

Investigation of Sintering of Ceramets on the Basis of the
System Fe-Ni-Al

SOV/126-6-3-10/32

investigating processes which take place during sintering of alloys of the system Fe-Ni-Al. The sintering process is considered as a type of heat treatment of presslings consisting of a mixture of powders of the required composition by heating them under conditions which exclude fusion, so as to obtain mechanically strong bodies with favourable magnetically hard properties. Thereby, it has been taken into consideration that the sintering includes a number of physical and chemical processes which proceed successively or simultaneously and that the individual processes are most developed at certain stages of the heating showing in the appropriate temperature range a predominant influence on the structure and the properties of the components. The processes taking place during the sintering were evaluated from the changes in the structure and the properties of specimens sintered for various durations and temperatures. The chemical compositions of the Alni, Alnico and Magnico alloys used are entered in Table 1, details about the metal powders used are entered in Table 2. The specimens were pressed at

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20°C from the powders which were mixed in the required proportions; the specific pressing pressure was 10 tons/cm², the specimens for the tensile tests were pressed with a pressure of 4 tons/cm². The sintering was effected in an atmosphere of pure hydrogen. The investigations and the results are described in detail. In Fig.1 micro-structures are reproduced of Alni specimens after sintering for periods of four hours at various temperatures (800 to 1310°C). In Fig.2 the influence of the sintering temperature on the physical properties of Alni specimens is graphed for an annealing time of four hours. In Fig.3 the influence of the sintering duration on the physical properties of Alni specimens is graphed for a sintering temperature of 1310°C. Some micro-structures of Alnico specimens sintered at various temperatures for four-hour durations are reproduced in Fig.4. In Fig.5 the influence of the sintering temperature on the physical properties of Alnico specimens sintered for four hours, is graphed. In Fig.6 the change is graphed of the limit values of the micro-hardness of sintered Alnico specimens as a function

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of the sintering temperature (sintering time four hours). In Fig.7 the distribution of the micro-hardness in sintered and cast Alnico specimens is graphed. Fig.8 shows the influence of the sintering temperature on the physical properties (density, specific electrical resistance, residual induction, coercive force) of Magnico specimens sintered for thirty minutes. The following conclusions are arrived at: the sintering process of the investigated alloys can be sub-divided into three stages. The phenomena taking place during the first stage include reduction of oxides, increase of the area of metallic contact between the pressed particles, reversion and recrystallisation of particles; the second stage includes mutual dissolution of particles, disperse hardening of the formed solid solution, growth of the specimens; the third stage consists of homogenisation and dispersion hardening of the solid solution, grain growth and shrinkage of the specimens. Formation of a liquid phase is not characteristic for the sintering of Fe-Ni-Al alloys. It was found that there is no justification to associate the great amount

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of shrinkage of Fe-Ni-Al alloys with the formation of a liquid phase during the sintering. The oxide film which covers the particles and contains aluminium is broken up during the pressing and, therefore, does not present a barrier to the mutual diffusion of individual components. However, for obtaining alloys with satisfactory magnetic properties, it is necessary to exclude the possibility of oxidation of the aluminium when the specimens are heated during the sintering process. There are 8 figures, 2 tables and 17 references, 9 of which are Soviet, 8 English.

SUBMITTED: November 27, 1956

1. Ceramels--Sintering
2. Aluminu-iron-nickel systems--Sintering
3. Magnets--Preparation
4. Magnets--Properties

Card 5/5

AUTHOR: Al'tman, A.B. (Candidate of Technical Science) SOV/110-58-8-24/26

TITLE: Review of the book 'Materials and Alloys in Electrical Engineering' (Retseziya na knigu "Materialy i splavy elektrotehnike")

PERIODICAL: Vestnik Elektropromyshlennosti, 1958, Nr 8, p 77 (USSR)

ABSTRACT: This book is in two volumes; the first, on magnetic materials, is by A.S. Zaymovskiy and L.A. Chudnovskaya, and the second, on conducting, resistance and contact materials, is by V.V. Usov and A.S. Zaymovskiy. This review of the third edition is unusually favourable and recommends the preparation of a fourth edition. There are no figures, no literature references.

1. Magnetic materials--USSR 2. Alloys--USSR 3. Electrical engineering --USSR

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AUTHOR: Al'tman, A.B., Candidate of Technical Sciences SOV/129-58-12-3/12

TITLE: Temperature Regime of Sintering Fe-Ni-Al Base Cermets
(Temperaturnyy rezhim spekaniya metallokeramicheskikh
splavov na osnove sistemy Fe-Ni-Al)

PERIODICAL: Metallovedeniya i Obrabotka Metallov, 1958, Nr 12,
pp 17 - 20 + 1 plate (USSR)

ABSTRACT: The results are described of comparative investigation of certain physical properties and of the microstructure of a Fe-Ni-Al-Co alloy of the alnico type produced under ordinary sintering conditions and "high-temperature" sintering conditions (heating to a temperature above the initial fusion temperature of the sintered alloy). The investigated alloy contained: 10% Al, 17% Ni, 12.5% Co, 6% Cu, 0.3% Ti and 54.2% Fe. The specimens were pressed with a specific pressure of 10 t/cm² from a mixture of powders of Fe, Ni, Co, Cu, Fe and Al alloy and ferrotitanium. The total volume of Fe, Ni and Co was about 62% of the total volume. The sintering was effected in an electric furnace in an atmosphere of dry and pure hydrogen at 1 290, 1 310, 1 330, 1 350 and 1 390 °C. According to preliminary experiments, the alnico alloy began to fuse at 1 320 °C. At each of these temperatures, the specimens were held for various

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time intervals (1 sec to 8 hours at 1 290 °C, 1 sec to 5 min at 1 390 °C). Following that, the specimens were transferred into the cooling space of the furnace where they were cooled at room temperature. The average heating speed was 10 °C/min and the average cooling speed was 35 °C/min. The density, the specific electric resistance, the magnetic saturation, the residual inductance and the coercive force of the specimens were measured.

The specimens, which were of 40 x 12 x 6 mm, were also subject to metallographic analysis. Micro-structure photographs of specimens sintered at various temperatures with various holding times are reproduced in Figure 2 (plate). In Figure 3, the influence is graphed of the heating temperature and of the heating duration during the process of sintering on the properties of the investigated specimens. In Figure 4, the dependence is graphed of the peak properties of the alnico alloy on the sintering temperature. In Figure 5, the dependence on the heating temperature is graphed of that heating duration during sintering which is necessary for obtaining maximum coercive force. On the basis of the obtained

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Temperature Regime of Sintering Fe-Ni-Al Base Cermets

results, it is concluded that heating of sintered alnico specimens to a temperature exceeding the initial fusion point of the alloy permits speeding up considerably the sintering process. However, it is necessary to take into consideration that thereby the density of the sintered alloy decreases, as a result of which there will be some reduction in the residual induction and the magnetic saturation, whilst the coercive force remains at its normal level. Sintering at temperatures above the initial fusion point of the finished alloy can also be used for speeding up the technological process during the manufacture of components from other cermets, for instance, bronzes, brasses, etc. There are 5 figures and 6 references, 5 of which are Soviet and 1 German.

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AUTHOR: Al'tman, A.B.

SOV/110-77-3-6/20

TITLE: An Investigation of Sintering of Metal-Ceramic Alloys Cu-Ni-Co and Ag-Mn-Al (Issledovaniye spekaniya metallokeramicheskikh splavov Cu-Ni-Co i Ag-Mn-Al)

PERIODICAL: Inzhenerno-fizicheskii zhurnal, 1959, Nr 3, pp 43-51 (USSR)

ABSTRACT: Alloys Cu-Ni-Co and Ag-Mn-Al are used in techniques as materials for manufacturing constant magnets, sometimes employing the metal-ceramic method of production. Therefore, an investigation of the sintering processes of these alloys is of scientific and practical interest. The specimens for this investigation were pressed at room temperature out of the mixture of metal powders taken in the wanted proportions. The sintering of Cu-Ni-Co specimens was carried out in the atmosphere of carbon-containing gases (mainly carbon monoxide) at temperatures ranging from 100 to 1,250°C, and that of Ag-Mn-Al in the hydrogen atmosphere at temperatures from 100 to 880°C. The average heating speed was 30°C per minute for Cu-Ni-Co alloys and 8°/min for Ag-Mn-Al alloys; the cooling speeds were 20°/min and 5°/min respectively. The specimens obtained were subjected to the metallographic analysis and determination of density, specific electric resistance, residual in-

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SOV/170-59-3-6/20

An Investigation of Sintering of Metal-Ceramic Alloys Cu-Ni-Co and Ag-Mn-Al

duction, coercive force, magnetic saturation, strength limits for stretching, compression and bending, Brinell hardness, maximum magnetic energy and microhardness. In the process of investigations three stages of sintering were established which depended on the temperature to which the specimens were heated. For the Cu-Ni-Co alloy the limits of sintering stages were as follows: 1) 100 to 500°C; 2) 500 to 900°C, and 3) 900 to 1,200°C, and for the Ag-Mn-Al alloy they were as follows: 1) 100 to 500°C; 2) 500 to 800°C, and 3) 800 to 880°C. During the first stage the processes of oxide reduction, increase of metallic contact between particles, recovery and recrystallization on the particles of the initial powders develop the fastest. In the second stage, processes of formation and homogenization of a solid solution of components of a caking system, the dispersional hardening of the alloy, and the growth of samples predominate. In the third stage, the processes of homogenization and dispersional hardening of the solid solution are most important. The variations of physical properties of the specimens with the sintering temperature are shown in the graphical form in Figure 2

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SOV/180-59-4-22/48

AUTHOR: Al'tman, A.B. (Moscow)

TITLE: Powder Metallurgy as a Method of Producing and Investigating Magnetically Hard Materials

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 4, pp 135-142 (USSR)

ABSTRACT: Wide use is now being made of permanent magnets²¹ from a wide variety of materials, including cermets and Table 1 shows the main magnetic properties of a selection. Table 2 compares the properties of several cast and cermet magnets. These have been shown by the present author to be similar (Ref 3), the occasional differences being attributable to porosity of the cermet ones (Fig 1 shows the effect of porosity on the main magnetic properties). The author outlines production methods for the various types of magnet and describes a procedure, developed by him jointly with engineer V.L. Memelov, in which sintering is effected with the object heated above the temperature of the start of fusion of the final cermet alloy, the heating being stopped as soon as or shortly before the formation of the alloy is complete. Fig 2 shows coercive force, remanence and density of alnico cermet alloy

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Powder Metallurgy as a Method of Producing and Investigating
Magnetically Hard Materials

(10% Al, 17 Ni, 12.5 Co, 6.0 Cu, 0.3 Ti, 54.2 Fe)
for heating temperatures of 1290, 1310, 1330, 1350 and
1390°C as functions of holding time. These curves show
that as the temperature rises the time required to obtain
the maximum level of magnetic properties falls but with
higher temperatures the maximum values of remanence also
fall. The author points out that powder metallurgy enables
cermet samples to be used as models of cast alloys and new
forms of permanent magnets to be made which are not
amenable to production by ordinary metallurgical methods.
He describes the influence of composition on magnetic
properties. Fig 3a shows variations on magnetic properties
of alni alloy with variation of nickel content from 20 to
34% and Fig 3b gives corresponding curves for 9 to 17%
aluminium. The deleterious influence of nitrogen on
Fe-Ni-Al-Cu alloy magnets is shown in Fig 3B where
curves 1, 2, 3 and 4 correspond to 0.003, 0.03, 0.08 and
0.2%, respectively, nitrogen (Altman and P.A.Gladyshev).
Variation of the aluminium (4.1 to 4.7%) and manganese
(8.3 to 9.3%) contents of Ag-Mn-Al alloy magnets confirmed

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Magnetically Hard Materials

(Fig 32 and 33, respectively) the satisfactory nature of the ordinary composition (86.8% Ag, 8.8% Mn, 4.4% Al). Fig 3e (Al'tman and I.P.Melashenko) shows the influence of 0 to 30 at % palladium (replacing platinum) in cobalt-platinum; such replacement is clearly undesirable. The author's work with engineer P.A.Gladyshev on cermet specimens containing 0.5% zirconium and additions of this element to industrial magnets showed (Table 3) that it raises the magnetic properties. The author mentions, as a further illustration to the usefulness of powder metallurgy, the production of a ferromagnetic manganese (66.7%) aluminium (33.3%) alloy (non-magnetic in the cast state). The mixing of powders with different magnetic properties can also be useful. Fig 4 shows the magnetic properties of metallo-plastic magnets made of different proportions of alni and alnico with different characteristics (Ref 5). There are 4 figures, 3 tables and 5 references, 4 of which are Soviet and 1 German.

SUBMITTED: April 1, 1959

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ACCESSION NR: AP5011517

UR/0286/64/000/023/0094/0094

AUTHOR: Zaymovskiy, A. S.; Al'tman, A. B.

27
B

TITLE: Magnetic alloy, Class 40, No. 82198

SOURCE: Byulleten' izobretaniy i tovarnykh znakov, no. 23, 1964, 94

TOPIC TAGS: magnetic metal, ²¹platinum base alloy, ²¹cobalt containing alloy, iron containing alloy

ABSTRACT: A magnetic alloy, made from powdered platinum and ferromagnetic metals-- iron or cobalt--by means of pressing and sintering, consists of 72-82% Pt and 28-18% Co or 73-83% Pt and 27-17% Fe.

ASSOCIATION: none

SUBMITTED: 15Mar48

ENCL: 00

SUB CODE: MM

NO REF SOV: 000

OTHER: 000

JPRS

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SI/170/60/003/04/17/027
B007/B10218.6201 18.1250
18.0100AUTHORS: Al'tman, A. B., Sorokina, V. N.TITLE: Investigation of Sintering of Cu-Ni Sintered Alloy

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 4, pp. 103-107

TEXT: A Cu-Ni alloy containing 30% Cu and 70% Ni was investigated. L. A. Zamarayeva, Engineer, and T. V. Peregudova, Engineer, participated in the experiments. In table 1 the chemical composition and grain size distribution of the metal powders investigated are listed. Figs. 1 and 2 show the results of the investigations: Fig. 1 illustrates the microstructure of the Cu-Ni sintered alloy after 4 hours' sintering at various temperatures. Fig. 2 shows the influence of the sintering temperature upon the physical properties of the samples in form of a graph. In sintering at 500-700°C a considerable density decrease was found and the porosity rose from 6 to 17%. Volume contraction was not observed. The decrease in electric resistivity after heating at 100-400°C is explained by a reduction of oxides on the copper and nickel particles and by an intensification of the contact between the metal particles. The rapid increase of the electric resistance in the range of from 500-700°C is mainly due to an

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intense dissolution of the components of the alloy. Reference is made to the fact that the Curie temperature may be used as a criterion for the diffusion of copper and nickel during the production of Cu-Ni alloys from powders. Fig. 2 shows that a change of the Curie point of copper-nickel alloys occurs in sintering in the range of from 700-1000°C. This fact is indicative of the development of diffusion processes and of a homogenization of the solid solutions which have formed in the course of copper and nickel dissolution. The decrease in Vickers hardness at 500-700°C is explained by the influence of porosity increase in the samples and by the influence of recrystallization. The increase in microhardness of the samples in the range 700-1000°C is explained by the evolution of the homogenization of the Cu-Ni solid solution. Basing on the experiments, the beginning of the dissolution of copper and nickel can be coordinated to a temperature of about 500°C and the end of it to a temperature of about 700°C. The homogenization of the parts of the Cu-Ni solid solution with intermediate composition mainly performs at 700-1000°C. The formation of a homogeneous solid solution is practically completed at 1000°. The case described concerns sintering of powders of heterogeneous and intersoluble particles without formation of a liquid phase. On this occasion 3 stages of sintering occur according to

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the temperature of heating (Refs. 8, 9): 1) from 100 to 500°C, 2) from 500 to 700°C, and 3) from 700 to 1000°C. There are 2 figures, 1 table, and 9 references, 6 of which are Soviet.

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AUTHORS: Altman, A.B., Candidate of Technical Sciences,
Memelov, V.L., Engineer and Karpova, V.P., Engineer

TITLE: Study of Commutator Bars and Slip Rings Made From
Powders

PERIODICAL: Vestnik elektropromyshlennosti, 1960, No.9, pp.1-5

TEXT: Copper commutator bars and slip rings were made by pressing from the powder, sintering in a protective atmosphere and pressing in a die to give increased strength and more accurate dimensions. Copper-iron alloys and copper-iron bimetals were also made in this way. In its specific electrical resistance, strength and coefficient of linear expansion, copper made by this method was practically the same as that made by the usual rolling process. Table 1 shows the comparison. The rolled copper was somewhat harder (at 20°C). The properties of cermet copper-iron alloy changed in an additive way with increase in iron content. The density increased and the specific resistance and hardness

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Study of Commutator Bars and Slip Rings Made From Powders

decreased. The tensile strength was practically independent of composition. The coefficient of linear expansion of copper-iron bimetals was similar to that of steel, a fact which offers constructional advantages. With increase in temperature, the tensile strength and hardness of metallurgical copper, and of cermets of copper and copper-50% iron alloys all decreased. The biggest decrease was observed in metallurgical copper. Microstructures of cermet copper, copper-50% iron and copper-iron bimetals are shown. The cermet copper-iron consists of a mixture of copper and iron particles. In the bimetal, the good bond between the iron and copper can be seen. Commutator bars made by powder metallurgy were tested in starter motors. After 50000 cycles, the brush wear was 3 to 4.5 mm, the wear on the copper and the copper-iron bars was 0.1 mm, compared with 0.5 mm for normal copper. Copper-iron bimetals also gave good results. There are 2 figures and 3 tables.

SUBMITTED March 5, 1960
Card 2/2

AL'TMAN, A.B., kand.tekhn.nauk; MEIASHENKO, I.P., kand.tekhn.nauk

Properties and use of powder metal contactors made of
silver and nickel. Vest.elektroprom. 31 no.2:37-39
F '60. (MIRA 13:6)

(Electric contactors)

AL'TMAN, A.B., kand.tekhn.nauk; MEMELOV, V.L., inzh.; KARPOVA, V.P., inzh.

Study of powder metal collector plates and slip rings. Vest.
elektroprom. 31 no.9:1-5 S '60. (MIRA 15:5)
(Electric machinery—Equipment and supplies)
(Powder metallurgy)

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E194/E455

24,220 (1137,1147,1158)

AUTHORS: Al'tman, A.B., Candidate of Technical Sciences,
Gladyshnev, P.A., Engineer and Lasis, G.I., Engineer

TITLE: The Magnetic Properties of Powder Type Permanent Magnets

PERIODICAL: Vestnik elektropromyshlennosti, 1961, No.2, pp.32-41

TEXT: Modern powder permanent magnets are classified into four groups. The first group includes metallo-ceramic metallic alloys which fundamentally have a structure typical of cast alloys but are sometimes of high porosity and small grain size. The second group of magnets, metallo-plastic, are pressed from powder of magnetically-hard material mixed with resin. The magnets consist of fine magnetically-hard particles bound together by the resin. The third group, of fine-powder magnets, are made up from pressed ferromagnetic high-coercivity powders whose particle size approximates to the domain size. In structure they are conglomerates of high-coercivity particles separated by non-magnetic layers and inclusions. The fourth group of oxide magnets includes magnets of ceramic alloys which are pressed and sintered from powders of metal oxides. The main manufacturing processes of the different

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kinds of magnets are briefly described. Magnetically-hard metallic alloys based on the system Fe-Ni-Al contain from 5 to 15% Al, from 10 to 35% Ni and from 30 to 65% Fe, with admixtures of cobalt, copper, titanium, zirconium and silicon. They are hard and brittle. Alloys of Cu-Ni-Fe are easily worked by pressure and cutting at all stages of manufacture. The alloy commonly used for permanent magnet manufacture contains 60% Cu, 20% Ni and 20% Fe. The magnetic properties of the alloy may be improved by dispersion hardening and by producing crystalline and stress textures. These magnets have anisotropic properties, which are greatest in the direction of strain during treatment under pressure. Two magnetically-hard alloys of Cu-Ni-Co are commonly used: one with 48% Cu, 23% Ni, 29% Co and the second with 35% Cu, 24% Ni and 41% Co. The good magnetically-hard properties of cobalt-platinum alloy (77% Pt, 23% Co) are apparently due to the formation in a weakly-magnetic background of single-domain ferro-magnetic particles of CoPt. The alloy of Ag-Mn-Al (86.8% Ag, 8.8% Mn, 4.4% Al) is a dispersion-hardening alloy. Metallo-ceramic magnets may be pressed in the final shape or cut from rolled

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material; rolling improves the properties of the magnet. Metallo-ceramic alloy of Ag-Mn-Al is sintered in hydrogen or vacuum and then hardened and tempered. The material is rolled after hardening. Dispersion-hardening metallo-ceramic magnets of Fe-Co-Mo (12% Co, 17% Mo, 7% Fe) have also been used. The metallo-plastic method of manufacture is usually used for permanent magnets of powder alloys of Fe-Ni-Al. Investigations have been made on metallo-plastic magnets based on barium ferrite. They are of accurate dimensions and have few surface or internal defects. The manufacture of magnets from fine powders is based on the marked increase in coercive force of ferro-magnetics when pulverized down to single-domain size. Fine-powder magnets have been made of iron and iron-cobalt (particle size about 0.3 microns) and manganese bismuthide (of 8 microns). The method of making the latter type is briefly described. The oxide group includes magnets based on cobalt ($\text{Co-O,Fe}_2\text{O}_3$) and barium ($\text{BaO.6Fe}_2\text{O}_3$) ferrites. These magnets are of great coercive force, low remanent induction, low density and high specific electrical resistance. Ferrite magnets have their best properties when in

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the anisotropic condition. Samples used to study the magnetic properties were in the shape of rectangular parallelepipeds. The magnetic measurements were made by the ballistic method in a closed circuit with electromagnets of field strength up to 15000 oersted; some details of the instrumentation are given. Curves were determined of magnetization, de-magnetization and magnetic energy. The magnetic properties of permanent magnets depends on their chemical analysis, structure, conditions of treatment, geometry and other factors. Metallo-ceramic magnets have similar magnetic properties to cast magnets of similar chemical composition. Any difference is usually due to the porosity of the metallo-ceramic magnets. The influence of porosity is briefly discussed. Despite the disadvantages of pores it is quite possible to make metallo-ceramic magnets which are of as good properties as cast magnets. The magnetic characteristics of metallo-plastic magnets depend mainly on the properties of the initial magnetically-hard material, the size of the magnetically-hard particles, the concentration of resin and the density of the product. Because of the high content (25 to 35% by volume) of non-ferro-magnetic inclusions, metallo-plastic magnets are not so good as cast or oxide hard 4/7

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magnets in respect of induction and energy. The coercive force of metallo-plastic iron-nickel-aluminium magnets is also somewhat less than that of cast magnets. The properties of fine-powder magnets depend upon the analysis, size, shape and density of packing of the particles. In the case of anisotropic magnets, an important part is played by the uniformity of orientation of the particles. Magnets of magnesium-bismuth powder have similar magnetic properties at 20°C to magnets of cobalt platinum. However, if manganese-bismuth magnets are cooled below room temperature, their properties rapidly fall off and they must be remagnetized when the temperature is restored. The properties of oxide magnets of barium ferrite depend very much on the grain size and density of the materials. The optimum grain size is about 1 micron; the theoretical density of barium ferrite is 5.3 g/cm³. The article then gives the results of investigations on the stability of metallo-ceramic magnets of alloys based, firstly, on the system Fe-Ni-Al, secondly, Cu-Ni-Co and Co-Pt-Mn-Bi and thirdly, barium ferrite. Metallo-ceramic specimens of alni, alnico and magnico aged by 5% displayed no drop in magnetic flux after 550 days. The magnetic flux of unaged magnets of alni
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diminished by about 1% in 3 days and no further change was observed. In unaged magnets of alnico the flux was stabilized in 9 days after dropping 2.5%. In magnets of magnico the influence of porosity was studied and the magnets were compared with cast magnets of magnico without pores. Porosity diminishes the stability: in unaged magnets with porosities of 7 and 15%, the drop in magnetic flux in 550 days is about 1.5 and 3% respectively, the corresponding value for cast magnets being about 1%. Increasing the coercive force improves the stability of the magnets. Reduction of the remanent magnetic flux of metallo-ceramic magnets of magnico (unaged) with a coercive force of 550 oersteds was about 1.5%, and with a coercive force of 400 to 440 oersteds about 4%. The magnetic flux of unaged magnets of Cu-Ni-Co fell by 2% in 520 days and that of magnets of Co-Pt by about 1% in 490 days. The relationship between the magnetic characteristics of unaged metallo-ceramic magnets of alni, alnico and magnico and temperature was determined over the range -70 to +800°C. On heating above 20°C, the properties of the magnets usually deteriorate, except in the case of magnico, where there is some increase in the coercive force up to 100°C. When magnets of
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alni are cooled from +20 to -70°C, there is a small improvement of some 5 or 7% in the properties. On cooling magnets of alloys containing cobalt, the magnetic properties changed irregularly, the remanent induction increased by about 5%, while the coercive force and magnetic energy fell by 5 to 17%. In the case of barium ferrite isotropic magnets, there was a marked reduction in the remanant induction and coercive force of magnets of Mn-Bi on cooling below 20°C. It was found that the magnetic flux of metallo-ceramic magnets of Fe-Ni-Al did not change by more than 1% after vibration at 80 c/s, 6 g for two hours, or on impact (1000 g). There are 7 figures, 4 tables and 6 references: 5 Soviet and 1 German.

SUBMITTED: June 6, 1960

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S/110/62/000/002/001/001
1004/1204

AUTHOR: Altman, A. B. Candidate of Mechanical Sciences

TITLE: Cermet elements for electrical engineering

PERIODICAL: Vestnik elektropromyshlennosti, no. 2, 1962, 79-80

TEXT: The 2nd conference devoted to powder metallurgy elements for use in electrical engineering was held in Yerevan in October 1961. The necessity for automation in powder metallurgy was stressed. It was pointed out that cermet elements contribute to savings in copper and lead. Development of conductors, cables and soft magnetic materials in sheet form using automatic presses from 25 to 2000 tons was suggested. Special ovens exist for sintering in a reducing atmosphere and in vacuum, with productivity of 50 to 60 kg per hour. The production of electrolytic copper powder was discussed and the desirability of automatization of this process was stressed. Bimetallic and multilayer cermet contacts for switches are in use. New wear-resisting materials for collector plates, contact rings and sintered permanent magnets were described. Anisotropic barium-oxide permanent magnets with high magnetic properties save cobalt, nickel and other strategic materials. One report described an efficient rotor line for production of cermet armature nuts. Powder metallurgy methods for production of elements of cars, tractors, electrical equipment and measuring instruments were reported. Scientists and engineers active in the powder metallurgy field are mentioned.

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AO52/A101

1.1600.

AUTHORS: Al'tman, A. B., Memelov, V. L

TITLE: Investigation of the sintering process of Cu-Sn-C powdered-metal alloy

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 7, 1962, 47, abstract 70379
("Poroshk. metallurgiya", no. 6, 44 - 54; English summary)

TEXT: The change of properties (density ρ , hardness δ_0) was studied in the process of sintering the 90% Cu - 9% Sn - 1% C alloy whose initial components were taken both in the form of Cu-Sn and Cu-Sn-C alloys and in the form of Cu, Sn and C powders. Also the results are given of dilatometric, microdurometric and microscopic analyses which helped to establish the laws of homogenization, formation and disappearance of liquid phase. The best properties were found with the samples prepared from alloy powders.

R. Andriyevskiy

[Abstracter's note: Complete translation]

Card 1/1

AL'IMAN, A.E.

"Progress of powder metallurgy in the field of electrochemical materials."

TITLE: The Sixth All-Union conference on Powder Metallurgy (Held at Moscow, 21 November 1962

SOURCE: Poroshkovaya metallurgiya, no. 3, 1963. p. 110

ACCESSION NR: AP4029209

S/0226/64/000/002/0074/0079

AUTHOR: Al'tman, A. B.; Gladyshch, P. A.; Rastanayev, I. D.

TITLE: Investigation of magneto-soft metal powder alloys Fe-Al, Fe-Si, and Fe-Si-Al

SOURCE: Poroshkovaya metallurgiya, no. 2, 1964, 74-79

TOPIC TAGS: iron based alloy, aluminum containing alloy, silicon containing alloy, powder metal alloy, magneto-soft alloy

ABSTRACT: Magneto-soft metal powder materials are presently used on d-c installations and utilize whole-pressed metal powder magnetic circuits made from iron and iron alloys with silicon. The use of such magnetic circuits in a-c installations is difficult because of significant specific loss. The authors found that metal powder technology has evolved to the point that whole-pressed magnetic circuits can be prepared and used in a-c installations of 50 cps. Orig. art. has: 6 figures and 2 tables.

ASSOCIATION: VNIIElektromekhaniki

Sub: 13 Feb 63

Card 1/2

ACCESSION NR: AP40449C7

S/0226/64/000/004/0021/0027

AUTHOR: Al'tman, A.B., By*strova, E.S.

TITLE: A study of the sintering of metal powder alloys of Cu-Cd and Ag-Cd

SOURCE: Poroshkovaya metallurgiya, no. 4, 1964, 21-27

TOPIC TAGS: powder metallurgy, sintering, powder alloy, cadmium alloy, copper cadmium alloy, silver cadmium alloy, electrical contact

ABSTRACT: During the manufacture of Ag-Cd and Cu-Cd alloys by the methods of metallurgical technology, the burn-out (electric arc erosion) of cadmium attains high values because of the high vapor pressure of Cd at 1273-1423K (approx. 10,000 mm Hg). The volatility of cadmium makes it difficult to obtain alloys which are stable in composition, as well as presenting a health hazard. Considerable difficulties are also experienced during manufacture of cadmium alloys by the conventional methods of powder metallurgy. An experimental investigation was therefore carried out on the processes taking place during sintering of metal powder alloys of the system Cu-Cd and Ag-Cd, and the conditions for sintering Cu-Cd and Ag-Cd alloys with a given cadmium content were discussed. A loss of cadmium during sintering of Cu-Cd alloys can be avoided by performing the

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ACCESSION NR: AP4044907

sintering in an argon atmosphere and by using a packing of 98-99% Al_2O_3 and 1-2% CdO , with an initial gauge pressure of 2 atm. Some reduction of the cadmium loss was also obtained by using a 100% Al_2O_3 packing, or by increasing the initial gauge pressure to 25 atm without any packing. These results are tabulated, along with some properties of the powdered metals, metallurgical cadmium bronze, and pure copper. Among the Ag-Cd alloys, a powder alloy containing 76.5% Ag and 23.5% Cd was investigated. After the metal powders were mixed in the necessary proportions to obtain the above-mentioned composition, blanks were pressed and sintered at approx. 1173K in an oxidizing atmosphere. The sintered specimens were repeatedly reheated to approx. 773K to reduce the cadmium oxide and to obtain a Ag-Cd solid solution. No cadmium loss was observed. Subsequent additional pressing and annealing yielded resistant, dense pieces of Ag-Cd alloy, with a stable structure and properties. For a full reduction of cadmium oxide, porous pressings are required; hence, correct selection of the applied pressures is important. The results of tests of opening electrical contacts made of metal powder alloys are also presented. These tests showed that the wear resistance of contacts made of powder Cu-Cd alloy (99% Cu, 1% Cd) was about 1.5-2 times as high as that of rolled copper of the M1 type.

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ACCESSION NR: AP4044907

Contacts made of powder Ag-Cd alloy (76.5% Ag; 22% Cd; 1% Ni; 0.5% Fe) are used in the voltage regulators of diesel-electric locomotives. Such contacts work in a DC circuit at 8 amperes and 75 volts. Operational experience of over 10 years has shown that they are stable against burn-out and ensure voltage stability within the limits of ± 1 volt. Under the same conditions, contacts of silver and of the composition silver-cadmium oxide (12% CdO) have proven inadequate. "Engineers V. N. Sorokina and T. V. Peregudova took part in the metallographic analysis; the x-ray studies were carried out by Engineer V. L. Kalikhman at the Moskovskiy Institut stali i splavov (Moscow Steel and Alloy Institute) under the direction of Prof. Ya. S. Umanskiy; Engineer G. O. Feyler studied the wear of the cadmium bronze contacts." Orig. art. has: 7 figures and 3 tables.

ASSOCIATION: VNIEM

SUBMITTED: 15May63

ENCL: 00

SUB CODE: MM

NO REF SOV: 006

OTHER: 000

Card 3/3

16318-63 INT(m)/EET(w)/EWA(d)/EPR,IMP(t)/EWP(b) Pad/Ps-4 IJP(c)/
 ESD(t)/RAEM(c)/BSD/AFM/ASD(a)-3/ASD(m)-2/S(mp)-2 ID/HW
 ACCESSION NR: AR5000768 S/0058/64/000/010/A024/A024

SOURCE: Ref. zh. Fizika, Abs. 10A249

AUTHORS: Altman, A. B.; Gladyshev, P. A.; Mileshin, Ye. V.; Sorokina, V. N. B

TITLE: Structure and properties of metal-ceramic and permanent magnets made of alloys based on the iron-nickel-aluminum system

CITED SOURCE: Tr. Kiybyshevsk. aviats. in-t, vyp. 16, 1963, 213-227 18

TOPIC TAGS: permanent magnet, iron alloy, metal-ceramic material, magnetic field

TRANSLATION: Results of an investigation of macroscopic, microscopic, and electron-microscopic structure, phase composition, and magnetic and mechanical properties of some Fe-Ni-Al metal-ceramic alloys are discussed. The structure and the properties of the metal-ceramic and cast-alloys are compared. The authors note that metal-ceramic magnets, especially those which are pre-aged, have a stability that is fully

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L 16318-68

ACCESSION NR. AR5000768

satisfactory for practical application. The magnetic characteristics of the metal-ceramic magnets heated above 20C are as a rule worse. The flux of aged magnets cyclically exposed to temperature remains constant. Under vibration and impact, the change in the magnetic flux of non-aged magnets made of alni, alnico, and magnico, did not exceed 1%. Owing to the fine grain structure of the metal-ceramic magnets, they are much superior in mechanical strength to cast magnets.

SUB CODE: MM, EM

ENCL: 00

Card 2/2

ACCESSION NR: AP4044140

S/0129/64/000/008/0041/0044

AUTHOR: Altman, A. B.; Gusev, V. Ya.; Kalikhman, V. L.; Umanskiy, Ya. S.

TITLE: Investigation of magnetosolid Mn-Al cast alloys

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 8, 1964, 41-44

TOPIC TAGS: manganese aluminum alloy, aluminum containing alloy, alloy magnetization, cast alloy, permanent magnet, magnetic alloy, magnetic permeability

ABSTRACT: 30 x 10 x 10 mm and 50 x 15 x 15 mm rectangular and 6 x 20 mm cylindrical samples of an Mn - Al alloy containing 67.2-73.5% Mn were investigated using magnetic, x-ray and metallographic methods in an attempt to evaluate the ferromagnetic properties and possible use of alloys of this type in permanent magnets. The magnetic properties of the samples, premagnetized in a 10,000 e electromagnetic field, were measured on a regular ballistic testing device. X-ray pictures were taken in an 86-mm Debye chamber with chromium and iron emission. The microstructure of unetched and etched cross sections was studied with an optical microscope. All the magnetic samples were found to contain an α -phase with a tetragonal, ordered, space-centered structure with a- and c-periods of 2.77 and 3.57 kX, respectively. The phase composition was found to depend on alloy chemical composition, cooling rate and the mode of thermal treatment. An alloy, tempered at 400-500C for

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ACCESSION NR: AP4044140

less than 1 hr., was found to consist almost entirely of a ferromagnetic τ -phase. Most of the tested alloy samples showed magnetic properties immediately after casting, with H_c values ranging from 180 to 960 e in individual samples. The magnetic state was intensified by a hardening procedure in which samples, annealed at 1150-1180C in hydrogen for 0.5-1 hr., were cooled at a critical rate or quenched in oil or cold water and tempered at 450-600C. The principal magnetic data for thermally treated Mn-Al cast magnets are shown in the Enclosure. "I. M. Garina, Yo. Yu. Zel'tser, T. N. Korchebokova, G. I. Lasís and V. N. Sorokina participated in the tests." Orig. art. has: 4 figures and 1 table.

ASSOCIATION: Moskovskiy Institut stali i splavov (Moscow Institute of Steel and Alloys); VNIIEM

SUBMITTED: 00

ENCLOSURE: 01

SUB CODE: MM, EM

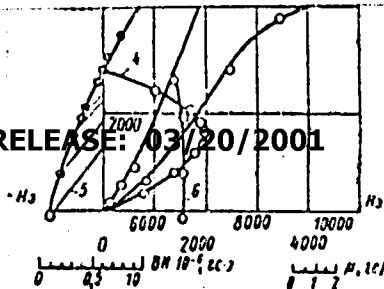
NO REF SOV: 000

OTHER: 000

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APPROVED FOR RELEASE: 03/20/2001

CIA-RDP86-00513R000101210002-4



permeability (5) and re-habilitation coefficient (6) of a Mn-Al alloy (71.6% Mn), plotted in two scales.

Dashed lines refer to 6000 10,000 e fields.

Card 3

L-57719-4 R/R/EWT(w)/EWP(x)/EWP(z)/EWP(b)/T/EWA(d)/EWP(a)/EWP(w)/EWP(t)

ACCESSION NR: AR5015159 UR/0137/65/000/005/0033/0033

SOURCE: Ref. zh. Metallurgiya, Abs. 56195

AUTHOR: Al'tman, A. B.; Gladyshev, P. A.

TITLE: Investigation of vacuum sintering of magnetic hard alloys of the iron-nickel-aluminum-cobalt system

CITED SOURCE: Tr. 7 Vses. nauchno-tekhn. konferentsii po poroshk. metallurgii. Yerevan, 1964, 132-137

TOPIC TAGS: vacuum sintering, sintering, magnetic alloy, hard alloy, iron base alloy, nickel containing alloy, aluminum containing alloy, cobalt containing alloy, solid solution, magnetic property

TRANSLATION: A study was made of the effect of vacuum sintering on the properties of magnetic hard Magnico alloys¹ (8% aluminum, 15% nickel, 24% cobalt, 3% copper, 1% titanium, remainder iron) and Alnico alloys² (10% aluminum, 17% nickel, 2.5% cobalt, 6% copper, remainder iron). The samples were sintered at 300-1325° in a TsEF-301 vacuum furnace. Solid solutions formed in the interval 700-1300°. In this interval there occurred a change in the magnetic properties connected with homogenization of the alloys. The degree of vacuum (from 10⁻² to 10⁻⁴ mm Hg)

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I-57719-65

ACCESSION NR: AR5015159

did not exert a noticeable effect on the properties of the sintered alloys. Sintering in a vacuum permits obtaining a higher density of the samples of Magnico alloys than sintering in hydrogen; the density of Alnico alloys sintered in a vacuum and in hydrogen was identical. The magnetic characteristics of the sintered alloys sintered in vacuum and in hydrogen were also practically identical. V. Kvis.

SUB CODE: MM

ENCL: 00

Cord

2/2

1 60033-65 EWP(e)/EPA(e)-2/EWI(m)/EWP(w)/EPP(e)/EWP(1)/EPP(n)-2/EWA(d)/EPA(w)-2/
T/EWP(t)/EWP(z)/EWP(b) Pr-1/Pad/Ps-1/Pt-7/Pu-1 YIP(c) ID/WA/LW/JC/1A3/AM

ACCESSION NR: AR5015188

UR/0137/65/000/005/1060/1060

SOURCE: Ref. zh: Metallurgiya, Abs. 51383

AUTHOR: Al'tman, A. B.; Gladyshev, P. A.

TITLE: Production of and research on iron-nickel-aluminum metalloceramic
permanent magnets

CITED SOURCE: Sb. dokl. na Vses. soveshchaniy po litym splavam dlya postoyam.
magnitov, 1962. Saratov, 1964, 140-153

TOPIC TAGS: permanent magnet, metal ceramic material, magnetic property,
metal mechanical property, metal physical property, density, annealing atmo-
spher/, sintering, metal pressing, magnet, magnetic field, porous material,
heat treatment, iron base alloy, nickel containing alloy, aluminum containing
alloy, cobalt, copper, titanium, niobium, nitrogen, bonding material

TRANSLATION: The article gives a description of the technology of processes for
production and the results of investigations (original and by other authors) of the

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L 60033-65

ACCESSION NR: AR5016188

dependence of magnetic properties (H_c , B_r), mechanical properties and density on the chemical composition (nickel, aluminum, cobalt, copper, titanium, and zirconium), impurities (nitrogen), the annealing atmosphere, the sintering temperature, pressing conditions (one and two stage) of metalloceramic magnets made of alloys based on the iron-nickel-aluminum system. Existing production methods permit obtaining AlNi, Alnico and Magnico alloys with a wide range of properties and stability, fully satisfactory for practical purposes. There has been a simplification of production methods for magnets with pole pieces from slightly magnetic materials, magnetic systems with an iron shield for protection from the action of external magnetic fields and to avoid dissipation, etc. Mechanical working has been shortened, waste products have been reduced, and homogeneity with respect to magnetic characteristics and mechanical strength has been increased. However, the volume of production of metalloceramic magnets is still considerably distant from the level of actual demand for them. A characteristic of metalloceramic magnets is the presence of a relatively high residual porosity (from 3 to 8%) which lowers their magnetic properties. By a rational choice of the chemical composition of the alloys, bonding additives, and two stage

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ACCESSION NR: AR5015188

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pressing and by more precision in heat treatment conditions, it is possible to produce metalloceramic magnets equal in their magnetic properties to industrial cast magnets (excluding magnets with directed crystallization). Contamination of Alni and Magnico alloys with nitrogen sharply lowers H_C and H_T . Orig. art. has: 12 figures, 3 tables, 5 literature titles (From R. Zh. Elektrotehnika)

SUB CODE: MM, EM

ENCL: 00

Card 3/3. *dap*

AL'TMAN, F.S.; BENTROVA, F.S.

Investigating the sintering of Cu-Cd and Ag-Cd ceramic metal alloys.
Porosh.met. 4 no.4:21-27 J1-Ag '64.

(MIRA 18:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut elektromekhaniki.

L 37747-66 EWP(e)/EWI(m)/EWP(t)/ETI IJP(c) JD/WH

ACC NR: AP6017102

(N)

SOURCE CODE: UR/0226/66/000/001/0041/0015

AUTHORS: Altman, A. B.; Valakina, V. M.; Karpova, V. P.; Memelov, V. L.; Sorokina, V. N.

49
B

ORG: All-Union Scientific Research Institute of Electromechanics (Vsesoyuznyy nauchno-issledovatel'skiy institut elektromekhaniki)

TITLE: Dependence between total and surface porosity of sintered materials Cu--Sn--C

27 27 27

SOURCE: Poroshkovaya metallurgiya, no. 1, 1966, 41-45

TOPIC TAGS: copper, tin, carbon, graphite, powder metal compaction, powder metal sintering, *POROSITY, SINTERED ALLOY*

ABSTRACT: The effect of sintering temperature and pressure on the ratio of total (P_T) to surface porosity (P_0) of bronzographite (90% Cu, 9% Sn, 1% C) was investigated. The total porosity was determined by means of the formula

$$P_t = \frac{\gamma_0 - \gamma_1}{\gamma_0} \cdot 100,$$

where P_t is the total porosity and γ_0 and γ_1 are the densities of nonporous and porous bronzographite respectively. The surface porosity was estimated from oil absorption data according to the formula

$$M = \frac{G_2 - G_1}{\gamma_n \cdot V} \cdot 100,$$

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L 37747-66

ACC NR: AP6017102

where M is the oil absorption, G_2 and G_1 are the weights of the specimen before and after oil treatment respectively, ρ_M is the density of the oil, and V is the volume of specimen. The experimental results are presented graphically (see Fig. 1). It

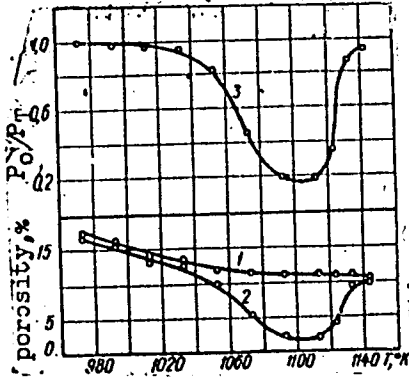


Fig. 1. Dependence of total (1) and surface (2) porosity, and the ratio of surface to total porosity (P_o/P_t) of bronzographe specimen compressed from powdered Cu, alloy Cu--Sn, and C, on the sintering temperature. Sintering pressure 40 k newtons/cm², initial total porosity 19%.

was found that the sintering temperature and pressure affect the total and surface porosity differently. The ratio of surface to total porosity when expressed as a function of the temperature exhibits a minimum, the position of which is shifted to lower temperatures with increase in the specific sintering pressure. Orig. art. has: 2 equations and 4 figures.

SUB CODE: 11/

SUBM DATE: none/

ORIG REF: 007

Card 2/2

L 39731-56 EWP(m)/EWP(t)/ETI IJP(c) JD/OD-2
ACC NR: AP6007338 SOURCE CODE: UR/0292/66/000/002/0008/0010

AUTHOR: Altman, A. B. (Candidate of technical sciences); Gladyshev, P. A.
(Candidate of technical sciences); Rastanayev, I. D. (Engineer)

ORG: none

TITLE: Metal-ceramic materials for magnetic wedges in electrical machinery

SOURCE: Elektrotehnika, no. 2, 1966, 8-10

TOPIC TAGS: metal ceramic material, electric machine

ABSTRACT: An investigation of Fe-Al and Fe-Si metal-ceramic alloys carried out in VNIEM is briefly reported. Pressed and sintered in the mold, magnetic wedges of these compositions were tested: 12% Al - 88% Fe, 16% Al - 84% Fe, 18% Al - 82% Fe, 4% Si - 96% Fe, 6.5% Si - 93.5% Fe; fields of 0.5-100 oe were applied. Magnetic and mechanical characteristics for the above compositions

Card 1/:

UDC: 621.313.002.2

L 39731-66

ACC NR: AP6007338

having 5 to 29% porosity are tabulated. The magnetic characteristics of 16% Al - 84% Fe were practically stable after heating to 200C for 100 hrs. Although the resistivity of the above alloys is 2-3 times as high as that of transformer steel, the metal-ceramic wedges were electrically insulated from the machine steel. The 12% Al - 88% Fe 3-mm thick wedges (maximum permeability, 480 gs/oe) were tested in 3-phase, A0-51-2, squirrel-cage, 2900-rpm, 380-v, 50-cps motors. The introduction of these wedges did not affect principal characteristics of the motors. Orig. art. has: 1 figure and 4 tables.

SUB CODE: 09 / SUBM DATE: none / ORIG REF: 001

Electrical alloys¹⁸

Card 2/2 *HS*

L 06101-6: EWT(m)/EWP(w)/EWP(t)/ETI IJP(c) JD/HW/JH
ACC NR: AP6022907 SOURCE CODE: UR/0292/66/000/004/0033/0035

AUTHOR: Altman, A. B. (Candidate of technical sciences); Gladyshev, P. A. (Candidate of technical sciences); Garina, I. M. (Engineer); Kozlova, T. A. (Engineer)

ORG: none

TITLE: Metal-ceramic type "Magnico" magnets with high coercive force

SOURCE: Elektrotehnika, no. 4, 1966, 33-35

TOPIC TAGS: permanent magnet material, magnetic coercive force

ABSTRACT: The composition and properties of two new permanent-magnet materials are described; (1) Composition, (7.4--8)% Al, (30--40)% Co, (4.5--6)% Ti, (14% Ni, 3% Cu; rest, Fe; curves illustrate the effect of composition on magnetic properties; the best properties obtained are: coercive force, 1080 amp/cm; remanence, 0.8 tesla; maximum magnetic energy product, 0.019 j/cm³; high stability of this material is noted -- the flux of nonaged specimens practically did not change in 330 days; (2) Composition, 7.5% Al, 14% Ni, 38% Co, 4% Cu, 7.5 Ti; rest, Fe; its magnetic properties: coercive force, 1600 amp/cm; remanence, 0.75 tesla; energy product, 0.02 j/cm³. Conventional powder-metal processing was employed; the isothermic hardening in magnetic field and two-step tempering were used. Mechanical properties of the above materials are also reported. Orig. art. has: 6 figures and 1 tables.

SUB CODE: 09 / SUBM DATE: none / ORIG REF: 002 / OTH REF: 001
Card 1/1 LC UDC: 621.318.2.001.3

ACTION 119

The preparation of folliculin benzoate and certain peculiarities of its physiological action. M. N. Lapinov, A. D. Altman and V. A. Leontovich. *Bull. Ind. med. expl. U.S.S.R.* 4, 205-6(1937); *Chem. Zentr.* 1939, II, 4604. — Five cc. H_2Cl is added to a soln. of 1 g. *n*-folliculin in 400 cc. 6% NaOH, and the mixt. is shaken 30 min. in the cold and 30 min. at 60°. The crystals formed are filtered off, washed with water, and dried in a desiccator. They are then dissolved in $CHCl_3$, and petroleum ether is added. The crystals so obtained m. 218°. Yield, 1 g. By injection of folliculin (dissolved in olive oil) near the end of pregnancy the pregnancy can be interrupted in rabbits, guinea pigs and mice with the embryo being expelled intact. The use of folliculin benzoate, on the other hand, produces resorption of the embryo as a result of an atony of the uterus. It is concluded that large doses of folliculin (0.25 mg. for guinea pigs) reestablish uterine activity which has been inhibited by the corpus luteum, while the benzoate produces atony of the uterus by repressing pituitary activity. M. G. Moore

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

AL'TMAN, A.*

33350. O Kacheste Moloka Na Fermakh. Holoch. Pron-St', 1949, No. 10, C. 38-39.

SO: Letopis' Zhurnal'nykh Statey Vol. 45, Moskva, 1949

* i MAKHNYUK, R.

AD'TMAN, A. D.

How to milk cows correctly. Moskva, Sel'khozgiz, 1951.

SO: MLRA. October 1952

AL'TMAN, A. D.

"Composition of Blood in Lactating and Non-Lactating Halfs of Udders." (pp. 139-42)
by Garkavi, O. V. and AL'Tman, A. D.

SO: Journal of General Biology (Zhurnal Obshchei Biologii) Vol. 13, No. 2, 1952.

ALTMAN, A. D.

Effect of green feed on the quality of milk. K. V. Markova, A. D. Altman, and V. E. Korolov. Zhurnal Zoologii i Akklimatatsii, Kazan, Kazan, 1954, No. 14910. Feeding cows grass-legume mixts, affects favorably the quality of milk, increasing the fat and protein content. The fat of milk increased when vetch and oats, clover and timothy grass, and similar mixts, were fed. Highest protein content was obtained by feeding vetch and oats. In order to increase the food value of milk, it is necessary to incorporate into the feed mixts of grasses and legumes. Various kinds of green feed did not affect the Ca, K, vitamin C, and ash content of the milk. M. Hosh...

AL'TMAN, A. D.

Biological Chemistry, Feeding and Nutrition (14910)

Zhivotnovodstvo, No 2, 1953, pp 101-105

Al'tman, A. D.

The Effect of Green Supplements to Feeding on the Quality of Milk

Adding green supplements (buck-bean and herb mixture) to the regular diet of cows improves the quality of the milk by raising the fat and protein content.

Referativnyy Zhurnal -- Khimiya, No 3, 1954 (W-30976)

Altman, A

Feeding of sugar beets to cows and the composition of milk. N. Markova, A. Altman, and E. Simon. *Afobzhaaya Press*, 15, No. 4, pp. 211-214. — A study was made to ascertain the effects in the ration of cows of sugar beets (I) and potatoes (II) on production of milk (III) and fat (IV) and on quality of butter. The data show that III and IV were not affected uniformly by feeding of I and II. When I and II were fed to brown Latvian high-fat milk producing cows at the rate of 20-30 and 16-22 kg. per day, resp. III increased by 2 and 0.7 kg. per day, but IV increased 0.11 and decreased 0.02 g. per 100 ml. of III in each case. However, feeding of 35 and 30 kg. of I and II, resp., to Kholmogor and Kholmogor-Ost-Friedan low-fat milk producing cows lessened III, resp. 3.5 and 2.6 kg., and increased IV 0.25 and 0.1 g. per 100 ml. of III. On the basis of the work of others, it is concluded that high-fat producing cows respond more effectively to I in the ration than those with low fat production. An inverse relation was observed between the seasonal temp. and III and IV. The av. size of the fat globules was appreciably reduced by I, and was affected but slightly by II. Butter manuf. from III produced on diets with I and II was of high quality. I butter was somewhat harder than II butter with higher saponification and lower iodine no. Vladimir N. Kravkov.

AL'TMAJ, A. D.
MARKOVA, K.V., kandidat biologicheskikh nauk; AL'TMAJ, A. D., kandidat biologicheskikh nauk.

Is your dairy farm delivering good milk? Nauka i pered. op. v sel'khoz.
7 no.4:19-21 Ap '57. (MIRA 10:6)
(Dairying--Equipment and supplies)

AL'TMAN, A.D., kand.biolog.nauk; MARKOVA, K.V., kand.biolog.nauk;
NOVIKOVA, A.F.

Composition of milk obtained from cows of the livestock section
of the agricultural experiment center in Gorki Leninskiye.. Agro-
biologiya no.6:913-919 N-D '60. (MIRA 13:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zhivotnovodstva,
g. Moskva.

(Gorki Leninskiye—Agricultural experiment stations)
(Milk—Composition)

MARKOVA, Kseniya Vladimirovna; AL'TMAN, Anna Davidovna; FEFERMAN,
A.Ye., red.; SHESHNEVA, E.A., tekhn.red.

[Factors which effect the composition of milk] Kakie faktory
vliiaiat na sostav moloka. Moskva, Izd-vo M-va sel'khoz.
RSFSR, 1963. 155 p. (MIRA 16:12)
(Milk--Composition)
(Dairy cattle--Feeding and feeds)

AL'PMAN, A.M., insh.; KONTOROVICH, S.O., insh.; LEYMAN, P.P., insh.

Trailer houses for pipeline construction workers. Stroi.truboprov.
3 no.9:20-22 S '58. (MIRA 11:12)

(Labor and laboring classes--Dwellings)
(Automobiles--Trailers)

14(5)

SOV/95-59-3-3/14

AUTHORS: Al'tman, A.M., Kontorovich, S.O., Leyman, P.P., Engineers

TITLE: Mobile Production Centers on Pipeline Tracks
(Peredvizhnyye proizvodstvennyye bazy na trassakh)

PERIODICAL: Stroitel'stvo truboprovodov, 1959, Nr 3, pp 5-10 (USSR)

ABSTRACT: The vast production program of the 7-Year Plan has rendered necessary the establishment of field production centers which should be in a position to provide living accommodations, workshops, and stores for supplies and material required on the construction sites by the working teams. The task of setting up these centers, or service stations, is complicated by the conditions under which they have to function. Located often in remote areas, far from any industrial centers, RR lines or highways, they are intended for temporary stay only, being called upon to move along the track as construction is progressing. Giprospetsgaz has worked out a project pertaining to complete typical production centers which answer all the requirements of the pipeline construction and can be erected or dismantled in 10-15 days. The general layout of a production center is shown on diagram 1 as consisting of

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Mobile Production Centers on Pipeline Tracks

SOV/95-59-3-3/14

3 main sections: construction area, motor pool for 50 automobiles and stores for fuel and lubricating oils. Table 1 and 2 give a breakdown of the field production center by departments or units, indicating their capacity and kind of constructions. The center is composed of 31 buildings. As a rule all constructions are made for assembling and dismantling on the spot for ready transportation. Typical centers make it possible to organize production from locally available raw material and construction material; they can produce sections of electrotechnical, sanitary, and technological installations and perform maintenance and repair jobs on automobiles and machines; they also act as distributors of fuel, oil, and such materials as they receive for storage. The rest of the article deals with typical buildings assembled from prefabricated parts and panels, made of metal and wood. Dismantled constructions and equipment can be loaded on trucks and trailers, or on RR platforms for transportation. A production center needs about 4,500 m² of open space for putting

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Mobile Production Centers on Pipeline Tracks

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up buildings and 1,000 m² for sheds. It is estimated that it takes 50 men 15 days to put up the principal building complex of a field production center. There are 4 tables, 2 sketches, and 3 diagrams.

Card 3/3

A L'TMAN, B. B.

PHASE I BOOK EXPLOITATION 807/2925

11(4)

Baku. Azerbaydzanskiy nauchno-issledovatel'skiy institut nefte-
 pekharbiyayuzhchey promyshlennosti imeni V. V. Kuybysheva.
 Sbornik trudov, VYP. 2. (Collection of Works, No. 2) Baku,
 Anonitsimat, 1958. 313 p. Errata slip inserted. 500
 copies printed.

Additional Sponsoring Agency: Azerbaydzhan. Ministerstvo nefteymoy
 promyshlennosti.

ED. OF Publishing House: T.B. Al'tman; Editorial Board: V.S. Aliyev,
 Candidate of Chemical Sciences, V.S. Durytza, Doctor of Chemical
 Sciences, A.M. Kullyev, Doctor of Chemical Sciences, N.M. Indubov,
 Candidate of Technical Sciences, V.Ya. Medvedev, Candidate of
 Chemical Sciences, P.G. Suleymanova, Candidate of Technical
 Sciences, A.M. Lavshina, Candidate of Chemical Sciences, N.B. Al-
 tman, Candidate of Chemical Sciences, I.M. Orudzheva, Candidate
 of Technical Sciences, M.M. Melik-Zade, Candidate of Chemical
 Sciences.

PURPOSE: This collection of articles is intended for chemical
 engineers, technicians, and refiners concerned with advanced
 methods of petroleum conversion.

CONTENTS: The collection presents an analysis of different
 types of crudes extracted in Azerbaydzhan and of the products
 obtained from these crudes through petroleum refining
 processes. The distilling, desalting and demulsifying of crudes
 is described and the suitability of the catalysts for the
 recovery of diesel fuels is discussed. Results of catalytic
 cracking performed over a fluidized bed synthetic catalyst
 and the chemical composition of gasoline produced by two-
 stage catalytic cracking are analyzed. Attrition and deactiva-
 tion of catalysts are analyzed. Various lube oil additives and
 flow systems are reviewed. Various types of oils and of carbon black
 are obtained. References accompany individual articles.

MASTROVA, A.B., V.S. GULIZYS, and D.I. ZUL'GABAYEV. Chemical Compo- sition of Gasoline Produced by Two-stage Catalytic Cracking	70
ALIYEV, V.S., B.B. AL'TMAN, and R.P. KAZISOVA. Role of Heat Carriers in Thermal Cracking-Deposition of Heavy Petroleum Residues	77
YEFIMOV, S.A., E.I. POLYACHKO, A.A. MARADINA, V.S. DURYLOVA, and A.B. MELIK-ZADE. Study of the Deactivation of a Powdered Allica Alumina Catalyst During the Cracking of Distillates from Non- sulfurous Crude Oil	86
AL'TMAN, B.B., R.S. KULIYEV, K.I. ANTONOVA, T.S. STEPANYAN, Ye.M. KIKUSHINA, and S.V. VEIYEV. Study of Petroleum from the Upper Kalkinayskaya Area Carried out with a View to Producing Avisa- tion Lube Oil	99
KULIYEV, A.M., R.S. KULIYEV, M.M. DURYZINA, K.I. ANTONOVA, Ye.M. KIKUSHINA, M.S. CHIKAROVA, and B.I. ALIYEV. Study of Petroleum from the "Nefteymoye" Reservoir Deposits Made with a View to Producing Lube Oil Distillates	106
Card 4/8	

L 11933-66 EWI(m)/EWP(t)/EWP(b) IJP(c) JD/JG

ACC NR: AP6001653 SOURCE CODES: UR/0051/65/019/006/0968/0972

AUTHOR: Al'tman, B.L.; Chayka, M.P.

ORG: None

TITLE: Determining the lifetime of the excited state of ²⁷cesium $7^2P_{3/2}$ from double resonance experiments

SOURCE: Optika i spektroskopiya, v. 19, no. 6, 1965, 968-972

TOPIC TAGS: cesium, magnetic resonance, magnetic field, excited state

ABSTRACT: The superfine structure of the $7^2P_{3/2}$ level of cesium is briefly described and it is shown that in weak magnetic fields each of the four component sublevels is fragmented into Zeeman sublevels with its own Lande factor g_F . An explanation is given of the double resonance method proposed by A. Kastler and J. Brossel (C.R. Acad. Sci., 229, 1213, 1949). The double resonance signal is proportional, first of all, to the difference of populations. Most favorable was found to be a population by light having a polarization parallel to the magnetic field. The advantages of radiation by light with π -polarization are discussed, and the dependence of the double resonance signal amplitude on the magnetic field is analyzed. It is shown that resonances belonging to different superfine levels lie very close to each other, so that their experimental resolution is an almost hopeless task. Since the signal from the $F = 5$

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UDC: 539.143.43:535.53:546.36

L 11935-66

ACC NR: AP6001653

3

level is far greater than the others, the authors assumed that the experimentally observed signal is caused only by transitions between magnetic sublevels of the superfine state with $F = 5$. The experimental setup employed for the observation of the double resonance signal is described. A resonance cell with cesium vapors was located in a constant magnetic field and illuminated by polarized light from a lamp containing the same vapors. The lifetime of the excited state of the cesium $7^2P_{3/2}$ was measured by the width of the magnetic resonance lines: $= (2.5 \pm 0.6) \cdot 10^{-7}$ sec. The Lande factor, estimated according to the resonance transition frequency, was $g_F = 0.45 \pm 0.05$. It was also found that the position of resonance is determined by the particular magnetic field in which the distance between the Zeeman sub-levels is equal to the HF field frequency. The width of the magnetic resonance lines between the excited states, moreover, is a function primarily of the width of the levels. A formula expressing this function is presented. The magnetic resonance lines were found to expand under the effect of the HF field and nonuniformities in the permanent magnetic field. A table is given for a comparative study of lifetime calculations made by different authors using different methods. Authors thank A. N. Razumovskiy for adjusting the magnet, R. I. Semenov for assisting in the work, and N. I. Kaliteyevskiy for discussing the results. Orig. art. has: 1 table and 5 figures.

SUB CODE: 20 / SUBM DATE: 20Jul64 / ORIG REF: 005 / OTH REF: 009


Card 2/2

ALTMAN B. M.

6603. ALTMAN B. M. Tashkent Methods for investigation of vitamin C content in the organism, *Klinicheskaya Meditsina*, Moscow 1949, 27/12 (78-80) Tables I

The loss of vitamin C in urine samples within 24 hours was compared for conservation with various acids, chloroform and alcohol. The best results were obtained with 10% metaphosphoric acid (about 20% loss). The losses with 10% acetic acid, 10% hydrochloric acid, and 10% sulphuric acid were of about the same magnitude (37 to 39%) as spontaneous loss.

Simonsen - Minneapolis

SO: *Excerpta Medica*, Section II, Vol III, No 12

CA
DE TABUL. C.M.

Nutrition 11-2

Methodes of the determination of the vitamin C content in the body. B. M. Akman (Molotov Med. Inst., Tashkent). *Klin. Med. (U.S.S.R.)* 27, No. 12, 78-80 (1950); *Chem. Zentr.* 1950, II, 1712.—After the administration of ascorbic acid (I), its excretion in the urine was very irregular, with the amt. varying from hr. to hr. for the same individual. The kind of food which had been consumed and the functional condition of the organs of excretion played an appreciable role in its elimination. Therefore the amt. of I in the total amt. of urine excreted over a 24-hr. period was detd. Various substances were added to prevent the decompn. of I. The addn. of CHCl_3 and alc. in the ratio 10:90, or the addn. of small amts. of H_2SO_4 , HCl , or HOAc (up to 4%), was of little value in preserving (see I). The best results were obtained by the addn. of 10% metaphosphoric acid and HOAc , although the loss of I was still 20.4 and 22.3% over the 24-hr. period. M. G. Moore

KATSENOVICH, A.L.; AL'TMAN, B.M.; SHLYAFIRNER, N.M.

Vitamin C metabolism in typhus. Klin.med., Moskva 29 no.2:91 Feb 51.
(GIML 20:7)

1. Of the Clinic for Infectious Diseases (Director--Honored Worker
in Science Prof. A.L. Katsenovich), Tashkent Medical Institute
imeni V.M. Molotov, Tashkent.

AL'TMAN, B. M.

232T44

BSSR/Medicine - Toxicosis Sep 52

"Etiology of the So-Called 'Dzhalangar Encephalitis,'" B. M. Al'tman, Tashkent Med Inst

"Gig 1 San" No 9, pp 30-32

A disease observed between 1942 and 1943 in one of the rayons of Uzbekistan was named "Dzhalangar encephalitis." It was placed in the category of toxic virus infections involving the central nervous system. P. P. Sakharov and E. I. Gudkova, in their monograph "Listerellosis infection," have mentioned this disease

232T44

and called it virus encephalitis. In 1950-1951, incidence of meningoencephalitis was observed in 2 rayons of Uzbekistan: The condition observed there resembled "Dzhalangar encephalitis." It has been proven that the seeds of the Trichodesma incanum weed, known in Uzbekistan by its local name "Kampyrchapan," and contg the alkaloid trichodesmine, are responsible for the attack on the nervous system. The assumption is that Dzhalangar encephalitis is actually a toxicosis.

232T44

AL'TMAN, B. M.

USSR

The level of vitamin C in blood and the excretion in urine of healthy people living in Tashkent. B. M. Al'tman; Za. Medits. Zdravoohran. Uzbekistan 1953, No. 2, 10-33; Gerat. Zhur., Kazan, 1954, No. 22018. — The amt. of vitamin C (I) excreted in the urine, and in the urine and blood, were detd. in 40 healthy men receiving an excess of I, and in 63 other men receiving a normal diet, resp. The basic diet was a normal home-made food from which were excluded fresh vegetables and fruits. To the diet of the first 40 men was added 300 mg. I/day. The time period before there was a significant increase of the concn. of I in the urine was 8-9 days during the winter-spring and 3-5 days during the summer-fall days. The smallest amt. of I in the blood was in winter-spring, and it that in the urine was in the spring time. Under the nutritional conditions of Tashkent the av. deficit of I is 1770 mg. R. Warbickl.

AL'TMAN, B.M.

Vitamin C metabolism in measles. *Pediatria* no.2:62 Mr.-Ap '53.

(MLBA 6:5)

1. Kafedra infeksionnykh bolezney Tashkentskogo meditsinskogo instituta
imeni V.M. Molotova. (Vitamins) (Measles)

36964

S/141/62/005/001/010/024
E039/E135

24,6810

AUTHORS: Skripov, F.I. (deceased), and Altman, D.L.
TITLE: On the reactance of the receiving circuit in
experiments on free nuclear induction in weak
magnetic fields

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,
Radiofizika, v.5, no.1, 1962, 104-114

TEXT: In order to measure free nuclear induction in weak
magnetic fields a strong auxiliary field H^* orientated
perpendicular to the weak field H_0 is set up. There is a free
precession of the nuclear magnetisation vector M around the
direction H_0 when the field H^* is switched off and a signal
of the appropriate frequency is detected in the receiving coil.
The method has been widely used for geomagnetic measurements and
has been used successfully in the solution of some radio
spectroscopy problems. In view of the interest in the method
some aspects of it are considered in detail here. The effect of
electromagnetic oscillations induced in the receiving coil on the
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On the reactance of the receiving... S/141/62/005/001/C10/024
E039/E135

precession of the nuclear magnetisation vector is examined. The reactance of the receiving circuit increases the damping of the precession and in some cases will influence its frequency. These effects are very small but in the case of specially accurate measurements they may be taken into account. Accurate analytical expressions are obtained for the case of equal longitudinal (T_1) and transverse (T_2) relaxation times. These calculations suggest that in order to improve accuracy it is advisable to improve the signal-to-noise ratio by increasing H^* and the Q of the receiving circuit. The general case is also examined by numerical methods and calculations are made on the non-stationary processes in the receiving circuit. The question of the reactance of the receiving circuit in the presence of multiplet structure of the nuclear resonance signals is also considered.

There are 2 figures.

ASSOCIATION: Taganrogskiy radiotekhnicheskiy institut
(Taganrog Radio-engineering Institute)

SUBMITTED: April 15, 1961

Card 2/2

AUTHOR: Al'tman, E. N. 50-58-5-19/20

TITLE: Conference of the Directors of the Marine
Hydrometeorological Stations of the UGMS
of the Ukrainian SSR (Soveshchaniye nachal'nikov
morskikh gidrometeorologicheskikh stantsiy UGMS USSR)

PERIODICAL: Meteorologiya i Gidrologiya, 1958, Nr 5, pp 67-68 (USSR)

ABSTRACT: At the end of November 1957 a joint conference of the
directors of the above-mentioned stations of the
Azov-Black Sea basin with the experts of the
Hydrometeorological Observatory of the Black and
Azov Seas, with the managing personnel of the
administration of the Hydrometeorological Service of
the Ukrainian SSR as well as with representatives of
the organizations of national economy was held in
Sevastopol'. The conference was devoted to problems
of the marine network. L. P. Rozhkov held a lecture
on the improvement of work of this network which recently
operates considerably better. Some shortcomings were also
emphasized. The lecturer pointed out the problems posed

Card 1/2

Conference of the Directors of the Marine Hydrometeorological Stations of the UGMS of the Ukrainian SSR 50-58-5-19/20

to the stations and the observatory in connection with the transition to new working methods and the extension of the investigation of the hydrological regime of the seas. Altogether 15 lectures were held. On the last day working seminars were held; they were concerned with oceanology, meteorology and other fields. The conference passed a resolution which requires a further thematic extension of marine research. The national economy shall as completely and high-qualitatively as possible be supplied with all sorts of hydrometeorological data.

1. Oceanography 2. Meteorology 3 Hydrology 4. Scientific reports

Card 2/2

3(9)

AUTHOR:

Altman, E. N.

SOV/50-05-6-11/17

TITLE:

Experience in the Organization of Actinometric Observations on the Ships of the Logger Type (Opyt organizatsii aktinometricheskikh nablyudeniy na sudakh tipa Logger)

PERIODICAL:

Meteorologiya i gidrologiya, 1959, Nr 6, pp 42 - 44 (USSR)

ABSTRACT:

The present paper relates to the experience obtained in the performance of actinometric observations on the expedition ship "Mgla". The ship is owned by the Gidrometeorologicheskaya observatoriya Chernogo i Azovskogo morya (Hydrometeorological Observatory of the Black Sea and Azov Sea). It is a 450 t logger. The following tasks were to be solved: 1) to cover most of the components of radiation balance by observations, and 2) to standardize actinometric maritime observations by establishing fixed installations, so as not to waste time on preparations. The various experiments made in this direction are described here. Experience in the practice showed the following: 1) it is more convenient to have a special recording galvanometer for each transmitter. 2) Three galvanometers secure reliable work of the balance

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Experience in the Organization of Actinometric
Observations on the Ships of the Logger Type

SOV/50-59-6.11/17

meter (balansomer), of the actinometer and of the albedometer without any commutation of the contacts. 3) All recorder equipments must be possibly situated in one part of the room, so as to avoid having to clear away the galvanometers during a storm and after the completion of work. 4) To restrict the influence of ship rolling on the galvanometer needle, galvanometers must be mounted as near as possible to the center of the ship and in such a way that the galvanometer scales lie in the transverse direction of the diametral plane of the ship. The quality of the cables connecting the transmitters to the recording equipment is very important. Observations were made in the Azov and Black Seas in summer 1958. At the same time, the Azovskaya kompleksnaya ekspeditsiya (Azov All-inclusive Expedition) following the program laid down by the Gosudarstvennyy okeanograficheskiy institut (State Oceanographic Institute) and Chernomorskaya osenniyaya mezhdudomstvennaya ekspeditsiya (Black Sea Inter-Departmental Autumn Expedition) were made in the Caucasus territory. As of November 1958, actinometric expeditions are regularly carried out on the ship

Card 2/3

Experience in the Organization of Actinometric
Observations on the Ships of the Logger Type

SCV/50-59-6-11/17

"Mgla" along with other meteorological main observations.
There are 2 figures and 3 Soviet references.

Card 3/3

AL'TMAN, E.N.

Convective-turbulent heat exchange of the Black Sea with the
atmosphere. Sbor. rab. GMD CHAM no.1:70-76 '62.
(MIRA 17:5)

AL'TMAN, E.N.

Using new oceanographic instruments to study the sea. Meteor.1
gidrol. no.12:33-38 D '62. (MIRA 15:12)

1. Gidrometeorologicheskaya observatoriya Chernogo i Azovskogo
morey.

(Black Sea—Oceanographic instruments)

CHERNYSHEV, M.P.; ROZHKOV, L.P.; SHUL'GINA, Ye.F.; IGNATOVICH, A.F.;
LABUNSKAYA, L.S.; FOMINA, T.V.; CHERNYAKOVA, A.P.; SHPAKOVA,
L.N.; TARASOVA, M.K.; ANFILATOVA, A.I.; SLAVIN, L.B.;
BARYSHEVSKAYA, G.I.; DERIGLAZOVA, N.V.; MATUSHEVSKIY, G.V.;
AL'TMAN, E.N.; KROPACHEV, L.N.; CHEREDILOV, B.F.; POTAPOV,
A.T.; DUDCHIK, M.K.; REGENTOVSKIY, V.S.; YERMAKOVA, L.F.;
SEMENOVA, Ye.A.; KULIKOVSKIY, I.I.; KIRYUKHIN, V.G.; AKSENOV,
A.A., red.; NEDOSHIVINA, T.G., red.; SERGEYEV, A.N., tekhn.
red.; BRAYNINA, M.I., tekhn. red.

[Hydrometeorological handbook of the Sea of Azov] Gidrometeoro-
logicheskii spravochnik Azovskogo moria. Pod red. A.A.Aksenova.
Leningrad, Gidrometeoizdat, 1962. 855 p. (MIRA 16:7)

1. Gidrometeorologicheskaya observatoriya Chernogo i Azovskogo
morey.

(Azov, Sea of--Hydrometeorology)

AL'TMAN, E.N.; BABICHEV, Ye.N.

Water dynamics in the Kerch Strait. Sbor. rab. GMO CHAM no.2:
25-43 '64. (MIRA 18:2)

AL'TMAN, E.N.; IL'IN, Yu.V.; KROPACHEV, L.N.

Hydrometeorological conditions on the Black Sea during the IGY.
Sbor. rab. GMD CHAM no.2:44-64 '64.

(MIRA 18:2)

L 05003-01 (1) GW

ACC NR: AT6007098

(N)

SOURCE CODE: UR/3194/65/000/003/0003/0010

AUTHOR: Al'tman, E. N.

2/
1341

ORG: none

TITLE: Observations of currents in shallow water by means of automatic recorders

SOURCE: Basseyenovaya gidrometeorologicheskaya observatoriya Chernogo i Azovskogo morey. Sbornik rabot, no. 3, 1965, 3-10

TOPIC TAGS: ocean current, oceanographic instrument, auto recorder

ABSTRACT: The author presents results of a 3-year study of currents in shallow water by means of automatic recorders and gives a number of recommendations for a further improvement in the method of independent placement of current-meters on buoy stations. The investigations were carried out in the Strait of Kerch beginning in 1961. Letter-printing current-meters (BPV-2) were used in the study. These current-meters were installed on a system of buoy stations with a floating buoy. The depth in the region of the study was from 5 to 15 m. A comparison of the data of these current-meters with respect to current speed and the data of the VNM marine current-meter lowered alongside a standing ship showed a difference in speeds of up to 15-20 cm/sec. As a rule the speed for the BPV was higher. The causes for these discrepancies in instrument readings are: 1) the low positive buoyancy of the buoy, as a result of which the effects of dynamic forces on the entire system led to its appreciable fluctuations; 2) absence of swivels in the system of attaching the buoy to the cable,

Card 1/2 UDC: 551.465

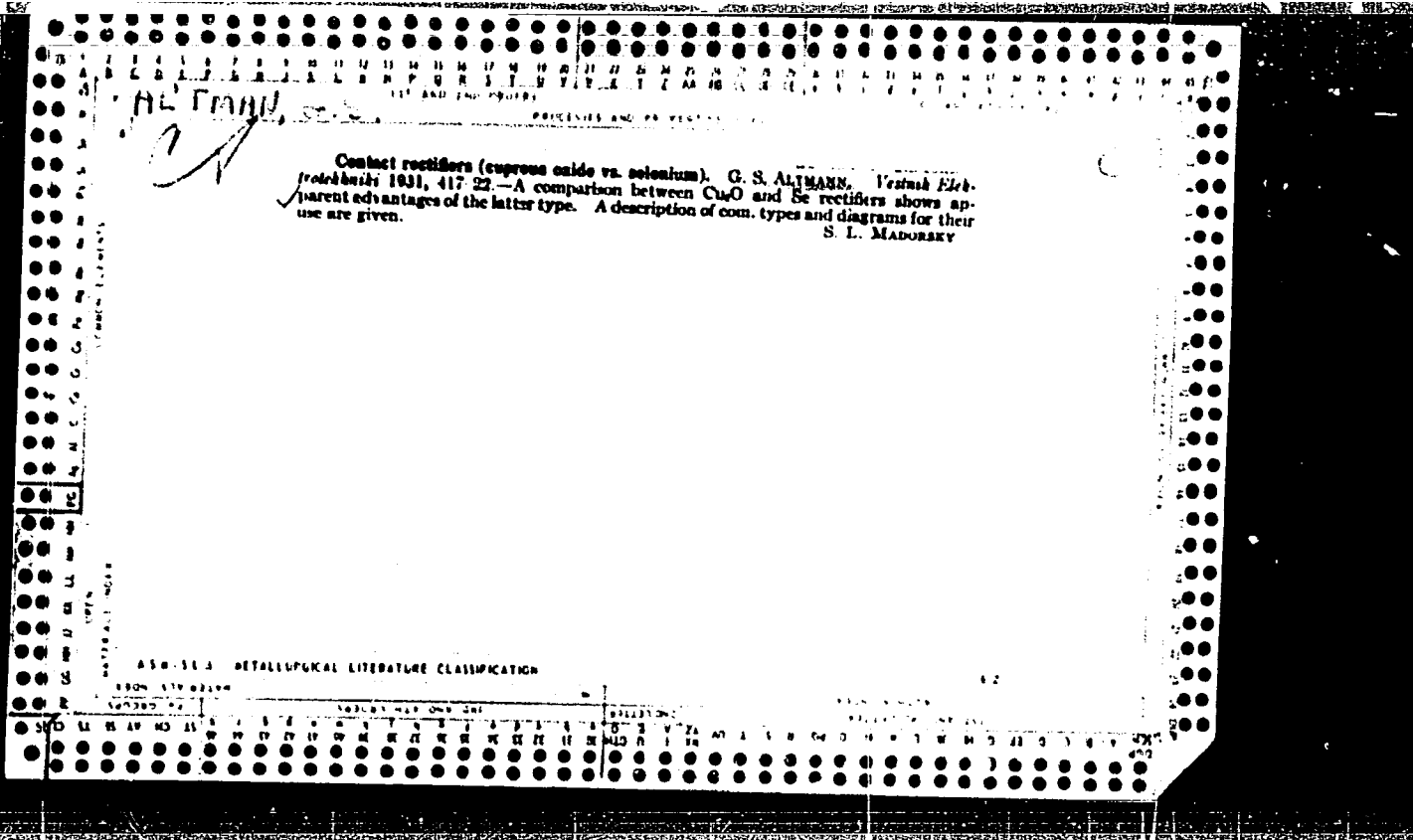
L. 05003-57

ACC NR: AT6007098

as a result of which the latter receives the torsion of the buoy and itself is systematically twisted and untwisted; 3) turbulent eddies arising in the region of the tail vanes of the BPV when the current flows by the automatic recorder; 4) the turbulent structure of the current itself; and 5) the direct effect of waves of the recorder. To eliminate the causes distorting the readings of the BPV the positive buoyancy of the buoy was increased and a reliable system of swivels was used in attaching the buoy. To reduce errors in the observations it is recommended that the current-meters when operating independently in shallow coastal regions be set on a bottom base 50-60 m long and that the base be oriented relative to the coastal features. Orig. art. has: 4 formulas, 3 tables, and 1 figure.

SUB CODE: 08 / SUBM DATE: none / ORIG REF: 005

Card 212 idh



AL'TMAN, G.Z., inzh.; MUSYAKOV, L.A., inzh.; OBNOVLENSKIY, P.A., inzh.

Automatic control of the tension of materials during their processing.
Mekh.i avtom. proizv. 17 no.2:36-39 F '63. (MIRA 16:2)
(Automatic control)

AL'TMAN, I., inzh.-mekhanik

First results of the operation of 6ChSP 18-22 engines. Rech.
transp. 21 no.5:27-28 My '62. (MIRA 15:5)
(Marine diesel engines)

DASHEVSKIY, T.B.; AL'TMAN, I.A.; KOVAL', V.A.

Effect of defects in lower arms of balances on the precision of weighing. Izv. tekhn. no.10:28-30 O '63. (MIRA 16:12)

GORLIN, G.Yo.; AL'TMAN, I.A.

Scientific technical conference on automation and weighing and
proportioning processes. Izv.tekh. no.11:54-55 N '63.

(MIRA 16:12)

SHUTSKAYA, Ye.I., kand. med. nauk; Primalni uchastiye: RAENOVICH,
S.Ye., prof.; SLEPTSOVA, A.I., vrach; LIVEN, K.I., vrach;
SOKOLOVA, R.I., vrach; FEREL'MAN, R.M., vrach; AL'TMAN, I.M.,
vrach; SHEPILOV, N.S., kand. veterin. nauk; SVIRIDOV, A.A.

Epidemiological importance of tuberculosis in cattle.
Veterinariia 40 no.10:19-20 0'63. (MIRA 17:5)

1. Novosibirskiy nauchno-issledovatel'skiy institut tuberkuleza
(all except Shepilov, Sviridov).

ARIMAN, I.P.

Economic regionalization of the U.S.A. and new methods for
studying economic geography. Vest. IS' 80 no. 12195-103 '65.
(MIRA 18:8)

KHANDOV, Zosima Aleksandrovich; YERMAKOV, Vasiliy Fedorovich;
BOTKIN, P.P., kand. tekhn. nauk, retsenzent; AL'TMAN,
I.R., inzh., retsenzent; ZAKHARENKO, B.A., nauchn. red.;
VASIL'YEVA, N.N., red.; KRYAKOVA, D.M., tekhn. red.

[Marine diesel engine operations with a two-stage fuel feed]
Rabota sudovogo dizelia s dvukhfaznoi podachei topliva. Le-
ningrad, Sudpromgiz, 1963. 82 p. (MIRA 16:12)
(Marine diesel engines)

ALTMAN, K.

NEMESSURI, M.; ALTMAN, K.

Significance of myotatic reflexes in athletic motions. Acta physiol. hung. 11(Suppl):79-80 1957.

1. Lehrstuhl für bewegungslehre und heilgymnastik der hochschule für leibesübungen, Budapest.

(PHYSICAL EDUCATION AND TRAINING

myotatic reflexes in phys. exercises, study by motion picture (Ger))

(MUSCLES, physiol.

same)

GERBNER, Matyas; KOVACS, Maria B.; ALTMAN, Kurt

Effects of adaptation to environment and environmental changes on the water diuresis of non-anesthetized dogs. Kiserletes Orvostudomány 11 no.1:5-11 Feb 59.

1. Országos Testnevelés- és Sportegészségügyi Intézet, Budapest.
(DIURESIS, physiol.

eff. of adaptation to environmental changes in dogs
(Hun))

(ENVIRONMENT

eff. of adaptation to environment & environmental
changes on diuresis in dogs (Hun))

GERBNER, Matyas; ALTMAN, Kurt

Mechanism of the conditioned diuretic reflex. Kiserletes Orvostudo-
many 11 no.1:19-26 Feb 59.

1. Orszagos Testnevelés- es Sportegészségügy Intezet, Budapest.
(DIURESIS, physiol.
conditioned diuretic reflex mechanism (Hun))
(REFLEX, CONDITIONED
diuretic reflex mechanism (Hun))

GERBNER, Matyas; ALTMAN, Kurt; NESZAROS, Istvan

Mechanism of increased diuresis induced by hypnotic suggestion.
Kiserletes Orvostudomány 11 no.1:27-34 Feb 59.

1. Országos Testnevelés- és Sportegészségügyi Intézet, Budapest.
(HYPNOSIS
induction of increased diuresis by hypnosis in human
volunteers, mechanism (Hun))
(DIURESIS, physiol.
same)

AL'TMAN, K.Z., inzhener.

~~_____~~
Dyeing black felt footwear. Leg.prom.17 no.3:42 Mr '57. (MLRA 10:4)
(Dyes and dyeing--Wool) (Felt) (Shoe industry)