"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPAKILA, N. K.

360. Chromatographic separation of sodium and potassium in the analysis of slags. N. K. Shchipakina, E. M. Nemirovskaya and M. M. Senyavin (V. I. Vernadskii Inst. of Geochem. and Anal. Chem., Acad. Sci., USSR). *Zhur. Anal. Khim.*, 1957, 12 (1), 70–77.—The best cationite for the separation of Na and K is RF, obtained by the condensation of monoresorcinol phosphate and formaldehyde (Trostyanskaya *et al.*, *Usp. Khim.*, 1955, 24, 69). Of three methods tested, the best is based on a straight separation of Na and K by means of a column of RF, followed by gravimetric determinations of Na and K in the soln. obtained by washing the column with HCl soln. G. S. Smith

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4E32 } 2

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

MAMEDALIYEV, G.A.; SHAMEKO, V.V.; SHUMIKHOVA, L.I.

Investigating the composition of C_3 - C_4 tar from the pyrolysis of petroleum gases by gas-liquid chromatography. Neftekhimia 4 no.4: 613-623 Jl-Ag '64. (MIRA 17:10)

1. Institut neftekhimicheskikh sintezov im. A.V. Topchiyeva AN SSSR.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

L 36477-65 EPF(c)/EWP(j)/EWT(m) Pc-4/Pr-4 RM

ACCESSION NR: AP5010007 UR/0204/64/004/004/0618/0623 31 B

AUTHOR: Mamedaliyev, G. M.; Simashko, V. V.; Shchipakova, L. M.

TITLE: Investigation of the composition of the C_8-C_9 fraction of pyrolysis tars of petroleum gases by the method of gas-liquid chromatography

SOURCE: Neftekhimiya, v. 4, no. 4, 1964, 618-623

TOPIC TAGS: hydrocarbon, pyrolysis, petroleum, petroleum refinery product, petroleum refining, gas chromatography

Abstract: The individual hydrocarbon composition of the 130-185° fraction of tar from the industrial pyrolysis of petroleum gases was investigated by gas-liquid chromatography, using two different stationary phases, differing in physicochemical properties: dinonyl phthalate and polyethylene glycol. Alkyl and alkynyl-aromatic hydrocarbons of the composition C_8-C_9 were identified and quantitatively determined. The pyrolysis tar of petroleum gases was distinguished by a high content of styrene, dicyclopentadiene, indene, vinyltoluenes and xylenes. The authors suggest that the development of methods of rational utilization of these hydrocarbons will be of great practical interest. Orig. art. has 3 graphs and 4 tables.

ASSOCIATION: Institut neftekhimicheskogo sinteza im. A. V. Topchiyeva AN SSSR (Institute of Petrochemical Synthesis, AN SSSR)

Card 1/2

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHOMRAKY, I.V.

Gyro Instruments for Blind Flying.
Gosmashgiz (1953) 5 p. 3

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPANOV, G. V.

Giroskopicheskie pribory slepogo poleta; teoriia, raschet i metody konstruirovaniia, Moskva, Oborongiz, 1938. 424 p., illus.

"Kniga mozhet rassmatrivat'sia kak neposredstvennoe prodolzhenie vyshedshego iz pechati v 1936 g. sochineniia togo zhe avtora 'Teoriia, raschet i metody konstruirovaniia aviatsionnykh priborov'"

Bibliography: p. 423.

Title tr.: Gyroscopic instruments for blind flying; theory, design and methods of construction.

TL589.5.S48

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

Instruments and Apparatus for Test Flights,

TsAGI, Moscow (1942), p.65

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPANOV, G.V.

D.A. Braslavskii, S.S. Logunov. Pribory na samolete. (Sovetskaia kniga, 1948, no. 12, p. 56-58)

Review of the book "Airplane instruments" by D.A. Braslavskii and S.S. Logunov. q.v.

Z2495.S67 1948

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPANOV, I.

New Chetyreny variety of corn. IUn. nat. no.5:8-9 My '63.
(MIRA 16:7)
(Moldavia--Corn(Maize)--Varieties)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPANOV, Igor' (Penzenskaya oblast', Kuznetskiy rayon, selo Makhalino)

At the Krezhimka River. IUn. nat. no.12:4-6 D '62. (MIRA 16:1)
(Growth promoting substances)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

LEONTIANOV, P. K.

No: 37335--Vyazkoplastichnog techenie torfyanoy massy s pergmennymi znacheniyami vyazkosti ipr delnanogo narryazhenya sdviga. Kolloidnyy zhurnal, 1949, vyp. 6, s. 384-89. Bibliogr: 8 nazv.

So. Letopis' Zhurnel'nykk Statey, Vol. 7, 1949

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

[illegible]NOV, I. E.

[illegible]

Techenie vyazko-Plastichnogo tela v kolstsevom prostranstve mezldy dvumy, koaksial-
l, nymi trubkami. zhurnal tekhn. zhiziki, 1949, vyp. 10, c. 1211-14

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

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

CA

Flow of viscous-plastic disperse systems having variable values of viscosity and limiting shearing stress in a pipe. M. K. Shchipanov. *Kolloid. Zhur.* 11, 363-8(1949).

Math. *Peat* is dried by forcing it along a pipe permeable to H_2O and impermeable to peat. The viscosity η and the yield value θ of the mass therefore vary during its progress. Equations are derived for this motion, also when the mass moves between 2 coaxial cylinders. E.g., if $\theta = 0$ and the H_2O content of peat is a linear function of the distance s from the entrance to the pipe, the volume rate of flow is $\pi p a^4(1 - ks)/8\int_a^b \eta(s)(1 - ks)ds$, if p is the pressure difference between the points s_1 and s_2, a is the radius of the pipe, and k is a measure of H_2O leak.

J. J. Bikerman

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

1441. VISCOUS PLASTIC FLOW OF PEAT MASS HAVING VARIABLE VALUES OF VISCOSITY AND LIMITING SHEARING STRESS. Volarovich, MP and Shchipanov, PK. (Kolloid Zh. (Colloid J.) 1949, vol. 11, 384-389; abstr. in chem abstr. 1950, vol, 44, 2882). The equations given earlier are applied to the case of a peat mass for which $\log \eta = \log \eta_o - k_1(C-C_o)$ and $\log \theta = \log \theta_o - K_2 (C-C_o)$; η and θ are viscosity and yield point of peat containing C% solids, and η_o, θ_o and C_o have analogous meanings. Calculations are made for definite values of the constants k_1 and k_2 and the length of the tube or annular channel through which the peat is driven and where it loses its moisture.

CA

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

151T103

SHCHIPANOV, P. K.

Oct 49

USSR/Physics - Viscosity
Extrusion

"Flow of a Viscous-Plastic Body in the Annular Space Between Two Coaxial Pipes," P. K. Shchipanov, Turf Inst, Moscow, 4 pp

"Zhur Tekh Fiz" Vol XIX, No 10

Development of theory of flow for viscous-plastic bodies as it applies in pressing of dispersed masses (peat, pulp, etc.) by means of such a nozzle that amount of viscous-plastic mass flowing per unit time at a certain pressure must be considered. Submitted 13 Jul 48.

151T103

[redacted]

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

CA

Flow of visco-plastic disperse systems having variable viscosities and ultimate shearing stresses in pipes. P. K. Shchipanov (Peat Inst., Moscow). *Kolloid. Zhur.* 13, 388-93(1951); cf. *C.A.* 44, 2822*e*.—Flow (in a cylindrical tube) of a substance, whose viscosity η is a linear function of the path covered (x) and of the distance (r) from the tube axis, is calcd. Equations are given also for the case that both η and yield stress are linear functions of x and r.

J. J. Bikerman

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

1. SHCHIPANOV, P. K., Docent

2. USSR (600)

4. Peat Industry - Study and Teaching

7. Training by correspondence courses in the peat industry. Torf. prom., 29 no. 12, 1952.

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

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SOV/124-58-2-2164

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 2, p 94 (USSR)

AUTHOR: Shchipanov, P. K.

TITLE: The Flow of a Viscoplastic Substance, Such as Peat, in the Space Between Two Parallel Plates (Techeniye vyazkoplastichnogo tela v tom chisle torfa, v prostranstve mezhdu dvumya parallel'nymi plastinkami)

PERIODICAL: Tr. Mosk. torf. in-ta, 1955, Nr 3, pp 71-80

ABSTRACT: A solution is provided for the problem of the motion of a visco plastic medium subjected to pressure between two parallel plates of which one is immobile, while the other moves parallel to the first. The equation of the flow rate of the viscoplastic mass assumes the form

$$Q = \frac{2}{3}\frac{Ph^3}{l\eta} - \frac{\theta h^2}{\eta} + \frac{\theta^3 l^2}{3\eta P^2} + v_o h + \frac{v_o^2 l^2 \theta\eta}{4(\theta l - Ph)^2}$$

where Q is the flow rate per unit width, P is the pressure, $2h$ is the distance between the plates, l is their length, v_o is the velocity of motion of the moving plate, θ is the ultimate shear

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SOV/124-58-2-2164

The Flow of a Viscoplastic Substance, Such as Peat (cont.)

strength of the mass, and η is the plastic viscosity. An investigation of the limits of applicability of the equation obtained is carried out. Bibliography: 8 references.

N. I. Malinin

Card 2/2

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20453
S/056/61/040/002/006/047
B113/B214

AUTHORS: Grashdankina, N. P., Gaydukov, L. G., Rodionov, K. P., Olaynik, M. I., Shchipanov, V. A.

TITLE: Effect of pressure on the electrical resistance and the galvanomagnetic effect in chromium telluride

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40, no. 2, 1961, 433-440

TEXT: The temperature dependence of the electrical resistance and the isothermal lines of the galvanomagnetic effect $r=\Delta R/R$ were measured in the temperature range of magnetic transformation at a pressure of 4600 kg/cm^2. A high-pressure chamber of austenitic steel was used for the measurement. The object to be observed was placed in the lower part of the chamber which was situated between the poles of an electromagnet. There were five electric leads in the upper part of the chamber. One of these was used for measuring the electrical resistance of a manganin manometer. The other four leads were used for the measurement of the electrical resistance of the preparation and the measurement of

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temperature. The hydrostatic pressure in the chamber was produced by means of a high-pressure compressor according to the system of L. F. Vereshchagin. Measurements showed that the electrical resistance of chromium telluride increased with the pressure; no hysteresis effect was observed. In the pressure range used $R_T^{-1}dR/dp$ was equal to $(1.5)10^{-4}kg^{-1}cm^2$. On the basis of this, it was assumed that a compression on all sides must lead to a shift of the Curie point of chromium telluride toward lower temperatures. However, this effect must be sufficiently large. Direct measurements of the temperature dependence of the electrical resistance at atmospheric pressure and a pressure of 4600 kg/cm^2 gave for the Curie point the values 58°C and 31°C, respectively. The following formula holds for the change of the Curie point $d\Theta_f/dp$ of chromium telluride caused by a change in the pressure on all sides: $d\Theta_f/dp = (-5.9 \pm 0.3)\cdot 10^{-3} deg.kg^{-1}cm^2$ (1). This was checked by a measurement of the galvanomagnetic effect $r = \Delta R/R$ at high pressure. In this case, $d\Theta_f/dp$ was determined for a pressure of

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system Cr-Te is proportional to the decrease of the volume of the unit cell. The dimensions of the unit cell were determined by X-ray analysis. It was possible to obtain the law of the dependence of the galvanomagnetic effect on the magnetic field strength at the Curie point by using the theory of thermodynamics. It was found that for chromium telluride and $CrTe_{0.93}Se_{0.07}$, $r \sim H^{2/3}$; for $T > \theta_f$ the authors obtained $r \sim H^2$. The dependence of the galvanomagnetic effect on the temperature in CrTe and in $CrTe_{0.93}Se_{0.07}$ at atmospheric pressure as well as at a pressure of 4600 kg/cm^2 was studied. It was found that for $T < \theta_f$ the pressure leads to an increase in the absolute value of the galvanomagnetic effect in CrTe, but for $T > \theta_f$ (in the paramagnetic range) the $r(T/\theta_f)$ curves for atmospheric pressure and for p = 4600 kg/cm^2 coincide. This shows that the change in the galvanomagnetic effect caused by pressure is related to the change in magnetization. In the range of investigation, the curves for $CrTe_{0.93}Se_{0.07}$ lie lower than

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4600 kg/cm^2 and a field of 8000 oe from the shift of the maximum of the galvanomagnetic effect. It was found that

$d\theta_f/dp = -6.2\cdot10^{-3}$ deg$\cdot$kg^{-1}.cm^2. By means of the compressibility

$\lambda = (22\pm3)\cdot10^{-7}$ cm^{2}kg, $d\theta_f/dV$ was determined to be $3.2\cdot10^{25}$deg.cm^{-3}. The change of Curie temperature is related to the reduction in the interatomic distance on account of the substitution of tellurium atoms be selenium ($CrTe_{1-x}Se_x$). In order to obtain exact results on the

temperature of magnetic transformation of the alloy $CrTe_{1-x}Se_x$, and on

the dependence of its change on the volume of the unit cell, three different methods were used for the determination of θ_f. First, it was determined from the bend of the R(T) curves; secondly, from the maximum of the galvanomagnetic effect; and thirdly, from the vanishing of spontaneous magnetization, determined by the method of "thermodynamic coefficients" ($T = \theta_f$ for $\alpha = 0$). Always the same value was obtained for

$d\theta_f/dV$, which showed that the integral of volume interaction in the

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Effect of pressure on the..

those for CrTe. If it is assumed that c in the equation $a = c\beta^{-2/3}\sigma_0^{8/3}$ (4), in which c is given by $c = r_s\sigma_s^2$ (σ_s - spontanious magnetization), is not affected by pressure, the change in the spontaneous magnetization of CrTe caused by pressure may be considered to be due only to the change in the exchange integral for a constant value of the magnetic moment at absolute saturation. It can then be said that the observed increase of the intensity of the para process under pressure is related to the decrease of the thermodynamic coefficient β in Eq. (4). I. G. Fakidov and S. D. Marzolin are thanked for the magnetic measurements. Yu. A. Bazhin, N. S. Akulov, K. P. Belov, G. A. Zaytseva, Ye. I. Kondorskiy, and V. L. Sedov are mentioned. There are 6 figures, 2 tables, and 15 references: 7 Soviet-bloc and 8 non-Soviet-bloc.

ASSOCIATION: Institut fiziki metallov Akademii nauk SSSR (Institute of the Physics of Metals of the Academy of Sciences USSR)

SUBMITTED: July 30, 1960

Card 5/5

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

GRAZHDANKINA, N.P.; GAYDUKOV, L.G.; RODIONOV, K.P.; OLEYNIK, M.I.; SHCHIPANOV, V.A.

Effect of pressure on the elctrical resistance and galvanomagnetic effect in chromium telluride. Zhur. eksp. i teor. fiz. 40 no.2:433-440 F '61. (MIRA 14:7)

1. Institut fiziki metallov AN SSSR.
(Chromium telluride--Electric properties)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPANOV, V.P.; PORTNOVA, S.L.; KRASNOVA, V.A.; SHEYNKER, Yu.N.; POSTOVSKIY, I. Ya.

Structure and spectra of 5-aminotetrazoles and their acyl derivatives. Zhur. org. khim. 1 no. 12:2236-2244 D '65 (MIRA 19:1)

1. Ural'skiy politekhnicheskiy institut imeni Kirova i Institut khimii prirodnykh soyedineniy AN SSSR. Submitted December 9, 1964.

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

NAGIBIN, A.A., inzh.; SHCHIPUNOV, V.I., inzh.

Device for the automatic control of the amount of pulp in liquor-flow. Bum. prom. 36 no.9:28-30 S '61. (MIRA 15:1)
(Papermaking machinery) (Automatic control)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPANOV, Ye., komandir korablya (g. Kuybyshev)

Efficient organization is the basis for success in work.
Grazhd. av. 12 no.5:32 My '55. (MIRA 8:9)
(Aeronautics, Commercial)

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KUDRYAVTSEV [illegible], [illegible], [illegible], [illegible], [illegible]

Selecting the optimum conditions of chromatographic separation for fillers made from sikeev deposit cripoli. Khim. i tekh. topl. i masel 10 no.10:55-58 O '65. (MIRA 18:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gazov i polimernykh materialov shlakovykh bloqiive.

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

KUDRYAVTSEVA, N.A.; TARASOV, A.I.; SHCHIPANOVA, A.I.

Quantity of liquid petrolatum during modification with tripoli from the Zikeev Mine for chromatographic separation of hydrocarbons. Khim. i tekh. topl. i masel 8 no.10:59-62 O '63. (MIRA 16:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gazov i polucheniyu iskusstvennogo zhidkogo topliva.

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

KUDRYAVTSEVA, N.A.; TARASOV, A.I.; Prinimali uchastiye: SHCHIPANOVA, A.I.; RYASOVA, Ye.S.; CHESNOKOVA, R.I.

Chromatographic investigation of gaseous hydrocarbons dissolved in oil. Khim i tekh. topl. i masel 9 no.5:32-36 5 My'64 (MIRA 17:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gaza i polucheniyu iskusstvennogo zhidkogo topliva (for Kudryavtseva, Tarasov).

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[illegible], [illegible]

[illegible], [illegible] and Chchiranova, I. A. - "Regional distribution and [illegible] of Anabasis aphylla in Azerbaijan", Izves[illegible]ya Akad. nauk Azerbaydzhan SSR, [illegible], No. [illegible], p. [illegible], (Russian in Azerbaijani, - Bibliography: [illegible] items.

SO: [illegible], 11 March [illegible], (Letopis 'Zhurnal 'nykh Statey, No. [illegible], 1949).

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

Sulaimanova, I. A.

"The Ecological and Biological Properties of Certain Wood and Brushwood Varieties of the Arid Sparse Forests of the Bozdag Mountains in Azerbaydzhan." Cand Biol Sci, Inst of Botany imeni V. L. Komarov, Acad Sci Azerbaydzhan SSR, Baku, 1955. (KL, No 15, Apr 55)

SO: Sum. No. 704, 2 Nov 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (16).

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPANOVA, I.A.

Salt resistance of cotton in the Shirvan Steppe. Trudy Inst.pochv. i agrokhim.AN Azerb.SSR 7:233-241 '55. (MLRA 9:12)
(Shirvan Steppe--Cotton) (Plants, Effect of salts on)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPANOVA, I.A.

Use of the wild flora of the Nukha-Zakataly massif in erosion control. Izv.AN Azerb.SSR.Ser.biol.i sel'khoz.nauk no.2:41-48 '59. (MIRA 12:8)
(Nukha region--Soil binding) (Zakataly region--Soil binding)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPANOVA, I.A.

Studying the soil-and-rock talus of Belokany and Zakataly Districts for purposes of stabilization. Dokl.AN Azerb. SSR 16 no.1:65-69 '60. (MIRA 13:6)

1. Pochvenno-eroziynaya stantsiya AN Azerbaydzhanskoy SSR Predstavleno akad. AN Azerbaydzhanskoy SSR G.A. Aliyevym.
(Azerbaijan--Erosion)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

S/149/62/000/006/004/008
A006/A101

AUTHORS: Shchipanova, L. V., Gel'd, P. V.

TITLE: Enthalpy of solid and liquid germanium

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, no. 6, 1962, 111 - 112

TEXT: The authors carried out high-temperature investigations of three single-crystal germanium specimens at 0 - 1,250°C, for the purpose of determining the thermal properties of germanium. The results obtained show that the melting point of the specimens was near 938 - 939°C, which is in agreement with results obtained by Hassion, Thurmond and Trumbore (melting point at 937.2°C). The enthalpy jump in the melting point is about 123 cal/g or 8.93 kcal/g-atom; these values exceed those obtained by Witting, Greiner, Gmelin and de Roche. Below the melting point, germanium enthalpy can be described satisfactorily by Kelley's equation, from which it follows that $C_{p\ sol.}$ is $5.98 + 0.82 \cdot 10^{-3}T - 0.56 \cdot 10^{5}T^{-2}$. Over the melting point the experimental data are in a better agreement with

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Enthalpy of solid and liquid germanium

S/149/62/000/006/004/008
A006/A101

equation $H^{T}_{273.16} = 6948 + 6.8\ T$. The linear course of enthalpy within a range of 940 - 1,300°C indicates the constant heat capacity of liquid germanium, which is equal to approximately 6.8 cal/g-atom-degree. Consequently the experiments confirm that there is only a small difference in C_p of liquid and solid germanium at its melting point (6.93 cal/g · atom · degree). There is 1 figure.

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnic Institute) Kafedra fiziki (Department of Physics)

SUBMITTED: May 8, 1962

Card 2/2

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

GOMOLA, Frantishek, inzh. [Homola, František]; RATAY, Milosh, inzh. [Rataj, Milós]; SHCHIPANOVA, T.N. [translator]; ZEYLIDZON, Ye.D., red.; LARIONOV, G.Ye., tekhn. red.

[Deveopment of electrification in the Czechoslovakian Socialist Republic] Razvitie elektrifikatsii v Chekhoslovatskoi Sotsialicheskoi Respublike. Moskva, Gos. energ. izd-vo, 1961. 80 p. (MIRA 14:6)

(Czechoslovakia—Electrification)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

HONNA, Otakar; SHCHIPANOVA, T.N.[translator]; RAYEVSKIY, N.P., doktor tekhn. nauk, red.; SHCHUROVA, Yu.P., red.; LARIONOV, G.Ye., tekhn. red.

[Tensometer bridge networks]Tenzometricheskie mosty. Pod red. N.P.Raevskogo. Moskva, Gosenergoizdat, 1962. 333 p. (MIRA 15:10)

(Tensiometers) (Transducers)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

TRAPEZNIKOV, A.A.; SHCHIPANOVA, Ye.P.

Colloid chemical mechanism underlying the blending of alkyd and polyamide resins in a solvent to produce a thioxotropic alkyd gel. Dokl. AN SSSR 152 no.6:1408-1411 O '63. (MIRA 16:11)

1. Institut fizicheskoy khimii AN SSSR. Predstavleno akademikom S.I. Vol'fkovichem.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

STCHIPANOV, [illegible]; TRAIST'NICKV, A.A. [Traistnikov, A.A.]

Resistance and thixotropic properties of sodium oleate solutions and the colloidal influence. Rev chimie Roum 9 no.8/9:465-474 Ag-S '64.

1. Institute of Physical Chemistry, Academy of Sciences of the U.S.S.R., Moscow, and the Center of Organic Chemistry, Rumanian Academy, Splaiul Independentei, Bucharest.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

L 18010-66 EWT(m)/EWP(v)/EWP(j)/T DS/WW/RM
ACC NR: AP6004316 SOURCE CODE: UR/0303/65/000/005/0031/0035

AUTHOR: Shchipanova, Ye. P.; Trapeznikov, A. A.

ORG: none

TITLE: Preparation of a thixotropic binder by combining alkyd and polyamide resins in a solvent medium

SOURCE: Lakokrasochnyye materialy i ikh primeneniye, no. 5, 1965, 31-35

TOPIC TAGS: resin, polyamide

ABSTRACT: The combination of glyptal and pentaphthalic resins with polyamides of various chemical compositions in a solvent was studied at various temperatures, and a method was thus worked out for preparing a thixotropic binder or gelkyd (a 50% dispersion containing 3.5% polyamide) from an alkyd resin and polyamide. It was noted that free phthalic anhydride present in alkyd resins and acting as a peptizer of the gelkyd structure, had an adverse effect on the properties of gelkyds synthesized in a white spirit medium. The influence of the duration and method of combination of the alkyd and polyamide resins on the rate of thixotropic recovery and on the

UDC: 667.633.263.3

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

L 18010-66
ACC NR: AP6004316

strength during the initial and final stages of the recovery of structure was determined. The properties of gelkyds obtained by fusion and by combination in a solvent were compared, and the latter method was found to yield more reliable and reproducible results. Orig. art. has: 7 figures, 4 tables.

SUB CODE: 11/ SUBM DATE: 00/ ORIG REF: 007/ OTH REF: 005

Card 2/2 7195

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

L 53736-65 EPF(c)/EPR/EPA(s)-2/EWT(m)/EWP(i)/EWP(b)/EWP(e) Pq-4/Pr-4/Ps-4/Pt-7
WW/WH

ACCESSION NR: AP5015562 UR/0286/65/000/008/0119/0119
666.189.211 62
B

AUTHOR: Shkol'nikov, Ya. A.; Polik, B. M.; Karakhanidi, N. G.; Ivanov, P. K.; Bober, E. L.; Ulybyshev, V. V.; Alen'kin, A. T.; Bugrova, N. N.; Simakov, D. P.; Shchipin, I. Ye.; Gur'yeva, Yu. N.; Yefimova, M. I.; Nechayeva, Ye. S.; Yesilkina, K. N.; Ivanova, A. I.; Dayn, E. P.; Nabatov, V. G.; Novoyevskaya, Ye. A.; Kukin, Ye. B.; Balashov, V. N.; Gamza, L. B.

TITLE: Glass for glass fibers. 15 Class 32, No. 170369 15

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 8, 1965, 119

TOPIC TAGS: glass, glass fiber

ABSTRACT: An Author Certificate has been issued for a glass suitable for making glass fibers. To increase chemical durability, to prevent corrosion of alloys of aluminum and other light metals, and to improve processability, the glass is formulated to contain: 58—63% SiO_2, 2—4% B_2O_3, 6—8% Al_2O_3, 0.5—1.5% F_2O_3, 4—6% ZrO_2, 6—8% CaO, 12—13% Na_2O, and 1.5—2% K_2O. [SM]

ASSOCIATION: none

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APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

DEREVYAGIN, N.P., inzh.; GONCHARUK, K.F., inzh.; ANTONOVA, G.T.; SHCHIPINA, N.Ye., kand. tekhn. nauk; KLUBNICHKIN, K.F., kand. tekhn. nauk, otv. red.; DOLGIKH, N.S., red.; DONSKAYA, G.D., tekhn. red.

[Uses of rare elements and titanium in chemical industries and analytical chemistry] Primenenie redkikh elementov i titana v khimicheskikh proizvodstvakh i analiticheskoi khimii; obzor literatury. Moskva, Otdel nauchno-tekhn. informatsii, 1962. 64 p. (Informatsiia, no.27(38)) (MIRA 16:8)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti "Giredmet."
(Metals, Rare and minor) (Titanium)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

L 8729-65 EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/EPR/EWP(j)/FCS(f) Pc-4/Pr-4/
Pc-4/Pt-10/Pu-4 RAEM(i) DJ/GG/RM
ACCESSION NR: AP4045004 S/0065/64/000/009/0038/0040

AUTHOR: Makeyeva, Ye. D.; Kumleva, L. A.; Zaslavskiy, Yu. S.; Shchipina, N. Ye.

19 B

TITLE: Effect of irradiation on changes in the properties of grease dispersion media

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 9, 1964, 38-40

TOPIC TAGS: grease, gamma irradiation, additive, antiirradiation additive, dispersion medium, silicone oil, diester

ABSTRACT: Changes in the properties of oils used as dispersion media (liquid lubricants) in greases under the effect of γ-irradiation have been studied. In addition, the antiirradiation effect of additives of the dialkyl selenide and acenaphthene type was investigated. Irradiation was carried out at about +50C from a Co source, with integral doses of 1×10^7, 5×10^7, and 1×10^8 rad. The effect of irradiation was evaluated from viscosity, evaporability, and gelation-temperature measurements. The experiments were

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ACCESSION NR: AP4045004

4

conducted with PMS-50, PMS-70 VV, PMS-100 VV, FM-6 VV, KhS-2-1 VV, FM 1322/300, PFMS-4, and 1-718 silicone oils, and with diesters no. 1 (bis(2-ethylhexyl)silacate) and nos. 2 and 3 [unspecified]. The results of the study, given in the form of tables, show that γ-irradiation with the above doses increases the viscosity of the liquid lubricants listed and, in some instances, causes their gelation. Simultaneously, evolution of volatile products takes place. The radiation resistance of polyorganosiloxanes decreases with an increase in their molecular weight and depends on the organic substituents at the Si atom. The introduction of phenyl radicals in polyorganosiloxane molecules increases their radiation resistance. The radiation resistance of diesters is increased by the introduction of aromatic radicals. Acenaphthene is the best antiirradiation additive for both polyorganosiloxanes and diesters. Orig. art. has: 3 tables.

ASSOCIATION: VNIINP

SUBMITTED: 00 ATD PRESS: 3111 ENCL: 00

SUB CODE: FP,NP NO REF SOV: 003 OTHER: 004

Card 2/2

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPITSYN, N.G., kand.tekhn.nauk, dotsent

Angle-measuring instruments and measuring methods used for triangulation in Russia from 1816-1917. Trudy MIIGAIK no.48:105-141 '61. (MIRA 15:8)

1. Kafedra vysshey geodezii Moskovskogo instituta inzhenerov geodezii, aerofotos"yemki i kartografii.
(Surveying--Instruments) (Triangulation)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPITSYNA, N. K. Cand Biol Sci -- (diss) "Seasonal periodicity in the life of Anopheles maculipennis Meig. mosquitoes and its importance in the struggle against malaria in the Soviet Union." Mos, 1958. 33 pp (Acad Med Sci USSR), 200 copies. List of author's works, pp 32-33 (12 titles). (KL, 6-58, 100)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPITSYN, A.A.

Modernization of the E-2005 and the E-801 excavators. Gor. zhur. no.7:73-74 Jl '62. (MIRA 15:7)

1. Glavnyy mekhanik gornogo upravleniya Bogdanovichskogo ogneupornogo zavoda.

(Excavating machinery)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

VOLOCHNEV, V.A., mashinist; PAVLOV, F.T., byvshiy brigadir slesarey, pensioner; SHCHIPITSYN, F.G.; POLULEKH, V.K.; KRASAVIN, M.D.

Stages in the great path. Elek. i tepl. tiaga no.11:38-40 N '57. (MIRA 10:11)

1. Elektrovoznoye depo Zlatoust, Yuzhnyy Ural. 2. Nachal'nik elektrovoznogo depo Zlatoust, Yuzhnyy Ural (for Polulekh). 3. Glavnyy inzhener elektrovoznogo depo Zlatoust, Yuzhnyy Ural (for Krasavin). 4. Sekretar' partbyuro elektrovoznogo depo Zlatoust, Yuzhnyy Ural. (for Shchipitsyn).
(Zlatoust--Locomotives--Maintenance and repair)
(Russia--Revolution, 1917-1921)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

FILONENKO, Aleksey Stepanovich, prof. [deceased]; SHCHIPITSYN, Nikolay Grigoriyevich, dots.; LITVINOV, B.A., prof., red.;

[Laboratory work in surveying; study of precision surveying instruments] Praktikum po vysshei geodezii; issledovanie vysokotochnykh geodezicheskikh instrumentov. Moskva, Nedra, 1965. 199 p. (MIRA 18:8)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

BAYUKHANOVA, N.A.; SHCHIPITSYNA, L.P.

Micromethod for determining the ascorbic acid in whole blood. (MIRA 14:7)
Vop. pit. 20 no.4:60-65 Jl-Ag '61.

1. Iz otdela vitaminov C i P (zav. - prof. N.S.Yarusova) Nauchno-issledovatel'skogo instituta vitaminologii Ministerstva zdravookhraneniya SSSR, Moskva.
(ASCORBIC ACID) (BLOOD—EXAMINATION)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPKO, L. (Krivoy Rog)

Stones start boiling. Izobr. i rats. no.3:46-47 Mr '61. (MIRA 14:3)

(Krivoy Rog—Ore dressing—Technological innovations)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPKO, Leonid Maksimovich; KOCHERGA, M.T., red.;

[Miner Evgen Skliarov] Prokhidnyk IEvhen Skliarov. Kyiv, Derzh. vyd-vo tekhn. lit-ry UkSR, 1961. 16 p. (MIRA 15:3)

(Ukraine--Coal mines and mining)
(Socialist competition)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPKOV, A. I.

Name: SHCHIPKOV, A. I.

Dissertation: Colorimetric methods in analyzing a television system

Degree: Cand Tech Sci

Affiliation: Min Communications USSR, Leningrad Electrical Engineering Inst of Communications imeni Professor A. M. Bonch-Bruyevich

Defense Date, Place: 1956, Leningrad

Source: Knizhnaya Letopis', No 48, 1956

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

107-5-34/54

A Conference on Television

Engineer Ya. I. Efrussi delivered a report on "The Ways to Improve the Quality of Black-and-White Television". He noted the distortions inserted by the vestigial sideband system of tv transmission; also by various defects in the scanning systems. 15 to 20% of nonlinearity in scanning is usually tolerated; but this is inadmissible from the standpoint of quality of the picture. Decisions taken on this report call for working out of standards on linear and nonlinear tv distortions from various causes.

Engineer A.I. Shchipkov delivered the report "Brilliance Fidelity in the Black-and-White Television". He noted that in case of artistic tv broadcasts a correct relation between the brilliances of the spot-light objects and the background must be preserved rather than absolute values of the brilliances. For a correct reproduction of brilliance contrasts all nonlinearities of the individual elements of a tv system should be adequately compensated.

Engineers A.B. Alekseyeva and Ye.M. Ponomareva delivered reports on tv transmission tubes ЛИ-7 and ЛИ-17 giving their basic data, operative peculiarities and methods of improvements. These types are mostly used in Soviet tv transmitting equipment. Their service life characteristics are too diversified, they often have black spots on the screen and other defects. The conference decided to ask MRPT to develop better tubes operating at 300-lux illumination.

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

107-5-34/54

A Conference on Television

Engineer L.T. Perevezentsev in his report "Color-Splitting System Design in a Scanning-Beam Transmitter" gave design formulae for a simplest color division system having the least losses of the luminous flux. An experimental compatible color tv system was demonstrated at the Conference. Overall frequency band 6 mc, with brightness component occupying 6 mc, and color information 2 mc for red and 0.6 mc for blue shades.

Candidate of Technical Sciences A.D. Artym delivered the report "Methods of Effecting FM by Means of the Phase Modulation".

Candidate of Technical Sciences E.I. Golovanevskiy delivered the report "Resnatron vs. Klystron as a Power Amplifier in TV Transmitters" in which he showed that resnatron amplifiers may develop 30 to 50 kw with 40 to 50% efficiency.

Candidate of Technical Sciences M.O. Gliklikh and engineer D.A. Taranets reported on the modern techniques of tv program recording, giving the advantages of a new electronic compensation of the motion of a movie film as developed by Taranets.

Candidate of Technical Sciences I.A. Moroz in his report "Methods of TV Signal Transmission over the Long-Distance Lines" and the Candidate of Technical Sciences A.K. Oksman in his report "Antinoise Methods for Long-

Card 3/4

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

107-5-34/54

A Conference on Television

Distance TV Channels" have shown that the multichannel telephone long-distance cables can be used for station exchange of tv programs.

Engineer A. Yu. Ratmanskiy reported on the tv broadcast relaying networks. He cited the experience of the Kiyev tv center.

Engineer A. G. Konstantinovskiy and Cand. of Techn. Sc. P.M. Trifonov reported on the problem of long-distance tv transmissions.

Eng. V.S. Polonik delivered the report "New Developments of the Scientific Research TV Institute in the Industrial Applications of TV".

Cand. Techn. Sc. A. G. Kondrat'yev reported on "Some Experience with the Practical Utilization of TV in Industry".

Eng. N.L. Artem'yev reported on "The Modern State of Vidicon Techniques".

AVAILABLE: Library of Congress.

Card 4/4

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPKOV, M. D.

SHCHIPKOV, M. D. -- "Investigation of the Effect of Flint and Manganese Reduction Processes on Steam Generation during the Automatic Smelting of Low-carbon Steel." Min Higher Education USSR, Leningrad Polytechnical Inst, imeni M. I. Kalinin, Leningrad, 1956. (Dissertation for the Degree of Candidate of Technical Sciences)

SO: Knizhnaya Letopis' No 44, October 1956

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SOV/137-58-8-17012

Translation from Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 114 (USSR)

AUTHOR: Shchipkov, M.D.

TITLE: The Effect of Chemical Composition of Flux on Siliceous and Manganous Reduction Processes During Automatic Welding of Low-carbon Steel (Vliyaniye khimicheskogo sostava flyusa na kremne- i margantsevovosstanovitel'nyye protsessy pri avtomaticheskoy svarke malouglerodistoy stali)

PERIODICAL Tr. Leningr. politekhn. in-ta, 1957 Nr 189, pp 111-122

ABSTRACT Experimental data of single-layer bead welding performed with SVO8 wire with fluxes of various compositions containing 23-50% SiO_2, 21-53% MnO, 4-11% CaO, 1-12% Al_2O_3, 0-36% TiO_2, and 1-2% FeO, were employed in computing the content of Mn and Si in the deposited metal (DM) on the basis of known concentrations of these elements and of the base metal present in the joint. The computations were based on the assumption that all reactions take place within the drops of molten materials, and that no reactions occur in the pool of molten metal. Graphs showing the amounts of Si and Mn in the DM as a function of the concentration of SiO_2 and MnO in the slag (in mol. %)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

The Effect of Chemical Composition of Flux (cont.)

were constructed and empirical formulae were derived for computing variations in the concentration of Si and Mn in the DM as a function of the flux composition $\Delta Si = 3.5(SiO_2) - 0.24$ and $\Delta Mn = 4.4(MnO) - 0.12$ whence it follows that reduction of Si and Mn is possible provided that (SiO_2) and (MnO) are greater than 0.25 and 0.12, respectively. By making use of empirical relationships, the equations shown below were derived permitting an evaluation of the Si and Mn concentrations in the slag $[Si]_s$ and $[Mn]_s$, for any flux of a given composition from the known amounts of Si and Mn present in the electrode wire and in the base metal, as well as the proportion of the latter in the welded joint,

$$\gamma[Si]_s = \gamma[Si]_e + \alpha\gamma[Si]_e + 3.5\gamma(SiO_2) - 0.24$$

and

$$[Mn]_s = \gamma[Mn]_e + \alpha\gamma[Mn]_e + 4.4\gamma(MnO) - 0.12$$

Calculated results coincided satisfactorily with experimental data obtained by other investigators, and thus confirmed the correctness of the initial postulate, namely, that Si and Mn reduction processes take place primarily in the pool of the molten metal

Card 2/2 1. Steel--Welding 2. [illegible] Fluxes--Chemical reactions 3. Silicon--Reduction 4. Manganese--Reduction 5. Welds--Chemical analysis O.K.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

AUTHOR: Shchipkov, M. D. SOV/163-58-3-16/49

TITLE: The Dependence of the Oxygen Content in the Seam Metal on the Composition of the Fluxing Material in the Automatic Welding of Low-Carbon Steels (Zavisimost' soderzhaniya kisloroda v metalle shva ot sostava flyusa pri avtomaticheskoy svarke malouglerodistoy stali)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1958, Nr 3, pp 87 - 94 (USSR)

ABSTRACT: The dependence of the concentrations of oxygen, silicon and magnesium in the seam metal in the automatic welding of low carbon steels on the content of alumina, manganese oxide and the fluxing material was investigated. In figure 1 the fundamental arrangement of automatic welding is given. Low-carbon steels were molten using a fluxing material at a temperature of about 1500°C. The equilibrium concentrations of oxygen in liquid steel in connection with the concentrations of carbon, aluminium, titanium, silicon and manganese were investigated. From the results obtained may be concluded that in the automatic welding of low-carbon steels practically no oxidation of silicon and

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

manganese takes place when the silicon concentration is not higher than 0.3%, and the manganese content is about 1%. The equation

$$R_H = \frac{R_M - \gamma R_C}{1 - \gamma} \qquad (8)$$

makes possible the determination of the influence on the silicon and manganese reduction processes with the fluxing materials used and the working conditions prevailing in automatic welding. The concentration of iron oxide formed in the silicon and manganese reduction processes is calculated by the following equations:

$$(SiO_2)_F + 2[Fe]_H \rightleftarrows \Delta\ Si_F + 2\ (FeO) \qquad (9)$$

$$(MnO)_F + [Fe]_H \rightleftarrows \Delta\ Mn_F + (FeO) \qquad (10)$$

where $(Si)_F$ and $(Mn)_F$ denote the concentrations of silicon and manganese, respectively, transferred from the metal

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

The Dependence of the Oxygen Content in the Seam Metal on the Composition of the Fluxing Material in the Automatic Welding of Low-Carbon Steels SOV/163-58-3-16/49

flux. In the silicon and manganese processes the oxygen concentration in the metals increases. When the silicon content in the flux is changed to 35-45% and the manganese content to 20-42% (molar) the oxygen content in the seam metal mounts to 0,04-0,07%. There are 4 figures, 3 tables, and 13 references all of which are Soviet.

ASSOCIATION: Leningradskiy politekhnicheskiy institut (Leningrad Polytechnical Institute)

SUBMITTED: October 1, 1957

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APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

DEMYANTSEVICH, V.P.; SHCHIPKOV, M.D.

Investigating the properties of 3kh2B8 and P9 metals welded on tools for hot pressing. Trudy LPI no.199:136-142 '58. (MIRA 12:9)

(Dies (Metalworking)--Maintenance and repair)
(Welding--Equipment and supplies)
(Metallography)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

S/125/61/000/007/013/013
D040/D113

AUTHOR: Shchipkov, M.D.

TITLE: The 12th and concluding Leningrad welders' conference

PERIODICAL: Avtomaticheskaya svarka, no.7, 1961, 95-96

TEXT: The XXII Leningradskaya itogovaya konferentsiya svarshchikov (The 12th and Concluding Leningrad Welders' Conference), dealing with welding production and research in 1960, was held from April 4-7, 1961 in Leningrad. The conference, which was organized by welding sections of the Leningradskaya oblast' Board of the NTO Mashprom, the Central Board of the NTO Sudprom, the NTO Vodnogo transporta (NTO of Transport on Water), NTO Energoprom, the Technical and Economic Council of the Lensovnarkhoz and the Dom uchenykh im. Gor'kogo (House of Scientists im. Gor'kiy), was attended by 385 delegates. Sixty six reports were read on welding technology. N.O.Okerblom, Professor, spoke on the prospects of developing welding science and technique. Nine reports on research into the welding of high-alloy nichrome steel were delivered. V.N.Zemzin, Candidate of Technical Sciences, and others reported on the results of investigating the tendency of welded joints to local failures in the area round the weld at high temperature, and welding of ГТ -25-700 (GT-25-700) and К -300-240 (K-300-240) turbines. R.A.Kozlov, Engineer, spoke about the hydro-

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gen brittleness of metal coatings. M.D.Tyul'kov, Candidate of Technical Sciences, and engineers A.S.Chubukov, O.A.Tsareva, and L.I.Dubovskaya, spoke on automatic argon arc welding of stainless steel tubes without backing rings. K.M.Ivanov, Engineer, reported on the effect of the aging temperature and the cooling rate on embrittlement of welded-on, nichrome, austenite-ferrite metal coatings. I.A.Zaks, Engineer, reported on the properties of welded austenite-ferrite coatings and joints made of "25-5" steel. Fifteen reports dealt with the mechanization and automation of welding operations. T.Ye.Mikhalevskiy and G.S.Alalykin, Engineers, reported on the prospects of preparing and automating the processes of manufacturing electrodes, powder wire and ceramic fluxes. V.Yu.Shishkin, Candidate of Technical Sciences, reported on the technology of manufacturing box-type elements of bridge trusses, and the building of automatic welding machines for this purpose. N.N. Plishkin, Engineer, reported on automatic welding of bronze lining on ship propeller screws. A.V.Derzhavin, Engineer, reported on the use of argon arc and resistance welding in the production of electric vacuum instruments. V.I.Dyatlov, Candidate of Technical Sciences, of the Kiyevskiy politekhnicheskiy institut (Kiyev Polytechnic Institute) reported on the application of the self-regulation principle in the designing, production and use of automatic welding machines. V.V.Tumanin and P.G.Ignatov, Engineers, reported on surfacing and welding in CO_2 at plants of the Lensovnarkhoz. K.V.Bagryanskiy, Candidate of Technical Sciences, of the

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The 12th and concluding Leningrad S/125/61/000/007/013/013
D040/D113

Zhdanovskiy metallurgicheskiy institut (Zhdanov Institute of Metallurgy) reported on the application of some ceramic fluxes for welding and surfacing. Six reports dealt with nonferrous metal welding: P.A.Alekf'yev, Candidate of Technical Sciences, reported on high-strength aluminum-zinc-copper alloys, G.A.Bel'chuk, Candidate of Technical Sciences, on argon-arc welding of aluminum and aluminum alloys with steel, and V.P.Demyantsevich on the study of the structure and properties of joints in the argon-arc welding of magnesium alloys. A.A.Alov, Professor, reported on research work done by the Chair of Welding of MATI in 1960. M.R. Shrayerman, Candidate of Technical Sciences V.N.Makurin, Engineer, S.K.Sliozberg, Candidate of Technical Sciences, and others delivered four reports on the metal properties of welded joints. V.M.Nikitin, Candidate of Technical Sciences, of the Moskovskiy vecherniy mashinostroitel'nyy institut (Moscow Evening Institute of Machine Building), reported on the results of investigating the welding of high-alloy austenitic and martensitic steels. D.G.Bykhovskiy, Engineer, spoke on the high-duty mechanized cutting of very thick metals. A.N.Shashkov, Candidate of Technical Sciences, Director of VNIIAvtogen, reported on burr-free cutting, on the results of investigating gas welding of brass, and on the welding and soldering of cast iron. A.G Semenov, Engineer (Klaypeda), reported on high-duty oxygen cutting using propane-butane. Reports on the strength and efficiency of welded structures were delivered by L.A.Gliman, Doctor of Technical Sciences, S.A.Dani-

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

lov, Professor, D.L.Navrotskiy, Candidate of Technical Sciences, N.G.Bazilevskiy, Candidate of Technical Sciences, A.V.Fabishevskiy, Doctor of Engineering, and others. V.Yu.Shishkin, Candidate of Technical Sciences, described the welding and assembling of an entirely welded RR bridge span. The following reported on new equipment and rigs for various welding methods: K.A.Kocherginin, Candidate of Technical Sciences; V.N.Kunin, Engineer, B.M.Nekrasov, Engineer; A.A.Alekseyev, Professor; and M.P Zaytsev, S.O.Libo, D.S.Faygenbaum, A.I.Komarchev, M.I.Zaks, V.A.Knigel', L.V.Glebov, N.Ye.Gedenidze, and E.B.Babichev, Engineers. V.I.Vill' and L.A.Shternin, Engineers, reported on VNIIESO work connected with friction welding. I.S.Shkolyar, Engineer, reported on ultrasonic flaw detection in welded ship hulls, and K.V.Migay, Candidate of Medical Sciences, on hygiene in electric welding. The Participants in the Conference decided to assist enterprises in the application of the latest welding techniques. Abstracter's note: Essentially complete translation.

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPKOV, M.D., kand.tekhn.nauk

Leningrad Conference on the Evaluation of Results in Welding Research. Svar. proizv. no.9:42-43 S '61. (MIRA 14:8)
(Welding research—Congresses)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPKOV, M.D.

Twelfth Leningrad Conference on the Evaluation of Results in Welding Research. Avtom.svar. 14 no.7:95 Jl '61. (MIRA 14:7)
(Welding—Congresses)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

35006

S/563/61/000/216/003/007
D215/D304

18.1245

AUTHORS: Demyantsevich, V.P., and Shchipkov, M.D.

TITLE: Joint structures and properties in argon-arc welded MA-2 (MA-2) alloy

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy, no. 216, Moscow, 1961. Svarochnoye proizvodstvo, 75 - 82

TEXT: Principal constituents of the MA-2 are 3 - 4 % Al, 0.15 - 0.5 % Mn, 0.2 - 0.8 % Zn, remainder Mg. Automatic argon tungsten arc welds were made in plates 200 x 100 x 5 mm, using a.c., a 6 mm diameter electrode, and 5 mm diameter wire with increased Zn (0.8 - 1.5 %) and Mn (0.4 - 0.8 %) contents. The edge preparation was an open single-V butt joint with variable included angle (30 - 120°), root gap (0 - 2 mm), and constant root face (1 mm) to give a range of weld metal dilutions. Welds were made on to stainless steel backing with a current of 200 - 400 A, arc voltage 22 - 33 V, welding speed 10 - 53 m/hr., and wire feed rate 25 - 88 m/hr. To define welding conditions the linear energy was used equal to

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$$\frac{V \times A \times 0.55 \text{ (assumed efficiency)}}{\text{welded speed}}$$

which gave a range of 1100 - 4300 cal/cm. Its influence was expressed in terms of (1) area of fusion (2) weld metal dilution (= % vol of fused parent metal in the weld). (1) Rose with linear energy and (2) stayed reasonably constant, so that the chemical composition did not vary greatly. All welds were fine-grained with a uniform distribution of intermetallic constituents at the grain boundaries. Grain growth and coarseness of the intermetallics in the heat-affected zone increased with increasing linear energy. Annealing for 30 min. at 320 and 420°C did not completely homogenize the cast weld structure, but considerably reduced the quantity of intermetallic constituents, improved the bend angle from 101° to 160° and 166° respectively, and increased weld microhardness from 45 to 72 and 59 V.P.N. respectively. Fracture of machined and dressed tensile and bend specimens occurred mainly in the weld (associated with weld defects), but also in the parent metal close to the fusion boundary. Mean tensile strength was 22.4 kg/mm^2, which was comparable with that of the parent metal. There are 14 figures, 4 tables

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Joint structures and properties ... S/563/61/000/216/003/007
D215/D304

and 2 Soviet-bloc references.

ASSOCIATION: Leningradskiy politekhnicheskiy institut (Leningrad Polytechnic Institute)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

SHCHIPKOV, M.D.

Effect of silicon and manganese reduction processes on the formation of porosities during the electric welding of low-carbon steel. Trudy LPI no.216:102-109 '61. (MIRA 14:11)
(Steel--Welding) (Gases in metal)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

37990

S/137/62/000/005/134/150
A160/A101

AUTHORS: Demyantsevich, V. P., Shchipkov, M. D.

TITLE: The structure and the properties of welded joints in the argon-arc welding of the MA -2 (MA-2) alloy

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 5, 1962, 20, abstract 5E89 ("Tr. Leningr. politekhn. in-ta", 1961, no. 216, 75 - 82)

TEXT: Studied were the structure and properties of welded joints in the argon-arc welding of the MA-2 alloy containing 3 - 4% Al, 0.15 - 0.5% Mn, 0.2 - 0.4% Zn, and Mg (rest). 200 x 100 x 5 mm plates from MA-2 alloy were butt-welded with a non-consumable W-electrode (diameter - 6 mm) and with the feed of a filler wire of 5 mm in diameter. As to its chemical composition, the filler wire differed from the base metal by its higher content of Zn and Mn. To produce macro and microsections, cross templets were cut out from experimental welded test pieces. On these sections, the effect was then determined of the base and filler metal on the structure and microhardness of the seam metal. The effect of a change in the welding condition on the structure of the metal near the seam

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

S/137/62/000/005/134/150
A160/A101

The structure and the...

seam and on the forming and the chemical composition of the seam metal were also analyzed. On the basis of test results, it is being concluded that the strength properties of the seam metal in the argon-arc welding of MA-2 alloy correspond to the strength properties of the base metal in its state of delivery.

V. Tarisova

[Abstracter's note: Complete translation]

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

L 18164-63 EWP(k)/EWP(q)/EWT(m)/BDS AFFTC/ASD Pf-4 JD/HM
ACCESSION NR: AP3004767 S/0135/63/000/008/0046/0047

AUTHOR: Shchipkov, M. D. (Candidate of Technical Sciences)

65

TITLE: Leningrad convention on basic science and technology of welding 18

SOURCE: Svarochnoye proizvodstvo, no. 8, 1963, 46-47

TOPIC TAGS: welding

ABSTRACT: The XIV Welders' Convention was held in Leningrad on April 16-18, 1963 to discuss basic industrial, scientific and technical progress in the field of welding for 1962. The convention was organized by the welding sections of the NTO MASHPROM (Scientific and Technical Society of the Machine-Building Industry), NTO SUDPROM (Scientific and Technical Society of the Ship-Building Industry), NTO vodnogo transporta (Scientific and Technical Society of Water Transportion Industry), NTO ENERGOPROM (Scientific and Technical Society of the Power Engineering Industry), and the Technical-Economical Soviet of Lensovnarkhoz. It was attended by 300 representatives from Leningrad and 12 other cities of the Soviet Union. In the introductory address N. O. Okerblo, Doctor of Technical Sciences, noted the necessity for applying mathematical methods to design practices. The 52 reports

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

L 18164-63
ACCESSION NR: AP3004767

submitted dealt with the technology, design, productivity, and new equipment for metal welding and cutting. The article lists the authors and subjects of all reports.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 28Aug63 ENCL: 00

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

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APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

L 15768-63 EWP(k)/EWP(q)/EWT(m)/BDS AFFTC/ASD Pf-4 JD/HM

ACCESSION NR: AP3004560 S/0125/63/000/008/0092/0093

AUTHOR: Shchipkov, M. D.

TITLE: Leningrad welding conference [April 1963]*

SOURCE: Avtomaticheskaya svarka, no. 8, 1963, 92-93

TOPIC TAGS: ferritic austenitic steel welding, chromium nickel steel welding, weld strength, titanium alloy welding deformation, resistance welding control device, aluminum alloy arc welding, friction welding, chromium nickel steel tube welding, aluminum manganese alloy welding, resistance welding control

ABSTRACT: *The fourteenth conference on industrial welding and welding research completed in 1962 was held in Leningrad in April 1963. Fifty-two reports on welding technology, design and efficiency of welded structures, and welding and cutting equipment were presented at the conference, which was attended by 300 representatives of various organizations of Leningrad and 12 other cities of the Soviet Union. Engineer I. A. Zaks (Leningrad Kirov Plant) reported on welding 25Cr-5Ni ferritic-austenitic steel and welding of this steel to fully

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ACCESSION NR: AP3004560

austenitic chromium-nickel steel. The report of Engineer V. A. Makurin dealt with the welding conditions for heat-treated steel, necessary to ensure a weld strength equal to that of the parent metal. A. S. Chubukov spoke on weld formation in various positions in welding circumferential joints with argon-shielded arc welding. A. I. Lebedev discussed determination of welding deformation in titanium alloys from the mechanical properties of the welded material. Engineer F. A. Aksel'rod informed the conference that a device for program control of resistance welding of steel parts produced satisfactory results. Engineer A. A. Sivokho described a new controlling device for resistance welders based on magnetic elements and semiconductor triodes. The device ensures the stability of welding current when the circuit voltage is changing. Reporting on argon-shielded arc welding of aluminum alloys, Engineer S. V. Chizhevskiy pointed out that the use of a transverse magnetic field permits control of basic parameters of the weld over a wide range. Candidate of technical sciences V. I. Vill' outlined the technology of friction welding of thin-walled tubes 30—100 mm in diameter, and welding of 1KhN9T [AISI 321] steel tubes to AMts [US 3003] alloy tubes with a wall as thin as 1.5 mm. Engineer L. A. Shternin reported on friction welding of aluminum or copper to

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ACCESSION NR: AP3004560

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steel. Seventeen reports were presented by various organizations such as the Institut metallurgii im. A. A. Baykova (Institute of Metallurgy), VNIIST, TsNIIMPS, the Plant imeni Nosenko, the Taganrog Plant "Krasny*y kotel'shchik," and the Ural'skiy politekhnicheskiy institut im. S. M. Kirova (Ural Polytechnic Institute).

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 27Aug63 ENCL: 00

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

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APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

ACCESSION NR: AT4038448 S/2563/63/000/229/0065/0072

AUTHOR: Petrov, G. L.; Shchipkov, M. D.

TITLE: Sources of gases in titanium alloy welds

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy*, no. 229, 1963. Svarochnoye proizvodstvo (Welding production), 65-72

TOPIC TAGS: titanium alloy, titanium alloy weld, alloy weld, TIG weld, MIG weld, submerged arc weld, AN-TZ flux, weld gas content, gas source, weld oxygen content, weld hydrogen content, weld nitrogen content, gas content

ABSTRACT: In the TIG, MIG, and submerged arc welding of titanium alloys, gases may come into the weld metal from the base metal, the electrode or filler wire, shielding gases, or from the flux. The nitrogen content in the weld metal usually does not exceed 0.04—0.05%, depending on the nitrogen content in the electrode, filler wire, or base metal. The main source of hydrogen and oxygen in shielding gases is water. At hydrogen contents in the base metal up to 0.001%, the use of commercial-grade argon (dew point, -40C) may increase the hydrogen content in the weld metal to 0.002—0.003%; high-purity argon with a

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ACCESSION NR: AT4038448

dew point of -70C causes little or no increase in hydrogen content. The hydrogen and oxygen contents of weld metals deposited in different shielding media with an electrode wire containing 0.001—0.004% hydrogen and 0.14% oxygen are shown in Table 1 of the Enclosure. The AN-TZ flux requires degassing prior to application. Orig. art. has: 4 figures and 4 tables.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 12Jun64 ENCL: 01

SUB CODE: NM NO REF SOV: 008 OTHER: 002

ATD PRESS: 3041

Card 2/3

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

ACCESSION NR: AT4038448

ENCLOSURE: 01

Table. 1. Hydrogen and oxygen contents of weld metals

Shielding medium	Oxygen %	Hydrogen %	Electrode wire
High-purity argon	0.15	0.0032	
80% helium 20% argon	0.14	0.0021	with 0.004% hydrogen
AN-TZ flux	0.44	0.0010	
AN-TZ flux with expelled air	0.20	0.00070	with 0.001% hydrogen

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

ACCESSION NR: AT4038451 S/2563/63/000/229/0101/0105

AUTHOR: Shchipkov, M. D.; Filimonov, G. Ya.

TITLE: A study of the tendency toward intergranular corrosion in spot welded joints

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy*, no. 229, 1963, Svarochnoye proizvodstvo (Welding production), 101-105

TOPIC TAGS: steel, steel OKh18N9, spot welding, steel corrosion, intergranular corrosion, weld joint corrosion, anodic pickling, austenitic steel

ABSTRACT: Generally, austenitic steel of the 18-8 type is stable under the influence of the atmosphere or various acids. However, under certain conditions, this steel exhibits a tendency toward intergranular corrosion, the intensity of which depends upon the crystalline structure of the metal. In the experiments described in the present paper, spot-welded (8,000 or 10,000 amps. for 0.16 or 0.4 seconds) joints of OKh18N9 steel were tested for resistance to intergranular corrosion by the standard method described in GOST 6032-58, involving anodic pickling in an electrolyte of 60% sulfuric acid plus 0.1% urotropine. Welded specimens were subjected to rupture strength tests and visual examination of their structure either in

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ACCESSION NR: AT4038451

the as-welded conditon, after annealing at 700 C (2-3 hrs.), or after austenitization by quenching in water from 1150 C. On the basis of the results obtained, it is concluded that electrical resistance spot-welding noticeably decreases the resistance of OKh18N9 steel to intergranular corrosion; the severest corrosion occurs in the base-metal region adjacent to the welded spot. In the as-welded condition, the fused metal of the spot has a considerably lower resistance to intergranular corrosion than the base-metal adjacent to the spot; development of corrosion occurs uniformly in both the peripheral and central regions of the spot. After sensitizing annealing of spot-welded joints in the critical range of temperatures (650-700 C) for 2 hours, cracks may develop in the base-metal starting from the fused zone boundary under the influence of a corrosive medium. These cracks appear as the result of "knifeline attack" and are of the ramifying type. Austenitization of OKh18N9 steel by quenching in water from 1150 C considerably increases the resistance of the weld spot to intergranular corrosion. Orig. art. has: 5 figures and 2 tables.

ASSOCIATION: Leningradskiy politekhnicheskiy institut im. M. I. Kalinina (Leningrad Polytechnical Institute)

SUBMITTED: 00 DATE ACQ: 12Jun64 ENCL: 00

SUB CODE: MM NO REF SOV: 003 OTHER: 000

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

L 14974-65 EWT(m)/EPF(c)/EPF(n)-2/EPR/EWP(k)/EWP(b)/EWP(v)/EWP(t) Pf-4/Pr-4/Ps-4/Pu-4 IJP(c)/ASD(f)-2/ASD(m)-3 JD/HM/MLK

ACCESSION NR: AT4048085 S/0000/64/000/000/0273/0282

B

AUTHOR: Petrov, G.L., Shchipkov, M.D., Lebedev, A.I., Yazy*kov, A.S.

TITLE: Some problems of welding titanium and titanium alloys

19 27

SOURCE: Soveshchaniye po metallurgii, metallovedeniyu i primeneniyu titana i yego splavov. 5th, Moscow, 1963. Metallovedeniye titana (Metallography of titanium); trudy* soveshchaniya, Moscow, Izd-vo Nauka, 1964, 273-282

TOPIC TAGS: titanium, titanium alloy, titanium alloy welding, titanium welding, argon arc welding

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ABSTRACT: The weld seams of titanium and titanium alloys must pass very rigid requirements, both in relation to the weld metal and accuracy. The Kafedra svarochnogo proizvodstva Leningradskogo politekhnicheskogo instituta im. M.I. Kalinina (Welding Department of the Leningrad Polytechnical Institute) has therefore investigated the sources of oxygen and hydrogen saturation of the titanium seams, and the possibility of redistribution of these gases at the boundaries of the α and β crystals during welding and of residual deformations during argon arc welding of titanium alloys. The sources of oxygen and hydrogen are water vapor and/or the admixture of the inert gases used during welding. It was found that protection by argon does not prevent titanium oxidation at all the

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temperatures possible during fusion welding, even when there is no air present. During argon arc welding, the moisture in the argon may be the source of hydrogen penetration. This moisture can be eliminated by using titanium shavings. On the basis of tests, it is noted that the initial hydrogen concentration in the filling wire greatly affects the hydrogen concentration in the welded metal. On the basis of B.A. Movchan's equation and calculations according to N. N. Rikalin and G. L. Petrov, it is found that the maximum difference in oxygen and hydrogen concentration at the phase boundary is very low. The redistribution of oxygen and hydrogen may be only local. Coarse methods of testing the base metal, heated metal and weld seam did not show any increase in hardness. Theoretical calculations performed according to N.O. Okerblom gave results lower than those obtained during the tests. This is explained by the high value of the ratio between the yield point and rigidity modulus at normal temperature and its sharp drop as the temperature increases. The paper concludes that hydrogen may either be introduced into or removed from the titanium and titanium alloys depending on the partial pressure of the hydrogen in the gas phase. When the argon used for welding is additionally purified, there is no hydrogen saturation. Pure argon thus ensures satisfactory quality

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ACCESSION NR: AT4048085

of the welded metal. The AN-T3 flux does not protect the surface against oxygen. Argon arc welding thus ensures the best weld seams without requiring redistribution of oxygen and hydrogen at the weld. Residual deformation during the argon arc welding of titanium alloys is determined by the specific linear energy of welding, and by the thermal, physical and mechanical properties of the welded alloy. The proposed method of calculation permits one to find the residual deformation during argon arc welding of titanium alloys with sufficient accuracy. Orig. art. has: 6 figures, 3 tables and 7 equations.

ASSOCIATION: Kafedra svarochnogo proizvodstva Leningradskogo politekhnicheskogo instituta im. M.I. Kalinina, (Welding Department, Leningrad Polytechnical Institute)

SUBMITTED: 15Jul64 ENCL: 00 SUB CODE: MM

NO REF SOV: 010 OTHER: 000

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L 61836-65 EWT(m)/EWP(w)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c)
Pf-4 IJP(c) MJW/JD/HM
ACCESSION NR: AT5014463 UR/2563/65/000/245/0059/0065

28
26
B+1

AUTHOR: Petrov, G. L.; Shchipkov, M. D.

TITLE: The influence of the linear energy consumption on the structure and hardness of the metal in the weld zone during the welding of Alpha-titanium alloy

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy, no. 245, 1965, Svarochnoye proizvodstvo (Welding production), 59-65

TOPIC TAGS: weld metal hardness, weld zone structure, specific energy effect, linear energy consumption, titanium alloy welding, Alpha titanium

ABSTRACT: Welding compounds of technical Ti and some of its α-alloys may exhibit reduced mechanical properties in the weld zone as a result of structural transitions. An earlier paper reported on the influence of linear energy consumption during welding of technical titanium 2 and 4.5 mm thick (S. M. Gurevich, Avtomaticheskaya svarka, Kiev, 1956, p. 18-21). The present investigation aimed at establishing the relation between the hardness and the characteristics of these structural transitions within the weld zone during argon arc and automatic welding of 20 to 30 mm thick alloy #3 under flux. Tests showed that: 1) the zone of thermal influence increases with an increase in linear energy consumption

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L 61836-65

ACCESSION NR: AT5014463 2

(per unit length of the weld). These variations are independent of the type of arc welding; 2) with an increase in energy consumption from 260 to 5,500 cal/cm the hardness of the metal seam increases slightly with a corresponding decrease in hardness within the thermal influence zone; 3) at low energy consumption and relatively fast cooling rates, the weld metal has a fine-grained primary β-phase with α-phase formation at the boundary; within the grains one finds fine needles of the α'-phase martensite. An increase in energy consumption increases the size of the primary β-phase grains while the α-phase takes the form of a thin lattice along the boundaries of the stretched-out primary grains; 4) in the zone of thermal influence, in the case of low energies one observes fine-grained polyhedral structures with a significant number of α'-phase sections having a fine needle-shaped martensite structure. Increases in energy consumption lead to increases in grain size and to a certain fractionation of the α-phase grains. The amount of α'-phase is decreased, leading to the observed decrease in hardness; and 5) 9 months' aging did not produce any noticeable changes. Orig. art. has: 4 figures, 1 formula and 2 tables.

ASSOCIATION: Leningradskiy politekhnicheskiy institut im. M. I. Kalinina (Leningrad Polytechnic Institute)

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Card 2/2 NO REF SOV: 006 OTHER: 000

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920005-7

L 61840-65 EWT(d)/EPA(s)-2/EWT(m)/EWP(w)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(h)/
EWP(z)/EWP(b)/EWA(h)/EWA(c) Pf-4/Pab/Peb IJP(c) JD/HM/HW/EM
ACCESSION NR: AT5014465 UR/2563/65/000/245/0080/0086 46

AUTHOR: Shchipkov, M. D.; Filimonov, G. Ya. 41 B+1

TITLE: The influence of the basic parameters of ultrasonic welding on the structure and properties of copper and nickel junctions

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy, no. 245, 1965. Svarochnoye proizvodstvo (Welding production), 80-86

TOPIC TAGS: ultrasonic welding, point welding, copper welding, nickel welding, welding pressure, welding time

ABSTRACT: Published studies on ultrasonic point welding of metals (see, e.g., L. L. Silin, G. F. Balandan, M. G. Kogan, Ul'trazvukovaya svarka, M., Mashgiz, 1962, 251, p. 251; N. A. Ol'shanskiy, Avtomaticheskaya svarka, 1961, no. 3, p. 3-11) indicate that this type of welding is quite satisfactory and that the size of the welding point, the heating temperature, and the possible structural changes in the metal depend on the amplitude and frequency of oscillation, the contact pressure, and the duration of welding. The present authors investigated the influence of the contact pressure and the welding time on the mechanical properties and structure of the metal of point junctions between deformed and

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ACCESSION NR: AT5014465

annealed copper 0.2-0.28 mm thick and deformed nickel 0.12 mm thick. The welding was carried out on the UZSA-1 machine whose magnetostriction converter was fed with 18,000-21,000 cps 16-18 μ amplitude oscillations by the UZM-10 generator. Tests showed that the welds exhibit good properties and the strength of the welded samples proved to be comparable to the strength of the basic metal. In the case of deformed metals, a somewhat reduced hardness was encountered within the region of the welding point. On the other hand, in the case of annealed copper, the grains became finer and the hardness was enhanced. The optimum values of the contact pressure are fixed by the strength of the welded metal and the duration of the welding process. In the case of 0.2-0.28 mm Cu, the highest values of disrupting stress were achieved at a 110-145 kilogram contact pressure. The corresponding value for the annealed Cu was 90-110, and that for 0.12 mm deformed Ni was 145-175 kilograms. The greatest strength was achieved with a 1.5-sec. welding time. Orig. art. has: 4 figures and 2 tables.

ASSOCIATION: Leningradskiy politekhnicheskiy institut im. M. I. Kalinina (Leningrad Polytechnic Institute)

Joining of dissimilar Metals

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SOKOLOVSKIY, I.D.; SHADRIN, M.P.; DIKUSAR, F.I.; SHCHIPKOV, N.A.

Newspaper subscribers should receive their papers on time. Vest. sviazi 24 no.1:18-19 Ja '64. (MIRA 17:3)

1. Predsedatel' gruppy sodeystviya partiyno-gosudarstvennomu kontrolyu Donetskogo pchtamta (for Sokolovskiy). 2. Predsedatel' gruppy sodeystviya partiyno-gosudarstvennomu kontrolyu Rostovsko-go-na-Donu pochtamta (for Shadrin). 3. Nachal'nik Liskinskogo uzla svyazi Voronezhskoy oblasti (for Dikusar). 4. Nachal'nik Omskogo pochtamta (for Shchipkov).

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SHCHIPKOV, V.I., inzh.

Effect of air current parameters on the dustiness of the air in Karaganda coal mine longwalls. Izv. vys. ucheb. zav.; gor. zhur. no.10:73-78 '60. (MIRA 13:11)

1. Moskovskiy gornyy institut imeni I.V. Stalina. Rekomendovana kafedroy ventilyatsii i tekhniki bezopasnosti Moskovskogo gornogo instituta.
(Karaganda Basin--Mine ventilation)

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SHCHIPKOV, V. I., inzh.

Distribution of particles of ore dust along the length and width of a longwall. Izv. vys. ucheb. zav.; gor. zhur. 5 no.8:76-81 '62. (MIRA 15:10)

1. Moskovskiy gornyy institut. Rekomendovana kafedroy rudnichnoy ventilyatsii i tekhniki bezopasnosti.

(Mine dusts)

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