

SOV/137-58-7-14601

Translation from Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 94 (USSR)

AUTHORS: Shcherlin, I.D., Alyushin, Ye.i., Poletayev, G.S.,  
Rabicheva, L.M., Slonimskiy, B.I.

TITLE: Electrothermic Recovery of Zinc at the Belovo Zinc Plant  
(Elektrotermicheskoye polucheniye tsinka na Belovskom tsin-  
kovom zavode)

PERIODICAL: Byul. tsvetn. metallurgii, 1957, Nr 21, pp 20-23

ABSTRACT: A pilot-plant installation having an electrothermic furnace of 150 kw power was employed to melt sintered Zn concentrates of the following % composition: Zn 57-60, Pb 0.7-1, Cu 2-2.3, Fe 6-9.4, Cd 0.1-0.15, CaO 0.9-1.9, MgO 0.7-0.8, SiO<sub>2</sub> 3.4-4.7, S 0.3-1. The charge (composition of the raw mix: 60 kg sinter, 12-13.5 kg coke breeze with 12-20% moisture and 14-20% ash, and 5 kg calcined lime) was mixed in a drum mixer, calcined for 3 hours at 800-850°C in a reducing atmosphere, 15-20 kg return dross was added to it, and the whole was charged into the furnace through a bell-shaped sealed charging device. Smelting was at 68 v and 2250-2500 amps with graphited electrodes immersed 200 mm into the slag.

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Electrothermic Recovery of Zinc at the Belovo Zinc Plant

the bath depth being 400 mm and the slag temperature 1350-1400°. Optimum process conditions were assured in reducing the basic quantity of Fe and the formation of Fe-Cu alloy in which the noble metals were concentrated. Slag was tapped once each shift, the Fe-Cu alloy once every 10-20 days. The Zn gases and fumes were taken off the furnace through an aperture in the side-wall and an inclined gas line in the condenser (C), lined with magnesite brick in its lower portion and a floor made of carbon blocks. The temperature in the gas line was sustained at 800-900° and in the C at 600-650°. The gases left the C at 350-400° and proceeded to a scrubber irrigated with water. The extraction of Zn as metal having the following inclusions (%), Pb 1-1.5, Cd 0.1-0.13, Fe 0.1-0.5, Cu 0.01-0.02, was 60-70%. 15-20% of the Zn was trapped in the scrubber as blue powder enriched with up to 0.6% Cd. Up to 30% of the Zn was in the returns in the form of dross precipitated in the C. The dross and blue powder contained 88-93% Zn. When the lower portion of the furnace was lined with magnesite and cooled with water to form a lining hardened on the wall, a furnace campaign lasted > 2 months. Losses of Zn in the slags came to 1.5-6%, and recovery of the Cu in the alloy was 90-98%.

1. Zinc--Recovery    2. Electric furnaces--Applications  
Card 2/2

Ye.Z.

SHOHERLIN, I.D., kand. sel'skokhozyaystvennykh nauk.

Protective afforestation on virgin and waste lands. Zemledelie 6  
no.2:42-45 '58. (MIRA 11:3)

(Kazakhstan--Afforestation)

SHCHERLIN, I.D.; ALYUSHIN, Ye.I.; POLETAYEV, G.S.; RABICHEVA, L.M.;  
SLONIMSKIY, B.I.

Studying the electrothermal method of preparing zinc and metal  
powder at the Belovo Zinc Plant. Sbor. nauch. trud. GINTSVETMET  
no.15:298-309 '59. (MIRA 14:4)  
(Belovo (Kemerovo Province)--Zinc--Electrometallurgy)

SHCHERNIKOVA, L. A.

Shchernikov, L. A. -- "An Experimental Investigation of the Frequency Characteristics of Electron-Ray Television Receiver Tubes." Cand. Tech. Sci., Moscow Power Engineering Inst, Moscow 1953. (Referativnyy Zhurnal--Fizika, January 54)

SO: SSM 171, 22 July 1954

APPALEW, E.P.A.; SUCUMA, G.V.

Rare metals in Kazakhstan. Izv. Akad. Nauk. Ser. geol. no. 4:75-83  
'60. (NIA 14:2)

(Kazakhstan--Metals, Rare and minor)

SHCHERVAN', A.N., akademik; BARATOV, E.I., kand.tekhn.nauk; RYZHENKO, I.A.,  
gornyy inzh.

Temperature and gas-and-dust conditions in the downcast ventila-  
tion of stopes. Ugol' Ukr. 5 no.1:17-19 Ja '61. (MIRA 14:1)

1. AN USSR (for Shchervan').  
(Donets Basin—Mine ventilation)

GRACHEVA, N.D.; ZHINKIN, L.N.; SHCHERVAN', E.I.

Using liquid emulsions in histoautoradiography. Med.rad. 1 no.2:  
87-93 Mr-Ap '56. (MIRA 9:9)

1. Iz patologoanatomicheskoy laboratorii (zav. L.V.Funshteyn)  
TSentral'nogo nauchno-issledovatel'skogo rentgeno-radiologicheskogo  
instituta (dir. - prof. M.N.Pobedinskiy) Ministerstva zdravookhra-  
neniya SSSR.

(PHOTOGRAPHY,

auto-impression on photographic plate with liquid  
emulsions of tissue sections labeled with radioisotopes  
(Rus))

(HISIOLOGY,  
same)

(ISOTOPIES,  
same)





MOISEWITS, H. H. and KAZHAY, A. A.

"Copolymerization of styrene and diphenyl," a paper presented at the 9th Congress on the Chemistry and Physics of High Polymers, 20 Jan-2 Feb 57, Moscow, Rubber Research Inst.

B-3,004,005

SHCHESLAVSKIY, A., inzh.

New stand for testing electric equipment of automobiles. Avt.  
transp. 36 no.10:16-17 U '58. (MIRA 13:1)  
(Automobiles--Electric equipment--Testing)

SHCHESLAVSKIY, A., inzh.; BAS, L., inzh.

Testing stand for hydraulic drives. Avt.transp. 37 no.4:18-20  
Ap '59. (MIRA 12:6)

(Oil-hydraulic machinery--Testing)

KOVAL'CHUK, V.; SHCHESLAVSKIY, A.

Stand for the removal of truck tires. Avt.transp. 39 no.4:20-22 Ap  
'61. (MIRA 14:5)

(Motortrucks--Tires)

SHCHESLAVSKIY, A., inzh.

Portable screwdriver. Avt.transp. 40 no.11:22-23 H '62.  
(MIRA 15:12)

(Screwdrivers)

KARPEKIN, P., inzh.; SHCHESLAVSKIY, A., inzh.

New garage equipment. Avt. transp. 43 no.2:20-22 F '65.  
(MIRA 18:6)

1. Tsentral'noye konstruktorskoye byuro Ministerstva avto-  
mobil'nogo transporta i shosseynykh dorog RSFSR.

SHCHESLAVSKIY, A., inzh.

Stand for dismounting and mounting of motortruck tires. Avt.  
transp. 43 no.4:23-24 Ap '65. (MIPA 18:5)





TOBILEVICH, N.Yu.; ZASYAD'KO, I.N.; MATEUSH, Ya.O.; VOLOSHKO, D.M.; KALINKINA, Z.M.; SHCHESNO, L.P.

Increasing the corrosion resistance of heat exchanging pipes for the sugar industry. Sakh. prom. 31 no.4:47-53 Ap '57. (MLRA 10:6)

1. Tsentral'nyy nauchno-issledovatel'skiy institut sakharnoy promyshlennosti (for Tobilevich, Zasyad'ko and Mateush). 2. VNITI (for Shchesno).

(Pipe)

(Corrosion and anticorrosives)

SOV/137-53-11 22983

Translation from: Referativnyy zhurnal. Metallurgiya. 1958. Nr 11. p 104 (USSR)

AUTHORS: Voloshko, D. M., Chizh, V. A., Shchesno, L. P.

TITLE: Investigation of the Diffusion of Sulfur in Metal With the Aid of Radioactive Tracers (Issledovaniye diffuzii sery v metall s pomoshch'yu radioaktivnykh indikatorov)

PERIODICAL: Byul. nauchno-tekhn. inform. Vses. n.-i. trubnyy in t. 1958. Nr 4-5, pp 194-198

ABSTRACT: In order to verify the hypothesis that the source of contamination of 20A steel pipes with sulfur lies in the fine  $\text{FeSO}_4$  crystals remaining on the surface of the pipes after pickling in  $\text{H}_2\text{SO}_4$ , an investigation with tagged atoms was conducted. Fine  $\text{FeSO}_4$  crystals containing radioactive S were applied onto specimens 1.5x25x50 mm of 20A steel which were dried and subjected to various types of heat treatment: Annealing ( $920^\circ\text{C}$ , 15 min), normalization ( $920^\circ$  15 min;  $870^\circ$ , 15 min) and recrystallization ( $670^\circ$ , 15 min), after which a layer by layer determination of the radioactivity of the specimens was performed. It is established that the diffusion of S during annealing ( $920^\circ$ ) occurs to a depth of 0.17 mm and upon recrystallization ( $670^\circ$ ) to 0.04 mm. T. F.

Card 1/1

VOLOSHKO, D.M., inzh.; KALINKINA, Z.M., inzh.; SHCHESNO, L.P., inzh.

Corrosion of pipes in evaporators in sugar refineries. Biul.nauch.-  
tekh.inform.VNITI no.4/5:143-153 '58. (MIRA 15:1)  
(Pipe, Steel--Corrosion)  
(Sugar manufacture--Equipment and supplies)

VOLOSHKO, D.M., inzh.; CHIZH, V.A., inzh.; SHCHEENO, I.P., inzh.

Using radioactive tracers in investigating sulfur diffusion in  
metals. Biul.nauch.-tekhn.inform.VNITI no.4/5:194-198 '58.  
(MIRA 15:1)

(Radioactive tracers--Industrial applications)  
(Metals--Testing)

GASIK, M.I.; SHCHESNO, L.P.; KHITRIK, S.I.

Corrosion resistance of stainless chromium-nickel steel made with  
the use of various brands of ferrochromium. Izv. vys. ucheb. zav.;  
chern. met. 6 no.11:79-87 '63. (MIRA 17:3)

1. Dnepropetrovskiy metallurgicheskiy institut.

SHCHESNO, L.P.; CHEMADUROVA, Ye.Yu.; YAKOVLEVA, G.N.; BRECHKEVICH, V.V.

Methods of determining resistance to intercrystallite corrosion  
of electrically welded pipes. Avtom. svar. 16 no.7:90-94 J1 '63.  
(MIRA 16:8)

1. Ukrainskiy nauchno-issledovatel'skiy trubnyy institut.  
(Pipe, Steel--Corrosion)  
(Steel, Stainless--Corrosion)

SHORINSKO, L.P., inzh.; MELVORLINKO, G.A., inzh.

Effect of the method of heating two-layer blanks (E1847 steel -  
Arco-Steel) for hot rolling on the tendency toward intercrystalline  
corrosion of E1847 steel in hot rolled clad pipe. Proizv. trub no.10:  
106-109 '63. (S.I.A. 17:10)



8.3.11 10317, 10318, same. techn. mark; 10319, 10320, h.P., inch.; 10321, 10322, inch.

Structure and strength of zinc vapor-diffusion coatings depending on the conditions of the process. Prody. trav. no. 12:103-107 '64. (MIRA 17:11)

L 43085-66 EWP(j)/EWP(k)/EWT(m)/T/EWP(a)/EWP(v)/EWP(t)/EWP LJP(c)

ACC NR: AR6014377 (A,N) SOURCE CODE: UR/0137/65/000/011/DO34/DC34  
RM/WH/WW/DJ/JD/HW/WB

AUTHORS: Shchesno, L. P.; Shevchenko, G. A.

TITLE: Tendency of hot-pressed pipes made from steel of type EI847, plated with Armco-iron, towards intercrystalline corrosion

SOURCE: Ref. zh. Metallurgiya, Abs. 11D232

REF SOURCE: Sb. Proiz-vo trub. Vyp. 15. M., Metallurgiya, 1965, 90-95

TOPIC TAGS: bimetal, pipe, hot rolling, metal pressing, intergranular corrosion

ABSTRACT: The tendency towards intercrystalline corrosion of (IC) of bimetallic pipes, manufactured by the method of hot-pressing (HP), was investigated. Hot-rolled pipes made from steel EI847 served as the initial experimental material in HP experiments. After machining the pipes did not show any tendency towards IC as determined by the method AM GOST 6032-58. The following lubricants were used during the HP of bisurface specimens: No. 1 - talcum and liquid glass; No. 2 - fiber glass (on outer surface of pipe), graphite with oil (on the mandrel); No. 1 - 2 - talcum and liquid glass, after drying lubricant No. 2; No. 1 - 2a - talcum and liquid glass, in addition to lubricant No. 2. Prior to the experiments, the

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UDC: 621.774.001

L 27475-66 EWT(m)/T/EWP(t) IJP(c) JD/HW

ACC NR: AP6015626

(N)

SOURCE CODE: UR/0413/66/000/009/0033/0033

INVENTOR: Shchesno, L. P.; Goncharevskiy, M. S.; Tsvetun, A. S.; Shapiro, L. A.;  
Brechkevich, V. V.

ORG: none

TITLE: Method of heat treatment of stainless steel tubes. Class 18, No. 181144

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 9, 1966, 33

TOPIC TAGS: steel, stainless steel, steel tube, steel corrosion, intergranular corrosion, corrosion prevention

ABSTRACT: This Author Certificate introduces a method of heat treatment of stainless steel tubes. The tubes are vacuum annealed to decarburize the surface layer. Prior to vacuum annealing, an oxide film is formed on the tube surfaces by annealing in air at approx. 800C for 10-15 min to prevent intergranular corrosion. [ND]

SUB CODE: 13/  
11/ SUBM DATE: 29Jan63/ ATD PRESS: 4260

Card 1/1 BKG

UDC: 621.785.345

39  
B

SHCHESNO, T.Yu.

The contribution of A.O.Piotrovskii and A.A.Zengireev in the field  
of the biochemistry of carbohydrate metabolism in the muscles.  
Biokhimiia 19 no.1:111-115 Ja-F '54. (MLRA 7:3)

1. Kafedra biokhimiia Dnepropetrovskogo meditsinskogo instituta.  
(Muscle) (Carbohydrate metabolism) (Piotrovskii, Anton  
Osipovich, 1827- ) (Zengireev, Appolinarii Alekseevich, 1852-1881)

S/0300/64/036/001/0052/0058

ACCESSION NR: AP4014378

AUTHOR: Shchesno, T. Yu.

TITLE: Effect of fatigue-producing work on the amount of nucleic acids and other phosphorus compounds in functionally different rabbit muscles

SOURCE: Ukrayins'kyy biokhimichnyy zhurnal, v. 36, no. 1, 1964, 52-58

TOPIC TAGS: physiology, phosphorus compounds, muscles, white muscles, red muscles, nucleic acids, RNA, DNA, phospholipid, muscle fatigue, acid-soluble phosphate

ABSTRACT: It was established in experiments on rabbits that fatigue-producing work affects differently the phosphorus-compound content of functionally different muscles, i. e., white and red muscles. Red muscles have a higher nucleic acid content than white muscles. Fatigue-producing work lowered the level of nucleic acids in both types of muscle because of a reduction of the amount of RNA, while the DNA content did not change. The extent of reduction of the RNA content was more pronounced in white muscles than in red muscles. Presumably the higher nucleic-acid content of red muscles and the more sparing use of RNA by them is

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ACCESSION NR: AP4014378

associated with the higher capacity for work and lower susceptibility to fatigue of these muscles. Small differences in the total P, acid-soluble phosphates, and phospholipid content of red muscles as compared with white muscles were also observed after fatigue-producing work: the P and acid-soluble phosphate content decreased as a result of fatigue to a greater extent in red muscles than white muscles, while the phospholipid content remained unchanged in red muscles and increased in the majority of cases in white muscles. Orig. art. has 3 tables.

ASSOCIATION: Kafedra Biokhimi Dnepropetrovskogo Meditsinskogo Instituta  
(Chair of Biochemistry, Dnepropetrovsk Medical Institute)

SUBMITTED: 27Apr63

DATE ACQ: 14Feb64

ENCL: 00

SUB CODE: AM

NO REF SOV: 011

OTHER: 004

Card 2/2

SOURCE CODE: UR/0299/66/000/007/1037/1037

1037  
1037

(A)  
AUTHORS: Zubenko, P. M.; Khristich, A. D.; Lukashovich, K. F.; Manzon, S. M.;  
Lavinova, A. A.; Shchosno, T. Yu.; Zubenko, I. P.

TITLE: Biochemical changes in muscles of dogs following amputation and replantation  
of an extremity

SOURCE: Ref. zh. Biologiya, Part II, Abs. 9W232

REF SOURCE: Tr. 1-go Mosk. Med. in-ta, v. 42, 1965, 135-141

TOPIC TAGS: dog, tissue transplant, musculo physiology, desoxyribonucleic acid,  
ribonucleic acid, phosphorylation, organic phosphorus compound

ABSTRACT: Extremities of dogs were amputated and kept at room temperature for 1 to  
2 hrs or on ice for 2 to 24 hrs. In 1 to 2 hrs nitrogen as well as phosphorus  
metabolism disorders appeared in the muscles. Phosphocreatine and ATP levels decreased  
significantly, and inorganic phosphorus and water soluble protein levels increased  
without affecting fraction ratios during the first hour; in 2 hrs the myogen level  
decreased. Changes of phosphorus compound levels were similar in extremities kept on  
ice for 2 hrs; levels of water soluble proteins and their myogenic fraction increased  
and their phosphorylase fraction decreased. Twenty-four hour cooling led to the same  
changes. Phosphocreatine and ATP were almost completely broken down. Nucleic acid

UDC: 577-99

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I. 09082-67

ACC NR: AR6028909

0

Levels decreased significantly and the level of inorganic phosphorus increased considerably. In 1½ mos. the general levels of inorganic phosphorus, phosphocreatine, ATP, water soluble proteins, myosin and collagen decreased in the replanted extremity muscles. RNA and DNA levels rose. In a year the general levels of nucleic acids, RNA, DNA, water soluble proteins and their fractions were normalized. Phosphorus compounds, particularly phosphocreatine, ATP and inorganic phosphorus, were poorly restored. In 5 to 7 yrs the levels of nucleic acids, water soluble proteins and inorganic phosphorus fractions were completely restored in the extremity muscles; collagen and myosin levels were partially restored. Phosphocreatine, ATP and general phosphorus levels remained considerably reduced compared to norms. Extremities kept at room temperature for 2 hrs failed to accrete. N. S. Translation of abstract.

SUB CODE: 06

Card 2/2



AMTHERANVA, I.B.; PICTORNOVA, V.S.; DICHETTEROVA, I.M.

1st person identification of vanadium  
N-methylcarbamate derivative. Name: Cray. Serial no. 203.  
Krim.razn. no. 108-81. 1st. (XTRA 18:8)

20230

S/135/61/000/004,009/012  
A006/A101

12300

AUTHOR: Shcherbanov, D. P., Engineer

TITLE: Flash Butt Welding of Br. AMu 9-2 (Br. AMts 9-2) Bronze with AMu (AMts) Aluminum Alloy

PERIODICAL: Svarochnoye proizvodstvo, 1961, No. 4, pp. 30 - 31

TEXT: Investigations made at the laboratory of automating technological resistance-welding processes at VNIIESO have shown that in welding bronze with aluminum alloys, conditions assuring the formation of high-quality joints depend on intensive flashing with considerable plastic deformation, and subsequent upsetting. Tubes of 16 and 26 mm diameter and 2.5 - 3 mm wall thickness were flash-welded on the (MSKN-150) machine with pneumo-hydraulic drive. Basic welding parameters are given in Table 1. The mean flashing speed should in all cases be not below 10 - 12 mm/sec; the increment of the flashing speed from zero to the upper limit must be conducted according to parabolic law (Fig. 1)  $V = K \cdot t^{5/4}$ , where  $V$  is the instantaneous flashing rate;  $K$  is the coefficient (in the experiments  $K = 14$ ) and  $t$  is the flashing time. Mechanical tests made with the welded joint yielded satisfactory results, given in table 2. Metallographical examinations

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20230

S/135/61/000/004/009/012  
A006/A101

Flash Butt Welding of  $\bar{B}p$  AMu 9-2 (Br. AMts 9-2) Bronze with AMu (AMts) Alumin-  
um Alloy

proved the high quality of weld joints. An editorial note says that the present investigation does not show the effect of sticking of aluminum particles on bronze and on the corrosion resistance of the joints which, according to ZII experience, is degraded. There are 2 tables and 4 figures

ASSOCIATION: VNIESO

Table 1:

Welding conditions	Parameter values	
	for 16 mm diam. tubings	for 26 mm diam tubings
Wall thickness of tubing in mm	2.5	3.0
Section surface of tubings in mm <sup>2</sup>	106	216
Secondary voltage in v	4.2	5.9
Flashing current in amp	7600	9000

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20230

S/135/61/000/004/009/012  
A006/A101

Flash Butt Welding of  $\bar{B}_p$  .Alu 9-2 (Br. AMts 9-2) Bronze with AMu (AMts) Alumin-  
um Alloy

Table 1 continued:

	25300	35300
Upsetting current in amp	71	41.3
Density of flashing current in amp/mm <sup>2</sup>	238	162
Density of upsetting current in amp/mm <sup>2</sup>	22	24
Total setting length in mm	18	18
Total flashing magnitude in mm	4	6
Total upset magnitude in mm	1.5	1.8
Flashing time in sec	0.02	0.03
Upsetting time in sec	12	10
Mean flashing speed in mm/sec	200	200
Upsetting speed in mm/sec	2120	4800
Upsetting force in kg	20	22
Specific upsetting pressure in kg/mm <sup>2</sup>	0.52	0.48

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20230

S/135/61/000/004/009/012  
A005/A101

Flash Butt Welding of Бр .AMц9-2 (Br.AMts 9-2) Bronze with AMц (AMts) Aluminum Alloy

Figure 1:

Graph of flashing speed changes in welding

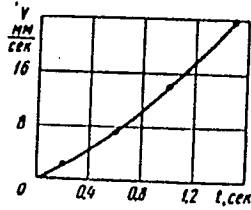


Рис. 1. График изменения скоростей оплавления в процессе сварки.

Table 2:

Образцы а)	б), с)		д)	е)	г)	
	Угол загиба в град.	Число перегибов			Место разрушения при разрыве в кг	Число испытанных образцов
1) Сплав AMц . . .	180	2	—	17*	—	—
2) Сварной образец диаметром 16 мм . . . . .	180	2	1320—1350	12,5—12,7	AMц	10
3) Сварной образец диаметром 26 мм . . . . .	180	2	2300—2400	10,6—11,0	AMц	10

Примечание. Разрушение сварных образцов происходило по основному металлу. \* Табличные данные.

a) specimens; b) Bending angle in degrees; c) Number of bendings; d) Breaking force in kg; e) Ultimate strength of weld joint in kg/mm<sup>2</sup>; f) location of fracture; g) number of specimens tested. 1-AMts alloy; 2-welded specimen of 16 mm in diameter; 3-welded specimen of 26 mm diameter. Remark: Fracture of the welded specimens occurred in the base metal. \*) Specification data

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ACCESSION NR: AP4040697

S/0135/64/000/006/0015/0016

AUTHORS: Shchetanov, D. P. (Engineer); Miftakhov, R. Sh. (Engineer)

TITLE: Butt welding of thin AMg3M pipes by the flashing off technique

SOURCE: Svarochnoye proizvodstvo, no. 6, (630), 1964, 15-16

TOPIC TAGS: welding, butt welding, aluminum alloy AMg3M, thin wall pipe, forging, aluminum oxide

ABSTRACT: The application of fusion technique to the butt-welding of thin-walled aluminum pipes was studied to determine the optimal conditions and to prevent formation of oxides. Forging pressures of 27-30 kg/mm<sup>2</sup> were used for the expulsion of oxidized metal from the welds. Good results were obtained when the butt-welded AMg3M pipes were of different wall-thickness: 40 x 1; 41 x 2; 42 x 2 mm. Further improvement was achieved with the use of separate current lines for the upper and lower electrodes; the current density was 200-300 amp/mm<sup>2</sup>. With this technique it is possible to weld together thin-walled pipes with thickness-O.D ratios up to 1:50 and higher. Sample strips cut off the welded connections were tested. The tensile test showed that failure occurred in the basic metal outside the thermal effect zone of welding. According to metallographic analyses the butt-welded

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ACCESSION NR: AP4040697

structures were uniform in structure and free of inclusions or oxide films. They differed from the basic metal only in some deformation of the fiber, caused by forging. This had no appreciable effect on their strength. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MM

NO REF SOV: 000

OTHER: 000

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L 34951-65 EPA(s)-2/EWT(m)/EWA(d)/EWP(v)/I/EWP(t)/EWP(k)/EWP(b)/EWA(c) Pf-4  
MJW/JD/HM/HW

ACCESSION NR: AP5007338

8/0135/65/000/003/0021/0022

AUTHOR: Shchetanov, D. P. (Engineer)

TITLE: Flash welding of titanium-alloy pipes 18

SOURCE: Svarochnoye proizvodstvo, no. 3, 1965, 21-22

TOPIC TAGS: titanium alloy tube, thin walled pipe, pipe welding, flash welding, weld metal structure, weld metal strength, basic welding parameter

ABSTRACT: High-quality butt joints between VT1<sup>18</sup>, VT2<sup>18</sup>, OT4<sup>18</sup>, and VT5-1 titanium-alloy tubes with a wall thickness of 1.0—1.5 mm were obtained by flash welding with rigidly timed internal and external argon shielding. The internal shielding was effected by the flow of argon fed at a pressure of 0.05—0.07 atm through the open end of one of the tubes; the argon flow begins at the moment the pipes are clamped and stops at the beginning of upsetting. On the outside, the weld and its vicinity are shielded by argon flowing at a pressure of 0.03 atm through holes drilled in the clamp jaws; in this case, the argon flow begins with the beginning of flashing and stops after the upsetting is completed. Welding of VT1 titanium tubes 26 mm in diameter takes 1.6 sec and requires 0.28 l of argon per joint compared with 4 sec and 0.66 l in TIG welding. The tubes with a 1:26 ratio of the outside diameter to

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L 34951-65

ACCESSION NR: AP5007338

the wall thickness are welded in one operation. Tubes with a greater ratio (1:30—1:50) have to be provided with heavier insert rings and the joining is done in two operations. The welds have a homogeneous structure without inclusions and distinct boundaries between joined parts. The weld metal microhardness is slightly higher than that of the parent metal. Heat treatment (annealing for 1 hr at 850C, furnace cooling to 650C and 1 hr holding at that temperature, followed by air cooling) improves the mechanical properties of the joints to the same level as that of the parent metal. Orig. art. has: 2 figures and 3 tables. [MS]

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MM

NO REF SOV: 000

OTHER: 000

ATD PRESS: 3214

Card 2/2

NEKRASOV, B.M.; MIRKIN, A.M.; FAYGENBAUM, D.S.; ~~SHCHETANOV~~, D.T.

Automatic line for the assembly and welding of standard troughs  
for the SKR-11 scraper-conveyers. Avtom.svar. 14 no.7:71-78 J1 '61.  
(MIRA 14:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut elektrosvarochnogo  
oborudovaniya.

(Conveying machinery--Welding) (Welding--Equipment and supplies)

SHCHETANYUK, P.

Centralized transport of freight is being extended in Stalino  
Province. Avt.transp.33 no.8:14-15 Ag'55. (MLRA 8:12)  
(Stalino Province--Transportation, Automotive)

SHCHETILIN, A., izobretatel'

Ionization chamber in a match box. Izobr.i rats no.10:12  
0 '62. (MIRA 15:9)  
(Ionization chambers)

SHCHETILIN, A., inzh.

Small-sized ionizer and negative ion counter. Radio no. 11:47-49 N  
'63. (MIRA 16:12)

S/031/60/000/011/007/008  
A161/A133

27.4400

25173

AUTHORS: Tleulin, S. D., Shchetilin, A. P., Knayrushev, Ye. A.

TITLE: Pin tube electromyograph

PERIODICAL: Akademiya nauk Kazakhskoy SSR, Vestnik, no. 11, 1960, 104 - 106

TEXT: The subject myograph has been developed at the Institut krayevoy patologii AN KazSSR (Institute of Regional Pathology of the Academy of Sciences of the KazSSR) because of the absence of modern myographs on the market. The new features in it are the pin tube amplifier for measurements of biological currents, and electronic voltage stabilizers (Fig. 1 and 2). Actually, the amplifier had been designed by V. A. Kozhevnikov and V. I. Siroko of the Institut fiziologii im. I. P. Pavlova AN SSSR (Institute of Physiology imeni I. P. Pavlov of the AS US SR) who used the system of A. M. Andrew and of G. Klein (both of 1955, the names are given in original English and German) with octal ("oktal'nyye") base tubes. In the new amplifier these are replaced by pin-type base tubes ("pal'chikovyye"). The tubes are operating from a 110 - 220 v network (can also work from a storage battery). The balanced system permits recording without screening off the room from the common interference sources like electric lighting bulbs, CH 250 (SN250)

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XX

S/031/60/000/011/007/008  
A161/A133

25173

## Pin tube electromyograph

voltage stabilizer, etc. The amplification factor (from input to electron-ray tube) is about 1,000,000; - the sensitivity (input-photo film)  $10 \mu\text{v}$  in 1 mm; the frequency band amplified without frequency and amplitude distortions is 1 + 2000 cycles. The principle of the system had been described in 1957 by Kozhevnikov and Siroko, therefore only the new features are mentioned in the article. The four amplifier cascades (Fig. 1) include 6H2П (6N2P) pin base tubes. Local negative feedback between the I and II cascades could be used in view of the high amplification reserve, and the zero line drift and the interference level are reduced to minimum. The total resistance in the cathode of the first cascade tube (negative feedback for symmetrical signals) is high, due to the  $\Pi_5$  ( $L_5$ ), a 6K4П (6K4P) tube used. The amplifier is assembled on a plexiglas frame (for it was not possible to use a metal panel because of interferences), and the frame is fixed on foam rubber dampers. The parts of the amplifier are of standard pattern but carefully selected. The tube anodes are supplied from stabilized rectifiers. The electronic voltage stabilizers (Fig. 2) are assembled in a combination compensation and parametric system the principle of which had been described in literature in 1957 by I. G. Gol'dreyer (Russian name) and in 1941 by E. E. Miller (English spelling). The reference voltages are removed from the  $\Gamma 2 C$  (SG2S) and 85A 2 (85A2) stabilivolts and fed to the grids of the left halves of the  $\Pi 3$  and  $\Pi 4$

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Pin tube electromyograph . 25173

S/031/60/000/011/007/008  
A161/A133

tubes of 6H9 (6N9) type working as cathode followers. The right halves of these tubes are amplifying the output voltage from the divider ( $R_{13}, R_{14}, R_{15}, R_{16}$ ). The second cascades are also assembled on 6N9 tubes and are working similarly - as cathode follower and amplifier ( $\lambda_5, \lambda_6$ ). The  $\lambda_7$  and  $\lambda_8$  tubes are the servo elements in the system. The rectifiers are of the standard type, with  $\Pi$ -shaped filters. The variable component of stabilized voltage on the stabilizer's output does not exceed 0.2 mv. The record from the electron-ray tube of 13J037 (13L037) type is taken by a photo-recorder similar to the Fedorovskiy's recorder, but with a  $\Delta A \Gamma -1$  (DAG-1) motor for pulling the film with 80 and 120 mm/sec speed. The commutator of the myograph has a built-in ohmmeter for measuring the resistance between the electrodes applied to the muscle surface, a voltmeter for watching the supply voltage, an input voltage calibrator, and two switches. The recording electrodes are made from stannium and lead, 0.5 cm in diameter, spaced 2 cm; held in plexiglas holders. The grounding electrode is of standard execution from a cardiograph. The authors express their gratitude to Senior Laboratory worker F. G. Trusov who participated in the development of the myograph. There are 2 figures.

Card 3/6



39110  
S/058/62/000/000/130/136  
A062/A101

202/31

Author: Shchetilin, A. P.

Title: Portable direct reading ion counter

Periodical:

Referativnyy zhurnal, Fizika, no. 6, 1962, 25 - 26, abstract  
6-3-50 shch ("Mashinostr. i energ. Kazakhstana. Nauchno-tekhn. sb."  
1961. no. 4 (14) 16 - 26)

Text:

Methods of measuring the ion concentration in the atmospheric air and diagrams of various types of ion counter indicators are described. The ion counter is shaped as a cylinder having an external cylindrical coating and an internal measuring electrode. The applied amplifier must have an amplification coefficient  $\sim 1.5 \times 10^7$  with an input resistance  $10^{13} - 10^{14}$  ohm. To increase the input resistance, it is necessary to employ a complex device for converting d.c. into a.c., amplifying it and then reconverting it into d.-c. A more simple diagram is developed making use of a one-tube amplifier with a miniature double diode 202П (2E2P) connected according to the bridge balance circuit. In the following stage a transistor amplifier is used. The ionometer has the following

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S/058/62/000/006/130/136  
A062/A101

Portable direct reading ion counter

fundamental characteristics: number of recorded ions 500 - 3,000,000; volume speed of the sucked air 500 cm<sup>3</sup>/sec; mobility of the measured ions 1.1 ; 0.1 cm<sup>2</sup>/sec. V, drift of the zero for 1 hour operation not more than 2% of the upper limit of the measurements.

V. M.

[Abstracter's note: Complete translation]

Card 2/2

40081  
S/263/62/000/010/012/013  
1028/1250

24.6800  
AUTHOR.

Shchetilin, A. P.

TITLE:

Portable direct-reading ionic counter

PERIODICAL:

Referativnyy zhurnal ,otdel'nyy vypusk.32. Izmeritel'naya tekhnika, no. 10, 1962, 59-60., abstract 32.10.439. "Mashinostr. i energ. Kazakhstana. Nauchno-tekhn. sb.", no. 4 1961, (14), 16-26

TEXT The paper describes a direct-reading portable ionic counter for the measurement of the mobility and concentration of ions of both polarities, developed at the Institute of Regional Pathology and of the ANKazSSR. Ionized air is sent by means of a ventilator across a cylindrical capacitor having an external cylinder-plate and an internal measuring electrode. A constant voltage, of magnitude dependent on the mobility of the ions, is supplied to the external plate. An electrostatic charge, equal and opposite to the charge of the plate, is then induced on the measuring electrode. When ionized air is sent through the capacitor, ions of a selected mobility precipitate on the measuring electrode. A sensitive voltmeter, graduated in ions, and connected to a high ohmic resistance, permits a direct reading on the scale. The circuit of the tube voltmeter consists of an electrometric double miniature tetrode 2ЭП2 (2E2P) connected according to the bridge balance circuit. The vacuum resistance in glass balloons of the KBM (KVM) type of  $10^{12}\Omega$  is used as a high resistance and ЛМ (LM) (or M-24) microammeter with scale  $(0-50) \cdot 10^{-6}$  a serves as an indicator. The use of a rougher

Card 1/2

00513R00154891001

KEKIN, A.A.; SHCHUTILIN, A.P.; NENASHEV, N.V.

Small-scale electric current feeding device to an electrostatic  
precipitator. Trudy Inst. gor. dela AN Kazakh.SSR 12:164-171  
'63. (MIRA 17:8)

KEKIN, A.A.; HERASHEV, N.V.; SHEKHTILIN, A.P.

Methods of determining the dispersing composition of drops  
of spraying water. Trudy Inst. gor. dela AN Kazakh SSR 12:  
172-177 '63. (MIRA 17:8)

KEKIN, A.A.; SHCHEVILIN, A.P.; NERJOMEV, N.V.

Increasing the congelating capacity of water by charging it in  
an electrostatic field. Izv. Inst. gor. dela AN Kazakh.SSR 15:24-  
90 1974. (MIRA 18:2)

12.6100

SOV/180-59-5-14/37<sup>67802</sup>

AUTHORS: Chaporova, I.N., and Shchetilina, Ye.A. (Moscow)

TITLE: Solubility of Tungsten Carbide in Cobalt and Nickel<sup>1</sup>

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 5, pp 91-96 (USSR)

ABSTRACT: The author mentions the diversity of published opinions on the solubility limits of tungsten carbide WC in cobalt and nickel (Refs 1-8). The object of the present work was the more precise determination of the solubility in cobalt compared with that in nickel and the study of some of the properties of the solid solutions formed. Alloys were prepared from tungsten-carbide, cobalt and nickel powders (Table 1). For solubility determinations mixtures of cobalt with 2, 4, 6, 10, 12, 15, 18 and 20 weight % WC and of nickel with 6, 15, 18 and 20 weight % WC were prepared. Compacted cylinders 18 mm in diameter covered in graphite particles were reduced in a hydrogen stream at 700-800°C for 5 hours. Alloys were prepared by fusion and sintering for 1-2 hours at 1200-1450 °C in a laboratory vacuum furnace, followed by cooling in the furnace at about 200-300 °C per minute to 700-800 °C.

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1/3

67802

SOV/180-59-5-14/37

## Solubility of Tungsten Carbide in Cobalt and Nickel

Carburizing (to make good the C-deficiency of the WC preparation) sintering of specimens at 1250-1450 °C was effected in a current of hydrogen in contact with carbonaceous material. Microstructural investigation showed that the WC-Co alloys with under 12% WC contain a single phase (Fig 1) and those with over 12%, two (Fig 2). Carburizing treatment led to the appearance of lamellar graphite inclusions (2, 4 and 6% WC) and also (10, 12, 15 and 18% WC) a WC phase in a eutectic. Rapid cooling in water gave a WC + Co-phase + C eutectic at grain boundaries (Fig 3); cooling in the furnace gave the corresponding two binary eutectics. The author concludes that with excess carbon the solubility of WC in cobalt at the eutectic temperatures does not exceed 10 weight %. The authors' previous work (at VNIITS in 1954-56) indicates (Fig 4a) that a higher solubility is obtained with lower carbon contents. For the nickel alloys prepared by vacuum sintering at 1200-1425 °C rapid quenching was adopted. Fig 5 shows the absence of WC-phase particles and the presence of carbon inclusions in the 15% WC alloy vacuum melted at 1380 °C. Fig 6 shows

Card  
2/3



SOV/180-59-5-14/37<sup>67802</sup>

Solubility of Tungsten Carbide in Cobalt and Nickel

individual crystals of WC and nickel-graphite eutectic in the 18% alloy vacuum melted at 1350 °C. In 15% alloys obtained under carburizing conditions no WC phase was detected. The authors conclude that the limiting solubility of WC in nickel in the presence of structurally free carbon is about 15 wt %. The results of X-ray investigation (including lattice-parameter determinations of cobalt) of WC-Co alloys are given in Table 2; they confirm those of microscopic examinations of the same samples. Fig 7 shows the lattice parameter of nickel in relation to the WC-content, the value rising from 3.517 for pure Ni to 3.545 Å for melted 20% WC alloy. Here too X-ray results confirm those of microscopic investigation. Microhardness determinations showed that with increasing WC-content and especially after the appearance of the WC-phase the microhardness rises. Fig 8 shows the microhardness vs WC-content for nickel; this was always less than that of the cobalt-base alloys. There are 8 figures, 2 tables and 8 references, of which 2 are Soviet, 5 English and 1 German. ✓

Card  
3/3

SUBMITTED: May 22, 1959

SOV/129-59-6-5/15

AUTHORS: Shchetilina, Ye.A. (Engineer) and  
Chaporova, I.N. (Cand. Tech. Sci.)

TITLE: Interaction of Niobium Carbide with Cobalt  
(Vzaimodeystviye karbida niobiya s kobal'tom)

PERIODICAL: Metallovedeniya i termicheskaya obrabotka metallov,  
1959, Nr 6, pp 19-23 (+ 2 plates) (USSR)

ABSTRACT: For investigating the system Niobium Carbide - Cobalt,  
the specimens were produced by powder metallurgy  
methods from pulverized niobium carbide and cobalt.  
The chemical analyses of these materials are entered in  
Table 1, page 19. The specimens were placed in  
corundum crucibles which were put into graphite dishes  
and heated for two hours at 1250, 1300, 1320, 1340,  
1350, 1375 and 1400 °C followed by rapid cooling  
(hardening) in the coolers (refrigerators) of the  
furnace. The specimens were sintered at 1225, 1450 and  
1550 °C and during the tests temperature was controlled  
automatically with an accuracy of  $\pm 5^\circ\text{C}$ . Data on the  
state of the specimens after sintering and the results  
of microstructure investigations of some of these are  
entered in Table 2, page 20. In Figs 1-3 (plates)

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SOV/129-59-6-5/15

Interaction of Niobium Carbide with Cobalt

microstructure photographs are reproduced of cobalt with various percentages of NbC. In Fig 4 the dependence is graphed of the linear shrinkage of the investigated alloys on the sintering temperature. In Fig 5 the dependence is graphed of the linear shrinkage as a function of the carbide content for the sintering temperatures 1250 - 1235 °C. In Fig 6 an approximate diagram of state of the system NbC-Co is reproduced, which is based on the data derived from the here-described investigations. On the basis of the data of the metallographic investigations and measurement of the shrinkage of the specimens during sintering, it was established that the eutectic appears for a NbC content of about 0.5 mol %. Consequently it can be assumed that the solubility of niobium carbide in cobalt at the fusion temperature of the eutectic does not exceed 0.5 mol %. This was also confirmed by X-ray data; the lattice parameters of pure cobalt and of the cobalt phase in the alloys containing 0.5 - 3 mol % NbC did not differ. Comparing the here-given data on the system NbC-Co with results of investigations

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Interaction of Niobium Carbide with Cobalt

SOV/129-59-6-5/15

of the system TiC-Co published earlier (Ref 6), an analogy can be observed between the interaction of niobium carbides and of titanium with cobalt: both systems are eutectic in character, the maximum solubility in the solid state is approximately the same in both cases and the fusion temperatures and the composition of the eutectics also did not differ greatly.

There are 6 figures, 3 tables and 6 references, 5 of which are Soviet and 1 English.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov (All-Union Scientific Research Institute for Hard Alloys)

Card3/3

31704

S/137/62/000/002/019/15

A006/A101

15 2400

AUTHORS: Chaporova, I. N., Shchetilina, Ye. A., Serebrova, S. I.

TITLE: On the effect of the composition of carburizing phases on some mechanical properties of cermet WC-Co and WC-Ni sintered carbides

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 2, 1962, 33, abstract 2G263 ("Sb. tr. Vses. n.-i. in-t tverdykh splavov", 1960, no. 2, 90-104)

TEXT: The authors studied the effect of the cooling rate on the composition of carburizing phases and the mechanical properties of WC carbides with 10 and 30% Co or Ni, differing by the C content. The C content varied depending on the initial composition of the charge and sintering conditions (filling, atmosphere). Slowly cooled carbides with 10% Co, independent of the C content, showed in all the experiments higher  $\sigma_{0.1}$  than rapidly cooled carbides. Carbides with 30% Co showed on the contrary higher strength in rapid rather than in slow cooling. Changes in hardness  $H_v$  of WC-Co and WC-Ni carbides cooled at various rates, were not revealed. WC-Ni carbides are less hard and durable than WC-Co carbides of an analogous composition. This difference is caused by different properties of pure metals and solid solutions of their base. No

Card 1/2

S/180/61/000/001/011/015  
E021/E406

AUTHORS: Chaporova, I.N. and Shchetilina, Ye.A. (Moscow)

TITLE: The Limits of the Single-Phase and Two-Phase Regions  
in the Tungsten-Carbon-Cobalt and Tungsten-Carbon-  
Nickel Systems <sup>21</sup> <sup>21</sup> <sup>21</sup>

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh  
nauk, Metallurgiya i toplivo, 1961, No.1, pp.126-132

TEXT: Results of studies of the limits of the single phase  
(Co or Ni) and two-phase (Co phase + WC or Ni phase + WC) regions  
are given. Alloys were made from powders of tungsten carbide,  
cobalt, nickel, and tungsten. All the samples after pressing were  
sintered at 650 to 700°C in a current of hydrogen. The alloys  
were further sintered in a laboratory vacuum furnace at temperatures  
of 1400 to 1450°C. Metallographic analysis was carried out.  
Alloys in the ternary W-C-Co system containing 4 to 28 wt.% W and  
0.1 to 1.72% C were studied. Alloys containing 0.1 to 0.61% C  
and 9.39 to 24.9% W were single-phased (Fig.1) with the  
exception of the alloy containing 0.35% C and 19.65% W where  
traces of a eutectic in the cobalt solid solution boundaries were  
noted. With increase in carbon content, the solubility of  
Card 1/6

The Limits of the Single-Phase ... S/180/61/000/001/011/015  
E021/E406

geometric line Ni-WC. Traces of  $\eta_1$  phase were detected in samples containing 30% Ni and 5.11% C (as WC). The alloy containing 15% Ni had traces of  $\eta_1$  phase when 5.88% C (as WC) was present. The boundary between the 2-phase (WC + Ni) and the 3-phase (WC + Ni +  $\eta_1$ ) in the case of the alloy containing 10% Ni was at a C content (as WC) of 6.04 to 6.10%. Some magnetic measurements were also made. These confirmed the metallographic analysis. There are 4 figures, 7 tables and 5 references: 1 Soviet and 4 non-Soviet.

SUBMITTED: June 15, 1960

Card 3/6

1.1600 also 1521,4016  
AUTHORS: Chaporova, I.N., and Shchetilina, Ye.A.  
TITLE:

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1961, No.3, pp. 37-41  
The process of sintering and the structure of tungsten carbide - cobalt and tungsten carbide - nickel alloys with a carbon deficit

TEXT: The process of sintering was studied using production conditions for sintering, i.e. the temperature was gradually increased up to the sintering temperature and the alloys were subsequently cooled at different rates. Alloys with 10, 15, 30 and 40 weight % cobalt (nickel) were prepared with additions of tungsten. In alloys containing 40% cobalt, sintered at temperatures below where a liquid phase appears, the  $\eta_1$  phase in the form of lakes was detected. It was found that lakes of  $\eta_1$  phase can be formed when a liquid phase appears during sintering if the quantity of liquid is insufficient for recrystallization of the  $\eta_1$  phase through the liquid. Thus, alloys containing 30% cobalt, with a

Card 1/3

The process of sintering and the .... 22974  
S/180/61/000/003/002/012  
E021/E135

carbon content in the tungsten carbide of 5.47 weight % and less, sintered at 1400 °C, have lakes of  $\eta_1$  phase, the size of which is greater than or equal to that of the tungsten carbide grains. With increasing carbon or cobalt content the  $\eta_1$  phase, which formed in the solid state, can completely dissolve in the liquid and is then reprecipitated during cooling in the form of coarse crystals. Fast cooling from high temperatures above the liquidus can result in a eutectic structure. With alloys containing 15 and 10% cobalt, lakes of  $\eta_1$  phase were observed after sintering at 1450 °C with carbon contents in the tungsten carbide of 5.88 and 5.94 weight % respectively. With increase in carbon content, crystals of  $\eta_1$  similar to those in the alloy containing 30% cobalt were observed. Further increase in carbon content in the 10% cobalt alloy resulted in  $\eta_1$  phase in a needle shaped or dendritic form in a lace-like pattern. With very low carbon deficit, the  $\eta_1$  phase can be precipitated at the tungsten carbide - cobalt boundary in the alloys containing 10, 15 and sometimes 30% cobalt. Investigations of the tungsten - carbon - nickel alloys gave similar results. In the alloy containing 30% cobalt, a carbon content in the tungsten carbide of 5.35 weight % or less resulted

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S/129/61/000/007/011/016  
E073/E535

AUTHORS: Chaporova, I.N., Shchetilina, Ye. A. and Serebrova, O.I.  
TITLE: Influence of Additional Tempering on the Properties of  
the Carbides WC-Co  
PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov,  
1961, No.7, pp.44-46

TEXT: The authors investigated the carbides BK4B (VK4V),  
BK6B (VK6V), BK8B (VK8V) and BK6M (VK6M) after heat treatment.  
The specimens were heated in a resistance furnace for 1.5-2 hours  
at 750, 500, 250 and 150°C. The duration of soaking at the  
tempering temperature was 2 hours and this was followed by cooling  
at a rate of 2°C/min. From each batch specimens were taken for  
investigating the microstructure, determining the coercive force,  
the bending strength and for the alloy VK4V also the impact  
strength. The specimens from the carbides VK8V, VK6V and VK4V  
contained micrographite inclusions in addition to grains of a  
tungsten carbide and veins of the cobalt phase. The alloy VK6M  
had a two-phase composition. Granulometric analysis of the  
carbide phase showed that during heat treatment (tempering at  
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Influence of Additional Tempering S/129/61/000/007/011/016  
E073/E535

various temperatures). the size of the tungsten carbide grains did not change either in the coarse grain carbides VK8V and VK4V, the medium grain carbide VK6V or in the fine grain carbide VK6M. The shape of the grains of the WC phase also did not change. No difference was observed in the coercive force values before and after tempering. A slight increase in the bending strength (by 8 to 10 kg/mm<sup>2</sup>) was observed after tempering at 250°C. However, tempering at 500 and 750°C did not result in any change of the bending strength. Taking into consideration the square errors of the mean arithmetic values, it can be stated that even at 250°C the influence of tempering is insignificant and is almost entirely overshadowed by fluctuations of the average strength values. Tempering of the alloy VK6V at 250 and 500°C showed no influence on the bending strength. In tests with a second batch of specimens of the same alloy, an appreciable drop in the strength was observed (by 23 and 21 kg/mm<sup>2</sup>, respectively) for both tempering temperatures. Tests of the alloy VK4V at 750, 500, 250 and 150°C revealed in all cases a very slight tendency to a drop in the bending strength (by 6 to 13 kg/mm<sup>2</sup>) which did not exceed

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Influence of Additional Tempering ...

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S/129/61/000/007/011/016  
E075/E535

the limits of the fluctuations of the average strength values. No difference was observed between the impact strength values of the carbide VK4V before and after tempering. Tempering of three different batches of the carbide VK6M was first carried out at 250, 500 and 750°C. In the batch tempered at 500°C, an appreciable increase in strength was observed, from 149 to 171 kg/mm<sup>2</sup>. For verifying this all the three batches were again tempered at 500 C. The strength of the specimens of both batches corresponded to the initial state and for the third batch the strength values differed from the average ones. The investigations have shown that tempering of the carbides VK4V, VK6V and VK8V at 750, 500, 250 and 150°C does not produce any appreciable change in the properties. The investigated carbides contain graphite inclusions and, in the presence of graphite, decomposition of the Co solution is made easier and the composition of the cementing phase in the alloys was near to that of pure cobalt. Apparently additional heating does not change the composition of the Co phase and, therefore, does not have any influence on the properties of the WC-Co alloys. The carried out experiments and the explanation of

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Influence of Additional Tempering S/129/61/000/007/011/016  
E073/E535

the obtained results cannot be considered exhaustive, since the changes in the properties of the alloys can be brought about by other factors (changes in the stress state of the alloy, phase transformations of the Co phase etc.). There are 1 figure, 2 tables and 3 references - 1 Soviet, 1 Austrian and 1 English: U.S. Patent No. 278073 (Method of heat treatment of carbide plates for increasing the tool service life)

[Abstractor's Note: This is an abridged translation.]

ASSOCIATION: Vsesoyuznyy Nauchno-Issledovatel'skiy institut tverdykh spлавov (All Union Carbide Scientific Research Institute)

Card 4/5

LYALIKOV, S.I.; SHCHETININA, Ye., red.; ZHEMANYAN, N., tekhn. red.

[Poisonings by toxic chemicals and first aid for them] Otravleniia  
iadokhimikatami i pervia pomoshch' pri nikh. Izd.2., dop. Ki-  
shinev, Karta moldoveniaske, 1962. 61 p. (MIRA 15:6)  
(POISONING)

L 26052-65 EWP(e)/EWT(m)/EPF(c)/EPF(n)-2/EWP(t)/EPR/EWP(b) Pr-4/Pad/Ps-4/  
Pu-4 IJP(c) JD/HW/JG/AT/WH S/0279/64/000/006/0142/0147  
ACCESSION NR: AP5001617

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40  
B

AUTHOR: Shchetilina, Ye. A. (Moscow); Tumanov, V. I. (Moscow); Serebrova, O.I. (Moscow)

TITLE: The solubility of refractory metal carbides in cobalt

SOURCE: AN SSSR. Izvestiya. Metallurgiya i gornoye delo, no. 6, 1964, 142-147

TOPIC TAGS: Co-Mo<sub>2</sub>C, Co-WC, Co-TaC, Co-NbC, Co-TiC, refractory metal carbide solubility, refractory, cobalt containing carbide

ABSTRACT: The solubility of carbides of the group IV-VI metals of the periodic system depended on the C content in the initial carbides and the conditions of alloy preparation. The solubility of Mo<sub>2</sub>C, WC, TaC, NbC, TiC, of TiCWC, TaCWC and NbCWC (30 wt. % MC and 70 wt. % WC), and of NbCWC (2:98) was greater when melting was in a helium atmosphere than in a hydrogen atmosphere, and was least when operating under carburizing conditions. The maximum solubilities in Co in the presence of structurally free C were 6% WC, 4% Mo<sub>2</sub>C and 0.5 mol% TaC, NbC and TiC. The maximum solubility of TiCWC was 0.5% and

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L 26052-65

ACCESSION NR: AP5001617

of TaCWC and NbCWC (30:70), 1%. The solubility of these carbides in Co was determined by their crystal structure and the value and the nature of the metal-carbon bond. Mo<sub>2</sub>C and WC stabilized the cubic modification of Co and increased the lattice spacing; Co atoms in the Co-β phase were substituted by the Mo and C atoms, and C atoms were located interstitially in the Co lattice. TaC, TiC and NbC did not change the Co lattice spacing; partial bonds between the Ta, Ti of Nb and the C were retained when these carbides were dissolved in Co. The maximum C content can be obtained in solid solutions based on Co with the introduction of carbides when the samples are melted or sintered under carburizing conditions. Orig. art. has: 1 figure and 5 tables

ASSOCIATION: None

SUBMITTED: 23Apr63

ENCL: 00

SUB CODE: IC, GC

NR REF SOV: 010

OTHER: 002

Card 2/2

1980 1111... (Moskva) SEREBROVA, S.I.

ability of ordinary retail carried in establ. inv. in  
I. Mol. 1981, delo n. 61122-140 No. 164. (MIRA 18:3)



MYZNIKOV, V. (Khar'kov); MIROSHNICHENKO, M. (Khar'kov); SHCHETINA, A.,  
frezerovshchitsa, delegat XXII s"yezda Kommunisticheskoy  
partii Sovetskogo Soyuza (Khar'kov); DOMRIN, I. (Khar'kov);  
VARFOLOMEYEV, V. (Khar'kov)

Approved and... forgotten. Sov. profsoiuzy 18 no.4:20 F  
'62. (MIRA 15:3)

1. Reydovaya brigada zhurnala "Sovetskiye profsoyuzy". 2. Rukovo-  
ditel' brigady kommunisticheskogo truda imeni XXII s"yezda  
Kommunisticheskoy partii Sovetskogo Soyuza 3-go mashinnogo tsekha  
Khar'kovskogo elektromekhanicheskogo zavoda (for Myznikov).
3. Sekretar' partorganizatsii 5-go apparatnogo tsekha Khar'kovskogo  
elektromekhanicheskogo zavoda (for Miroshnichenko). 4. 3-y ma-  
shinnyy tsekh normalizovannykh detaley Khar'kovskogo elektrome-  
khanicheskogo zavoda (for Domrin). 5. Spetsial'nyy korrespondent  
zhurnala "Sovetskiye profsoyuzy" (for Varfolomeyev).  
(Kharkov—Electric industries—Hygienic aspects)  
(Industrial hygiene)

SHCHUTINA, P., polkovnik, voyennyi letchik pervogo klassa;  
SHEMOV, N., podpolkovnik, voyennyi shturman pervogo klassa

On a long route. Av. i kosm. no.1:18-22 F 166.

(MIPA 19:1)

SHCHETINA, P.S., gvardii podpolkovnik, voyenny letchik pervogo klassa

In a transport plane. Vest.Vozd.Fl. no.6:29-32 Je '61.  
(MIRA 14:8)

(Transport planes--Piloting)

RUSSIA, U. S.

Automobiles - Springs

Examining a step-like bump and its effect upon the displacement of the spring-mounted units. Avt. tekh. prom. No. 1, 1953.

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

SOV-113-58-10-15/16

AUTHORS: Sascherina, V.A., Candidate of Technical Sciences, Yurushkin, G.A.

TITLE: Czech Cargo Trucks (Chekhoslovatskiye gruzovyye avtomobili)

PERIODICAL: Avtomobil'naya promyshlennost', 1958, Nr 10, p 43-46 (USSR)

ABSTRACT: The present development of Czech cargo truck building is reviewed. Tables 1 and 2 contain data on contemporary Czech trucks and their engines. The production of the truck Tatra-111 was discontinued in 1958. All Tatra engines are air-cooled while those of the other trucks are water-cooled. Diesel engines with horse power ratings ranging from 60 to 340 hp are being developed at the Tatra plant, for example T-924 and T-926, the latter a six cylinder V engine. In 1957 experiments were conducted with the 12-cylinder V-engines T-930 and T-930K (with supercharger). The tests will be completed in 1958 and the mass production of the engines is scheduled for 1959. The indexes of some of the new air-cooled Tatra engines are better than those of comparable engines in Germany. The Tatra-805, 4x4, is equipped with a tire pressure control system with which the tires may be inflated or deflated according to terrain conditions. Tests

Card 1/2

Czech Cargo Trucks

SOV-113-58-10-15/16

showed that the tire pressure control system worked reliably over 28,000 km. The use of the truck chassis and engines for building buses and other municipal vehicles is mentioned briefly. There are six photos, one diagram and two tables.

1. Cargo vehicles--Czechoslovakia
2. Cargo vehicles--Properties

Card 2/2

SHCHETININ, A. (g. Ust'-Kamenogorsk)

Let us regulate the certification of freight in automotive transportation. Bukhg. uchet. 15 no.8:23-28 Ag '56. (MLRA 9:10)

1. Zamestitel' glavnogo bukhgaltera tresta "Altaysvinetsstroy."  
(Transportation, Automotive--Records and correspondence)

SHCHETININ, A.

Bureaus of clearing payments attached to construction trusts,  
and business accounting. Den. i kred. 20 no.4:71-74 Ap '62.  
(MIRA 15:4)

1. Glavnyy bukhgalter tresta "Altaysvinetsstroy".  
(Altai Territory--Clearinghouse)



PHASE I BOOK EXPLOITATION

SOV/3832

Greben', Mikhail Lazarevich, and Anatoliy Aleksandrovich Shchetinin

Regulirovaniye parovykh turbin Leningradskogo Metallicheskogo zavoda; konstruktsiya, ispytaniye i naladka (Control of Steam Turbines of the Leningrad Metal Plant; Design, Testing and Adjustment) Moscow, Gosenergoizdat, 1959. 182 p. Errata slip inserted. 7,000 copies printed.

Ed.: B.M. Levin; Tech. Ed.: O.S. Zhitnikova.

**PURPOSE:** This book is intended for engineers and technicians engaged in the operation and repair of steam turbines and also for workers in assembly and design organizations. It may also be used by students specializing in the study of steam turbines at schools of higher technical education and tekhnikums.

**COVERAGE:** Control systems for high-pressure steam turbines produced by the Leningrad Metal Works are described in this book. Types of automatic control units and elements designed for the production of turbines against racing are covered. The lubrication system and the tightness of the steam distribution system are also studied. Detailed information on various tests for control system adjustments and a program

Card 1/6

85423

15 8105

S/190/60/002/011/022/027  
B004/B060

11.2217

AUTHORS:

Zubov, V. P., Kabanov, V. A., Kargin, V. A.,  
Shchetinin, A. A.

TITLE:

Effect of Pressure on the Formation of the Microstructure  
of Polymer Chains in the Polymerization Process

PERIODICAL:

Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 11,  
pp. 1722 - 1727

TEXT: The ratio  $k_i/k_s$  of the reaction rates of the formation of iso-  
tactic and syndiotactic structures of a polymer can be influenced by  
stereospecific catalysts, and also, according to T. G. Fox (Ref.1), by  
the reaction temperature. The authors wanted to study the effect of  
pressure on the said ratio  $k_i/k_s$ . Proceeding from the theory of abso-  
lute reaction rates and taking into account a different compressibility  
of the initial components and the intermediate complex they obtained  
the equation:  $\ln(k_i/k_s) = \delta V_{0p}^*/RT - \Delta a^* p^2/2RT - 2\Delta b p^3/3RT - \ln(k_{0i}/k_{0s})$   
(7).

Card 1/3

Effect of Pressure on the Formation of the S/90/60/002/011/022/027  
 Microstructure of Polymer Chains in the B004/B060  
 Polymerization Process

Here  $\Delta V_0^*$  denotes the difference between the volumes of the syndio-  
 tactic and isotactic intermediate complexes at normal pressure.  $\Delta \alpha^*$  is  
 the difference between the coefficients of compressibility of the  
 initial components,  $\Delta \beta$  the difference between the coefficients of com-  
 pressibility of the intermediate complexes,  $k_{oi}$  and  $k_{os}$  the rate con-  
 stants of iso- and syndiotactic addition at normal pressure. The vali-  
 dity of this equation was proved experimentally, by way of producing  
 polymethyl methacrylate in a pressure range of 2000-7500 atm. The  
 vitrification temperature of the polymer dropped with pressure increase.  
 Since the isotactic polymer has a vitrification temperature of 50-55°C,  
 and the syndiotactic polymer has one in the range of 130-135°C, the  
 drop of the vitrification temperature means an increase of the isotactic  
 structure content, and thus, an increase of the value of  $k_i/k_s$ . It was  
 found by the determination of density  $\rho$  and by taking into account the  
 relation  $k_i/k_s = \rho_i(\rho - \rho_s)/\rho_s(\rho_i - \rho)$  that  $k_i/k_s$  increases from 0.33  
 at 1 atm to 0.54 at 7500 atm. The isotactic structure content increases

Card 2/3

85423

Effect of Pressure on the Formation of the Macrostructure of Polymer Chains in the Polymerization Process S/90/60/002/011/022/027  
E004/B060

from 0.25 at 1 atm to 0.35 at 7500 atm. The difference  $\Delta\chi$  of the compressibility coefficients of the iso- and syndiotactic structure was found, by way of experimental data, to have the value of  $6.1 \cdot 10^{-6} - 1.8 \cdot 10^{-10}$  p. A pressure increase leads to a preferential formation of the intermediate complex with denser molecular package. P. P. Kobeko is mentioned. There are 2 figures, 1 table, and 5 references: 2 Soviet, 2 US, and 1 German.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: June 16, 1960

Card 3/3

36282  
S/190/62/004/004/019  
B119/B138

5300  
11/16/69  
ADPHONS:

Shchetinin, A. A., Topchiyeva, I. N., Shabarov, Yu. S.,  
Levina, R. Ya.

TITLE: Cyclopropanes and cyclobutanes. XXIII. Polymerization of  
aryl cyclopropanes at high pressures and temperatures

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 4, 1962, 499-502

TEXT: The effect of high pressures (500-7500 atm) on phenyl-,  
p-aminophenyl-, p-dimethyl aminophenyl-, p-chlorophenyl, p-hydroxyphenyl-,  
p-methoxyphenyl cyclopropane, and p-methoxyphenyl cyclobutane between  
100 and 200°C was investigated. Of these only p-hydroxy- and  
p-methoxyphenyl cyclopropane undergo polymerization. The latter gives a  
viscous oil at 500 atm and 200°C, a solid polymer at 7500 atm and 200°C.  
With hydroquinone as inhibitor only a viscous liquid is formed at 7500 atm.  
Therefore, polymerization takes place by the free-radical mechanism.  
Only cyclopropane rings participate in the polymerization. The end  
product of the thermal decomposition and the subsequent oxidation of the  
Card 1/2

X

Cyclopropane and cyclobutanes. ... S/190/62/004/004/004/019  
B119/B138

polymer is anisic acid. There is 1 table.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova  
(Moscow State University imeni M. V. Lomonosov)

SUBMITTED: March 6, 1961

Card 2/2

X

L 2305-66 EWT(d)/EPA/EWT(m)/EPF(c)/EWP(f)/EPF(n)-2/EWP(v)/T/EWP(k)/EWP(h)/EWP(l)/ETC(m)  
WW/DJ

ACCESSION NR: AP5024366

UR/0286/65/000/015/0035/0035  
621.165-543.2

AUTHOR: Shchetinin, A. A.

TITLE: Reduction valve for oil-feed systems in turbomachines. Class 14, No. 173246

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 15, 1965, 35

TOPIC TAGS: reduction valve, gas turbine, steam turbine, oil system, oil feed system

ABSTRACT: An Author Certificate has been issued for a reduction valve for oil-fed systems in turbomachines, e.g., steam or gas turbines, containing a shaft in the valve casing with a draw spring. For increased reliability, the valve is furnished with a lever-type disengagement mechanism which acts on the spring and which can be directly or remotely controlled (see Fig. 1 of the Enclosure). Orig. art. has: 1 figure. [LB]

ASSOCIATION: Leningradskiy metallicheskiy zavod im. XXII s"yezda KPSS (Leningrad Metal Plant)

Card 1/2

L 2305-66

ACCESSION NR: AP5024366

SUBMITTED: 22Jun64

NO REF SOV: 000

ENCL: 01

OTHER: 000

SUB CODE: IE

ATD PRESS: 4104

Card 2/3



L 2305-66

ACCESSION NR: AP5024366

ENCLOSURE: 01

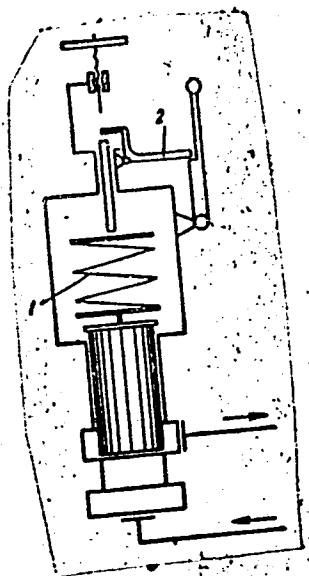


Fig. 1. Reduction valve

1 - Spring; 2 - disengagement mechanism.

PC

Card 3/3

SHCHETININ, A.F.

Experience with heating the roller dryer with hot water. Der.  
prom. 10 no.7:24-25 J1 '61. (MIRA 14:7)

1. Klaypedskiy fanernyy zavod.  
(Drying apparatus)

KALIBERDA, V.M., kand. sel'skokhoz. nauk; SULIMOVSKIY, I.G., kand. sel'skokhoz. nauk; BUKHAN'KO, Ye.P.; LOGVINENKO, V.A., agronom; KOVALENKO, A.P.; PODGORNIYY, P.I., prof. zasluzhennyy deyatel' nauki Ukrainekoy SSR; FEDOTOV, V.A., aspirant; KURBATOV, I.D., agronom; KOZNYEV, V.I.; SHCHETININ, A.I.; KORCHAGIN, V.A., kand. sel'skokhoz. nauk; SOGURENKO, V.P.; KOSTROV, K.A., kand. sel'skokhoz. nauk; DULYA, F.M.; SHERSTNEV, N.F., aspirant

Crops preceding winter crops in various zones. Zemledelie 27 no.7:  
26-45 J1 '65. (MIRA 18:7)

1. Ukrainskaya sel'skokhozyaystvennaya akademiya (for Kaliberda).
2. Odesskiy sel'skokhozyaystvennyy institut (for Sulimovskiy).
3. Odesskaya oblastnaya sel'skokhozyaystvennaya opytnaya stantsiya (for Bukhan'ko).
4. Kolkhoz imeni Kirova, Mar'inskogo rayona Donetskoy oblasti (for Logvinenko).
5. Donetskaya oblastnaya sel'skokhozyaystvennaya opytnaya stantsiya (for Kovalenko).
6. Voronezhskiy sel'skokhozyaystvennyy institut (for Fedotov).
7. Alekseyevskoye rayonnoye proizvodstvennoye upravleniye sel'skogo khozyaystva, Belgorodskoy oblasti (for Kurbatov).
8. Bezenchukskaya sel'skokhozyaystvennaya opytnaya stantsiya (for Korchagin).
9. Direktor Bykovskoy opytnoy stantsii bakhchevodstva (for Sogurenko).
10. Mordovskaya sel'skokhozyaystvennaya opytnaya stantsiya (for Kostrov).
11. Direktor sovkhoza "Kheleborobnyy", Smolenskogo rayona, Altayskogo kraya (for Dulya).
12. Altayskiy sel'skokhozyaystvennyy institut (for Sherstnev).

SHCHETININ, A.P., inzhener.

Establishing an engineering manual on the elimination of radio interference.  
Elektrichestvo no.12:89 D '53. (MIRA 6:11)

1. Gosudarstvennaya radioinspektsiya.

(Radio--Interference)

SHCHETININ, A.P., glavnyy inzhener.

Radio interference and its control. Fiz. v shkole 13 no.5:45-47 S-0 '53.  
(MIRA 6:8)

1. Gosudarstvennaya radioinspektsiya pri Ministerstva svyazi SSSR.  
(Radio--Interference)

SHCHETININ, Aleksandr Petrovich; LYUTOV, S.A., redaktor; GALOYAN, M.A.  
redaktor; SOKOLOVA, R.Ya., tekhnicheskij redaktor.

[Eliminating radio interference] Ustranenie pomekh radiopriemu.  
Moskva, Gos.izd-volit-ry po voprosam svyazi i radio, 1955. 120 p.  
(Radio--Interference) (MLBA 9:1)

SRCHETININ, A.

Intensifying the battle against radio interferences. Radio no.12:  
27-28 D '55. (MLBA 9:4)  
(Radio--Interference)

KOSIKOV, E.M.; MITTEELLO, B.F.; MODL, A.M.; SAVITSKIY, G.A.; FEDOROVICH, Ye.G.  
SHCHETININ, A.P.; FEDUNIN, G.A., *otv.red.*; GALOYAN, M.A., *red.*  
SHEPHER, G.I., *tekh.red.*

[Handbook for electric communications]. Inzhenerno-tekhnicheskii  
spravochnik po elektrosvyazi. Moskva, Gos.izd-vo lit-ry no voprosam  
svyazi i radio. Vol.8, [Radio], Radiosv'az'. 1958. 500 p. (MIRA 11:3)

1. Russia (1923- U.S.S.R) Ministerstvo svyazi.  
(Radio)



AVERBUKH, Solomon Khononovich; KNELLER, Il'ya Aronovich; KRUKOVETS, Faina Isaakovna. Primali uchastiye: FETTER, N.N.; AZBEL', Ya.I..  
BREYTBART, A.Ya., retsenzent, otv.red.; SHCHETININ, A.P., retsenzent; VENGRENYUK, L.I., red.; SHEFER, G.I., tekhn.red.

[Industrial interferences to television and methods for their suppression] Industrial'nye pomexhi televideniiu i metody ikh podavleniia. Moskva, Gos.izd-vo lit-ry po voprosam sviazi i radio, 1960. 66 p. (MIRA 13:5)

1. TSentr tekhnicheskogo radiokontrolya (TsFRK) (for Fetter, Azbel'). (Television--Interference)

ZHONDETSKAYA, O.D.; POLONSKIY, N.B.; SHCHETININ, A.P., otv. red.;  
VENGRENYUK, L.I., red.; SHEFER, G.I., tekhn. red

[Overall suppression of industrial radio interference] Kom-  
pleksnoe podavlenie radiopomekh ot promyshlennykh predpriatii.  
Moskva, Gos.izd-vo lit-ry po voprosam svyazi i radio, 1961. 55 p.  
(MIRA 15:2)

(Radio—Interference)

SHCHETININ, A.S., inzh.; ARTYUKOV, N.F., inzh.

Mechanized equipment for making brick blocks. Rats. i izobr.  
predl. v stroi. no.2:23-28 '57. (MIRA 11:1)

1.Upravleniye zhilstroya, Stalingrad.  
(Building blocks) (Building machinery)

ZUBOV, V.P.; KABANOV, V.A.; KARGIN, V.A.; SHCHETININ, I.A.

Effect of pressure on the formation of microstructure in  
polymer chains in the course of the polymerization process.  
Vysokom. soed. 2 no. 11:1722-1727 N '60. (MIRA 13:11)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.  
(Polymerization) (Methacrylic acid)