GUTTSAYT, Z.I.; KRAVCHENKO, V.A.; NIKITIN, N.S.; PANICHEVA, A.G. Prinimali uchastiye: GOL'DSHTEYN, R.I.; PANKRATOVA, O.M.; SAGAKSKAYA, V.G. KORYAGIN, I.D., kand.ekonom.nauk, red.

[Petroleum industry of the capitalist countries of Western Europe, the Near, Middle, and Far East, Canada, and Latin America] Neftianaia promyshlennost' kapitalisticheskikh stran Zapadnoi Evropy, Blizhnego i Srednego Vostoka, Dal'nego Vostoka, Kanady i Latinskoi Ameriki; kratkii obzor statisticheskikh dannykh. Pod red. I.D.Koriagina. Moskva, 1959. 302 p.

(MIRA 13:11)

1. Moscow. Gosudarstvennyy nauchno-issledovatel'skiy institut nauchnoy i tekhnicheskoy informatsii.
(Petroleum industry)

KRAVCHENKO, V.A.

1
4E2C

Analysis of the Indices and Special Features of the Electric Melting of Ferrosilicon and Silichrome at Two Works. V. V. Rukavishnikov and V. A. Kravchenko. (*Stal'*, 1956, (11), 989-993). [In Russian] Analysis of materials and electricity consumptions at the Chelyabinsk and Zaporozhe ferro-alloy works shows that in the period 1950-54 the practice at the former deteriorated more and more compared with that at the latter. This deterioration is attributed to insufficient immersion of electrodes and poor slag removal. Experience at Zaporozhe shows that elevated ferrosilicon slag viscosity can not be attributed to the presence of pieces of carborundum. The destruction of the middle and upper parts of the furnace stacks at Chelyabinsk is considered to be a consequence not of washing away of carborundum previously solidified on the walls, but of insufficient electrode immersion. An editorial note suggests that the explanations offered are incomplete. - S.K.

RB
MT

SOV/128-59-8-23/29

AUTHOR: Kravchenko, V.A., Engineer

TITLE: Letter to the Editor

PERIODICAL: Liteynoye proizvodstvo, 1959, Nr 8, pp 43-44 (USSR)

ABSTRACT: In this letter to the editor, the author opposes the methods of preparing the silicon-magnesium-alloy as suggested by D.E. Miklukhin and L.A. Belousov in "Liteynoye proizvodstvo", 1959, Nr 8. The author states that this method was already developed and tested by the department for silicon-alloys of the Zaporozh'ye ferro-alloys plant, together with the Dnepropetrovsk Metallurgical Institute and the Dnepropetrovsk Grey Iron Rolling Plant. This alloy was found inadequate. The author proposes - for the silicon-magnesium alloys - the method which was developed by A.Ye. Krivosheyev, G.Ye. Belay and L.S. Rudnitskiy (Liteynoye proizvodstvo, 1959, Nr 3). There are 5 Soviet references.

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KRAVCHENKO, V.A.; KHITRIK, S.I.

Reaction of silicon carbide with metals and oxides in the making of ferroalloys. Izv.vys.ucheb.zav.; chern.met. no.4: 87-98 '60. (MIRA 13:4)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Ferrosilicon--Metallography) (Silicon carbide)
(Chemistry, Metallurgic)

KRAVCHENKO, V.A., inzh.; KHITRIK, S.I., doktor tekhn.nauk

Solubility of silicon carbide in iron-silicon alloys. Stal' 20 no.6:520-522 Je '60. (MIRA 14:2)

1. Zaporozhskiy zavod ferrosplavov i Dnepropetrovskiy metallurgicheskiy institut.

(Silicon carbide) (Solubility)

18.7520

23174
S/148/60/000/007/021/023/XX
A161/A033

AUTHORS: Khitrik, S.I.; Kravchenko, V. A.

TITLE: The formation of silicon carbide in electric ferroalloy furnaces

PERIODICAL: Izvestiya vyeshikh uchebnykh zavedeniy. Chernaya metallurgiya, no. 7, 1960, 68 - 74

TEXT: The carbide formation processes during the melting of crystalline silicon, ferrosilicon, silicochrome, silicomanganese and silicocalcium has been studied on pieces taken from different zones in the furnace.. The pieces were studied by chemical, petrographic, and mineralogic analysis. It has been proven by such analysis and laboratory experiments that not only silicon oxide but also silicon carbide form side products. Silicon carbide was present in most of the specimen parts, beginning with the top and ending with the bottom levels in the furnaces, alongwith a great quantity of complex minerals. It was present in amorphous form as well as in clear cubic and polyhedral crystals. Various impurities in it (Al, Fe, Cr, Mn, C and other) colored it yellow, green, blue, blueish black. It was stated that the magma (of which the majority of the samples consisted) in contact with coke as well as coke impregnated with it had a

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The formation of silicon carbide ....

greenish color. It was revealed by careful microscopic investigation that the "green component" in the magma was coke turned into a peculiar form of green silicon carbide, apparently a transition product formed by the reaction of coke with liquid magma. It resembled very much the "siloxicon" described by N.Ye Filonenko (Ref. 13: Issledovaniye fazovogo sostava vozvratnykh materialov v proizvodstve karbida kremniya (Investigation of the Phase Composition of Recoverable Materials in the Silicon Carbide Production) Abrasivy, No. IX,TsBTI ENIMS, 1953). observed in the process of silicon carbide production in resistance furnaces. The article includes photomicrographs. Silicon carbide with an extraordinarily dense structure was found in transfer products from a furnace melting silicocalcium; it may be assumed that it crystallized from the liquid state, although any authors thought until recently that silicon carbide does not exist in liquid state. The greenish bloom on the inside of the graphite crucibles and graphite rods in the quartz glass melting process in induction vacuum furnaces was revealed to be fine crystalline SiC, and the crystals had also a blue and yellow color, and sometimes these were all present in one crystal. Minute silicon nuggets were also present in the bloom. It was concluded that silicon carbide may form in reactions:

The formation of silicon carbide ....

$$SiO_{2ж} + 3C_{гр} = SiC_{тв} + 2CO \quad (1)$$

$$\Delta Z^{\circ}_{(1)} = 125\,820 - 83.88\,T \text{ cal}$$

already at about 1,250°C, while the reaction of silicon reduction in production of 45-% ferrosilicon (Ref. 18. V. P. Yelyutin, Yu. A. Pavlov et al. Proizvodstvo ferrosplavov (Ferroalloy Production), Metallurgizdat, 1957) is possible at 1,377°C, and in production of 75-% ferrosilicon at 1,485°C. The formation of carborundum is possible in the reaction.

$$Si + C = SiC,$$

$$\Delta Z^{\circ}_{(2)} = -24400 + 8.3T \text{ cal.} \quad (2)$$

As the flue gas contains up to 85 % carbon oxide, the reaction

$$3Si_{пар} + 2CO = SiC_{тв} + SiO_2$$

$$\Delta Z^{\circ}_{(4)} = -483090 + 195.95\,T \text{ cal} \quad (4)$$

is also possible. The possibility of SiC formation reactions was studied in the

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The formation of silicon carbide ....

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A161/A033

laboratory (in a Tamman furnace), and the origination of a liquid phase in the charge used for ferrosilicon was already observed at 1,300 - 1,400 °C. Such temperatures are possible at high levels in modern 10,000 kva ferroalloy furnaces. The probability of the reactions (2) and (4) was confirmed. A piece of coke submerged into liquid ferrosilicon soon turned into silicon carbide (greenish pseudomorphous SiC). Ferrosilicon was melted in a graphite crucible and held in CO covered with greyish-green amorphous SiC. The formation of silicon carbide became more intense at a rise in temperature; SiO was present together with SiC in the forming layer. Engineer Yu. V. Chepelenko carried out the temperature measurements in the ferroalloy furnace. There are 5 figures and 20 references: 15 Soviet-bloc and 5 non-Soviet-bloc. The references to English language publication read as follows: E. E. Thum, Metal Progress, vol. 70, No. 4, X, 1956; G. N. Baumann, Journal of the Electrochemical Society, 99, 1952, No. 3.

ASSOCIATION: Dnepropetrovskiy metallurgicheskiy institut (Dnepropetrovsk Metallurgical Institute)

SUBMITTED: June 25, 1959.

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88197
S/133/60/000/012/007/015
A054/A027

1.1000 (2208)

AUTHORS: Kravchenko, V., Engineer, and Nikolayev, V., Engineer

TITLE: News in Brief

PERIODICAL: Stal', 1960, No. 12, pp. 1106-1107

TEXT: In the Zaporozh Ferro-Alloy Plant: 1) Tests were carried out to apply 3 or 4 instead of 6-8 sectional sheath for self-discharging electrodes. A smaller number of vertical seams on the electrode casing reduced the coking of the contact surfaces of bronze shoes; the electric contact between shoe and electrode and the useful life of shoes improved, the removal of electrodes was simplified, the repair time of the furnace shortened. 2) Better results were obtained with melting metal manganese from granulated silicomanganese (0-20 mm) than with crushed silicomanganese. The kinetic conditions of reactions improved, increasing the furnace output by 4-5% and reducing electric power consumption. 3) Tests were carried out with melting of ferrochrome (Xp000, Xp00 = Khr000, Khr00) by adding various amounts of silicochrome in the furnace bottom, before charging, between 300 and 1,100 kg per charge. The best results were obtained with 800 kg in a charge of doubled quantity. By feeding silicochrome on the furnace bottom and doubling the amount of charge, output was raised by

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News in Brief

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S/133/60/000/012/007/015
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5%, extraction of chrome increased by 4-5% and power consumption decreased from 2,592 to 2,317 kwh/ton. 4) The optimum composition of slag was investigated for melting commercial grade silicomanganese, adding 20,30 and 40 kg of dolomite in the charge afterwards. Optimum results were obtained with 30 kg: the basicity of the slag was raised from 0.2 to 0.4 and the yield of manganese from 74.9 to 84.7%, the furnace output was increased by 6% and the specific power consumption was reduced by 6%. 5) The losses in ferrochrome in form of sow and scrap were about 1.5-10% of the weight of the melt. These losses increased when the lime was not roasted sufficiently, when melting time was extended and when the metal was not evenly poured. In order to reclaim the metal from the slag of the first ladle, the slag was kept separately on the dumping place. 6) Ten series of industrial scale tests were carried out with meltings having various contents of different slag thinners. As a result, the consumption of expensive fluorite could be lowered from 90 kg/ton to 30 kg/ton by substituting lime for fluorite. The cost of refined silicomanganese could thus be decreased by 50 rubles/ton. 7) A new composition of agglomerate, consisting of Polozhsk sand and iron ore was tested on an industrial scale, melting 45 and 75% ferrosilicium. The furnace output was not raised but the sand-ore agglomerate proved to be satisfactory in melting ferrosilicium in closed ferro-alloy furnaces, when the agglomerate consisted of particles of the 50-150 mm fraction. 8) In order to

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S/133/60/000/012/007/015
A054/A027

improve the method to determine small amounts of carbon in chrome alloys, silicochrome samples with 0.02-0.03% C content and ferrochrome samples with 0.06% C content were roasted under various conditions. The most complete burning of C-when present in small amounts- was attained in silicochrome and ferrochrome when using Wood's alloy at 1,370-1,380°C. 9) In order to reduce the carbon content of silicochrome to 0.020% and less, several methods were tested. The best results were obtained with two methods combined: increasing the holding time in the ladle before pouring to 1.5-2 hours and pouring through the lower hole of the ladle, or: pouring the metal from one ladle, after a holding time of 20 minutes, into another and holding it there for 40 minutes and screening out the -2 mm fraction after crushing. By these methods silicochrome can be obtained for the production of ferrochrome with a C-content of 0.060%. 10) Tests were carried out to produce Хр (Khr) 0000 type ferrochrome with low C-content. Optimum results were obtained when one charge contained 1,700 kg ores and silicochrome of the first charge was fed on to the furnace bottom, while silicochrome of the second charge was added into the melt. Voltage was reduced from 300 to 285 v, the carbon content of the initial silicochrome was decreased and it was possible to obtain regularly ferrochrome of the Khr0000 brand with a C-content below 0.060%. 11) Tests were made in order to establish the optimum heat conditions of lime kilns and it was found that

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underpressure at the chimney aspirator should be 190-200 mm water column, in the roasting zone: 20-25 mm water column; gas consumption should be 3,200-3,250 hm^3/h at a heat output of 2,100 cal/hm^3. By mounting a Pitot-tube before each burner, the distribution of the gas supply was made more uniform for each burner. A highly active metallurgical lime was obtained by these measures and fuel consumption was reduced by 10%.

KRAVCHENKO, V. A.

Cand Tech Sci- (diss) "Study of the behavior of silicon carbide in the production of ferro-alloys." Dnepropetrovsk, 1961. 27 pp; (Academy of Sciences Ukrainian SSR, Inst of Ferrous Metallurgy); 100 copies; price not given; (KL, 6-61 sup, 219)

DEKHANOV, N.M., inzh., otv. red.; KRAVCHENKO, V.A., inzh., zames. otv. red.; RAGULINA, R.I., inzh., red.; YEM, A.P., kand. tekhn. nauk, red.; GASIK, M.I., assisten, red.; ZEL'DIN, V.S., inzh., red.; SAKHAROV, R.S., red.; BELIKOV, Yu.V., inzh., red.; KOCHERGA, N.T., ved. red.; SYCHUGOV, V.G., tekhn. red.

[Development of the iron alloy industry in the U.S.S.R.] Razvitie ferrosplavnoi promyshlennosti SSSR. Kiev, Gos. izd-vo tekhn. lit-ry, USSR, 1961. 243 p. (MIRA 15:4)

1. Ukraine. Gosudarstvennyy nauchno-tekhnicheskiy komitet. Institut tekhnicheskoy informatsii. 2. Zaporozhskiy zavod ferrosplavov (for Dekhanov, Kravchenko, Ragulina). 3. Dnepropetrovskiy metallurgicheskiy institut (for Gasik, Belikov).
(Iron industry)

DEKHANOV, N.M., inzh.; KRAVCHENKO, V.A., inzh.; VOLKOV, V.F., inzh.; SEREBRENNIKOV, A.A., inzh.; MORGULEV, S.A., inzh.; KULESHOV, P.Ya., kand.tekhn.nauk; YELENSKIY, F.Z., inzh.

Making 75-perecent ferrosilicon with gas coke. Stal' 21 no.12:1088-1089 D '61. (MIRA 14:12)
(Ferrosilicon--Electrometallurgy)
(Gas industry--By-products)

S/133/62/000/001/004/010
A054/A127

AUTHORS: Volkov, V. F., Sarankin, V. A., Kravchenko, V. A., Boitsov, L. I.

TITLE: Improving the smelting technology of carbon-free ferrochrome in arc furnaces

PERIODICAL: Stal', no. 1, 1962, 43

TEXT: A new method for smelting carbon-free ferrochrome in stationary 3,500 kW arc furnaces (with 420-mm diameter electrodes) was tested. The charge consisted of 4,000 kg chrome ore (55% Cr_2O_3), 1,620 kg silicochrome (50% Si) and 3,800 kg lime, (90% CaO). The new method differed from the conventional one in that silicochrome is fed in two batches: one on the furnace bottom (varying in amount), while the second part of silicochrome is added after the charge (chrome ore and lime) is smelted. 450 tests were made with Xp 0000 (Khr 0000) ferrochrome. By adding part of the silicochrome onto the bottom of the furnace, a great amount of the heat released by the heating of silicochrome could be utilized for smelting the charge, whereas when silicochrome was added later to the charge, the heat developed by the burning silicochrome is only wasted on the overheating of the charge already smelted. Optimum results were obtained when about half of

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the silicochrome (800 kg) was placed on the furnace bottom and half of it added to the charge. When less than 50% of silicochrome was fed onto the bottom, the smelting of the charge was delayed; adding more, the furnace lining was affected due to the intensive smelting of the charge. When about 50% of the total silicochrome was added, a considerable amount of silicium developed, on account of the reduction of chrome and ferro-oxides. This decreased the basicity of the slag and its smelting temperature. Adding silicochrome in two batches reduced the metal losses from 4 - 5 to 2 - 3% of the smelt. The new method also made it possible to maintain the carbon content at the same level in all heats and to use the Khr000 grade which contains not more than 0.06% C. Thus, the new process not only improves the smelting process but also the quality of the alloy. There is 1 figure.

SAPKO, A.I., kand.tekhn.nauk; DOBROV, V.P., kand.tekhn.nauk; DEM'YANETS, L.A., inzh.; KRAVCHENKO, V.A., kand.tekhn.nauk; DEKHANOV, M.M., inzh.

Electrohydraulic voltage regulators on arc furnaces for the manufacture of ferroalloys. Metall. i gornorud. prom. no.4:19-25 Jl-Ag '62. (MIRA 15:9)

1. Dnepropetrovskiy metallurgicheskiy institut (for Sapko, Dobrov, Dem'yanets). 2. Zaporozhskiy zavod ferrosplavov (for Kravchenko, Dekhanov).
(Electric furnaces) (Automatic control)

VOLKOV, V.F.; SAMANKIN, V.A.; KRAVCHENKO, V.A.; BOYTSOV, I.I.

Improving the technology of making carbon-free ferrochromium in arc furnaces. Stal' 22 no.1:43 Ja '62. (MIRA 14:12)
(Iron-chromium alloys--Electrometallurgy)

SAPKO, A.I., kand.tekhn.nauk; DOBROV, V.P., kand.tekhn.nauk; DEM'YANETS, L.A., inzh.; DEKHANOV, N.M., inzh.; VOLKOV, V.F., inzh.; KRAVCHENKO, V.A., inzh.; BOYTSOV, L.I., inzh.; SEMENOVICH, B.V., inzh.; FRISH, M.I., inzh.

Investigating power regulators with electromechanical and electrohydraulic drives on ferroalloy refining furnaces. Stal' 22 no.4:321-324 Ap '62. (MIRA 15:5)
(Electric furnaces)

KRAVCHENKO, V.A., kand.tekhn.nauk; SEREBRENNIKOV, A.A., inzh.

Research by the Zaporozhye Plant of Ferroalloys. Stal' 22 no.7:605 Jl '62. (MIRA 15:7)
(Iron alloys)

KRAVCHENKO, V.A., kand.tekhn.nauk; SEREBRENNIKOV, A.A., inzh.

Research by the Zaporozhye Plant of Ferroalloys. Stal' 22 no.9:815-816 S '62. (MIRA 15:11)
(Iron alloys)

BRUK, A.S.; LEYBOVICH, R.Ye.; KRAVCHENKO, V.A.; SEREBRENNIKOV, A.A.

Coke for the production of ferroalloys. Koks i khim. no.11:29-31 '62. (MIRA 15:12)

1. Dnepropetrovskiy metallurgicheskiy institut (for Bruk, Leybovich). 2. Zaporozhskiy ferrosplavnyy zavod (for Kravchenko, Serebrennikov).

(Iron alloys—Metallurgy) (Coke)

S/133/63/000/001/005/011
A054/A126

AUTHORS: Dekhanov, N. M., Volkov, V. F., Engineers, Kravchenko, V. A., Candidate of Technical Sciences, Frish, M. I., Engineer

TITLE: Putting into operation a large-capacity covered ferro-alloy smelter

PERIODICAL: Stal', no. 1, 1963, 41 - 44

TEXT: The first covered smelters for producing manganese silicate grades (Симн 14, Симн 17/Simn14 and Simn 17) were put into operation in the Soviet Union in 1962. First a conventional iron-smelter of 10,000 kw capacity was converted for this purpose. Its crown was made of slanting refractory concrete segments (250 mm thick, 50 tons in weight), clamped into a 600 x 300 mm annular reinforced concrete frame. The concrete used (grade"150")had a refractory capacity of 1,000°C and consisted of 330 kg/m^3 liquid glass (density: 1.38), 40 kg/m^3 sodium fluo-silicate, 577 kg/m^3 chamotte (in the form of finely crushed additive, 50% of which passes through a screen with 4,200 mesh/cm^2), 770 kg/m^3 small-grained filling material (with a grain size up to 5 mm, 15 - 20% minus 0.14 mm), 600 kg/m^3 large-grained filling material (20 - 5 mm fraction). The moisture content of the sodium fluo-silicate and of the small-grained additive should not exceed

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1.5 weight % prior to concreting. These components must be very accurately proportioned (± 2%). Several types of feeding chutes were tested made of Ст.0(St.0) and 1Х18Н9Т (1Kh18N9T) grade or cast of ЭИ-283 (EI-283) steel, finally of grade"150" concrete with a refractory capacity of 1,300°C, containing 350 kg/m^3 liquid glass (density: 1.38), 24 kg/m^3 sodium flourosilicate, 500 kg/m^3 finely crushed magnesite powder and 700 kg/m^3 chamotte gravel (10 - 20 mm). The service life of these chutes was about 35 days. At present the chutes are reinforced by stainless steel, 2 mm in diameter. The furnace charging is continuous and fully automatic and takes place by means of bunkers, ЛДА-12 (LDA-12) type weight-proportioning devices, including an electromagnetic vibrator and weighing belts. The charging mechanism can be set for any required capacity by regulating the vibrator. Removal and cleaning of the exhaust gases is carried out by a two-stage process, involving a pipe-system and scrubbers. According to NIIOGAZ calculations, the amount of gas in the second stage of cleaning (at a furnace-capacity of 7,600 kw) is 1970 standard m^3/hour and contains 10.05% CO_2, 60 - 72.7% CO and 0.0 - 2.29% O_2. The dust content of the removed gas after the first cleaning stage is 5 - 10 gr/standard m^3, which decreases to 0.1 - 0.0238 gr/standard m^3.

Putting into operation a large-capacity...

The undisturbed operation of the electrodes is ensured by making their fully welded coating of 2 mm thick iron. The diameter of the electrodes is 830 mm, their current density 7 a/cm^2. The change from the conventional to the new technology adapted for the converted furnaces must take place with great care. The charge must be fed in small batches around the electrodes, the level of the charge must be 600 - 700 mm for 8 hours, the furnace capacity must be kept low, but there should be a maximum load on the electrodes, i.e. they must penetrate deeply, almost as far as the bottom. For this purpose, after the furnace is put into operation, the amount of small coke in the first two charges must be 20 - 30% lower than prescribed. Improper furnace operation can be observed immediately from the drop in CO concentration and increase in the H_2 content of the gases, indicating water leakage from the cooling system, the critical H-content being 12%. If the pressure under the crown exceeds 8 - 10 mm water column, the reserve gas-system starts operating while the other one is being cleaned. There are 3 figures.

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SEREBRENNIKOV, A.A., inzh.; KRAVCHENKO, V.A., kand.tekhn.nauk; DEKHANOV, N.M., inzh.; BRUK, A.S., prof., doktor tekhn.nauk; LEYBOVICH, R. Ye., dotsent, kand.tekhn.nauk; BONCHAROV, V.F., inzh.

Making 75 percent ferrosilcon with molded coke. Stal' 23 no.1:44-46 Ja '63. (MIRA 16:2)

1. Zaporozhskiy zavod ferrosplavov i Dnepropetrovskiy metallurgicheskiy institut.

(Ferrosilocon—Electrometallurgy)

KRAVCHENKO, V.A., kand.tekhn.nauk; SEREBRENNIKOV, A.A., inzh.

Effect of the granulometric composition of charge mixture materials on the process of making 75 percent ferrosilicon. Stal' 23 no.1:46-50 Ja '63. (MIRA 16:2)

1. Zaporozhskiy zavod ferrosplavov i UkrNIISpetsstal'.
(Ferrosilicon—Electrometallurgy) (Coke—Testing)

KRAVCHENKO, V.A., kand.tekhn.nauk; SEREBRENNIKOV, A.A., inzh.

"High-silicon ferroalloys" by IA.S.Shchedrovitskii. Reviewed by V.A.Kravchenko, A.A.Serebrennikov. Stal' 23 no.1:56-57 Ja '63. (MIRA 16:2)

1. Zaporazhskiy zavod ferrosplavov i UkrNIISpetsstal'. (Iron alloys) (Shchedrovitskii, IA.S.)

IL'NITSKIY, L.Ya.; KRAVCHENKO, V.A.; CHERVETSOV, V.V.

An impulse dividing device. Izv. vys. ucheb. zav.; radiotekh. 5 no.4:534-537 Jl-Ag '62. (MIRA 16:6)

(Pulse techniques(Electronics))
(Electronic calculating machines)

KRAVCHENKO, V.A., inzh.; MIKHAYLOV, V.K., inzh.

Automatic roasting of mercury ores. Mekh. i avtom. proizv. 17 no.8:3-5 Ag '63. (MIRA 16:10)

L 15210-65 EWT(m)/EWP(w)/EWA(d)/EWP(t)/EPR/EWP(b) Pa-4 SSD/ASD(m)-3/AFTC(p)
MJW/JD/JG/MLK

ACCESSION NR: AT4046858 S/0000/64/000/000/0299/0303

AUTHOR: Borodulin, G. M.; Kravchenko, V. A.; Ply*shevskiy, A. I.

TITLE: Investigation of heavy chromium diffusion coatings 27 18 B+1

SOURCE: AN SSSR. Nauchny*y sovet po probleme zharoprochny*kh splavov. Issledovaniya staley i splavov (Studies on steels and alloys). Moscow, Izd-vo Nauka, 1964, 299-303

TOPIC TAGS: diffusion coating, gaseous state coating, chromium coated steel, chromium coating, coated steel property

ABSTRACT: A method has been developed for deposition of heavy diffusion coatings, including chromium, aluminum, and manganese coatings. The method is novel in that there is no direct contact between the medium which contains the coating metal and the article being coated. The method ensures a very strong bond between the coating and the base metal, permits the formation of coatings of any thickness, eliminates the danger of the coating-containing medium being fused to the article being coated, and produces coatings free of nonmetallic inclusions or gases. The method has been variously tested, including in chromium

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plating of finished articles such as bolts, bushings, and tubes and in chromium cladding of semifinished products such as slabs, which were subsequently hot and cold rolled into chromium-clad sheets 1.0—1.5 mm thick. The diffusion layer on 08KP steel slabs was approximately 6 mm thick with a surface chromium content of 40%. Sheet, 3 mm thick, hot rolled from these slabs, had a diffusion layer 0.1 mm thick with a surface chromium content of 27%. No difficulties were encountered in hot or cold rolling, or in deep drawing of the sheets. Corrosion tests of the chromium-coated 08KP steel specimens with a diffusion layer 1.5 mm thick and a surface chromium content of 52% showed that the chromium-coated steel has a corrosion resistance comparable and in some cases superior to that of 1Kh18N9T stainless steel. Tubes rolled from chromium-coated billets are of the same quality as tubes which are chromium coated after rolling, but the cost of the former is considerably lower. Chromium-coated articles can be carburized or nitrided. Surface hardness exceeding 70RC can be achieved. Orig. art. has: 6 figures and 1 table.

ASSOCIATION: none

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000826310002-9"

L 16210-65

ACCESSION NR: AT4046858

SUBMITTED: 16Jun64 ENCL: 00 SUB CODE: MM, IE

NO REF SOV: 000 OTHER: 000 ATD PRESS: 3139

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L 17536-65 EPA(s)-2/ENT(m)/EPF(c)/EPR/ENP(j)/T Pc-4/Pr-4/Ps-4/Pt-10 WW/RM
ACCESSION NR: AP4044193 S/0079/64/034/008/2586/2589

AUTHOR: Petrov, K. A.; Kravchenko, V. A.; Yevdakov, V. P.; Mizrakh, L. I.

TITLE: Properties of amides of phosphorus acids. VIII. Phenolysis and alcoholysis of amides of the pentavalent phosphorus acids.

SOURCE: Zhurnal obshchey khimii, v. 34, no. 8, 1964, 2586-2589

TOPIC TAGS: phosphorus acid amide, phenolysis, alcoholysis, pentavalent phosphorus acid

ABSTRACT: The phenolysis and alcoholysis of amidophosphates and amidophosphonates to form the corresponding esters was studied. These reactions with the amides of the pentavalent phosphorus acids were generally slower than with the trivalent phosphorus acids. Phenolysis of diamides of methylphosphonic acid (2:1 molar ratio of phenol: acid) gave diphenylmethylphosphonate, while a 1:1 molar ratio gave mixtures of diphenylmethylphosphonate and monoesters of the monoamides of methylphosphonic acid. Phenolysis of the diamides of phosphoric acid

Card 1/2

L 17536-65
ACCESSION NR: AP4044193

proceeded under more drastic conditions (190-250) and gave low yields of the partial phenolysis products. Phenolysis of the monoamides (e.g. of the diethylamide of the isobutylester of methylphosphonic acid) gave esters in good yields. Alcoholysis was somewhat more difficult than phenolysis. O-n-propyl-N-methylamidomethylphosphonate, heated with n-octanol(1:1) for 6 hours at 200C gave a 60% yield of O-n-octyl-O-n-propylmethylphosphonate. Alcoholysis was slower with lower alcohols, whil~ O-(1,2,5-trimethyl-4-piperidyl)-O-propylmethylphosphonate was formed quantitatively with 1,2,5-trimethyl-4-piperidol at 140-150C. The diamides of the acids of pentavalent phosphorus polycondensed with hydroquinone or with 2,2-di(4-hydroxyphenyl)propane to form non-combustible polyesters. Orig. art. has: 4 equations.

ASSOCIATION: None

SUBMITTED: 15Jun63 ENCL: 00

SUB CODE: IC NO REF SOV: 008 OTHER: 003

Card 2/2

RUNOV, M.A.; SEREBRENNIKOV, A.A.; KRAVCHENKO, V.A.

Investigating finely divided granulated ferrosilicon. Porosh. met. 5 no.7:8-12 Jl '65. (MIRA 18:8)

1. UkrNIIspetsstal'.

DEKHANOV, N .M.; BOYTSOV, L.I., kand. tekhn. nauk; KRAVCHENKO, V.A., kand. tekhn. nauk; SNEZHKO, P.F.; ZEL'DIN, V.S.; KHARLAMOV, I.G. [deceased]; RUNOV, M.A.; SEREBRENNIKOV, A.A.; MATYUSHENKO, V.I.

Production of high-quality ferrosilicon powder for heavy suspensions. Met. i gornorud. prom. no.4:14-16 Jl-Ag '65. (MIRA 18:10)

424-66 EWT(m)/EWA(d)/EWP(t)/ETI IJP(c) JD

AP6017772 SOURCE CODE: UR/0133/65/000/009/0818/0818

AUTHOR: Kravchenko, V. A. (Candidate of technical sciences); Ternovskiy, A. N. (Engineer) 88 B

ORG: Ukrainian Scientific Research Institute of Special Steels, Alloys, and Ferroalloys (Ukrainskiy nauchno-issledovatel'skiy institut spetsial'nykh staley, splavov i ferrosplavov)

TITLE: Production of heat resisting alloy EI437B by vacuum arc remelting

SOURCE: Stal', no. 9, 1965, 818 18 19 18

TOPIC TAGS: heat resistant alloy, vacuum arc, vacuum melting, vacuum arc furnace, electrode, ductility, metal rolling, metal forging, nitrogen, oxygen, hydrogen/EI437B heat resistant alloy

ABSTRACT: Electrodes were forged from 1-ton ingots cast from an alloy melted in an open arc furnace. After vacuum arc remelting the metal had excellent ductility during forging and rolling, and a long-time strength was obtained which was 22.6% higher than in a normally melted alloy. The oxygen content was reduced by 30-40%, hydrogen by 30-50%, and nitrogen by 10-30%. The finished output (in relation to the mass of the finished rods 26-35 mm in circumference and iron bars of the initial electromelting) amounted to 31.1 and 34.1% respectively when forged and cast electrodes are used. This work was done jointly with the "Dneprospetsstal" plant. [JPRS]

SUB CODE: 11, 13, 20 / SUBM DATE: none

Card 1/1 UDC: 669.187.26.001.5

ACC NR: AP7000366 SOURCE CODE: UR/0413/66/000/022/0143/0143

INVENTOR: Borodulin, G. M.; Dekhanov, N. M.; Kravchenko, V. A.; Plyshevskiy, A. I.

ORG: none

TITLE: Method of obtaining a bimetallic material. Class 48, 188818

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 22, 1965, 143

TOPIC TAGS: metal cladding, diffusion metal ~~cladding~~

ABSTRACT: This Author Certificate introduces a method of manufacturing clad metal products such as sheets, tubes and bars by impregnating the surface of the base metal with a sublimated substance without direct contact between them. In order to improve the corrosion and oxidation resistance of the surface layer, the impregnation is carried out at 1400—1450C, after which the article is hot or cold rolled. [TD]

SUB CODE: 13/ SUBM DATE: 15Dec61/ ATD PRESS: 5109

Card 1/1 UDC: 621.793.6:621.771.8

L 27459-66 EWT(m)/EWA(d)/EWP(t)/ETI/EWP(k) IJP(c) JD/HW

ACC NR: AP6017773 SOURCE CODE: UR/0133/65/000/009/0818/0819

AUTHOR: Kravchenko, V. A. (Candidate of technical sciences); Ternovskiy, A. N. (Engineer) 38

ORG: Ukrainian Scientific Research Institute of Special Steels, Alloys, and Ferroalloys (Ukrainskiy nauchno-issledovatel'skiy institut spetsial'nykh staley, splavov i ferrosplavov) B

TITLE: Improvement of ductility in two-phase and ferritic steels 17

SOURCE: Stal', no. 9, 1965, 818-819

TOPIC TAGS: ductility, ferritic steel, steel, metal forging, metal rolling, ductility, steel structure/Kh23N18 steel, Kh17N12M2T steel

ABSTRACT: To prepare for the conversion of production of billets and various sectioned shapes made from (O) Kh23N18 and Kh17N12M2T (EI448) steel ingots forged after rolling, the ductility of cast and deformed steel of both grades of a number of melts were studied at high temperatures. The change in steel structure was studied during heating at different temperatures and with different times which permitted the development of experimental heating conditions of 2.8-ton ingots before rolling into billets 175 mm square on an 825 mill. The energy force parameters were studied when the ingots of both steels were rolled and the quality of the rolled and forged metal was compared. Conversion of Kh17N13M2T steel forged after rolling with precise observation of the ingot heating conditions according to the optimal variation permitted an increase in labor productivity, an increase in the yield of finished metal by 11.4%, and a significant reduction of production expenses. This work was done jointly with the "Dneprospetsstal'" Plant. [JPRS]

SUB CODE: 11, 13, 20 / SUBM DATE: none UDC: 669.18-412:621.746.753.001.5

Card 1/1 fv

L 27457-66 EWT(m)/EWA(d)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6017774 SOURCE CODE: UR/0133/65/000/009/0819/0819

AUTHOR: Kravchenko, V. A. (Candidate of technical sciences); Ternovskiy, A. N. (Engineer)

ORG: Ukrainian Scientific Research Institute of Special Steels, Alloys and Ferroalloys (Ukrainskiy nauchno-issledovatel'skiy institut spetsial'nykh staley, splavov i ferrosplavov)

TITLE: Study of the quality and characteristics of melting high-strength steels using high-carbon ferromanganese containing a small amount of phosphorus

SOURCE: Stal', no. 9, 1965, 819

TOPIC TAGS: high strength steel, metal melting, phosphorus, steel, alloy, manganese, manganese steel, structural steel, ferromanganese/30KhGSA steel, 30KhGSNA steel, SP28 steel, SP43 steel, 25KhSNVFA steel, 45G17Yu3 steel

ABSTRACT: Experimental carbon ferromanganese containing a small amount of phosphorus (up to 0.025%) was used to melt 30KhGSA, 30KhGSNA, SP-28, SP-43, 25KhSNVFA and 45G17Yu3 steels. The phosphorus content in 30KhGSNA steel was thereby reduced 31.7% at the consuming rate of 9 kg/ton (kg/mg) of the alloy. Toughness was increased on the average of 20% while the share of the melts which did not pass initial tests (before homogenization) was reduced from 66 to 14%. The substitution of metallic manganese by the experimental alloy in the melting of high-strength, structural, low-magnetic and manganese steels (EI700 type) offers a significant economic saving. This work was done jointly with the Zaporozh'ye Ferroalloys Plant and the "Dneprospetsstal'" Plant. [JPRS]

SUB CODE: 11 / SUBM DATE: none

Card 1/1

UDC: 669.187.2.001.5

KRAVCHENKO, V.A., kand. tekhn. nauk; PERNOVSKIY, A.N., inzh.; KHASIN, G.A.; DAVIDYUK, V.N.

New developments in research. Stal' 25 no.8:818-819 S '65. (MIRA 18:9)

MASHCHENKO, Fedor Ananʹyevich; GALITSKIY, Dmitriy Pavlovich; KRAVCHENKO, Valeriy Andreyevich; KIREYEVA, T., red.

[Technology of logging operations in the Maritime Territory ensuring the preservation of young growth] Primorskaia tekhnologiia lesosechnykh rabot, obespechivaiushchaia sokhranenie podrosta i molodniaka. Vladivostok, Dal'nevostochnoe knizhnoe izd-vo, 1964. 15 p. (MIRA 18:5)

KRAVCHENKO, V.B.

Certain crystallochemical features of borates. Zhur. strukt. khim. 6 no.1:88-96 Ja-F '65.

(MIRA 18:12)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR, Novosibirsk. Submitted November 10, 1963.

KRAVCHENKO, V.B.; BOKIY, G.B.

Crystalline structure of searlesite $NaBSi_2O_5(OH)_2$. Dokl. AN SSSR 143 no.3:690-692 Mr '62. (MIRA 15:3)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR.
2. Chlen-korrespondent AN SSSR (for Bokiy).
(Searlesite)

KRAVCHENKO, V.B.

Crystalline structure of $BaB_2O_4.4H_2O = Ba[B(OH)_4]_2$.
Zhur.strukt.khim. 6 no.5:724-728 S-O '65.
(MIRA 18:12)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR, g. Novosibirsk. Submitted February 10, 1964.

KRAVCHENKO, V.B.

Crystal structure of the monoclinic modification $SrB_2O_4 \cdot 4H_2O$. Zhur.strukt.khim. 5 no. 2:317 Mr-Ap '64. (MIRA 17:6)

1. Institut neorganicheskoy khimii Sib.otdeleniya AN SSSR, Novosibirsk.

KRAVCHENKO, V.B.

Crystalline structure of searlesite $NaBSi_2O_5(OH)_2$.
Kristallografiia 9 no.2:182-189 Mr-Ap'64. (MIRA 17:5)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR.

KRAVCHENKO, V.B.

Crystalline structure of calcium diborate hexahydrate $Ca[B_2O(OH)_6].3H_2O$. Zhur.strukt.khim. 4 no.2:271-273 Mr-Ap '63. (MIRA 16:5)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR, Novosibirsk.

(Calcium borates) (Crystallography)

KRAVCHENKO, V.B.

Crystal structure of $BaB_2O_4 \cdot 4H_2O$. Zhur.strukt.khim. 4 no.5: 768-770 S-O '63. (MIRA 16:11)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR.

KRAVCHENKO, V.B.; BOKIY, G.B.

Some physical properties of natural and artificial diamonds and their dependence on the atomic structure. Trudy IAFAN AN SSSR Ser. geol. no.9:178-186 '63. (MIRA 16:12)

KRAVCHENKO, V.D., inzh.; OMEL'CHENKO, F.S., kand. tekhn. nauk

Viscosity of the micelles of sunflower seed oil in hexane.
Masl.-zhir. prom. 29 no.8:13-14 Ag '63. (MIRA 16:10)

1. Krasnodarskiy institut pishchevoy promyshlennosti.

KRAVCHENKO,V.D.(Moskva); LEVITOV,V.I. (Moskva)

Satoh's probe theory. Izv.AN SSSR. Otd.tekh.nauk no.10:14-28 O'55. (MLRA 9:1)

(Corona (Electricity))

KRAVCHENKO, V.D.

105-7-7/29

AUTHOR: KRAVCHENKO,V.D., Engineer, LEVITOV,V.I., cand.tech.sc., POKOV,V.I., Corresponding Member of the Academy of Science of the U.S.S.R.

TITLE: Measuring Corona Losses on Lines in Service. (Ob izmerenii poter' moshchnosti na koronu na deystvuyushchikh liniyakh, Russian)

PERIODICAL: Elektrichestvo, 1957, Nr 7, pp 31 - 34 (U.S.S.R.)

ABSTRACT: The corona loss is only connected with the reactive currents of the lines. A diagram shows a one-phase line and an antenna earthed exactly in the middle above a measuring element. The potential supplied to the antenna is distributed in such a way that one magnitude in the center of the antenna is equal to zero. Thus the charge of such an antenna depends on the charge on the surface of the line as well as on the corona-space charge. The proportionality coefficient is a constant magnitude and is determined by the geometric measurements of the antenna as well as by the measurements which characterize the mutual position of antenna and line. This makes it possible to carry out the measurements of the corona losses by means of antennae. A symmetric distribution of the corona-space charge in relation to the line axis was assumed and experimentally checked in the laboratory. The data obtained this way were compared with the corona losses of direct measurements and coincided well with them.

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Measuring Corona Losses on Lines in Service. 105-7-7/29

Thus the investigation proved the possibility of measuring the corona losses of lines in service by means of antennae. (With 8 illustrations and 1 Slavic reference).

ASSOCIATION: G.M.KRZHIZHANOVSKIY Institute of Energetics of the Academy of Science of the U.S.S.R. (Energeticheskiy institut imeni G.M. KRZHIZHANOVSKOGO Akademii Nauk S.S.S.R.)

PRESENTED BY:
SUBMITTED: 7.2.1957
AVAILABLE: Library of Congress

Card 2/2

S/024/61/000/003/011/012
E140/E463

9.1000

AUTHOR: Kravchenko, V.D. (Moscow)

TITLE: The theoretical justification of the antenna method of measuring power loss in ac-corona

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1961, No.3, pp.126-133

TEXT: The antenna method for measuring ac-corona power loss (Ref.1: Kravchenko V.D., Levitov V.I., Popkov, V.I., Elektrichestvo, 1957, No.7) is based on the fact that the potential of antennas extended parallel to the conductors of the lines emitting corona, outside the space-charge region are defined by the same equations in Maxwell potentials as before the formation of the corona. By the charge of each emitting conductor in these equations is understood the sum of charges directly on the conductor and in the space charge surrounding it. The potentials are calculated in the same way as before formation of corona, from the mutual positions of the conductors and antennas. Adding to these equations, further equations flowing from the condition of grounding of the antennas, it is possible to express the total charge of the corona emitting conductors (q_A, q_B, q_C) by the

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antenna potentials. This permits finding the charges of the corona emitting conductors and thus the power loss P, equal to

$$P = \frac{1}{T}\int_{(T)} (U_A dq_A + U_B dp_B + U_C dq_C)$$

if the conductor potentials (U_A, U_B, U_C) can be measured. To apply the potential equations in the presence of corona in Ref.1 it was stated that it was necessary for the space charge of each conductor to be plane-parallel and radially symmetrical with respect to the conductor at all times. In effect, with these conditions respected, the field outside the space charge region is identical to the field of the same charge concentrated on the axis of the corona emitting conductors, which lead to the same equations for the antenna potentials. The condition of plane-parallel and radial distribution of the space charge does not in general correspond to reality, since the corona discharge, especially on thick conductors, occurs in the form of individual brushes. At the same time the process also has a discrete structure in time, occurring in the form of individual high frequency impulses. It

is therefore necessary to determine if the above conditions are necessary for the potential equations to be applicable, or if it is possible to extend the class of cases where they are valid. It is also desirable to find the possibility of estimating the error introduced by deviations of the space charge distribution from the ideal. The article solves this problem by the method of calculating charges induced in a plane parallel system of electrodes by a given three-dimensional space-charge distribution. The method is applied to an antenna located parallel to the earth. The results are extended to the case of multiple antennas. There are 1 figure and 4 Soviet references.

SUBMITTED: January 27, 1960

Card 3/3

KRAVCHENKO, V.D., LEVITOV, V.I., POPKOV, V.I.

"Corona power losses on the 400,000 V lines in operation."

Report to be submitted for the 19th Biennial Session, Intl. Conf. on Large Electric Systems(CIGRE), Paris, France, 16-26 May '62.

KRAVCHENKO, Power Engineering Inst. im G.M. Krzhizhanovskiy.
Levitov, " " " " " "

KRAVCHENKO, V.D. (Moskva)

Theory of an antenna method for measuring corona losses. Calculation of scale coefficients. Izv. AN SSSR. Otd. tekh. nauk. Energ. i avtom. no.3:106-113 My-Je '62. (MIRA 15:6)
(Corona (Electricity)) (Electric power distribution)

KRAVCHENKO, V.D. (Moskva)

Study of the errors of an antenna method of measuring corona losses. Izv. AN SSSR. Otd. tekh. nauk. Energ. i avtom. no.4: 56-65 Jl-Ag '62. (MIRA 15:8)
(Corona (Electricity)) (Electric power distribution)

KRAVCHENKO, V. D.; LEVITOV, V. I.

Corona discharge in gaps. Elektroenergetika no.6:122-128 '62. (MIRA 16:4)

(Electric discharges)
(Corona(Electricity))
(Electric lines—Overhead)

KRAVCHENKO, V.D., inzh.; LEVITOV, V.I., kand. tekhn. nauk; POPKOV, V.I.

Corona power and energy losses in a 500 kv. line. Elektrichestvo no.5:7-12 My '64. (MIRA 17:6)

1. Energeticheskiy institut imeni Krzhizhanovskogo. 2. Chlen-korrespondent AN SSSR (for Popkov).

SHEVELEVA, Ye.M.; KRAVCHENKO, V.F.

Effect of diuretin on the coagulability of the blood. Sov. zdrav. Kir. no.3:29-30 My-Je '62. (MIRA 15:5)

1. Iz propedterapevticheskoy kliniki (zav. - dotsent M.M.Mirrakhimov) Kirgizskogo gosudarstvennogo meditsinskogo instituta.
(BLOOD--COAGULATION) (THEOBROMINE)

GUREVICH, S.M.; DIDKOVSKIY, V.P.; NOVIKOV, Yu.K.; FILORIK'YAN, B.K. (Moskva); ZASETSKIY, G.F. (Moskva); KHAVCHENKO, V.F. (Moskva); NOVIKOVA, A.A. (Moskva)

Properties of commercial titanium and alloys of the OT4-type prepared by electric slag melting. Avtom. svar. 16 no.4:27-33 Ap '63. (MIRA 16:4)

1. Institut elektrosvarki im. Ye.O.Patona An UkrSSR (for Gurevich, Didkovskiy, Novikov).
(Titanium--Electrometallurgy) (Zone melting)

KRAVCHENKO, V.F., inzhener; ABROSIMOV, Ye.V., dotsent, kandidat tekhnicheskikh nauk; TRUBIN, K.G., professor, doktor tekhnicheskikh nauk.

Quality of large boiling-steel ingots. Sbor.Inst.stali 34:245-266 '55. (Iron--Isotopes) (Steel ingots--Metallurgy) (MLRA 9:7)

Kravchenko V. F.

Name: KRAVCHENKO, V. F.

Dissertation: The effect of vibration on the properties of an ingot of bubbling steel

Degree: Cand Tech Sci

Defended at Publication

~~Affiliation~~: Min Higher Education USSR, Moscow Order of Labor Red Banner Inst of Steel imeni I. V. Stalin

~~Defense~~ Date, Place: 1956, Moscow

Source: Knizhnaya Letopis', No 47, 1956

KRAVCHENKO, V.F., kand.tekhn.nauk; ENKESH, Shandro, kand.tekhn.nauk
TRUBIN, K.G., kand.tekhn.nauk prof.; ABROSIMOV, Ye.V., kand.
tekhn.nauk, dots.

Effect of vibration on the quality of ingots. Izv.vys.ucheb.
zav.; chern.met. 2 no.7:23-34 Jl '59. (MIRA 13:2)

1. Moskovskiy institut stali. Rekomendovano kafedroy metal-
lurgii stali Moskovskogo instituta stali.
(Steel ingots--Vibration)

Kravchenko, V. F.

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PHASE I BOOK EXPLOITATION SOV/5556

Moscow. Institut stali.

Novoye v teorii i praktike proizvodstva martenovskoy stali (New [Developments] in the Theory and Practice of Open-Hearth Steelmaking) Moscow, Metallurgizdat, 1961. 439 p. (Series: Trudy Mezhvuzovskogo nauchnogo soveshchaniya) 2,150 copies printed.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR. Moskovskiy institut stali imeni I. V. Stalina.

Eds.: M. A. Glinkov, Professor, Doctor of Technical Sciences, V. V. Kondakov, Professor, Doctor of Technical Sciences, V. A. Kudrin, Docent, Candidate of Technical Sciences, G. N. Oyks, Professor, Doctor of Technical Sciences, and V. I. Yavoyskiy, Professor, Doctor of Technical Sciences; Ed.: Ye. A. Borko; Ed. of Publishing House: N. D. Gromov; Tech. Ed.: A. I. Karasev.

PURPOSE: This collection of articles is intended for members of scientific institutions, faculty members of schools of higher education, engineers concerned with metallurgical processes and physical chemistry, and students specializing in these fields.

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New [Developments] in the Theory (Cont.) SOV/5556

COVERAGE: The collection contains papers reviewing the development of open-hearth steelmaking theory and practice. The papers, written by staff members of schools of higher education, scientific research institutes, and main laboratories of metallurgical plants, were presented and discussed at the Scientific Conference of Schools of Higher Education. The following topics are considered: the kinetics and mechanism of carbon oxidation; the process of slag formation in open-hearth furnaces using in the charge either ore-lime briquets or composite flux (the product of calcining the mixture of lime with bauxite); the behavior of hydrogen in the open-hearth bath; metal desulfurization processes; the control of the open-hearth thermal melting regime and its automation; heat-engineering problems in large-capacity furnaces; aerodynamic properties of fuel gases and their flow in the furnace combustion chamber; and the improvement of high-alloy steel quality through the utilization of vacuum and natural gases. The following persons took part in the discussion of the papers at the Conference: S.I. Filippov, V.A. Kudrin, M.A. Glinkov, R.P. Nam, V.I. Yavoyskiy, O.N. Oyks and Ye. V. Chelishchev (Moscow Steel Institute); Ye. A. Kazachkov and A. S. Kharitonov (Zhdanov Metallurgical Institute); N.S. Mikhaylets (Institute of Chemical Metallurgy of the Siberian Branch of the Academy of Sciences USSR); A.I. Stroganov and D. Ya. Povolotskiy (Chelyabinsk Polytechnic Institute); P.V. Umrikhin (Ural Polytechnic Institute); I.I. Fomin (the Moscow "Serp i molot" Metallurgical Plant); V.A. Fuklev (Central Asian Polytechnic Institute)

Card 2/14

New [Developments] in the Theory (Cont.) 607/5556

and M.I. Boylinov (Night School of the Dneprodzerzhinsk Metallurgical Institute). References follow some of the articles. There are 268 references, mostly Soviet.

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Foreword 5

Yavoyskiy, V. I. [Moskovskiy institut stali - Moscow Steel Institute]. Principal Trends in the Development of Scientific Research in Steel Manufacturing 7

Filippov, S. I. [Professor, Doctor of Technical Sciences, Moscow Steel Institute]. Regularity Patterns of the Kinetics of Carbon Oxidation in Metals With Low Carbon Content 15
[V. I. Antonenko participated in the experiments]

Levin, S. L. [Professor, Doctor of Technical Sciences, Dnepropetrovskiy metallurgicheskiy institut - Dnepropetrovsk Metallurgical Institute].

New [Developments] in the Theory (Cont.) SOV/5556

Oyks, G.N., V.I. Danilin [Engineer], I.I. Ansheles [Docent, Candidate of Technical Sciences], G.A. Sokolov, and B.Z. Kononov [Engineers], [Moscow Steel Institute, "Krasnyy Oktyabr'" Plant]. Manufacture of Roll-Bearing Steel With the Application of Ladle-Vacuum Treatment to Non-Deoxidized Metal 335

Kravchenko, V.F. [Candidate of Technical Sciences], Ye. V. Abrosimov, and L.A. Larárov [Engineer], [Moscow Steel Institute, Magnitogorsk Metallurgical Combine]. Improving the Quality of Rimmed-Steel Ingot by Vibration 343
[Ye. I. Rabinovich, Candidate of Technical Sciences, M.K. Skul'skiy, A.G. Nikolayev, Yu. A. Goncharevskiy, and N.G. Zarzhitskaya, Engineers, participated in the research work]

Nekrasov, Yu. V. [Engineer, Kuznetsk Metallurgical Combine]. Properties of Carbon and Alloy Steel Deoxidized by Different Methods 351
[V.N. Maslova, S.N. Yeremenko, Ye. I. Gulyayeva, L.V. Glazkova, and Z.A. Ustalova participated in the research work]

32599

S/137/61/000/011/030/123
A060/A101

184000

AUTHORS: Kravchenko, V.F., Abrosimov, Ye.V., Lazarev, L.A.

TITLE: Improvement in the quality of ingots from rimmed steel by vibration

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 11, 1961, 62, abstract 11V363 (V sb. "Novoye v teorii i praktike proiz-va martenovsk.stali", Moscow, Metallurgizdat, 1961, 343-350, Discuss. 428 - 439)

TEXT: Ingots from rimmed steel, 7 tons in weight, poured from the top were subjected to vibration on a vibrator with eccentric weights, whose rotation caused a vibration of the bridge of the founding platform at a frequency of 1,470 vibrations per minute and amplitude ~ 1 mm. Under vibration the intensity of the steel ebullition in the mold was increased notably, the rising was reduced and the thickness of sound crust was increased. Depending on the duration of the vibration it is possible to obtain any given thickness of dense crust, since in order to obtain ingots with 25-30 mm occurrence depth of cellular bubbles it is sufficient to subject them to vibration for 5-6 min from the moment the pouring starts. Under 7 minute vibration the cellular bubbles were situated at a distance of 42 mm from the surface and under vibration for 24 min 20 sec they vanished.

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S/137/61/000/011/030/123
A060/A101

Improvement in the quality of ingots ...

During the time of experiment 426.8 liters of gas was liberated (the crust thickness being 8 mm) from an ordinary ingot, and 576.4 liters - from the experimental ingot. In vibrated ingots the thickness of the crust does not depend on the pouring rate, thus in pouring through 30 and 50 mm sockets (filling rate 0.87 and 1.8 meters per min) the vibration lasted 8 min, the crust thickness in both cases was obtained as 35 mm, whereas for ordinary ingots the crust thickness was 6 and 8 mm respectively. However, vibration is accompanied by undesirable processes: a certain increase in the amount of negative segregation, leading to the utilization of a considerable portion of the metal (up to 30%) for less important articles. An increase in the duration of the bubbling of vibrated ingots by 2-3 min over the usual period makes it possible to eliminate this disadvantage in the case that the vibration proceeds for 5-6 min.

Yu. Nechkin

[Abstracter's note: Complete translation]

Card 2/2

S/737/61/000/000/002/010

AUTHORS: Rabinovich, Ye.I., (1), Lazarev, L.A., (2), Zarzhitskaya, N.G., (2), Skul'skiy, M.K., (2), Kravchenko, V.F., (1). [(1) = Candidate of Technical Sciences; (2) = Engineer].

TITLE: Influence of vibration on the formation and quality of a rimmed-steel ingot.

SOURCE: Stal', sbornik statey. Ed. by A.M. Yampol'skiy. Moscow. 1961, 258-273.

TEXT: It is important to obtain a rimmed ingot with an external skin > 8 mm thick to protect the honeycomb blowholes from oxidation during soaking in pits. High-grade ingots with up to 0.2%C were obtained at plants in the Urals. To accelerate the rate of pouring and to improve the quality further, a vibrator designed by the Moscow Steel Institute was used in experimental castings. An a.c.-motor-driven eccentric vibrator was mounted on the platform of a 50-ton casting car and was operated at approximately 1,500 cpm and at amplitudes which varied from 0.4-0.8 mm to 1.5-1.8 mm, depending on the elasticity of the track and the change in load on the car. Vibration times varied from 2'45" to 24'20"; test runs were timed at various stages of the casting process, and the capping of the ingots was done

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either immediately after cessation of vibration or some time later. Longitudinal sections were photographed, and samples were cut from the 3, 5, 8, 12, 13, 15, 17, 20, and 25% horizons, as measured from the top of the ingot. Templets were cut for metallography; the templets were deep-etched, sulphur-printed, and chemically analyzed. A detailed description is given of the casting process, and the composition of the test melts is tabulated. The results of the casting of 7-ton ingots at various time rates, with and without vibration, are also tabulated. The character of the rimming of ingots subjected to vibration is shown to be greatly altered, and shortly after commencement of the vibration the rimming becomes violent, to the point of gushing and spraying. Instead of the ordinary peripheral rimming of steel Ст.3 (St. 3) along the interface of the liquid and solid phase, the vibrated steel rims all over. Contrary to the continuous growth of ordinary ingots, which begins 1-2 min after the pouring is stopped, vibrated ingots sag 30-50 mm, and even up to 100 mm, within 7-8 min and then grow slightly, but never back to their initial level, unless the vibration is stopped prematurely. As to structure, vibration eliminates the ordinarily observed difference between the upper and the lower part of the ingot; however, some tendency toward the formation of cracks in the lower part of the ingot is observed. In the ordinary ingots at the plant, the dense external skin is 8-15 mm thick (thicker with slower pouring and with lower Mn content). The length of the honeycomb blowholes is about 80-100 mm; the

secondary blowholes are spherical and lie at 100-125 mm from the outer surface, forming a vertical lace up to the rising part of the ingot. Vibration causes disappearance of the blowholes, going from the periphery toward the center and thickening the skin. 10-12 min of vibration result in a total disappearance of the blowholes. However, the zone formerly occupied by the primary honeycomb blowholes is always occupied by sparse small, circular, bubbles, 1 - 4.5 mm dia, some 5-10 mm apart. Macrostructurally, vibration is conducive to a displacement of the shrinkage porosity into the depth of the ingot. Vibration affects the distribution of sulfides only very little. Vibrated ingots have sulfide veins that are the remnants of the now-filled blowholes. Spot-sample analysis at various depths shows that the liquating-element content in the outer zone remains equal or is even increased by the vibration. C, S, and P contents in the outer zone are not appreciably affected by vibration. Both the zone of concentrated liquation and the zone of porosity are located more deeply in vibrated ingots, as shown by chemical analysis. In summary, vibration affords production and faster pouring of a rimmed steel with a higher C content and an improved production of semikilled steel. There are 9 figures and 2 tables; no references.

ASSOCIATION: None given.

L 10907-66 EWT(d)/EWT(1) IJP(c) GG/JXT(TT)
ACC NR: AP6001484 SOURCE CODE: UR/0368/65/003/006/0568/0571

44,55

AUTHOR: Kravchenko, V. F.

ORG: none

TITLE: Effect of metal gratings on emission by an active plane-parallel layer

SOURCE: Zhurnal prikladnoy spektroskopii, v. 3, no. 6, 1965, 568-571

TOPIC TAGS: theoretic physics, quantum generator, electromagnetic radiation, boundary layer theory, boundary value problem, Riemann space, Hilbert space

21,44,55

ABSTRACT: The paper is an experimental study of oblique emission of electromagnetic waves by an active plane-parallel surface bounded by an ideally conducting screen on one side and by a metal grating on the other. Expressions are given for the electric and magnetic fields in the plane-parallel layer and in the ambient medium. Boundary conditions are stated and the electrodynamic boundary problem is reduced to a Riemann-Hilbert problem for an analytic function. The solution of the problem reduces to an infinite homogeneous system of linear algebraic equations which is convenient for computer calculations. Conditions for self-excitation of the layer are given. An analysis of the expressions for the basic energy characteristics of the layer shows that the effective reflection coefficient, parameters of the ambient medium, and angle of wave propagation have a considerable effect on these characteristics. When the

UDC: 535.5

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L 10907-66

ACC NR: AP6001484

parameters for the gratings are disregarded, the proposed analytic expressions agree satisfactorily with studies by other authors which have been experimentally confirmed. Orig. art. has: 9 formulas and 1 figure. [14]

SUB CODE: 12,20/ SUBM DATE: 15Mar65/ ORIG REF: 008/ OTH REF: 001
ATD PRESS: 4172

EC

Card 2/2

KRAVCHENKO, V.F.

Effect of metal gratings on radiation from an active plane-parallel layer. (Oblique radiation. E-polarization). Zhur. prikl. spekt. 3 no. 6:568-571 D '65 (MIRA 19:1)

1. Submitted March 15, 1965.

L 15560-66 EWT(1) GG

ACC NR: AP6004413 SOURCE CODE: UR/0051/66/020/001/0128/0132

AUTHOR: Kravchenko, V. F.

ORG: none

TITLE: Effect of metal grids on emission by an active plane-parallel layer

SOURCE: Optika i spektroskopiya, v. 20, no. 1, 1866, 128-132

TOPIC TAGS: electromagnetic radiation, electromagnetic field, mathematic analysis, lattice parameter

ABSTRACT: The paper is a continuation of a previous work (O. A. Tret'yakov, V. P. Shestopalov, Opt. i spektr., 15, 709, 1963), in which the authors considered radiation by an active plane-parallel layer with adjacent grids where the vector E of the electromagnetic field is parallel to the generatrices of the grid elements. The author of the present article gives a strict solution for the problem of the effect which the grid parameters have on radiation by the active plane-parallel layer. It is assumed that metal grids are applied symmetrically to both sides of the layer and that the vector H is parallel to the generatrices of the grid elements. Conditions

Card 1/2 UDC: 535.2.001

L 15560-66

ACC NR: AP6004413

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for self-excitation are derived as well as the fundamental power characteristics: energy density and radiation output power. The analytical expressions derived in this paper are convenient for numerical calculations on a computer and show that the power radiation characteristics of a layer may be controlled by proper selection of the geometric dimensions of a metal grid applied to the layer. In conclusion I consider it my duty to thank V. P. Shestopalov and O. A. Tret'yakov for proposing the subject and for valuable consultation during the work. Orig. art. has: 2 figures, 19 formulas.

SUB CODE: 20/ SUBM DATE: 12Oct64/ ORIG REF: 005/ OTH REF: 000

Card 2/2

L 44079-66 EWT(1)

ACC NR: AP6030793 SOURCE CODE: UR/0376/66/002/008/1107/1114

45
B

AUTHOR: Kravchenko, V. F.

ORG: Khar'kov Institute for Mining Machine Design, Automation, and Computer Engineering (Khar'kovskiy institut gornogo mashinostroyeniya, avtomatiki i vychyslitel'noy tekhniki)

TITLE: The effect of a double array of special geometric form on the radiation of an active plane-parallel layer

SOURCE: Differentsial'nyye uravneniya, v. 2, no. 8, 1966, 1107-1114

TOPIC TAGS: electromagnetic radiation, Helmholtz equation, Maxwell equation, self excitation condition

ABSTRACT: Arrays composed of alternating perfectly conducting thin infinite strips of different widths are placed on both surfaces of a plane-parallel active layer. The effect of these arrays on the radiation of the layer is analyzed in the case when the E vector is parallel to the strips of the array and under the assumption that the surrounding medium is a vacuum. Three domains of the space are considered: above the upper array, between the arrays, and under the lower array. The E and H components of the induced field in three domains are determined from the Helmholtz and Maxwell equations, respectively, in the form of Fourier series with unknown coefficients. The unknown coefficients are calculated from the system of algebraic equations derived from the boundary conditions. Using this system of equations, the

Card 1/2 UDC: 517.946.9

L 44079-66

ACC NR: AP6030793

conditions for self-excitation of the system are derived. The energy characteristics of the electric and magnetic fields, and also the radiation power are determined on the basis of these conditions in the form of analytic expressions. These expressions, which are convenient for numerical computations, make it possible to deduce that the energy characteristics of radiation can be controlled by means of arrays located on the upper and lower surfaces of the layer and that this procedure can be effective. Orig. art. has: 24 formulas. [LK]

SUB CODE: 18, 12, 20/ SUBM DATE: 06Jul65/ ORIG REF: 007/ ATD PRESS: 5077

Card 2/2 gd

L 45435-66 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD

ACC NR: AP6019765 (A) SOURCE CODE: UR/0370/66/000/003/0003/0018

AUTHOR: Kraychenko, V. F. (Moscow); Isakov, I. V. (Moscow); Khlebnikov, A. Ye. (Moscow); Dashevskiy, Yu. A. (Moscow); Lebedev, Ya. I. (Moscow); Selivanov, N. M. (Moscow)

ORG: none

TITLE: Improving the quality of open hearth steel by treating it with rare earth metal alloys

SOURCE: AN SSSR. Izvestiya. Metally, no. 3, 1966, 3-18

TOPIC TAGS: rare earth metal, metallurgic process, metal physics, metal property, steel property, mechanical property, steel/40Kh2NMa steel

ABSTRACT: There is very little published information concerning the effect of rare earth metals (REM) on the properties of steel, and on the optimum conditions for the use of such metals. This paper investigates the effects of REM on specific properties of steel, notes procedures for alloying steel, and indicates optimum REM content to achieve desired combinations of mechanical properties. Chemical thermodynamic data and composition of REM alloys are presented in order to provide a better understanding of the principles involved in alloying steel with REM. Experimental melts were produced in a 150 ton induction furnace as well as in 25 and 200 ton basic open hearth furnaces. Mishmetal, a rare earth alloy containing 56.1% Ce and 41.3% La (other REM, iron, and impurities totaled 2.6%), was used as the deoxidizing agent. Studies were made of both cast and wrought metal states and tables of mechanical properties are in-

UDC: 669.141.243.4

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L 45435-66

ACC NR: AP6019765

cluded. The impact strength of steel 40Kh2NMa, melted in a 25 ton furnace and top-poured at 1580°C, is given. Results of the experiments showed that in all cases the addition of REM increased steel ductility. This increase was greatest when the mishmetal was able to reduce sulfur content in the solidified ingot. Desulfurization was best accomplished when it was initiated in the ladle prior to pouring into the mold. Optimum conditions were concluded to be ladle deoxidation and desulfurization by adding 0.15-0.20% mishmetal (calculated) to the molten steel (1560-1580°C) immediately after tapping from the furnace. The mishmetal reaction begins and most of the sulfur is removed by the time the steel is poured and solidified. The procedure lowers the sulfur content 25 to 30%. The mishmetal significantly reduces nonmetallic inclusion content, as well as changing the shape, composition, and distribution of that content. Finally, the REM alloy increases impact strength of the rolled steel 27 to 47% (transverse test samples) and of cast steel by 47 to 65%, with a simultaneous increase in ductility. Orig. art. has: 12 tables and 6 figures.

SUB CODE: 11/ SUBM DATE: 25 May 64 / ORIG REF: 026 / OTH REF: 001

Card 2/2

KRAVCHENKO, V.F., polkovnik meditsinskoy sluzhby

Burns of the eyes in military personnel in peacetime. Voen.-med. zhur. no.3:74-76 '65. (MIRA 18:11)

L 40251-66 EWT(m)/EWP(w)/EWP(j)/T/EWP(t)/ETI IJP(c) WW/JD/WB/DJ/RM

ACC NR: AP6019847 (A) SOURCE CODE: UR/0418/66/000/001/0023/0025

AUTHOR: Kravchenko, V. G. (Engineer); Gorokhovskiy, G. A. (Candidate of technical sciences); Dmitryuk, G. N. (Engineer)

ORG: None

TITLE: Wear of metal-polymer friction pairs

SOURCE: Tekhnologiya i organizatsiya proizvodstva, no. 1, 1966, 23-25

TOPIC TAGS: bearing material, corrosion, ~~polymer~~, bushing, heat conductivity, polyethylene plastic

ABSTRACT: The authors study the wear of metal-polymer friction pairs. The shank of a blade working in a variable-pitch propeller encasement was studied as a friction pair. A textolite bushing was used as one member of the pair and the propeller shaft, made of 40KhNMA steel, was used as the other. The shank undergoes periodic reciprocating rotary motion of several centimeters per second. The friction pair is loaded by the aerodynamic forces acting on the propeller. The entire friction unit is lubricated with MS-20 oil. Corrosion pitting was observed on the working surfaces. This type of wear of the metallic surface is extremely dangerous under variable loads. The experimental results indicate that corrosion fatigue of the metal in metal-polymer couplings occurs as a result of condensed humidity in the lubricant. When a polymer

Card 1/3 UDC: 620.178.162

slides against metal, the surface layer is deformed and mechanical failure of certain molecular chains takes place. These conditions produce free valence radicals and macroradicals. This makes it possible for the surface layers of the polymer to enter into a chemical reaction with the metal. Thus the free radicals stick to the metal surfaces of the shaft. This sets up an electrochemical process which causes increased wear of the metal surfaces. This phenomenon was verified by subsequent experiments. The wear of thrust bearings made of Armco iron was studied. These thrust bearings rubbed against circular specimens made of Armco iron and bronze. In one case the working surface of the circular specimens had a system of rectangular radially milled grooves, while in the other case these grooves were filled with various polymer inserts which covered 30% of the working surface. Tests were carried out in a 0.5% NaCl solution for 24 hours for each friction pair. A table is given showing the results of thrust bearing wear for various specimens at a sliding rate of 14.4 cm/sec and a specific pressure of 1.35 kg/cm^2. These data show that polymer inserts intensify the electrochemical process during decomposition. This causes additional thrust bearing wear as compared to the wear of specimens without polymer inserts. The results show that wear decreases with load increase for thrust bearings rubbing against specimens with polymer inserts and vice versa. Plain bearings are discussed. Those in common use today use metal shafts and polymer bushings. Unsatisfactory heat conductivity and mechanical properties of the bushings cause many difficulties. New plain bearings have been developed and tested under laboratory conditions which retain the advantages of polymers such as high resistance to binding, while simultaneously making use of the

ACC NR: AP6019847

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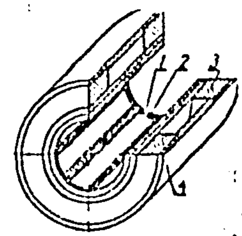
high heat conductivi ty of metals capable of withstanding large specific loads. This type of bearing uses polyethylene protectors (see figure). The bushing 1 is made of brass or antifriction cast iron. Thrust rings 3 made of D16T are located along the edge of the bearing, and the entire bearing is enclosed in the tube 4 made from grade 20 steel. Flutes are milled along the bearing surface and filled with polymer 2. The polymer in this instance is PE-500 polyethylene. The flutes were filled at a temperature of 220°C and aged for one minute. This type of metal-polymer bearing is much lighter than roller bearings and can function under poor lubricating conditions. These units are relatively simple to manufacture and are inexpensive. Orig. art. has: 1 figure, 2 tables.



SUB CODE: 13, 11/ SUBM DATE: none

Card 3/3 mlp

L 04778-67 EWI(m)/EWP(w)/EWP(t)/ETI IJP(c) JD/DJ
ACC NR: AP6023451 SOURCE CODE: UR/0369/66/002/003/0363/0364 57 55

AUTHOR: Potamoshnev, A. P. (Kiev); Kravchenko, V. G. (Kiev); Belolipetskiy, A. Ya. (Kiev) B

ORG: none

TITLE: Features of the performance of metal-powder friction materials under conditions of dry and liquid friction 18

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 2, no. 3, 1966, 363-364

TOPIC TAGS: steel, alloy, powder metal, metal friction, friction coefficient, friction loss / 45 steel, D16T alloy

ABSTRACT: A major problem in the development of hoisting-transporting devices is the selection of friction couples, which perform under extremely difficult and rigorous conditions. This problem is complicated by the need to reduce dimensions to a minimum. In this connection, the authors investigated the possibility of developing materials for friction couples of this kind, operating under conditions of dry and liquid friction as elements of a freight-transporting monorail-type mechanism. The tests were carried out in a special rig on using rollers of 45 mm diameter with a rotational speed of 100 r.p.m. During the tests the system was gradu-

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ally loaded until its rated load was reached, and the cohesive force and friction coefficients were determined for various loads in various media. Rollers made of steel 45, alloy D16T and metal-powder friction materials were tested, and this last type of rollers was found to display the highest cohesive strength and to perform satisfactorily under load pressures $p \leq 40$ kg/cm^2. The composition of the metal-powder material was: 74% Cu, 9% Sn, 5% Pb, 4% Fe, 5% graphite, 3% sand. For this material the friction coefficient (optimal extent: 0.3-0.5) is a variable which depends on the load and lubricant, as illustrated in Fig. 1 which shows

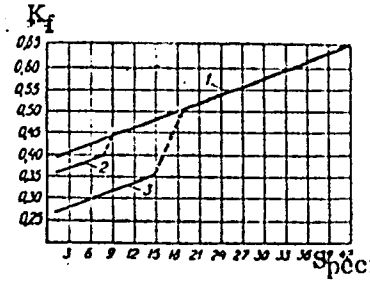

Fig. 1. Variation in the friction coefficients of powder-metal rollers on a monorail of D16T alloy as a function of specific load: 1 - dry friction; 2 - friction with introduction of water into zone of contact; 3 - friction on lubrication with spindle oil

that in the presence of both dry friction and liquid friction an increase in specific load p causes an increase in the friction coefficient. Fig. 2 shows the rollers of a hoisting-transporting device after 20 hours of test-rig operation at $p = 35$ kg/cm^2. It must be assumed that

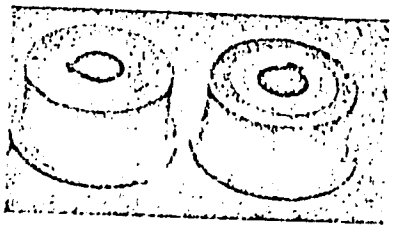

Fig. 2. Powder-metal rollers following 20 hr of operation under unit pressure $p = 35$ kg/cm^2

a rise in load leads to the disintegration of the lubricant film, since the friction coefficients at lubrication with water in the presence of $p > 8$ kg/cm^2, as well as at lubrication with spindle oil in the presence of $p > 15$ kg/cm^2 are nearly the same as in the absence of these lubricants. These experimental findings have made it possible to design a hoisting-transporting mechanism with satisfactory operating characteristics. Orig. art. has: 2 figures, 1 formular.

SUB CODE: 11, 13, 20/ SUBM DATE: 18Jan66/ ORIG REF: 001

L 61517-65 EWT(m)/EWA(d)/EPF(c)/EPR/EWP(j)/T/EWP(t)/EWP(z)/EWP(b) Pc-4/
Pr-4/Ps-4 JD/RM/WW/DJ

ACCESSION NR: AP5012658 UR/0369/65/001/002/0231/0236

AUTHOR: Gorokhovskiy, G. A.; Geletukha, G. Ye.; Kravchenko, V. G.

TITLE: Effective use of antifriction materials with high molecular weight and accompanying phenomena

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 1, no. 2, 1965, 231-236

TOPIC TAGS: polymer, metallopolymer material, antifriction material

ABSTRACT: The authors discuss fields where antifriction materials may be used and explain the processes which accompany operations using polymers as antifriction materials. The most efficient use of polymers may be in friction assemblies which operate without radiant heat transmission and without seizing of the bearings. Antifriction materials of metallopolymeric composition have recently come into use. These consist of a porous metal base filled with a polymer. The action of polymer protectors must depend on the chemical composition and molecular structure of the polymer. The capacity of high molecular materials to form counterbodies of anti-scratching film with slight resistance to shearing makes them useful in machines operating in non-acid media. Metallopolymers do not operate successfully when there

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L 61517-65

ACCESSION NR: AP5012658

are electrolytic impurities in the lubricant. Orig. art. has: 4 figures, 1 table.

ASSOCIATION: KIGA, Kiev

SUBMITTED: 15Oct64 ENCL: 00 SUB CODE: MT, OC

NO REF SOV: 003 OTHER: 001

Card 2/2

KRAVCHENKO, V.I., inzh.-podpolkovnik, letchik pervogo klassa; POTERYAYKIN, A.I., inzh.-mayor

Flying a helicopter with an automatic pilot. Vest.Vodz.Fl. no.12:35-38 D '60. (MIRA 14:5)

(Helicopters--Piloting)

KRAVCHENKO, V.I.

Badkhyz Preserve. Izv. AN Turk. SSR. no.1:135-137 '59.
(MIRA 12:5)

1.Badkhuzskiy gosudarstvennyy zapovednik.
(Badkhyz Preserve)

30(1) SOV/99-59-7-3/9

AUTHOR: Guseyn-Zade, S.Kh., Candidate of Technical Sciences, and Kravchenko, V. I., Engineer

TITLE: The Wheeled Sprinkler Pipeline, Type KDT-25

PERIODICAL: Gidrotekhnika i Melioratsiya, 1959, Nr 7, pp 17-23 (USSR)

ABSTRACT: At the western end of the Apsheron Peninsula it is planned to break 15,000 hectares of fresh ground and to turn it into arable land. For the purpose of irrigating this area, it has been proposed to use the wheeled sprinkler pipeline, type KDT-25. The essential features of this sprinkler are: 1) It can be operated from a closed irrigation net, but, if a transportable pumping station is available, the sprinkler can work also from an open net of canals; 2) Because it is self-propelled, the use of it eliminates the carrying by hand of irrigation pipes from one place to another, which takes 30 to 40 minutes. The wheeled sprinkler saves time and saves labor. The wheeled sprinkler consists essentially of the following parts: the operating pipeline, the driving vehicle, the supporting wheels and the auxiliary water-conducting

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