0142

AUTHOR: Fridlyander, I. N.; Setyukov, O. A.; Titarenko, I. I.; Barasheva, T. V.; Lashko, N. F.; Khromova, O. A.

ORG: none

TITLE: Study of the chemical inhomogeneity in weld joints of ATsM and ATsMU alloys

SOURCE: Alyuminiyevyye splavy, no. 4, 1966. Zharoprochnyye i vysokoprochnyye splavy (Heat resistant and high-strength alloys), 135-142

TOPIC TAGS: zinc containing alloy, magnesium containing alloy, weld evaluation, aluminum alloy, ATsM aluminum alloy, ATsMU aluminum alloy

ABSTRACT: The inhomogeneity of chemical composition in weld joints of ATsM and ATsMU alloys (with AMg4 and AMg6 filler wire) was studied by local methods of chemical, spectral, and x-ray spectral analyses. It is shown that the average chemical composition of the weld joint depends on the composition of the base material and filler wire, thickness of the welded sheets, and supply rate of filler wire, and is independent of the single-phase or three-phase welding schedule. An increase in the wire supply rate and decrease of the thickness of the sheets causes a rise in the magnesium content and drop in the zinc content of the seam. Metallographic analyses of the fusion zone showed that its structure consists of grains of base material fused at the boundaries; these grains gradually change into the cast grains of the seam. In

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L 47040-66

ACC NR: AT6024922 3

the fused grains of the fusion zone and cast grains of the seam, liquation of zinc from the grain to the periphery is observed; the boundary regions are rich, the central ones poor in zinc. X-ray structural analysis showed the existence of the Al_6Mn phase in ATsM and ATsMU alloys if the manganese concentration did not exceed 0.26%. In ATsM and to a much lesser degree in ATsMU, which contains half as much Mn, coarse formations of the separated Al_6Mn phase are observed which promote the generation of microcracks and may increase the tendency toward a slow breakdown. Orig. art. has: 3 figures and 3 tables.

SUB CODE: 11/ SUBM DATE: none

27

welding of dissimilar metals

Card 2/2 vmb

L 47041-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/JH
ACC NR: AT6024923 (A,N) SOURCE CODE: UR/2981/66/000/004/0143/0151

AUTHOR: Fridlyander, I. N.; Kuznetsova, Ye. A.; Bubenshchikov, V. S. 36 B+1

ORG: none

TITLE: Kinetics of aging of an alloy of the Al-Zn-Mg system

SOURCE: Alyuminiyevyye splavy, no. 4, 1966. Zharoprochnyye i vysokoprochnyye splavy (Heat resistant and high-strength alloys), 143-151

TOPIC TAGS: aluminum alloy, zinc alloy, magnesium containing alloy, metal aging, ALLOY SYSTEM

ABSTRACT: The kinetics of aging of an alloy of the Al-Zn-Mg system was studied at various temperatures immediately after quenching (30 min at 450°C, cooling in water) and after two months of aging. The alloy had the composition (in %): Zn 4.35, Mg 1.57, Mn 0.45, Zr 0.17, Fe 0.27, Si 0.17, Cu 0.021, bal. Al). The alloy was found to be characterized by a very long aging period at 20°C, probably measured in years. The set of mechanical properties and the nature of change in electrical conductivity correspond to the zone stage of aging. Transition to phase aging may occur at a temperature as low as 50-70°C; it is possible that if the holding time is increased, this transition will shift toward lower temperatures. Preliminary zone aging has an appreciable effect on subsequent aging at high temperatures. It is postulated that some of the zones change in an allotropic manner (or in any other manner related to the zones) into metastable particles, and the particles thus formed have a greater thermal stabi-

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L 47041-66

ACC NR: AT6024923

lity than those formed from the nuclei directly in the matrix. This mechanism accounts for the effect of stepwise aging. Orig. art. has: 6 figures.

SUB CODE: 11/ SUBM DATE: none

Card 2/2 vmb

L 46968-66 EWP(k)/EWT(m)/T/EWP(w)/EWP(v)/EWP(t)/ETI IJP(c) JH/JD/HM

ACC NR: AT6024924 (A,N) SOURCE CODE: UR/2981/66/000/004/0152/0158

AUTHOR: Fridlyander, I. N.; Vlasova, T. A.; Skachkov, Yu. N.; Shiryayeva, N. V.; Surkova, Yu. I.; Gorokhova, T. A.; Ped', A. A.; Gur'yev, I. I.; Dzyubenko, M. V.

ORG: none

TITLE: Weldability of high-strength alloys of the Al-Zn-Mg-Cu system

SOURCE: Alyuminiyevyye splavy, no. 4, 1966. Zharoprochnyye i vysokoprochnyye splavy (Heat resistant and high-strength alloys), 152-158

TOPIC TAGS: aluminum zinc alloy, aluminum alloy property, weldability / V96 aluminum zinc alloy

ABSTRACT: The object of the work was to study the weldability in the fusion welding of V96 alloy, and also to determine whether the weldability of this alloy can be improved by changing the chemical composition of the base metal and filler wire. Sheets of V96 alloy 2.5 mm thick of the chemical composition 8.44% Zn, 2.72% Mg, 2.2% Cu, 0.06% Mn, 0.13% Zr, 0.29% Fe, and 0.13% Si were used in the experiments. In order to decrease the tendency toward crystallization cracks, the welding should be carried out with Al-Mg alloy fillers (of type AMg6). The content of the main alloying elements in the base metal should be kept within the following limits: 6.5-7.5% Zn; 2.7-3.5% Mg; 1.6-2.0% Cu; 0.15-0.22% Zr. However, even then the tendency of V96-type alloys to form cracks during welding remains higher than in commonly used alloys of the Al-Mg

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L 46963-66

ACC NR: AT6024924

system (AMg3, AMg6). A considerable softening of the metal occurs in the heat-affected zone. The modulus of resistance of welded butt joints made by argon-arc welding is 0.5-0.6 of that of the base metal immediately after welding or after aging. Weld joints of V96-type alloys have a lower bending angle than those of other weldable aluminum alloys. The low plasticity of the joints may cause a low structural strength in welded structures. Orig. art. has: 4 tables.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 001

Card 2/2

L 4967-66 EWP(k)/EWT(d)/EWT(m)/T/EWP(w)/EWP(v)/EWP(t)/ETI IJP(c) JD/JP/EM

ACC NR: AT6024925 (A,N) SOURCE CODE: UR/2981/66/000/004/0159/0169

AUTHOR: Drits, M. Ye.; Kadaner, E. S.; Vashchenko, A. A.; Shiryayeva, N. V.; Fridlyander, I. N.

37
36
B+1

ORG: none

TITLE: Structure of weld joints of V96-type alloys

SOURCE: Alyuminiyevyye splavy, no. 4, 1966. Zharoprochnyye i vysokoprochnyye splavy (Heat resistant and high-strength alloys), 159-169

TOPIC TAGS: aluminum zinc alloy, aluminum alloy property, weld evaluation / V96 aluminum zinc alloy

ABSTRACT: The purpose of the study was to determine the influence of various alloying elements on the structure of V96-type weld joints by using filler wire of various compositions. A definite relationship was found between the tendency of the alloys to form hot cracks during welding and the structure of the transition zone of the weld joint. As a rule, the structure of the transition zone differs from the center of the seam in that it has coarser agglomerates of second excess phases along the grain boundaries; in most cases, these phases form a continuous network. The coarser the structure of the transition zone, greater its extent, more pronounced the network character of the structure, and greater the enrichment of the boundaries with brittle second phases, the more distinct is the tendency of the alloys to form hot cracks dur-

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L 10277-65
ACC NR: AT6024925

ing welding. Conversely, a fine, regular structure of the transition metal zone and a discontinuity of the network of second phases correspond to lower values of the cracking coefficient. By selecting optimum welding conditions, one can influence the process so as to obtain a favorable structure in the transition zone and thus reduce the danger of failure of the weld joints. Orig. art. has: 7 figures.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 001

Card 2/2

ACC NR: AT6024933 SOURCE CODE: UR/2981/66/000/004/0219/0223

AUTHOR: Krivenko, R. A.; Klyagina, N. S.; Tsabrov, N. D.; Fridlyander, I. N.

ORG: none

TITLE: Properties of a sintered aluminum alloy with a low linear expansion coefficient

SOURCE: Alyuminiyevyye splavy, no. 4, 1966. Zharoprochnyye i vysokoprochnyye splavy (Heat resistant and high-strength alloys), 219-223

TOPIC TAGS: sintered alloy, aluminum alloy production / SAS-1 sintered alloy

ABSTRACT: A process was developed for pressing sintered aluminum alloys (SAA) with low linear expansion coefficients, specifically, the SAS-1 alloy, and the properties of the latter were studied. Analysis of the plastic properties showed that the plasticity maximum of SAS-1 is located in the 530-450°C range, and that the plasticity is markedly affected by the temperature and rate of deformation: as the latter increases, the plasticity decreases. In subsequent studies, a process for briquetting and pressing semifinished products from SAA was developed. The effect of temperature, pressure, time of holding under pressure during briquetting, temperature and degree of deformation during pressing, rate of discharge of the metal, various types of lubricants, etc. on the compactability, mechanical properties, and structure of the alloy was determined. SAS-1 was found to soften slowly with rising temperature, and to have

L 46962-66

ACC NR: AT6024933

the same strength at 400°C as one of the most heat resistant aluminum materials, SAP-1. Preliminary tests showed SAS-1 to have the lowest coefficient of friction as compared to other aluminum alloys: without anodic coating, 0.25 (dry friction); with anodic coating, 0.25 (dry friction). Orig. art. has: 2 figures and 2 tables.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 001

Card 2/2 mt

L 46976-66 EWT(m)/T/EWP(t)/ETI IJP(c) JH/JD

ACC NR: AT6024934 (A,N) SOURCE CODE: UR/2981/66/000/004/0224/0231

AUTHOR: Nuss, N. P.; Fridlyander, I. N.

38
B+1

ORG: none

TITLE: Dilatometric studies of binary alloys of the Al-Zn system

SOURCE: Alyuminiyevyye splavy, no. 4, 1966. Zharoprochnyye i vysokoprochnyye splavy (Heat resistant and high-strength alloys), 224-231

TOPIC TAGS: aluminum zinc alloy, thermal expansion

ABSTRACT: The purpose of the work was to study the linear expansion coefficient (α) of binary alloys of the Al-Zn system from 20°C to the solidus temperature, to determine the pattern of variation of α in relation to the phase transformations taking place in the alloys of this system, and also to find out whether the law of additivity applies to the dependence of α on the chemical composition. The alloys ranged in composition from 10.4 to 89.2% Zn. The dilatometric studies were carried out in the temperature range where the alloys exist in the solid state. An increase in the zinc content of the alloy was found to cause a continuous and gradual increase in α at all the temperatures studied. A gradual increase in the α of each alloy was observed with rising range of testing temperatures. These regularities were found to hold in the absence of phase transformations, which are associated with a large volume effect. The dependence of α on the alloy composition does not follow the law of additivity in any of

Card 1/2

L 46976-66

ACC NR: AT6024934

0

the temperature ranges studied. Orig. art. has: 6 figures and 2 tables.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 002

Card 2/2

L 14974-66 EWP(k)/EWT(m)/EWP(e)/EWP(t)/ETI IJP(c) JH/JD/WB

ACC NR: AT6024941 (A,N) SOURCE CODE: UR/2981/66/000/004/0277/0287

AUTHOR: Komissarova, V. S.; Kireyeva, A. F.; Stepanova, M. G.; Fridlyander, I. N.

ORG: none

TITLE: Corrosion resistance of SAP material

SOURCE: Alyuminiyevyye splavy, no. 4, 1966. Zharoprochnyye i vysokoprochnyye splavy (Heat resistant and high-strength alloys), 277-287

TOPIC TAGS: sintered aluminum powder, corrosion resistance

ABSTRACT: The corrosion resistance of SAP-1 sintered aluminum powder material in the atmosphere and in 3% NaCl was studied in the presence of 0.1% H_2O_2 as a function of the content of aluminum oxide (1 to 16%) and iron (0.01 to 1%) on rods and sheets. It was found to be close to that of pure A00 aluminum. The iron admixture has an undesirable effect on the corrosion resistance of SAP material, and the iron content should therefore be limited to 0.2%. Above this value, the elongation loss after 10 months of tests in the atmosphere amounts to an average of 25-30%. Studies of the electrochemical behavior of SAP as a function of the aluminum and iron content showed the data on the corrosion resistance to be in full agreement with the results of electrochemical measurements: iron is an active cathodic inclusion, and its content above 0.2% is not permissible; aluminum oxide can also be regarded as a cathodic inclusion,

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L 46974-66

ACC NR: AT6024941 O

but it displays only a very slight effectiveness in 3% NaCl solution. Orig. art. has: 7 figures and 7 tables.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 006

Card 2/2

L 46973-66 EWP(k)/EWT(d)/EWT(m)/EWP(h)/T/EWP(l)/EWP(v)/ETC(m) IJP(c) JD/HW/JW

ACC NR: AT6024942 (A,N) SOURCE CODE: UR/2981/66/000/004/0288/0290

41
B+1

AUTHOR: Fridlyander, I. N.

ORG: none

TITLE: Proposed numerical designation of aluminum alloys

SOURCE: Alyuminiyevyye splavy, no. 4, 1966. Zharoprochnyye i vysokoprochnyye splavy (Heat resistant and high-strength alloys), 288-290

TOPIC TAGS: factory marking, aluminum alloy production, sintered aluminum powder

ABSTRACT: Because of the confusion existing in the present designation of aluminum alloys, a numerical system is proposed which consists of seven main groups. In a brand designation, the second digit "0" designates brands of pure aluminum, including sintered aluminum powder; the group with second digit "1" includes alloys of the systems Al-Cu-Mg and Al-Cu-Mg-Fe-Ni; with second digit "2," alloys of the systems Al-Cu-Mn and Al-Cu-Li-Mn-Cd; with second digit "3," Al-Si, Al-Mg-Si, and Al-Mg-Si-Cu. The second digit "4" designates alloys whose main alloying elements are components that are either insoluble or sparingly soluble in Al, viz., Al-Mn, Al-Cr, A-W, Al-Be. The group of alloys with second digit "5" consists of magnalium-type alloys. The group with second digit "9" includes alloys of Al-Zn-Mg and Al-Zn-Mg-Cu systems.

SUB CODE: 11/ SUBM DATE: none

Card 1/1

L 04198-67 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD/JH
ACC NR: AP6028583 (N) SOURCE CODE: UR/0129/66/000/008/0011/0014

AUTHOR: Fridlyander, I. N.; Gerchikova, N. S.; Zaytseva, N. I.

ORG: none

TITLE: A study of aging kinetics in the alloy V92Ts of the Al-Zn-Mg system

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 8, 1966, 11-14

TOPIC TAGS: aluminum alloy, aging process, electron microscopy, heat treatment, precipitation hardening, mechanical property, stress corrosion

ABSTRACT: Transmission electron microscopy was used to study the aging kinetics in V92Ts in order to determine the cause of strengthening and delayed fracturing. The alloy composition was: 8.1% Zn, 4.1% Mg, 0.65% Mn, 0.15% Zr, 0.2% Fe, 0.10% Si, and Al as remainder. The original sheet material (2 mm thick) was rolled to 50 μ, heat treated and etched in a hydrochloric-acetic acid electrolyte by the "window" method. After quenching and zone aging for periods ranging from 3 days to 1 month at 20°C, dislocation loops and isolated dislocations formed. The greatest loop density after quenching from 550°C corresponding to the greatest degree of vacancy supersaturation. With aging the dissolved atoms and vacancies agglomerated, and Guinier-Preston zones formed after 6 months at 20°C. The mechanical properties and stress corrosion resistance of V92Ts are given as a function of aging after water quenching from 450°C. The

UDC: 621.785.54.783.784:669.5'71'72

Card 1/2

L 04198-67

ACC NR: AP6028583 4

greatest strength (σ_v = 50 kg/mm^2 and $\sigma_{0,2}$ = 40 kg/mm^2) was obtained after step aging at 20°C for 2 months + 70°C 1000 hrs or after aging at 20°C for 2 yrs. Microstructures of V92Ts and ATsM alloys were shown after different aging treatments. Particles of T-phase ($Al_2Mg_3Zn_3$) appeared after aging at 20°C for 1 hr; these were coherent with the matrix and had a lattice orientation of $(110)_M \parallel (112)_T$ for a_T = 14.16 Å. Coherent particles of T-phase formed along grain boundaries after supplementary aging at 70°C. By aging at room temperature for long times and subsequently aging at 200°C a highly dispersed precipitation of T-phase occurred, which significantly increased the strength and creep resistance. An increased sensitivity to stress corrosion was caused by grain boundary precipitation of small particles of T-phase, however, no corrosion cracking occurred after step aging--even with prolonged heat at 70°C. Orig. art. has: 1 figure, 1 table.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 004

Card 2/2 LC

I. 40956-66 EWT(m)/EWP(k)/EWP(e)/EWP(t)/ETI IJP(c) JH/JG/WW/JD

ACC NR: AT6024930 SOURCE CODE: UR/2981/66/000/004/0202/0207

AUTHOR: Palatnik, L. S.; Fedorov, G. V.; Klyagina, N. S.; Krivenko, R. A.; D'yachenko, S. S.; Fridlyander, I. N. (Doctor of technical sciences) 52 3+1

ORG: none

TITLE: Obtaining highly dispersed metal powders by vaporization in argon 27

SOURCE: Alyuminiyevyye splavy, no. 4, 1966. Zharoprochnyye i vysokoprochnyye splavy (Heat-resistant and high-strength alloys), 202-207

TOPIC TAGS: metal powder, ultra fine powder, powder production, METAL VAPOR CONDENSATION, ALUMINUM POWDER

ABSTRACT: Certain processes associated with the condensation of metal vapors in an inert-gas atmosphere have been investigated. It was found that in the argon atmosphere, condensation of metal vapors takes place in a limited space-condensation zone. The size of the condensation zone decreases with increasing vaporization rate and inert-gas pressure. On an experimental scale, ultrafine powders of several metals were obtained. The magnesium, cadmium, and zinc powders had an average particle size of 0.001 mm; the particle size of copper and aluminum powders was 0.00005. The size of copper and aluminum particles does not depend very greatly on the variation in the rate of vaporization and the pressure of inert gas. Orig. art. has: 7 figures. [TD]

SUB CODE: 11 / SUBM DATE: none/ ORIG REF: 004/ ATD PRESS: 5057

Card 1/1 bs

ACC NR: AR7004889 SOURCE CODE: UR/0276/66/000/009/G011/G011

AUTHOR: Nuss, N. P.; Fridlyander, I. N.

TITLE: Dilatometric study of binary alloy of the system Al-Zn

SOURCE: Ref. zh. Tekhnologiya mashinostroyeniya, Abs. 9G77

REF SOURCE: Sb. Alyumin. splavy. M., Metallurgiya, vyp. 4, 1966, 224-231

TOPIC TAGS: binary alloy, alloy system, aluminum alloy, dilatometric study, zinc alloy

ABSTRACT: A determination of the coefficient of linear expansion α of alloys in the Al-Zn system was carried out in the 20—500 C range on samples 60 mm in diameter and 900 mm in length, using a laboratory set up for the semicontinuous casting. It was determined that α increases gradually in all temperature intervals when the Zn content in the alloy is increased; by raising the temperature range in testing, an increase of α is observed (with no phase transformation) i the dependence of α on the composition of alloys does not appear to be additive. The original article has 6 figures and a bibliography of 2 reference items. Ye. Borisov. [Translation of abstract] [AM]

SUB CODE: 13, 11/

Card 1/1 UDC: 669.715'5

FRIDLYANDER, S.Ya.

Machine for the manufacture of timbering elements. Ger.zhur. no.12:58 D '55. (MLRA 9:4)

1.Glavnyy inzhener TSentral'nymi mekhanicheskimi masterskimi tresta Leninruda.
(Mine timbering)

FRIDLYANDER, S.Ya.

Centralized excavator repairs. Gor.zhur. no.1:61-62 Ja '56.
(MLRA 9:5)

1. Glavnyy inzhener TsMM tresta Leninruda.
(Excavating machinery--Maintenance and repair)

FRIDLYANOV, L.T.

FRIDLYANOV, L.T., insh.

Experience designing buildings for "integral"-type hydroelectric power plants. Gidr.stroi.26 no.12:14-17 D '57. (MIRA 10:12)
(Hydroelectric power stations)

ZAKHAROV, I.A.; FRIDLYANSKAYA, I.I.

Isolation of auxotrophic mutants of Chlorella by replica plating technique. Vest. LGU 18 no.9:159-160 '63. (MIRA 16:6)
(Algae--Cultures and culture media)
(Botany--Variation)

IGNATOVA, T.N.; FRIDLYANSKAYA, I.I.

Symposium on problems of genetics in human pathology. TSitologiia 7 no.2:282-284 Mr-Ap '65. (MIRA 18:7)

VAKHTIN, Yu.B.; IGNATOVA, T.N.; FRIDLYANSKAYA, I.I.; SHVEMBERGER, I.N.

Intensity of selection and the frequency of sharp karyotypic variations in the populations of somatic cells during clonal multiplication. TSitologiia 7 no.2:258-259 Mr-Ap '65. (MIRA 18:7)

1. Laboratoriya tsitologii zlokachestvennogo rosta Instituta tsitologii AN SSSR, Leningrad.

VAKHTIN, Yu.B.; IGNATOVA, T.N.; FRIDLYANSKAYA, I.I.; SHVEMBERGER, I.N.

Changes in tumor cell populations caused by cloning. TSitologiia 7 no.3:393-400 My-Je '65. (MIRA 18:10)

1. Laboratoriya genetiki opukholevykh kletok Instituta tsitologii AN SSSR, Leningrad.

SOV/84-58-11-22/58

AUTHOR: Fridlyanskiy, Al.

TITLE: Moscow - Alma-Ata (Moskva - Alma-Ata)

PERIODICAL: Grazhdanskaya aviatsiya, 1958, Nr 11, p 11 (USSR)

ABSTRACT: The author describes the first Tu-104 round trip flight on the Moscow - Sverdlovsk - Alma-Ata route. The 3,500 km distance to Alma-Ata took 4 hours 20 minutes, the return trip to Moscow 4 hours 45 minutes, at an average speed of 860 km per hour. Personalities mentioned include pilot 1st class Ivan Ivanovich Frolov, *acting chief of Moscow Administration of Aircraft Transportation* (Moskovskoye upravleniye transportnoy aviatsii), in charge of the flight, chief pilot Petr Vasil'yevich Soldatov, navigator 1st class N. Nosov, co-pilot Aleksey Akimovich Ryakhovskiy. There are 2 photographs.

Card 1/1

SKRIPCHENKO, I.K.; FRIDLYANDSKIY, A.I.

Protective inhibition following brain injury; observations from practice. Zhur.nevr.i psikh. 54 no.1:52-53 Ja '54. (MLRA 7:1)
(Brain--Wounds and injuries) (Inhibition)

FRIDLYANSKIY, A.I., mayor meditsinskoy sluzhby (Vladivostok)

Case of hysteric hydrophobia. Vrach.delo no.5:521 My '57. (MLRA 10:8)
(HYSTERIA)

FRIDLYANSKIY, A.I.

Letter to the editor. Zhur.nevr. i psikh. 59 no.8:1020-1021 '59.
(MIRA 12:12)

(SCHIZOPHERNIA)

GALAKHOV, I. N., inzh.; FRIDLYANSKIY, A. Z., inzh.

Ship's deck with hatch openings as part of general ship flexure. Trudy LIVT no.14:55-57 '61. (MIRA 14:11)
(Ships) (Flexure)

GUSAROV, V.V., inzhener, redaktor; VORONOVA, N.S.; GARBER, D.G.; NEMTSOV, N.Yu.; FRIDLYANSKIY, G.V.; MARTENS, S.L., redaktor; MODEL', B.I., tekhnicheskiy redaktor.

[Electric heating apparatus and equipment for the laboratory; a catalog and manual] Laboratornye elektronagrevatel'nye pribory i ustanovki; katalog-spravochnik. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroitel'noi lit-ry, 1955. 147 p. (MLRA 9:1)

1. Russia (1923- U.S.S.R) Ministerstvo mashinostroyeniya i priborostroyeniya.
(Electric furnaces)

BELYAYEV, G.S.; FRIDLYANSKIY, R.M.

Technological characteristics of the production of 18% ferrosilicochromium. Stal' 25 no.7:619-621 Jl '65. (MIRA 18:7)

L 04585-67 EWT(1) SCTB DD

ACC NR: AP6033154 SOURCE CODE: UR/0238/66/012/005/0697/0699

32
B

AUTHOR: Morozov, O. P.; Fridlyans'kyy, V. Ya.

ORG: Physiology Institut im. O. O. Bohomolets, Academy of Sciences URSR, Kiev (Instytut fiziolohiyi Akademiyi nauk URSR)

TITLE: Plethysmographic method for recording respiration in white rats

SOURCE: Fiziolohichnyy zhurnal, v. 12, no. 5, 1966, 697-699

TOPIC TAGS: plethysmography, biologic acceleration effect, oxygen consumption, respiratory system, bioinstrumentation, rat, animal experiment

ABSTRACT: A detailed description is given of the apparatus and procedures for a plethysmographic study of respiration in white rats during centrifugation. The apparatus consists of a cylindrical sealed chamber (28 cm long and 5.5 cm in diameter), a centrifuge in which the plethysmographic chamber is located, a recording unit, and linkage. The chamber has a stand to which the rat is fastened. The respiratory system of the rat is connected by tracheotomy to the air outside the chamber and has no connection with the chamber space. A general setup of the apparatus and two types of the plethysmographic chamber are shown in Figs. 1 and 2.

Card 1/3

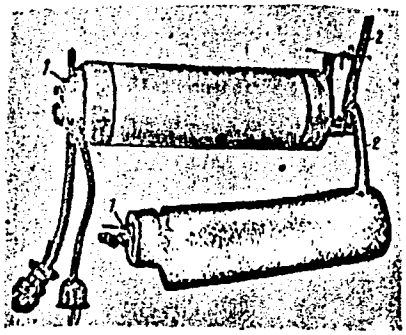


Fig. 1. Plethysmographic chamber

1 - Respiratory tube; 2 - tube connection to the recording unit.

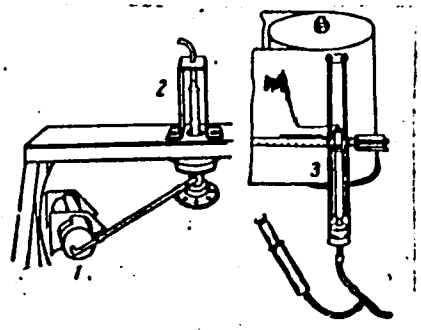


Fig. 2. General view of the centrifuge and the recording system

1 - Chamber; 2 - linkage; 3 - recording.

L 04585-67

ACC NR: AP6033154

With the proposed apparatus, the air intake and expiration may be measured with an accuracy of 0.25 ml. Orig. art. has: 2 figures.

SUB CODE: 06/ SUBM DATE: 25Jun66/ ORIG REF: 001/ OTH REF: 007/ ATD PRESS: 5100

Card 3/3 vmb

FRIDMAN, A.

USSR/Electronics - Radio Amplifiers Mar 52

"An Amplifier for Reproduction of Phonograph Records," A. Fridman

"Radio" No 3, p 38

Describes a 3-w amplifier using 4 tubes, a 5Ts4S (5Z4), a 6Zh8, a 6S2S, and a 6P3S. The amplifier boosts the low-frequency signals to compensate for their attenuation in recording and cuts off frequencies above 4-6 kc to eliminate needle noise.

229T68

FRIDMAN, A.

Equipment for automatic loaders. Stroitel' 2no.9:10-11 S'56.
(Loading and unloading) (MIRA 10:1)

FRIDMAN, A., inzhener.

Electric air brush. Streitel' no.2:14 F '57. (MLRA 10:3)
(Spraying equipment)

L 22605-65 EWT(1)/EEC(b)-2/EED-2/EWA(h) Pob IJP(c)

ACCESSION NR: AP5002362 P/0053/64/000/012/0639/0645

AUTHOR: Tanach, V.; Cojocaru, Z.; Stanciulea, L.; Fridman, A.; David, B.

TITLE: New developments in the field of perminvar ferrites and their applications

25

SOURCE: Przeglad elektroniki, no. 12, 1964, 639-645

TOPIC TAGS: ferrite, perminvar ferrite, temperature dependence, field dependence, permeability, quality factor

ABSTRACT: Tests were made of nickel-zinc ferrites with cobalt additive for the purpose of establishing the connection between the production technology and the properties of perminvar ferrites. The tested ferrites covered a wide range of compositions, and the best results were obtained with ferrites in which the oxide contained a large fraction (up to 50%) geothite. The ZnO/NiO ratio ranged from 0 to 2.45, and the Fe_2O_3 excess was maintained constant. The resultant ferrites had initial permeabilities up to 200 G/Oe and very low losses (Q up to 2000) up to 200 Mc. The initial permeability was greatly affected by the sintering temperature and by the external magnetic field. Several applications of such per-

Card 1/2

L 22605-65
ACCESSION NR: AP5002362

2

minvar ferrites are discussed; these include antenna wires and cores for radio and television coils and filters at various frequencies. Some theoretical problems concerning the mechanism of production of the perminvar structure and the influence of the temperature and of the external field remain to be solved, and the question of the applicability of such ferrites for miniature and microminiature circuits remains open. Orig. art. has: 4 tables.

ASSOCIATION: Electronic Enterprises, Bucharest; Electronic Scientific-Research Institute, Bucharest.

SUBMITTED: 15Jul64 ENCL: 00 SUB CODE: EM, MM

NR REF SOV: 000 OTHER: 009

Card 2/2

FRIDMAN, A. (g. Zhitomir)

The production of tar-impregnated wood should be mechanized. Prom.koop. no.9:35 S '56. (MLRA 9:10)

1.Predsedatel' artsli "Lesokhim".
(Wood tar)

FRIDMAN, A.

RUMANIA/Virology - Viruses of Man and Animals. D-3

Abs Jour : Ref Zhur - Biologiya, No 7, 10 April 1957, 26131

Author : Elias, Brukner, Marinesku, Brikman, Fridman, Teodoresku, Spiner.

Inst :

Title : Clinical Forms of Infectious Hepatitis among Children and Their Relation to Age.

Orig Pub : Pediatria, 1956, 5, No 2, 168-183

Abst : No abstract.

Card 1/1

Rumania/Virology. Viruses of Man and Animals

Abs Jour : Ref Zhur-Biol., No 13, 1953, 57343

Author : Aderca I., Fridman A., Ianconescu M.
Inst : Not Given
Title : The Growing of the Virus MM of Encephalomyocarditis in Rotating Test Tubes

Orig Pub : Studii si cercetari inframicriobiol., microbiol., si parazitol., 1957, 8, No 1, 49-55

Abstract : The virus which was cultivated in the muscles and skin of a mouse embryo was found to have a cytopathogenic effect. The initial dilution of the virus was $5 \cdot 10^{-5}$, the final--$5 \cdot 10^{-10}$. By titrating the virus of the final passage in the brain of grown mice it was shown that the virulence of the virus decreases, a fact which in the opinion of the authors bears witness to the

Card 1/2

TANACH, Valentin, ing.; STANCIULEA, Lucia, ing.; FRIDMAN, Alexandru, fiz.

Magnetic antennas for short waves. Telecomunicatii 8 no. 5: 222-226 Ag '64.

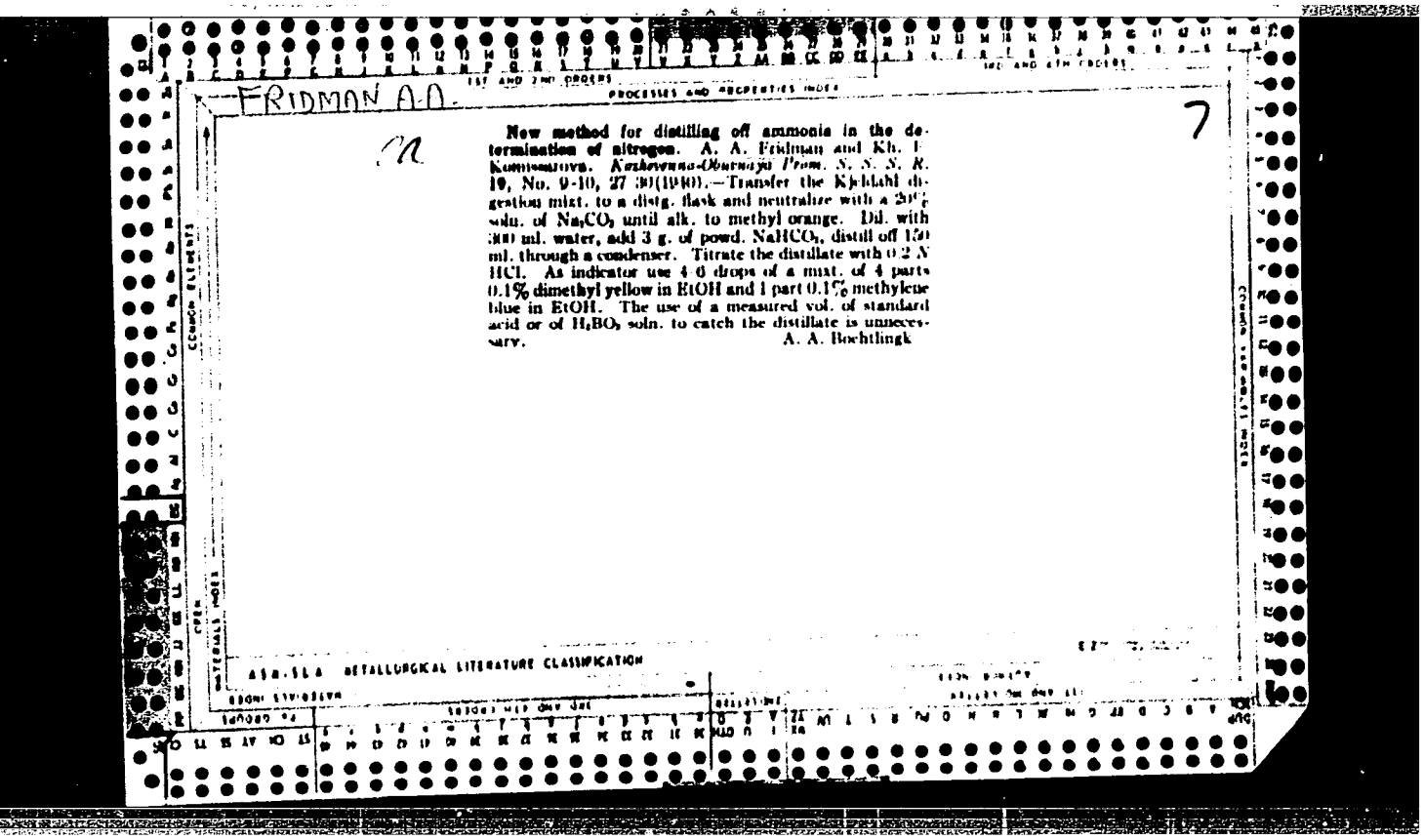
FRIDMAN, A.

"A Universal Amplifier," RADIO, No. 12, 1949.

KAGANSKIY, M.G.; FRIDLYANSKIY, G.V.

Apparatus for the rapid control of acidity of the medium.
Bum. prom. 31 no.11:20-22 N '56. (MLRA 10:2)

1. TSentral'nyy nauchno-issledovatel'skiy institut tsellyuloznoy i bumazhnoy promyshlennosti.
(Woodpulp)



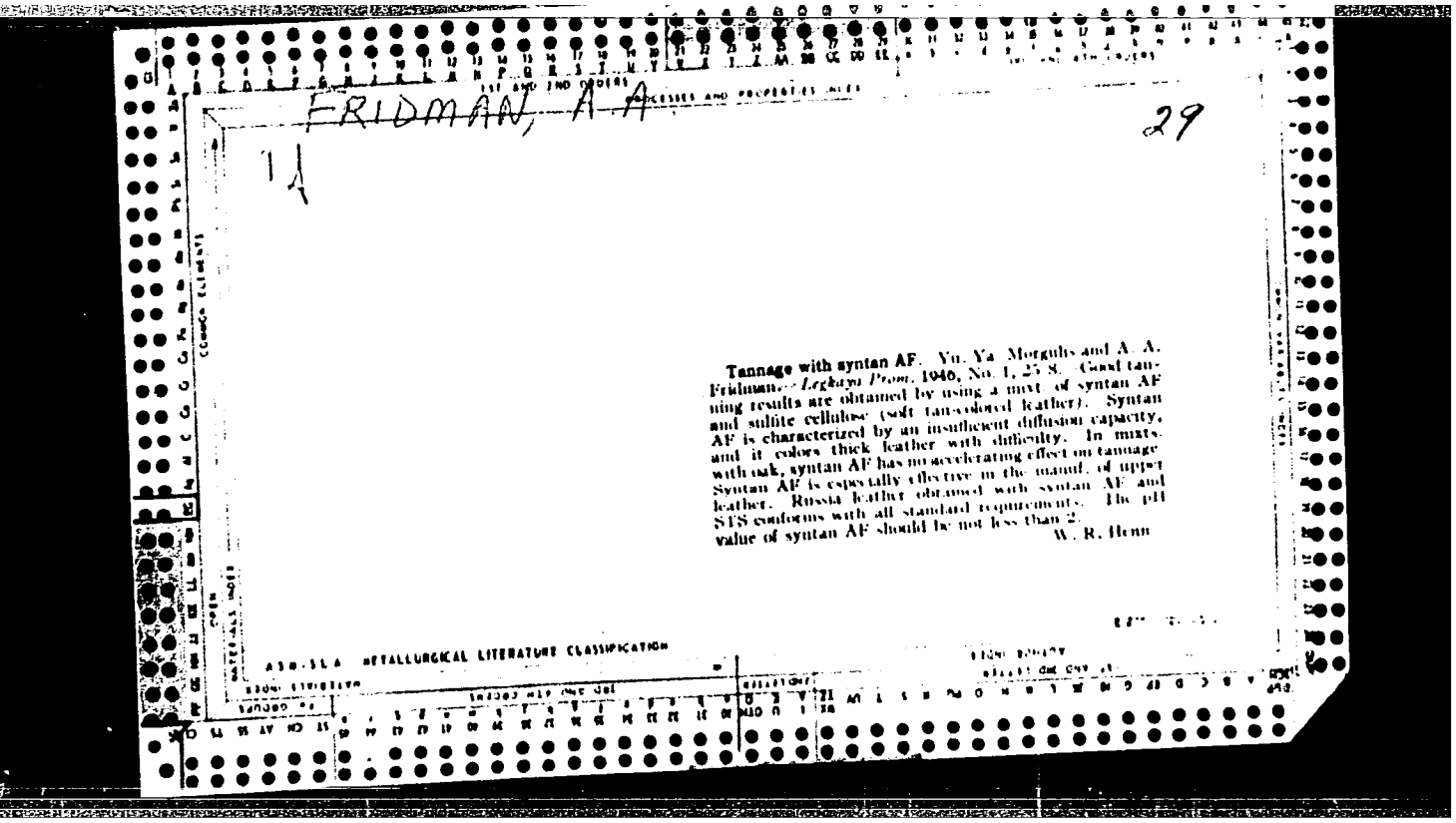
FRIDMAN A.D.

7

New method for distilling off ammonia in the determination of nitrogen. A. A. Fridman and Kh. I. Kamenarova. *Koksovaya-Obzornaya Prom. S. S. S. R.* 10, No. 9-10, 27-30(1940).—Transfer the Kjeldahl digestion mixt. to a distg. flask and neutralize with a 20% soln. of Na_2CO_3 until alk. to methyl orange. Dil. with 300 ml. water, add 3 g. of powd. $NaHCO_3$, distill off 150 ml. through a condenser. Titrate the distillate with 0.2 *N* HCl. As indicator use 4-6 drops of a mixt. of 4 parts 0.1% dimethyl yellow in EtOH and 1 part 0.1% methylene blue in EtOH. The use of a measured vol. of standard acid or of H_3BO_3 soln. to catch the distillate is unnecessary.

A. A. Boehtlingk

A58-51A METALLURGICAL LITERATURE CLASSIFICATION



FRIDMAN, A A

29

Tannage with syntan AF. Yu. Ya. Morgulis and A. A. Fridman.—*Legkaya Prom.* 1940, No. 1, 25–8. Good tanning results are obtained by using a mixt. of syntan AF and sulfite cellulose (soft tan-colored leather). Syntan AF is characterized by an insufficient diffusion capacity, and it colors thick leather with difficulty. In mixts. with oak, syntan AF has no accelerating effect on tannage. Syntan AF is especially effective in the manuf. of upper leather. Russia leather obtained with syntan AF and STS conforms with all standard requirements. The pH value of syntan AF should be not less than 2.

W. R. Henn

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

FRIDMAN, A.(A)

Arifmetika. BSE, T. 3 (1926), 338-346.

SO: Mathematics in the USSR, 1917-1947
edited by Jurosh, A. G.
Markushevich, A. L.
Rashevskiy, P. K.
Moscow-Leningrad, 1948

FRIDMAN, A.A.

24741. FRIDMAN, A.A. Ob Odnom Istolkovanii Ponyatiya (Mezhdu) I O Znachenii Aksiony Pasha V Gilbetovoy Systeme Aksiom. Uchen. Zapiski Kazakh. Gos. Un-ta. Im Kirova, XII, 1949, S. 18-20--Bibliogr: 5 Nazv.

SO: Letopis' No. 33, 1949