5(4)

AUTHOR: Sakharov, G. D. SOV/20-126-4-36/62

TITLE: Method of Measuring Stationary Surface Concentrations of the Components of a Catalytic Reaction (Metod izmereniya statsionarnykh poverkhnostnykh kontsentratsiy komponentov kataliticheskoy reaktsii)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 4, pp 821-822 (USSR)

ABSTRACT:

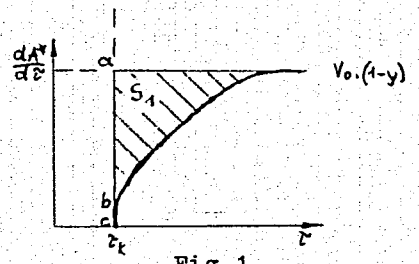

Fig 1

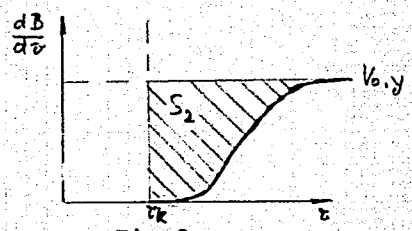

Fig 2

By the method described the number of reactants may be determined, which are adsorbed on the catalyst under stationary conditions. The method is based on the measurement of time which passes until the respective substance appears in the

Card 1/4

outlet of the reactor. The author investigated catalytic reactions of the type $A \longrightarrow B + C$. Under stationary conditions (temperature and molar rate of flow V_0(mol/sec) constant) the addition of A was interrupted at a certain moment of time (which was later taken as the starting point) and at the very same moment V_0 the marked initial substance A^* was added at the very same velocity. Under these conditions the reaction $A^* \longrightarrow B^* + C$ must take place in all stages at the same velocity as the reaction $A \longrightarrow B + C$. Figure 1 shows the measurement results in a diagram (τ ... time, $dA^*/d\tau$...quantity of A^* which discharges from the reactor within unit of time). Under stationary reaction conditions and neglect of isotopic effect the sum $A + A^*$, which discharges from the reactor within unit of time, must be equal to $V_0 \cdot (1-y)$ (y denoting the share in the initial substance passing over into the end products). The quantity $dA^*/d\tau$ only reaches after some time this constant value. In the beginning of the addition of A^* the substance A desorbs from the surface of the catalyst and $dA^*/d\tau$ is correspondingly smaller than

$V_o \cdot (1-y)$. The shaded area S_1 is numerically equal to the quantity of A, which after the time τ_k (contact time) desorbs in unaltered form. This quantity is not equal to the stationary quantity of A in the starting point adsorbed on the catalyst since part of A on the catalyst is transformed from B to C. The velocity of this reaction is $V_o \cdot y$ and the velocity of desorption of unchanged A is given by section (ab) in figure 1. Thus the following equation is derived for the quantity M_A of the substance A which is adsorbed under stationary conditions: $M_A = \frac{(ab) + V_o y}{(ab)} \cdot S_1 = \frac{V_o - (bc)}{(ab)} \cdot S_1$. In the same manner also the quantity M_B of the reaction product B on the surface may be determined. The results of these measurements are given in figure 2. The following equation is found for M_B:

Method of Measuring Stationary Surface Concentrations of the Components of a Catalytic Reaction SOV/20-126-4-36/62

$M_B = S_2 - (M_A - S_1) = S_2 - \frac{V_0 y}{(ab)} S_1$. In the case of the determination method suggested here the isotopic effect is neglected. With view to investigating how far this is permissible, two measurements must be carried out: First, with displacement of the unmarked substance by the marked substance, and secondly vice versa. If the two measurement results coincide, the isotopic effect may be neglected. There are 2 figures.

PRESENTED: February 16, 1959, by A. D. Sakharov, Academician

SUBMITTED: February 16, 1959

Card 4/4

GLADYSH, Vladimir Vikent'yevich, inzh.; GLIK, Arnol'd Konstantinovich, inzh.; SAKHAROV, Grigoriy Grigor'yevich, inzh.; TKHORZHEVSKIY, Dmitriy Aleksandrovich, inzh.; MAKOVSKIY, G.M., inzh., red.; OSIPOVA, L.A., red. izd-va; CHERNOVA, Z.I., tekhn. red.

[Technology of the production of rolling mill equipment] Tekhnologiia proizvodstva prokatnogo oborudovaniia. By V.V.Gladysh i dr. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1960. 288 p. (MIRA 14:9)

(Rolling mills) (Machinery industry)

SAKHAROV, G. I.

PHASE X TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 762 - X

BOOK Call No.: AF684925

Authors: LEBEDEV, A. A., STRAZHEVA, I. V. AND SAKHAROV, G. I.

Full Title: Aeromechanics of Aircraft

Transliterated Title: Aeromekhanika samoleta (Aircraft Fluid Mechanics)

PUBLISHING DATA

Originating Agency:

Publishing House: Gosudarstvenove izdatel'stvo oboronnoy promyshlennosti. Moscow.

Date: 1955 No. pp.: 472 No. of copies:

Editorial Staff: None

Others: Gratitude for cooperation is expressed to: Profs; Ostoslavskiy, I. V., Burago, G. F., Martynov, A. K. and Zhuravchenko, A. N.

PURPOSE AND EVALUATION: This is a textbook for courses in aviation institutions of higher learning in which aeromechanics is taught in abbreviated form. The interest of the book consists in the quantity of material it presents in a comparatively small volume. It shows also how aerodynamics and aircraft mechanics is taught in the USSR and what is the general approach to problems of the design and calculation of aircraft. The works of Zhukovskiy and other Russian scientists are often mentioned as a basis for future developments. However, the basic approach to theoretical-------

NOTE: See report for LEBEDEV, A. A. for pages 2-7 of the report.

PRITSKER, David Mikhaylovich, inzh.; TUR'YAN, Viktor Aleksandrovich, inzh.; STOROZHEVA, V.N., inzh., retsenzent; SAKHAROV, G.I., dotsent, kand.tekhn.nauk, retsenzent; KRASIL'NIKOV, S.D., inzh., red.; SHEYNFAYN, L.I., izdat.red.; GARNUKHINA, L.A., tekhn.red.

[Aeromechanics] Aeromekhanika. Moskva, Gos.nauchno-tekhn.izd-vo Oborongiz, 1960. 279 p. (MIRA 13:10)
(Aeronautics)

PHASE I BOOK EXPLOITATION SOV/5897

Sakharov, G. I., V. V. Andreyeviskiy, and V. Z. Bukreyev

Nagrev tel pri dvizhenii s bol'shimi sverkhzvukovymi skorostyami (Heating of Bodies at High Supersonic Speeds) Moscow, Oborongiz, 1961. 105 p. Errata slip inserted. 4800 copies printed.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR.

Ed.: K. Ya. Zaytseva, Engineer; Ed. of Publishing House: N. G. Kopylova; Tech. Ed.: A. Ya Novik; Managing Ed.: A. S. Zaymovskaya, Engineer.

PURPOSE: This book is intended for senior aeronautical students and may also be used by aeronautical design engineers.

COVERAGE: The authors have attempted to assemble the scattered material on the aerodynamic heating of aircraft surfaces and

Card 1/6

to present it in an intelligible form. A method is presented for calculating heat flows from the atmosphere to aircraft surfaces and from these surfaces back to the atmosphere. This method makes it possible to calculate the surface temperature for steady motion and to calculate the temperature of a high-specific-heat skin, on the basis of its thermal characteristics, for unsteady motion (takeoff, descent, acceleration). Certain problems connected with the effect of high temperatures on aircraft structures are discussed, and a brief review is given of the most important methods of surface protection against aerodynamic heating. A large number of graphs and tables are presented to aid in reducing mechanical calculations to a minimum. The proposed method for calculating thermal flows is applicable for altitudes up to 80 - 100 km and for speeds corresponding to Mach numbers from 2 to 15-20, with corrections for dissociation in the continuous-flow region. Calculations made by methods discussed in this book are in good agreement with calculations made by more exact methods such as the Van Driest method for the flat plate as well as for more complex

cases. The initial data for the sample numerical computations and the graphs are arbitrary. The author thanks N. A. Kheyfets, Doctor of Technical Sciences, S. A. Povitskiy, Candidate of Technical Sciences, V. S. Avduyevskiy, Docent, Candidate of Technical Sciences, and I. I. Drakin, Candidate of Technical Sciences. There are 35 references: 30 Soviet and 5 English.

TABLE OF CONTENTS:

Heating of Bodies at (Cont.) SOV/5897

105

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SUBJECT: Aerospace

IS/wrc/jw
3/5/62

Card 6/6

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Standardization of basic parameters for foundry buildings. Lit. proizv. no.5:22-23 My '56. (MLRA 9:8)
(Foundries) (Industrial buildings)

SAKHAROV, G.M.; FRIDMAN, A.L.

Institute helps industry. Mashinostroitel' no.10:35-36 '60.
(MIRA 13:10)

(Industrial safety)

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"A Devise for Profiling Stones During Profile of Slotting Hobs", Stanki i Instrument, 10, No. 7, 1939, Moscow Tool Plant, Engineer.

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Sakharov, G. N.

Cand. of Technical Sciences.

"Tools for Producing Munitions", Stanki I Instrument, 14, No. 4-5, 1943.

BR-52059019

Sakharov, G. N, Docent

Moscow Tool Plant 1944
Candidate of Technical Sciences

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BR 52059019

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Machine-Shop Practice

Measuring of evolute profiles without special devices., Stan i instr., 23, no. 1, 1952.

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SAKHAROV, G.N.

Use of mineral-ceramic cutting-tools. Stan. i instr. 26 no.5: 16-17 My '55. (MLRA 8:8)
(Metal-cutting tools)

SAKHAROV, G.N

25(7) PHASE I BOOK EXPLOITATION SOV/1257

Moscow. Stankoinstrumental'nyy institut. Kafedra "Instrumental'noye proizvodstvo."

Novoye v konstruirovanii metallorezhushchikh instrumentov (Recent Developments in the Design of Metal-cutting Tools) Moscow, Mashgiz, 1958. 229 p. 5,000 copies printed.

Ed.: Semenchenko, I.I., Professor; Ed. of Publishing House: Balandin, A.F.; Tech. Ed.: Gerasimova, Ye.S. and Uvarova, A.F.; Managing Ed. for Literature on Metal Working and Tool Making (Mashgiz): Beyzel'man, R.D., Engineer.

PURPOSE: The book is intended for engineers and technicians of the machine-building industry.

COVERAGE: In this collection of articles results are presented of investigations carried out at the chair of "Tool Making" of the Moscow Machine Tool and Tool Making Institute imeni I.V. Stalin. The articles discuss new features in designing highly productive metal-cutting tools: generating cutters, cutter gear generating heads, hobs and gear shaper cutters for cutting gears for subse-

Card 1/3

Recent Developments (Cont.)

quent shaving, of flat broaches for broaching bodies of rotation, and circular broach cutters for cutting straight level gears with circular tooth profile. Problems of definition and the classification of metal-cutting tools are also investigated. The role of Russian toolmakers claimed to be the first in the world to manufacture rifles with interchangeable parts is related. No personalities are mentioned. There are 24 references, all Soviet.

TABLE OF CONTENTS:

AVAILABLE: Library of Congress GO/sfm
Card 3/3 3-26-59

69356
SOV/123-59-19-78538

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1959, Nr 19, p 99 (USSR)

18.5200

AUTHOR: Sakharov, G.N.

TITLE: Designing Circular Generating Cutters

PERIODICAL: V sb.: Novoye v konstruir. metallorezh. instrumentov. Moscow, Mashgiz, 1958, pp 7 - 58

ABSTRACT: The author notes the advantages of tooling machine parts by the generating method with the aid of circular cutters (C): high operating efficiency (exceeding by several times that of thread milling and the machining by disk cutters), semi-automatic operation, and high precision work. Some fundamental problems of designing generating C are analyzed in detail. The existing profile forms of machine parts are investigated and the expediency of breaking down complex profiles into simple elements is emphasized. The author describes analytical and graphical methods of determining the shape of the cutting edge of generating C. It is pointed out that the graphic-analytical method of designing the C profile proved the best, since it ensures a high precision in determining the profile and warrants the visuality of machining, while graphical methods are recommended for carrying out pre-

Card 1/2

Designing Circular Generating Cutters

69356
SOV/123-59-19-78538

liminary analyses. The necessity is emphasized to reduce the number of dimensions of initial circumference diameters of generating C in order to facilitate their manufacturing technology and their control. The author gives calculations for the selection of the basic overall dimensions of C (diamters of initial circumference, number of teeth, etc.). Based on these calculations, tables of the tooth number of generating C and of their application for machining parts with different magnitudes of pitch, have been worked out. 23 figures, 8 tables.

O.A.B.

Card 2/2

VESELOVSKIY, Sergey Ivanovich; SAKHAROV, G.N., kand.tekhn.nauk, retsenzent; ROZENBLIT, Ya.M., inzh., retsenzent; SHELKOV, N.I., inzh., red.; KUZNETSOVA, A.G., izdat.red.; ORESHKINA, V.I., tekhn.red.

[Manufacturing various types of gear-cutting tools] Proizvodstvo otdel'nykh vidov zuboreznogo instrumenta. Moskva, Gos.izd-vo obor.promyshl., 1959. 158 p. (MIRA 12:10)
(Gear-cutting machines)

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[Metalworking handbook; in five volumes] Spravochnik metallista v piati tomakh. Chleny red.soveta: V.S.Vladislavlev i dr. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry. Vol.5. 1960. 1184 p. (MIRA 13:5)

(Metalwork)

SEMENCHENKO, Ivan Ivanovich, doktor tekhn. nauk, prof., zasl. deyatel' nauki i tekhniki; MATYUSHIN, Valentin Mikhaylovich, doktor tekhn. nauk, prof.; SAKHAROV, Georgiy Nikolayevich, kand. tekhn. nauk, dots.; SHEVCHENKO, N.A., doktor tekhn. nauk, prof., rets.; IVANOVA, N.A., red. izd-va; EL'KIND, V.D., tekhn. red.

[Design and construction of metal-cutting tools] Proektirovanie metallorezhushchikh instrumentov. Pod red. I.I.Semenchenko. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1962. 952 p. (MIRA 15:2)

(Metal-cutting tools)

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(MIRA 17:10)

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"Lubrication in Hot Drop Forging." Cand Tech Sci, Moscow Aviation Technological Inst, 4 Nov 54. (VM, 13 Oct 54)

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SO: Sum. No. 481, 5 May 55

SAKHAROV, G.S., kandidat tekhnicheskikh nauk.

Investigation of lubricants used in hot closed-die forging. Trudy MATI no.28:46-53 '55. (MLRA 9:7)
(Forging) (Lubrication and lubricants)

SAKHAROV, G.S., kandidat tekhnicheskikh nauk; GLUSHCHENKO, K.I.

Smokeless lubricant for die stamps in making forgings. Avt. i trakt.prom. no.3:38-41 Mr '56. (MLRA 9:7)

1.Moskovskiy Aviatsionnyy tekhnologicheskiy institut i NIIT Avtoprom.
(Sheet-metal work)

25408 S/122/60/000/012/011/018
A161/A130

11710

AUTHORS: Sakharov, G. S., Candidate of Technical Sciences, and Yevlanov, N. G., Engineer

TITLE: An investigation of titanium alloy blanks heating

PERIODICAL: Vestnik mashinostroyeniya, no. 12, 1960, 41 - 43

TEXT: Results of an experimental investigation conducted to find ways of heating titanium alloy blade blanks and die forging without the formation of changed surface layer are given. Blanks were heated in a muffle of ЭИ417 (EI417) steel filled with argon blown in after placing the blanks. Argon feed was measured with a rotameter. The material of blanks was BT3-1 (VT3-1) titanium alloy. The muffle was heated electrically together with blanks. For comparison specimens were also heated in air. The plastic properties of metal after heating in argon were higher than after heating in air, but lower than before heating. Higher temperature and longer heating caused a further drop of plasticity, e.g., the properties after heating in argon to 1,050°C and soaking for 30 min were: relative elongation 4%; reduction in area 5.9%, and impact strength 4.2 kg-m/cm^2, comparing to initial respective 16%, 43.3% and 6.4 kg-m/cm^2. Heating in air to same

Card 1/2

25408 S/122/60/000/012/011/018
A161/A130

An investigation of titanium alloy blanks heating

temperature and for same time caused full loss of plasticity. A slight change of surface was stated after heating to 1,050° and holding for 30 min in argon, but none after heating to less high temperature, and the hardness of metal rose considerably less in argon than in air. Heating to 950°C with subsequent cooling in air or in argon had no effect on the microstructure of surface, but on specimens heated to 1,050° and soaked for 30 min a 0.065 and 0.030 mm deep changed layer was present. It may be that the cause was insufficiently tight sealing of the muffle or the presence of impurities in argon. The surface of blades heated in argon was clean and smooth, of those heated in air it had fine cracks. Hard changed layer (up to 700 HB) caused rapid crumbling of milling cutters. The changed layer contained nitrogen, oxygen and hydrogen absorbed from air. The conclusion is that heating in argon gives clean surface and requires lower machining allowances. There are 4 tables and 2 figures.

Card 2/2

SAKHAROV, G.S., kand. tekhn. nauk; YEVLANOV, N.G., inzh.

Liquid metal forging of thin-walled parts. Trudy MATI no.57: 40-57 '63. (MIRA 16:12)

ACCESSION NR: AP4042508 S/0182/64/000/007/0016/0018

AUTHOR: Sakharov, G. S., I. P. Tsipulin, S. M. Polyak, and S. V. Veretennikov

TITLE: Some problems in SAP sheet forming

SOURCE: Kuznechno-shtampovochnoye proizvodstvo, no. 7, 1964, 16-18

TOPIC TAGS: SAP, SAP sheet, SAP sheet forming, SAP sheet explosive forming, explosive forming

ABSTRACT: Aluminum clad SAP sheets with thicknesses up to 3 mm have more or less satisfactory formability at room temperature (unclad SAP sheets cannot be formed below 300C). Two methods of applying the aluminum cladding have been developed [conditions not specified], with one of them producing much better formability than the other. In deep drawing tests performed with aluminum clad SAP sheets 1 and 2 mm thick, reductions as high as 80 and 41%, respectively, were obtained. Corresponding figures for flanging tests were 14 and 14%.

Card 1/2

ACCESSION NR: AP4042508

The minimum bending radius for sheets 1--3 mm thick varies from 4 to 3 sheet thicknesses for both longitudinal and transverse specimens. Dish-shaped end closures 345 mm in diameter and 75 mm deep were formed from a blank 440 mm in diameter and 2 mm thick by explosive forming, hydrostatic pressure, or by conventional die forming. No difficulties were encountered in explosive forming. Satisfactory results were also obtained in forming with hydrostatic pressure applied in steps with complete pressure release after each step. Conventional die forming produced unsatisfactory results. Orig. art. has: 3 figures and 3 tables.

ASSOCIATION: none

SUBMITTED: 00	ATD PRESS: 3085	ENCL: 00
SUB CODE: MM, IE	NO REF SOV: 001	OTHER: 000

Card 2/2

L 24483-65 EWG(j)/EWP(e)/EWT(m)/EPF(c)/EWA(d)/EPR/EWP(t)/EWP(k)/EWP(z)/
EWP(b) Pf-4/Pr-4/Ps-4 IJP(c) MJW/JD/WW/WH

ACCESSION NR: AP4045809 S/0182/64/000/009/0007/0009

AUTHOR: Kolpashnikov, A. I.; Paisov, A. I.; Sakharov, G. S.; Shiryayev, Ya. V.

TITLE: Pressing of parts from SAP-2 and SAP-3 aluminum powders in a closed die

SOURCE: Kuznechno-shtampovochnoye proizvodstvo, no. 9, 1964, 7-9

TOPIC TAGS: sintered aluminum powder, SAP2, SAP3, SAP2 closed die pressing, SAP3 closed die pressing, optimum pressing temperature

ABSTRACT: The effect of temperature, specific pressure, and lubricants on the formability and the structure of extruded SAP-2 and SAP-3 impeller blades has been investigated. Billets were compacted from APS-2 and APS-3 aluminum powders, containing 11 and 17% Al_2O_3, respectively. In the extruding blades from SAP billets, the pressure was varied from 20 to 60kg/mm^2 and the temperature of the dies, from 500 to 650C; the die cavity was lubricated with graphite lubricant. It was found that in extruding blades from SAP-2 and SAP-3, the billets had to be degassed in a vacuum at temperatures higher than the tempera-

Card 1/2

L 24483-65

ACCESSION NR: AP4045809

ture of extrusion. The optimum extrusion temperature for both SAP-2 and SAP-3 is 620C. Extrusion at higher temperatures facilitates formation of the blade shape but impairs the material structure because of local melting of the aluminum matrix. The nature of the lubricant has a substantial effect on the homogeneity of the structure. Under experimental conditions, a lubricant consisting of graphite powder and "vapor T" oil was the best. Orig. art. has: 6 figures.

ASSOCIATION: none

SUBMITTED: 00 ATD PRESS: 3121 ENCL: 00

SUB CODE: MM NO REF SOV: 002 OTHER: 000

Card 2/2

L 15643-66 EWT(l)/EWP(e)/EWT(m)/EWP(t)/EWP(k)/EWP(z)/EWP(b) IJP(c) JD/HW

ACC NR: AT5027914 SOURCE CODE: UR/2536/65/000/062/0005/0013

AUTHOR: Sakharov, G. S. (Candidate of technical sciences); Kolpashnikov, A. I. (Doctor of technical sciences, Professor); Paisov, A. I. (Candidate of technical sciences); Shiryayev, Ye. V. (Engineer)

ORG: Moscow Aviation Technology Institute (Moskovskiy aviatsionnyy tekhnologicheskiy institut)

TITLE: Forging and hot stamping of sintered aluminum powder

SOURCE: Moscow. Aviatsionnyy tekhnologicheskiy institut. Trudy, no. 62, 1965. Obrabotka davleniyem legkikh splavov (Pressure working of light alloys) 5-13

TOPIC TAGS: metal stamping, sintered aluminum powder, hot die forging, closed die forging, material deformation, metal stress

ABSTRACT: Currently some organizations can accomplish with a fair degree of success the hot stamping of non-intricately shaped SAP (sintered aluminum powder) blanks (containing 6-11% Al_2O_3). This stamping, however, involves a number of difficulties owing to the low plasticity margin of the material. In this connection, the authors present the findings of an experimental study of the deformability of SAP by hot stamping. The SAP specimens used for forging and hot stamping differed in their Al_2O_3 content and as-delivered state: sintered briquets, pressed bars, clad rolled stock, etc., in order to determine the stampability of SAP as a function of the state of the specimen.

Card 1/2 UDC: 669.716:621.97.07

L 15643-66

ACC NR: AT5027914

The following experiments were performed: free drop forging, hot stamping in open dies, hot stamping in closed dies, high-temperature stamping. The free drop forging of specimens (pneumatic drop hammer with falling weight of 75 kg, hammer block heated to 130-150°C, SAP specimens, 20x20x60 mm, heated to 470-500°C) resulted in their early failure, apparently due to the unfavorable stressed state accompanying this forging technique. Hot stamping in open and closed dies also resulted in early cracking and failure owing to the low plasticity of SAP. However, the experimental hot stamping of Al-clad specimens in open dies produced much more encouraging results, since the cladding of SAP contributes to the healing of all sorts of surface microdefects which represent stress concentrators. Hot stamping in closed dies requires the prior vacuum degassing of SAP (particularly of SAP-2 and SAP-3, with their lower plasticity compared with SAP-1: the optimal hot-stamping temperature for SAP-2 and SAP-3 should be at least 600°C). High-temperature stamping (at 750°C) in a 200-ton vertical hydraulic press can be used to obtain intricately shaped forgings but it has the disadvantage of resulting in some nonuniformity of the distribution of oxide in individual sectors of the forging and hence the forgings thus produced can be used only for minor purposes. Orig. art. has: 10 figures, 1 table.

SUB CODE: 11, 13/ SUBM DATE: none/ ORIG REF: 000/ OTH REF: 000

Card 2/2

L 15642-66 EWT(l)/EWP(e)/EWT(m)/EWP(t)/EWP(k)/EWP(z)/EWP(b) IJP(c) JD/HW

ACC NR: AT5027915 SOURCE CODE: UR/2536/65/000/062/0014/0021

55
52
51

AUTHOR: Tsipulin, I. P. (Engineer); Sakharov, G. S. (Candidate of technical sciences)

ORG: Moscow Aviation Technology Institute (Moskovskiy aviatsionnyy tekhnologicheskiy institut)

TITLE: Stampability of clad sheets of sintered aluminum powder

SOURCE: Moscow. Aviatsionnyy tekhnologicheskiy institut. Trudy, no. 62, 1965. Obrabotka davleniyem legkikh splavov (Pressure working of light alloys), 14-21

TOPIC TAGS: metal stamping, sintered aluminum powder, metal cladding, explosive forming

ABSTRACT: Sintered aluminum powder (SAP) can be properly forged or stamped only at elevated temperatures (usually 420-475°C); this is a complicated operation requiring, among other things, the use of a high-temperature lubricant. This is why cladding of SAP prior to its hot forging is employed: the cladding layer not only fulfills the role of a lubricants, assuring the flowage of the surface layer, but also markedly improves the stress-strain pattern of the material. In this connection, the stampability of 1-, 2- and 3-mm thick clad SAP sheets at room temperature (20°C) was investigated by means of cupping, flanging and bending tests on using a special testing device, the so-called "Posh" (initials of a device for evaluating stampability), with a set of demountable punches and dies with various radii of curvature R = (4-16)S,

Card 1/2 UDC: 669.716:621.97.07

L 15642-66

ACC NR: AT5027915

3

where S is the thickness of initial material. The punch diameter was 50 mm, while the diameter of the die cavity was selected in accordance with thickness of the sheet so that the gap Z between the punch and the die wall would be within the limits of (1.1-1.2)S. These tests showed that the stampability of clad SAP sheets decreases with increasing thickness: sheets 3 cm thick are no longer satisfactorily stampable at 20°C. It is further established that cup-type elements with a h/D ratio of 0.22 may be fabricated from clad SAP sheets by explosive forming as well as by hydrostatic cupping. The stress relief accomplished during static deformation favorably affects the capacity of SAP for plastic deformation. Explosive forming is particularly effective in these cases, since it is so much faster. Thus, the cladding of semifinished sheets of SAP makes possible the cold forging of this material. Orig. art. has: 7 figures, 3 tables.

SUB CODE: 11, 13/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 000

Card 2/2

L 11266-66 EWT(l)/EWT(m)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b)/EWA(c) IJP(c)

ACC NR: AT5027918 SOURCE CODE: UR/2536/65/000/062/0038/0047

AUTHOR: Sakharov, G. S. (Candidate of technical sciences); Manuylov, V. F. (Engineer); Galkin, A. M. (Engineer)

ORG: Institute of Aviation Technology (Aviatsionnyy tekhnologicheskiy institut)

TITLE: Investigation of the bonding of SAP

SOURCE: Moscow. Aviatsionnyy tekhnologicheskiy institut. Trudy, no. 62, 1965. Obrabotka davleniyem legkikh splavov (Pressue working of light alloys), 38-47

TOPIC TAGS: aluminum, SAP, SAP bonding, aluminum bonding, pressure bonding, bond strength

ABSTRACT: Experiments have been made to determine the feasibility and optimum conditions for bonding aluminum to SAP and SAP to SAP. SAP and aluminum bars 13 mm in diameter and 45 mm long, preheated to 150—600C, were set against each other in a die (see Fig. 1) and upset with a reduction of 40—90% either with a hammer or in a 20-ton hydraulic press. In the case of SAP-to-aluminum bars, a clearly defined boundary was observed. The failure almost always occurred on aluminum, so the strength of the bond could not be determined. In SAP-to-SAP bonds no boundary was observed. The strongest bonds were produced by hammer upsetting with a reduction of 67.5—82.5% at 400-550C and by press upsetting with a reduction of 75—82.5% at 400—600C. The maximum tensile strength of the bonds was 27.1 and 29.35 kg/mm^2, respectively. The majority of specimens failed in the bond, with an extenstion of

UDC: 669.716:539.37803

Card 1/3

L 11266-66

ACC NR: AT5027918

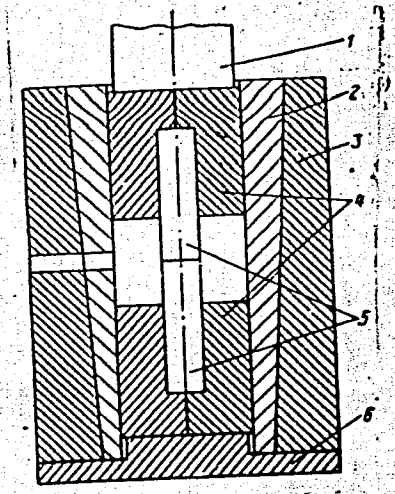

Fig. 1. Device for upsetting of specimens

1 - Punch; 2 - detachable liner; 3 - container; 4 - detachable dies; 5 - specimens to be upset; 6 - base plate.

fracture into the bare metal. With increasing reduction in upsetting, lower temperatures are recommended. The central zone of the specimens has the highest strength. Farther from the center, the bond strength is noticeably lower. Orig. art. has 11 figures and 3 tables. [MS]

Card 2/3

L 11266-66

ACC NR: AT5027918

SUB CODE: 11, 13/ SUBM DATE: none/ ATD PRESS: 4476

Joining of dissimilar metals

Card 3/3

L 10650-66 EWT(d)/EWT(l)/EWT(m)/EWP(e)/EWP(w)/EWP(v)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c
IJP(c) JD/HM/HW/EM

ACC NR: AT5027919 SOURCE CODE: UR/2536/65/000/062/0048/0056

AUTHOR: Sakharov, G. S. (Candidate of technical sciences); Kolpashnikov, A. I. (Doctor of technical sciences; Professor); Manuylov, V. F. (Engineer)

ORG: Moscow aviation technological institute (Aviatsionnyy tekhnologicheskiy institut)

TITLE: Bonding of the elements of structures

SOURCE: Moscow. Aviatsionnyy tekhnologicheskiy institut. Trudy, no. 62, 1965. Obrabotka davleniyem legkikh splavov (Pressure working of light alloys), 48-56

TOPIC TAGS: aluminum alloy, SAP alloy, alloy joining, alloy bonding, pressure bonding, bond strength /SAP1 alloy, D16 alloy

ABSTRACT: Experiments have been made to determine the strength of permanent joints between various aluminum alloy and SAP-1 shapes. The joints were made by bonding together two cylindrical or square bars, two tubes, or a cylindrical bar and a tube. The bonding was accomplished by hot plastic deformation (upsetting) of the parts with a hammer or in a hydraulic press. Metallographic examination revealed that in most cases, a perfect bond without a distinct boundary between the surfaces of the joined elements was obtained. The joints were sound, airtight, and had a tensile strength equal to or exceeding the strength of the parts joined. The strength of the joints depended on the method of preparation of the surfaces being joined, the technological parameters, the materials being joined and, to a

Card 1/2 UDC: 669.715:539.378.3

L 10650-66

ACC NR: AT5027919

3

smaller extent, on the deformation speed. Additional strengthening of the joints can be achieved by prolonged diffusion annealing. Orig. art. has: 13 figures and 1 table. [MS]

18 18

SUB CODE: 11, 13/ SUBM DATE: none/ ATD PRESS: 4169

Powder Metallurgy

18

HW

Card 2/2

L 15639-66 EWT(d)/EWT(l)/EWP(w)/EWT(m)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(h)/EWP(z)/EWP(b)/EWP(1) LJP(c) MJW/JD/DJ

ACC NR: AT5027922 SOURCE CODE: UR/2536/65/000/062/0101/0115

AUTHOR: Yevlanov, N. G. (Candidate of technical sciences); Sakharov, G. S. (Candidate of technical sciences)

ORG: Moscow Aviation Technology Institute (Moskovskiy aviatsionnyy tekhnologicheskiy institut)

TITLE: Study of the flowage of metal during the fabrication of thin Ti-alloy forgings

SOURCE: Moscow. Aviatsionnyy tekhnologicheskiy institut. Trudy, no. 62, 1965. Obrabotka davleniyem legkikh splavov (Pressure working of light alloys), 101-115

TOPIC TAGS: flow analysis, hot upsetting, titanium alloy, lubricant, die, friction coefficient, material deformation

ABSTRACT: Hot upsetting of thin cylindrical specimens of VTZ-1* Ti alloy (diameter d_0 = 54 mm, height h_0 = 8 mm) was performed in the presence of various lubricants with the object of determining the optimal lubricant. 7 different lubricants were tested and the degree of deformation, convexity and unit stress were investigated as a function of composition of the lubricants. Findings: the minimum convexity (0.17 mm) combined with a high relative deformation (55.2%) is achieved when $BaCl_2$ or the aviation enamel AE8 is used as the lubricant: on upsetting of specimens in the absence of lubricants the unit pressure was 44.3 kg/mm^2 compared with 20.6 kg/mm^2 during

Card 1/4 * Probably VT3-1

UDC: 669.295:621.97.07

upsetting in the presence of $BaCl_2$. Specimens upset in the presence of lubricants display a more uniform and more recrystallized grain structure than control specimens. Moreover, lubricants prevent the interlocking of the surface of blank with the surface of die. It was also established that friction coefficient increases at deformation temperatures of up to 400-500°C but decreases above that range as well as with increasing strain rate. Since, however, not one of the known methods of determining the friction coefficient is sufficiently precise, the authors determined the friction coefficient of the VT2-1 Ti alloy by measuring the resultant of the friction force and the pressure exerted against the sliding surface by means of a specially designed device (Fig. 1) for determining external friction as a function of tangential and normal stresses under real conditions of hot deformation with and without lubricants: the specimens are heated in the furnace to 200, 300, 400, 500, 600, 700, 800 and 900°C under a unit pressure of 22.8 kg/mm^2; after this a section of strip is inserted into the furnace and the specimens are pressed against the strip thus producing a normal pressure; once this is accomplished, the strip begins to move between the specimens at a rate varying from 1 to 8 mm/sec. It is found that, for the range of temperatures and unit pressures investigated, the friction coefficient does not exceed 0.42 (maximum, at 400°C); as the temperature increases further, the friction coefficient begins to decrease and at 900°C it is 0.15; the use of lubricants markedly reduces the friction coefficient, and lubricants containing colloidal graphite are the most effective. Further, a special investigation of flowage during hot upsetting as a function of the d_0/h_0 ratio of specimens showed that the relative thickness of the inhi-

L 15638-66
ACC NR: AT5027922

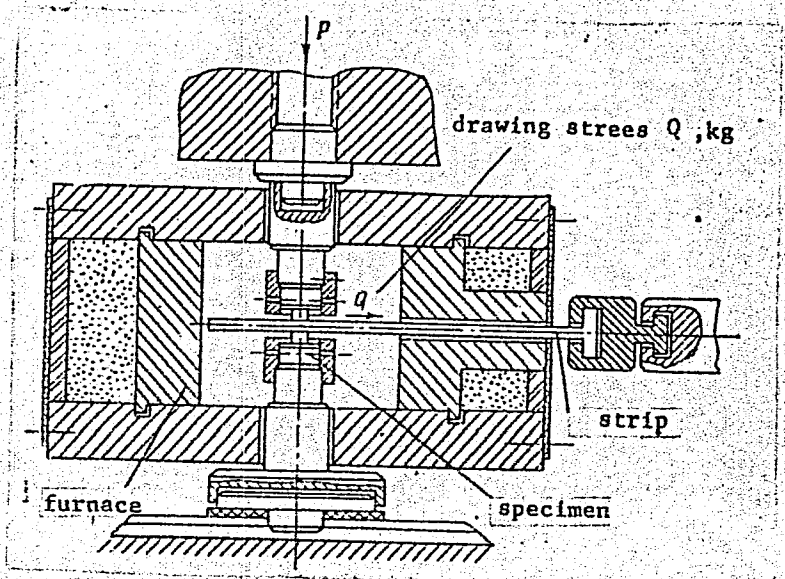

Fig. 1. Diagram of device for determining friction coefficient

Card 3/4

L 15638-66

ACC NR: AT5027922

bition zone (central zone within which there is no slip of particles in the peripheral direction) in thin forgings (d_0 = 54 mm, h_0 = 8 mm -- d_0/h_0 = 6.75) is much greater than in thick forgings (d_0 = 54 mm, h_0 = 54 mm -- d_0/h_0 = 1) so that the flowage of material is markedly impeded and confined to a relatively narrow zone. Moreover, microhardness increases with increasing d_0/h_0 (or d/h) ratio. Hence, the higher the d/h ratio is the more the alloy gets hardened and the more difficult the process of deformation becomes. Orig. art. has: 6 tables, 11 figures.

SUB CODE: 11, 13 / SUBM DATE: none/ ORIG REF: 002/ OTH REF: 000

Card 4/4

L 15037-66 EWT(l)/EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(z)/EWP(b) IJP(c) MJW/JD/HW

ACC NR: AT5027923 SOURCE CODE: UR/2536/65/000/062/0116/0134

AUTHOR: Sakharov, G. S. (Candidate of technical sciences); Yevlanov, N. G. (Candidate of technical sciences); Rusanov, F. F. (Candidate of technical sciences)

ORG: Moscow Aviation Technology Institute (Moskovskiy aviatsionnyy tekhnologicheskiy institut)

TITLE: Pressure-die forging of molten metal

SOURCE: Moscow. Aviatsionnyy tekhnologicheskiy institut, Trudy, no. 62, 1965. Obrabotka davleniyem legkikh splavov (Pressure working of light alloys), 116-134

TOPIC TAGS: hot die forging, molten metal forging, metal press, magnesium containing alloy, aluminum containing alloy, solid mechanical property, metal casting, metal surface

ABSTRACT: This is a continuation of a previous investigation (G. S. Sakharov, N. G. Yevlanov, Shtampovka tonkostennykh detaley iz zhidkogo metalla, Trudy MATI, no. 57, Oborongiz, 1963) with the difference that it deals with the dependence of the mechanical properties, structure, precision and quality of the surface of forgings on the technological parameters of the process. The material investigated was high-quality alloys AL9, AK6, D1, AL7, V95 and D16 melted in an electric furnace and poured into the die and the forging equipment consisted of a 200-ton hydraulic press and a 180-ton friction press. It is established that under specified conditions (e.g.

Card 1/2 UDC: 669.716:621.97.07

L 15637-66
ACC NR: AT5027923

8

heating of die to 180-200°C, pouring in metal at 700-710°C within 6-7 sec, 3-4 blows) the intricately shaped castings (housings, ribbed panels) obtained are of satisfactory quality. They have a cast structure with defects characteristic of castings: zonal segregation, shrinkage porosity and cracks, and these defects can be reduced to a minimum by applying an optimal thermomechanical regime, a factor that also determines the precision of the forgings. Further, formation of surface defects in the form of dark spots has been observed: these defects are presumed to be associated with the oxidation kinetics of molten alloys. The greatest proneness to form surface dark spots is displayed by the forgings of Mg-containing alloys: Mg is less noble an element than Al and has a high vapor pressure and diffusion rate; in the process of melting Mg tends to form various chemical compounds with N_2, Si and other elements, in the form of dark-colored thin oxide films. This assumption was verified by other experiments in which the surface of forgings of alloys containing no Mg (e.g. silumin, Al and AL7 alloys) displayed no defects of this kind. Blowing chlorine through the melt appears to be an effective measure to prevent the appearance of dark spots at the surface. It is further established that the appearance of surface defects (dark spots) is associated neither with the die design (closed or open die) nor with the character of deformation (static or dynamic) nor with the temperature and pressure regimes. Moreover, in pressure-die forging of molten metal, a hydraulic press is preferable to a friction press, since its technological stability is higher. Orig. art. has: 6 figures, 9 tables

SUB CODE: 07,11,13/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 000

Card 2/2

L 15635-66 EWT(l)/EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(z)/EWP(b) IJP(c) MJW/JD/HW

ACC NR: AT5027925 SOURCE CODE: UR/2536/65/000/062/0145/0156

AUTHOR: Yevlanov, N. G. (Candidate of technical sciences); Sakharov, G. S. (Candidate of technical sciences)

ORG: Moscow Aviation Technology Institute (Moskovskiy aviatsionnyy tekhnologicheskiy institut)

TITLE: Certain problems of the die forging of titanium alloy blanks

SOURCE: Moscow. Aviatsionnyy tekhnologicheskiy institut. Trudy, no. 62, 1965. Obrabotka davleniyem legkikh splavov (Pressure working of light alloys), 145-156

TOPIC TAGS: hot die forging, temperature dependence, titanium alloy, gas diffusion, metal oxidation, metal surface

ABSTRACT: Hot die forging of Ti alloys is greatly complicated by the proneness of Ti to interact with the gases of the air, which leads to scaling and the diffusion of gases into the metal and the consequent formation of solid solutions and major changes in the structure and mechanical properties of the material. In this connection the authors investigated process of the pre-forging heating of VT1, VTZ-1 and VT5 Ti alloys at 700, 800, 850, 900, 950, 1000, 1050 and 1100°C in a neutral atmosphere (chemically pure argon) within a hermetic muffle mounted in a special setup (Fig. 1). The pressure in the muffle was maintained at 20 mm H_2O. Findings: whereas heating in an air atmosphere at 800°C leads to the formation of a brittle α'-layer of Ti satur-

Card 1/3 UDC: 669.295:621.97.07

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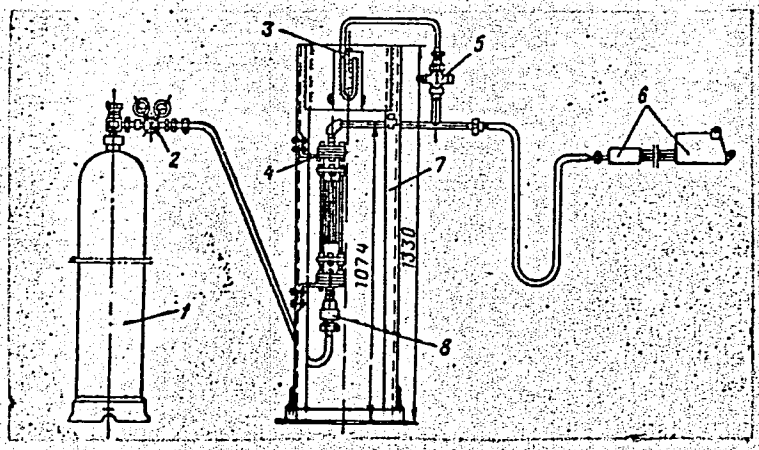

Fig. 1. Setup for heating of blanks in argon.

1 - cylinder with argon; 2 - reductor; 3 - differential manometer; 4 - rotameter; 5 - stopcock; 6 - support; 8 - needle valve

Card 2/3

ACC NR: AT5027925

ated with oxygen, nitrogen and hydrogen, heating in an argon atmosphere leads to the formation of this layer only at temperatures beginning with 1000°C. Further, this layer forms more intensively on alloys with an $\alpha + \beta$ structure, since the oxidation of these alloys occurs along grain boundaries. The hardness and brittleness of this layer are greater than for the base metal, and its presence leads to a decrease in plastic characteristics (elongation, reduction in area, impact strength) of the material and of the die-forged blanks.Heating in an argon atmosphere virtually eliminates the saturation of metal with gases. In the process of deformation and subsequent cooling in air, a thin oxidized layer up to 0.03-0.05 mm deep may form on the forgings but it does not significantly affect the mechanical properties of the material, since then the surface microhardness is at most $H_B = 450$, i.e. not more than 50 H_B above the microhardness of the base metal. Thus, heating in the protective argon atmosphere makes it possible to obtain blanks with a clean surface, to reduce the machining tolerances and labor requirement, to preserve a higher technological plasticity of the material, and to reduce the hardness of the surface layer and hence to enhance the durability of cutting tools during machining. Orig. art. has: 2 tables, 7 figures.

SUB CODE: 11, 13 / SUBM DATE: none/ ORIG REF: 000/ OTH REF: 000

Card 3/3

L 15631-66 EWT(l)/EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(z)/EWP(b) MJW/JD/HW

ACC NR: AT5027926 SOURCE CODE: UR/2536/65/000/062/0157/0159

AUTHOR: Sakharov, G. S. (Candidate of technical sciences); Manuylov, V. F. (Engineer); Balakin, V. P. (Engineer)

ORG: Moscow Aviation Technology Institute (Moskovskiy aviatsionnyy tekhnologicheskiy institut)

TITLE: Effect of the state of metal surface on interlocking during cladding

SOURCE: Moscow. Aviatsionnyy tekhnologicheskiy institut. Trudy, no. 62, 1965. Obrabotka davleniyem legkikh splavov (Pressure working of light alloys), 157-159

TOPIC TAGS: metal cladding, metal bonding, bimetal, metal surfacing

ABSTRACT: The article deals with the effect of the area of actual contact on the strength of cohesion between base metal (D1 alloy) and cladding metal (A1) during rolling of specimens with surfaces polished in a planing machine as well as by means of a metal brush, a file or a rough grinder. The actual surface of contact was estimated by the contact-spot method (V. I. Vill'. Svarka metallov treniyem, Mashgiz, 1959): to determine the overall surface area of friction and the pattern of distribution of contact spots on the contacting surfaces, the specimens are placed on a tracing slab coated with a thin layer of dye. During circular movements of the specimen, performed under a slight pressure, the surface subject to interlocking acquires imprints of dye indicating the number of contact spots and the pattern of their distribution. Findings:

Card 1/5 UDC: 669.716:621.97.07

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ACC NR: AT5027926

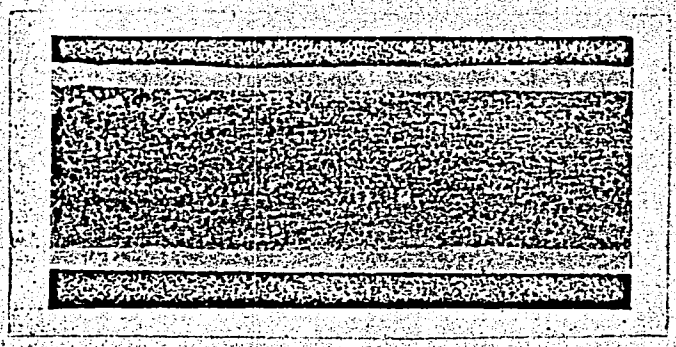

Fig. 1. Macrosection of clad specimen

Card 2/5

L 15634-66
ACC NR: AT5027926

Fig. 2. Disruption of bonding between base metal and cladding metal following bending tests. The surface of this specimen was planed prior to cladding.

Card 3/5

L 15634-66
ACC NR: AT5027926

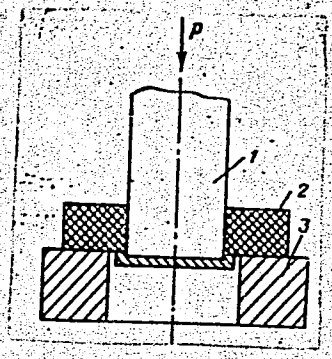

Fig. 3. Testing of specimens for separation of cladding layer from base material

1 - punch; 2 - specimen tested; 3 - ring

Card 4/5

L 15634-66
ACC NR: AT5027926

the number of contact spots differed according to the treatment of surface: on a planed surface it was 42; on a surface cleaned with metal brush, 86; on a filed surface, 166; and on a ground surface, ∞ (i.e. the entire surface became covered with a layer of dye). Subsequently these specimens were subjected to hot rolling with 25% deformation and the resulting composite (clad)sheets were metallographically examined; the examination showed a satisfactory bonding of cladding material to the base material regardless of the method of surface treatment (Fig. 1). For a qualitative evaluation of the firmness of bonding, the specimens were subjected to repeated bending: loosening of the cladding layer was observed only for the specimens whose surface was planed (Fig. 2). Since the number of contact spots for this furface was the lowest (42), the contact-spot method is indeed a workable method for determining bonding strength. Quantitative evaluation of bonding strength (Fig. 3) showed that for the specimens with planed surface the bonding strength was 8.74 kg/mm^2, against 8.92 kg/mm^2 for specimens with surface cleaned by means of a metal brush, 9.21 kg/mm^2 for specimens with filed surface, and 9.48 kg/mm^2 for specimens with ground surface. Thus the contact-spot method is a good way of selecting the optimal technique of surface treatment in the production of bimetals and, moreover, can be used for the quality control of the surface of blanks prior to cladding. Orig. art. has: 4 figures.

SUB CODE: 11, 13/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 000

Card 5/5

L 15633-66 EWT(l)/EWT(m)/T/EWP(t)/EWP(k)/EWP(b) LIP(c) JD/HW/DJ/WH

ACC NR: AT5027927 SOURCE CODE: UR/2536/65/000/062/0160/0171

AUTHOR: Sakharov, G. S. (Candidate of technical sciences)

ORG: Moscow Aviation Technology Institute (Moskovskiy aviatsionnyy tekhnologicheskiy institut)

TITLE: Study of the lubricants used in hot die forging

SOURCE: Moscow. Aviatsionnyy tekhnologicheskiy institut. Trudy, no. 62, 1965. Obrabotka davleniyem legkikh splavov (Pressure working of light alloys), 160-171

TOPIC TAGS: lubricant, high temperature lubricant, organic lubricant, inorganic lubricant, hot die forging, die, lubricant property

ABSTRACT: The suitability of 11 different lubricants (Table 1) was investigated by a specially developed method of upsetting (Fig. 1): the lubricant is deposited on the surface of the cone-shaped die and a cylindrical blank of a volume corresponding to the volume of the die cavity is inserted, whereupon the upsetting is performed. During the ejection of the upset blank from the die, the ejecting stress, conditionally termed "adhering" stress is measured. The findings are plotted to determine the most suitable lubricant (Fig. 2). The factors taken into account in determining the adhering stress are: depth of die cavity, composition of lubricant, area of friction, angle of slope of die cavity, and degree of deformation. On this basis, it is established that the lubrication of dies is a necessary prerequisite for die forging. The

Card 1/5 UDC: 669.716:621.97.07

Table 1. Recipes of experimental lubricants

Ordinal Number of Lubricant	Lubricant Components	Content of Components,%
1	Water Salt (NaCl)	95 5
2	3% emulsion Graphite	97 3
3	25% emulsion	100
4	Spindle oil 2 Oleic acid Triethanolamine	86 10 4
5	Water Graphite	95 5.
6	Oxidized petrolatum	100
7	25% emulsion Oxidized petrolatum Kerosene Graphite	85 5 8 2
8	Fuel oil	100
9	Oleic acid	100
10	Water glass 15,44	100
11	Phenylmethylpolysiloxanic acid	100

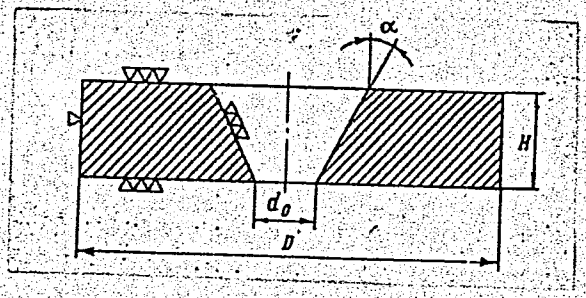

Fig. 1. Die for closed upsetting of specimens

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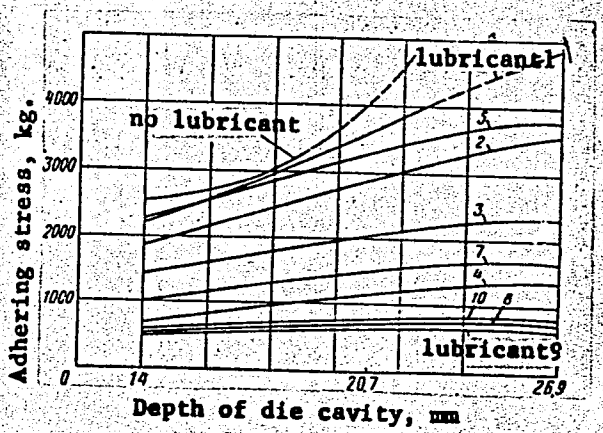

Fig. 2. Variation in adhering stress as a function of depth of die cavity and composition of lubricant [cf. Table 1]

Card 4/5

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ACC NR: AT5027927

selection of a particular lubricant must be based on the consideration of these various factors as well as of the complexity of shape of the forging. For example, a lubricant consisting of H_2O, NaCl and graphite or kaolin is suitable only for forgings of elementary shapes, whereas a lubricant consisting of oleic acid, spindle oil and triethanolamine can be used in the production of intricately shaped forgings. Any lubricant used in hot die forging, however, must satisfy the following basic requirements: high resistance to heat, effective reduction of straining stress, prevention of adherence of forgings to die (prevention of galling), increase of service life of die, no release of gases in heated state, a high level of hygiene, and low cost. Most lubricants having the form of water-cooling emulsions with various fillers are suitable for the fabrication of forgings of low and medium complexity of shape. Further, the experimental research into the use of various solid coatings of die surface as lubricants deserves serious attention. Orig. art. has: 7 figures, 3 tables, 3 formulas.

SUB CODE: 11, 13/ SUBM DATE: none/ ORIG REF: 000/ OTH REF: 000

Card 5/5

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2. USSR (600)
4. Sugar Machinery
7. Saving metals on repair orders, Sakh. prom.,27, No. 5, 1953.

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Nauchno-issledovatel'skiy institut stroi-tel'noy tekhniki Akademii arkhitektury SSSR

Tipy keramicheskikh izdeliy, tekhnologiya ikh izgotovleniya i metody krepleniya
Page 100

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1. Glavnyy botanicheskiy sad AN SSSR.
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Tree Planting

Planting of seedlings of tree and brushwood species. Les. khoz. 5, No. 4, 1952.

9. Monthly List of Russian Accessions, Library of Congress, August 1953, Uncl.

SAKHAROV, I.M.

USSR/Cultivated Plants - Ornamental. L-9

Abs Jour : Ref Zhur - Biologiya, No 16, 25 Aug 1957, 69448

Author : Sakharov, I.M.
Inst :
Title : Japanese Ivy.

Orig Pub : Sad i ogorod, 1956, No 8, 71-72

Abst : Japanese ivy-- a pretty shrub, blooms from mid-May to mid-June in bright-orange flowers. The fruit is yellow-green and lemon-yellow. Each bush bears up to 6 kg. In the Moscow environment Japanese ivy requires a snow cover for winter. Methods of snow-cover are noted.

Card 1/1

USSR

CATEGORY : Forestry. Forest Cultures.

ABS. JOUR : Ref Zhur -Biologiya, No.5 , 1959, No.20152

AUTHOR : Sakharov, I.
INST. : Main Botanical Garden, AS USSR
TITLE : Experiment in Cultivating Linden in the Nursery.

ORIG. PUB. : Zhil.-kommun. kh-vo, 1958, No.6, 22-24

ABSTRACT : The linden has been cultivated at the Main Botanical Garden of the Academy of Sciences USSR for four years in the first hotbed of the nursery with different arrangements of the area. The best results were gotten with 20 x x 20 cm and 30 x 30 cm spacing of the seedlings in three and four line strips and 80 cm spaces between the strips. The results of the experiment are presented in two tables according to the year, variety and output of the seedlings. --V.I. Klimov

1/1

LAPIN, P.I.; KOMAROV, I.A.; LEONOV, A.G.; MAZURKEVICH, F.S.; MAKAROV, S.N.; MARTEM'YANOV, P.B.; MOSUNOVA, D.I. [deceased]; SAKHAROV, I.M.; SIDNEVA, S.V.; TSITSIN, N.V., akademik, otv.red.; MAKAROV, S.N., red.izd-va; GUSEVA, A.P., tekhn.red.

[Trees and shrubs; results obtained in the Main Botanical Garden of the Academy of Sciences of the U.S.S.R.] Derev'ia i kustarniki; kratkie itogi introduktsii v Glavnom botanicheskom sadu Akademii nauk SSSR. Moskva, Izd-vo Akad.nauk SSSR, 1959. 190 p. (MIRA 12:10)

1. Moscow. Glavnyy botanicheskiy sad. (Trees) (Shrubs)

SAKHAROV, I.M.

Protecting ornamental shrubs in winter. Gor.khoz.Mosk. 33 no.12: 34 D '59. (MIRA 13:3)
(Moscow--Shrubs)

SAKHAROV, I.M.

The black locust in Moscow parks. Gor. khoz. Mosk. 34 no.9:25 S '60. (MIRA 13:9)

(Moscow--Locust (Tree))

KLIMOVICH, V.I.; SAKHAROV, I.M.

The pruning of woody plants. Gor.khoz.Mosk. 36 no.4:34-35 Ap '62. (MIRA 15:8)

1. Glavnyy botanicheskiy sad AN SSSR.
(Pruning)

SHAFRANSKIY, Timofey Potapovich; SAKHAROV, I.M., red.; NERONOVA, M.D., red. izd-va; LELYUKHIN, A.A., tekhn. red.

[Transplanting trees in winter] Peresadka derev'ev zimoi. Moskva, Izd-vo M-va kommun. khoz. RSFSR, 1961. 79 p. (MIRA 14:7)

(Tree planting)

AUTHOR: Sakharov, I.N. 136-11-4/17

TITLE: Preparation of Zinc Concentrates for Roasting in a Fluidized Bed and Furnace Feeding (Podgotovka tsinkovykh kontsentratov dlya obzhiga v kipyashchem sloye i pitaniye pechey)

PERIODICAL: Tsvetnyye Metally, 1957, No.11, pp. 13 - 23 (USSR).

ABSTRACT: After pointing out the difficulties of discharging from bunkers and feeding into fluidized-bed reactors zinc concentrates with over 6-7% moisture, the author examines methods of obviating these difficulties. The first involves repulping the concentrate and charging it into the furnace as pulp. In the second, the concentrate is dried, screened and disintegration of the concentrate before roasting. The author concludes that the first method simplifies preparation, transportation and charging of the concentrate, but would involve higher capital and running costs in sulphuric-acid production. He suggests that tests should be carried out on a small production unit, e.g. the KC-1 reactor at the "Elektrotsink" Works provided with the special equipment. The second method, used in Soviet Works, the author considers capable of simplification and improvement and outlines a scheme for this (Fig.3). This system would become very flexible, enable concentrates with over 12% moisture to be dealt with and facilitate the complex mechanisation and automation of

Card1/2

136-11-4/17

Preparation of Zinc Concentrates for Roasting in a Fluidized Bed and Furnace Feeding

the whole preparation, transportation and charging schemes. There are 4 figures, 8 references, 7 of which are Russian and 1 English.

ASSOCIATION: Giprotsvetmet

AVAILABLE: Library of Congress

Card 2/2

1. Sulphuric acid-Production 2. Furnaces-Preparation

SAKHAROV, I. N.

136-6-5/26

AUTHOR: Sakharov, I.N.

TITLE: Classification and Conveying of Roasted Concentrate at Zinc Electrolytic Works. (Klassifikatsiya i transportirovaniye obozhzhennogo kontsentrata na tsinkovykh elektrolitnykh zavodakh)

PERIODICAL: Tsvetnyye Metally, 1957, No.6, pp. 25-32 (USSR)

ABSTRACT: In this article, the advantages and disadvantages of the various existing methods of transporting and preparing for leaching the products of roasting in the USSR and abroad are given. Size analyses are tabulated for roasted products at the Elektrosink, Ust'Kamenogorsk and Ukrtsink Works and the peculiar properties of such products and how they influence the processes for their treatment and transportation are discussed. At some Soviet Works, the cinders are pulped directly under the roasting furnace, and this arrangement is critically examined: in such schemes, hydraulic conveying and wet classification are used. Multiple-hearth and fluidised roasters are compared and the conveying and classification arrangements at the No.2 roasting shop at the Ust'-Kamenogorsk Combine is described with the aid of a diagram. A recommended experimental closed air-cycle arrangement for air separation of cinder is dealt with similarly, calculations involved in its design

Cardl/2

Classification and Conveying of Roasted Concentrate at Zinc Electrolytic Works.

being outlined. The author concludes that with fluidised roasting: 1) solid roasting products should be conveyed by water-cooled rotating-tube or screw conveyers; feed into the bunkers of the leaching plant should be by belt or a pressure pneumatic-conveyor system with Fuller-type screw pumps; 2) the recommended experimental air-separation installation should be tested with a fluidised roaster; 3) this system with grinding in a closed-cycle ball mill, should be adopted at zinc-electrolytic works after testing.
There are 2 figures, 2 tables and 7 references, 4 of which are Slavic.

ASSOCIATION: Giprotsvetmet

AVAILABLE: Library of Congress

Card 2/2

AUTHOR: Sakharov, I.N. SOV/136-58-6-12/21

TITLE: Mechanised Pig Casting of Zinc (Mekhanizirovannyy razliv tsinka v chushki)

PERIODICAL: Tsvetnyye Metally, 1958, nr 6, pp 66 - 74 (USSR)

ABSTRACT: Recently, in the USSR and abroad much attention has been given to the mechanisation of zinc pig-casting. The author lists the factors which must be considered in designing pig casting machines for this metal and discusses some of their general features. He points out that the true productivity is always less than the rated because of incomplete mould filling, gives a broad classification of machines and goes on to consider existing ones in some detail. After describing a British (Figures 1 and 2) and a West German (Ref 4) (Figure 3) machine, he gives details of the circular automated installation devised by I.I. Kotov which has been in use at the Ust'-Kamenogorsk Lead-zinc Combine and has been the prototype for machines made for use in other works. This machine (Figure 4) with a productivity of over 100 tons/day, is of the circular type and has 22 tangentially-arranged moulds giving an overall diameter of 3 850 mm. The moulds are filled by a

Card 1/3

graphite bucket whose operation is tied in with the movement of the moulds and the pigs are automatically stamped with the heat number; a disadvantage is that unloading is effected next to the filling stage. At the "Elektrotsink" Works, tests on an experimental model (productivity 4.8 t/h) of a straight machine (Figure 5) designed by Kavgiprotsvetmet and having ancillary machinery for the stamping, piling and removal of the pig are being carried out. The zinc from the furnace passes down a runner into a dispenser provided with an inlet and an outlet valve linked to the machine. This machine has 25 double cast-iron moulds. The author recommends that standard installation should be constructed to deal with existing 100-120 ton per day furnaces and also with the projected 350 tons/day furnaces to produce pigs in accordance with GOST 3640-47. The need for increasing pig size has, the author considers, been largely eliminated because of the tests recently carried out at the Moskovskiy zavod po obrabotke tsvetnykh metallov (Moscow Non-ferrous Metals Working Works) on the semi-continuous casting of zinc blocks.

Mechanised Pig Casting of Zinc SOV/136-58-6-12/21

There are 5 figures and 8 references, 3 of which are English, 1 German and 4 Soviet.

ASSOCIATION: Giprotsvetmet

Card 3/3

SAKHAROV, I.N.

Mechanized and automatically controlled line for the smelting and pouring of zinc. TSvet. met. 35 no.4:34-41 Ap '62. (MIRA 15:4)

(Zinc--Metallurgy) (Automatic control)

SAKHAROV, I.P.

5(3)

SOV/63-4-3-19/31

AUTHORS: Mogilevskiy, Ye.M., Candidate of Technical Sciences, Finger, G.G.

TITLE: Scientific-Technical Conferences and a Seminar on the Production and Processing of Chemical Fibers

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 3, pp 398-401 (USSR)

ABSTRACT: In November-December 1958 the All-Union Scientific-Technical Conference on Problems of the Application of Chemical Fibers in the Textile, knit goods and Haberdashery Industry [illegible]. It was attended by 300 persons of plants and scientific research and designing installations. The President of the Gosudarstvennyy komitet Soveta ministrov SSSR po khimii (State Committee for Chemistry in the Council of Ministers of the USSR) V.S. Fedorov pointed out the great importance of developing the production of chemical fibers. A.L. Burkman (Upravleniye khimicheskikh volokon - Board of Chemical Fibers) read a paper on the tasks of workers of the industry of chemical fibers; Candidate of Technical Sciences O.I. Kudryavtsev (VNIIV) on the subjects of research work in the field of chemical fibers; S.L. Dich (GIPROIV) on new techniques applied in newly built plants; I.G. Shimko (Kiyevskiy kombinat iskusstvennykh volokon - Kiyev Combine of Artificial Fibers) on research conducted in the combine concerning the production of caprone fiber and artificial silk; V.P. Yunitskiy (Kalininskiy kombinat - Kalinin Combine) on technical improvements in the Combine; Professor N.V. Mikhaylov on: "Work in the Field of Preparing Highly-Resistant Viscose Cord"; S.M. Geysberg (Leningradskiy zavod iskusstvennogo volokna - Leningrad Plant of Artificial Fibers) on the experience of introducing a unit for the continuous production of alkali cellulose; Candidate of

Card 3/6

Technical Sciences Ye.M. Mogilevskiy (VNIIV) on the development of apparatuses for the continuous production of viscose silk; I.P. Sakharov and S.P. Lipinskiy (VNIIV) on increasing the spinning rate for viscose silk to 90 - 95 m/min and on the electric spindle EV-3 developed by them; L.N. Slobodkina, Kalinin Combine, on the method of regenerating the precipitation tank by contact with smoke gases which has been developed in the USSR; B.G. Zabrodin, Kalinin Combine, and Ye.P. Volkov (Mogilevskiy zavod iskusstvennogo volokna - Mogilev Plant of Artificial Fiber) on the work of viscose fiber plants and its improvement; N.N. Abramovskiy (VNIIV) and Ye.S. Merzon (GIPROIV) on the production of carbon disulfide; G.A. Baronichev, Kalinin Combine, on the work of an installation for the regeneration of carbon disulfide; N.A. [illegible], Kiyev Combine, and Candidate of Technical Sciences N.D. [illegible] (VNIIV) on the continuous production of caprolactam and the spinning of caprone silk; Candidate of Technical Sciences E.V. Khayt (VNIIV) on the production of caprone cord fiber; N.I. Petrunin, Kalinin Combine, and Candidate of Technical Sciences B.V. Petukhov (VNIIV) on the pro-

Card 4/6

duction of the fibers nitron and lavsan; T.A. Lukov (Klinskiy kombinat - Klin Combine) on the improvement of the quality of caprone cord and silk. A seminar on the subject: "New Technique and Advanced Technology in the Production of Artificial and Synthetic Fibers and Semi-Finished Products for Them" took place December 18-20, 1958. N.Ya. Alekhin (GNTK USSR) read a paper on the development of chemical fibers; Candidate of Chemical Sciences O.I. Kudryavtsev on achievements in the field of the production of synthetic fibers; Candidate of Technical Sciences Ye.M. Mogilevskiy on technological achievements in the production of viscose fibers; G.G. Finger (VNIIV) on the acceleration of the desulfuration process of viscose silk without application of alkali reagent; A.P. Kraynov (Branch of VNIIV) on the formation of fibers from triacetylcellulose sirups; Candidate of Technical Sciences A.A. Beer on "The Preparation of Monomers for Synthetic Fibers Based on the Reaction of Telomerization"; Candidate of Technical Sciences A.A. Artem'yev and Ye.V. Genkina (GIAP) on the preparation of raw material for polyamide fibers; Candidate of Technical Sciences K.S. Khaylov and Ye.G. Vendel'shteyn (GIAP) on the preparation of dimethylterephthalate for polyester fiber.

Card 5/6

LIPINSKIY, S.P.; SAKHAROV, I.P.; EYFER, I.Z.

Formation of viscose fiber with a variable rate for winding into large packages. Khim. volok. no.3:32-34 '65. (MIRA 18:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

SAKHAROV, I.P.; EYFER, I.Z.; BERNER, Ye.I.

High-intensity drying of rayon fiber packages in fields of high-frequency currents. Khim. volok. no.4:44-48 '65.
(MIRA 18.8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

VOLKOV, V.M.; SAKHAROV, I.T.

Increasing the efficiency of geological studies in deep-lying complex metal prospecting. Razved. i okh. nedr 26 no.10:41-42 O '60. (MIRA 13:11)

1. Vostochno-Kazakhstanskoye geolupravleniye.
(Ore deposits) (Prospecting)

SAKHAROV,I.V., Cand Tech Sci—(diss) "Study of local resistances in a self-flowing ~~conclination~~ network." Len, 195 . 12 pp (Min of Higher Education USSR. Len Order of Labor Red Banner Construction Engineering Inst), 150 copies (KL, 47-58, 134)

FEDOROV, Nikolay Fedorovich, prof., doktor tekhn.nauk; SAKHAROV, Igor' Vladimirovich, inzh.; MORGENSHTERN, V.S., kand.tekhn.nauk, nauchnyy red.; KAPLAN, M.Ya., red.izd-va; PUL'KINA, Ye.A., tekhn.red.

[Calculation of local resistance in the planning of sewer systems] Raschet mestnykh soprotivlenii pri proektirovanii kanalizatsionnykh setei. Leningrad, Gos. izd-vo lit-ry po stroit., arkhit. i stroit. materialam, 1958. 89 p. (MIRA 11:5)
(Fluid dynamics)