

Country : Rumania H-4  
Category :  
Abs. Jour. : 46131  
Author :  
Institut. :  
Title :  
Orig Pub. :

Abstract : the thermal treatment, they exercise a concurrent action on RC, which is however of opposite nature. The detrimental effect of ferrite becomes manifest at 600-700° and to some extent at 800°. In the opinion of the authors this is due to chromium depletion of austenite crystals as a result of increased concentration of chromium in the ferrite region. Thus the protective film of Cr-oxide that is formed upon the surface of the steel has lowered protective characteristics over austenite areas. At 900°, and partially also at 800°, when the rate of diffusion of O<sub>2</sub> is very high, RC is determined by crystal size. Greatest oxidation is observed in samples of large crystal size,  
Card: 2/3

ZAMIRO, N.I.

POKORNYI, V.V., inzhener (g. Dnepropetrovsk); ZAMIRO, N.I., inzhener (g. Dnepropetrovsk)

Handbook on fuel ("Handbook on fuel and fuel storage for the railroads." Reviewed by V.V. Pokorny, N.I. Zamiro). Elek. i tepl. tiaga no.8: 3 of cover Ag '57. (MLRA 10:8)  
(Locomotives--Fuel consumption) (Fuel)

ZAMIROV, A.

Sales of commodities are growing. Sov. torg. 33 no.8:43 Ag '59.  
(MIRA 12:11)

1. Zaveduyushchiy oblastnym otделom torgovli, g. Khorog.  
(Gorno-Badakhshan Autonomous Province--Commerce)

ZAMIROVSKAYA, M. [Zamirouskaia, M.], kolkhoznitsa (derevnya Bagdyuki)

We are grateful for your concern for our health. Rab.1 sial. 35  
no.3:15 Mr '59. (MIRA 12:3)  
(Berestovitsa District--Hospitals, Rural)

ACC NR: AP7004180

(N)

SOURCE CODE: UR/0369/66/002/006/0624/0627

AUTHOR: Zamiryakin, L. K.

ORG: Izhevsk Mechanics Institute (Izhevskiy mekhanicheskiy institut)

TITLE: Effect of residual stressed state on the corrosion cracking proneness of austenitic chromium-nickel steels

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 2, no. 6, 1966, 624-627

TOPIC TAGS: austenitic steel, weld evaluation, welding technology, stress corrosion/  
/18-8 type austenitic steel, OKh18N10T steel

ABSTRACT: Welded joints of 18-8 type austenitic Cr-Ni steels are more prone to corrosion cracking when operationally exposed to aggressive solutions. This can be remedied by using a more resistant metal such as OKh18N10T Cr-Ni steel and by applying the proper linear energy  $q/V$  of welding ( $q$  = effective thermal power of the arc;  $V$  = welding rate). For annular welded joints of OKh18N10T steel increasing the linear energy  $q/V$  to 1200 from 200 cal/cm sharply increases the resistance to corrosion cracking (time to fracture is prolonged to 780 hr and the crack, when it finally develops on immersion in boiling  $MgCl_2$  for 780 hr, develops in the base metal at a distance of 8-10 mm from the weld axis). Generally, in austenitic Cr-Ni steels exposed to aggressive solutions, brittle cracks originate at the metal sectors with maxi-

Card 1/2

ACC NR: AP7004180

mum compressive residual stresses. A change in the linear energy of welding leads to a change in the residual (compressive + tensile) stressed state at site of fracture, in time to fracture and in the distance from the weld axis to the crack. Orig. art. has: 3 fig. and 1 table.

SUB CODE: 13, 11/ SUBM DATE: 24Apr65/ ORIG REF: 006

Card 2/2

FREJKA, J.; ZAMIS, H.

Synthesis on the nucleus of halogenated ephedrine. Cas.cesk.lek.  
Ved.prihola 63 no.9-12:157-158 Dec 1950. (CML 20:9)

ZAMIS H.

181T13

CZECHOSLOVAKIA/Chemistry - Pharmaceu- Dec 50  
ticals

"Contribution to Syntheses Based on the Nucleus  
of Halogenated Ephedrines," J. Frejka, H. Zamis

"Casopis Ceskeho Lekarnictva" Vol LXIII, No 9-  
12, pp 157, 158

Following substances, not described previously,  
were prepd: 1-m-bromophenyl propanol (1), 1-m-  
bromophenyl-1,2-dibromopropane, 1-m-bromophenyl  
1-ethoxy 2-bromopropane 1-p-iodophenyl propanol  
(1), 1-p-iodophenyl propene (1), 1-p-iodophenyl  
1,2-dibromopropane.

181T13



ZAMITTEK, FNU, ENGINEER MAJOR

Held a lecture before the Officers of an air unit on the subject, "Innovation in the Construction of Aircraft Engines."

Soviet Source: N; Krasnaya Zvezda, 7 Mar 1946, Moscow

Abstracted in USAF "Treasure Island", on file in Library of Congress, Air Information Division, Report No. 86249. Card No. 2 of 2

PROCESSES AND PROPERTIES INDEX

B-I-2

Changes in Tschellabinsk coal stored in stacks in the open. E. V. Vorrova and L. A. ZAKHARINA (Koka i Chim., 1963, No. 2-3, 29-33).--The temp. in the lower layers of the stacks rises to 50° after 37 days of storage. Over this period the calorific val. of the coal falls by 16-24 g./cal., its O content rises by 0.14-0.57%, and its H<sub>2</sub>O content rises by 0.6-2.3%. The yield and nature of volatile products obtained on coking remain unchanged. R. T.

METALLURGICAL LITERATURE CLASSIFICATION

ADVICE CENTER

RESEARCH CENTER

PROCESSES AND PROPERTIES 1647

A-4

BC

Decomposition products of lignin. F. A. BORNOV, L. I. KOROTOVA, and V. A. ZAMJASINA (Compt. rend. Acad. Sci. U.R.S.S., 1938, 19, 33-38). —On autoclaving with water at 180° pine wood yields cellulose, lignin, and pentosans, much of the latter being water-sol. Oxidation of the residue with H<sub>2</sub>O<sub>2</sub> produces characteristic acids sol. in water but not in ether or in the usual org. solvents immiscible with water, and cellulose. The products of oxidation of lignin include gluconic with smaller amounts of mucic and xyloic acids. A. G. P.

ASB-52A METALLURGICAL LITERATURE CLASSIFICATION

RIGHT BOUND

LEFT BOUND

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

BC

A-3

... of polyvinyl chloride. V. V. Kozlov and V. A. Zaslavskii, *J. Appl. Chem. Russ.*, 1941, 14, 808-812. Polyvinyl chloride (I) is stable towards ac. nitric 65-100% (alone or in the presence of U oxide, FeCl<sub>3</sub>, hydrazine, Cu powder, or stannic or stannous acid), and also when autoclaved at 125°. The stability of (I) under these conditions is ascribed to its instability in ac. solutions. Treatment of solutions of (I) in COMe, by 50% KOH or NaOH-KOH (II) produces dark brown powders (III), insol. in H<sub>2</sub>O and in org. solvents. Treatment of dilute solutions of (I) with solid KOH, KOH-KOH, or with (II) gives brown insol. powders (IV), in which some of the Cl has been substituted by OH and some has been eliminated with the formation of double linkages. Acetylation of (IV) with Ac<sub>2</sub>O gives a dark-colored insol. acetate, such as B obtained, or acetylating a thoroughly dried polyvinyl alcohol. It is suggested that the instability of the products of hydrolysis of (I) is due to the formation of internal cross-linkage between adjacent macromolecules, during the elimination of Cl. Both (III) and (IV) become light yellow or colorless on heating. The chlorophenyl groups responsible for the colour of (III) and (IV) are suggested to be the systems of conjugated and rearranged double linkages along the macromol. chains. The loss of colour on heating may be due either to oxidation or to further polymerization, as the mol. wt. of (III) and (IV) fall on heating. Zn powder acting on a dilute solution of (I) does not eliminate as much of the Cl as has been found by Marvel *et al.*, 1949, 17, 62. The resulting product, C<sub>2</sub>H<sub>3</sub>OCl, is white (see also). Na had hardly any action on (I) dissolved in carefully purified anhyd. dioxane, but removed up to 14% of the Cl when dissolved in the same solvent, which contained (CH<sub>3</sub>)<sub>2</sub>OH<sub>2</sub> and H<sub>2</sub>O; these gave rise to NaOH and Na acetate, with a consequent elimination of Cl. The non-interaction between (I) and Na, its weak interaction with Zn powder, and the absence of (CH<sub>3</sub>)<sub>2</sub>CO, after oxidation with 50% HNO<sub>3</sub>, lead to the conclusion that (I) is an *co*-Cl<sub>2</sub> product. Oxidation of (I) by 20% HNO<sub>3</sub> produces Na<sub>2</sub>CO<sub>3</sub> and a monocarboxylic acid (mol. wt. 186) containing ~43% Cl; this points to an irregular distribution of double linkages, OH groups, and residual Cl in (I).

PROCESSING AND PROPERTY MODELS

B-28

Be

Polymers and copolymers. VI. Analysis and synthesis of  
 polyamide. V. V. Korotkiy and V. A. Lavitina. VII. Effect  
 of excess of adipic acid on the polycondensation with hexamethylenedi-  
 amine. V. V. Korotkiy and V. V. Ostapov (Dokl. Akad. Sci.  
 U.R.S.S. Chem. Sect. 1947, 606-610; 1948, 184-190).  
 Excess of either constituent leads to distortion in the mol. wt.  
 of the product of condensation of  $\text{NH}_2(\text{CH}_2)_6\text{NH}_2$  (I) and adipic  
 acid (II). The acids:  
 $\text{NH}_2(\text{CH}_2)_6\text{NH}_2$  (I),  $\text{CO}-\text{NH}(\text{CH}_2)_6\text{NH}_2$  (II),  $\text{CO}(\text{CH}_2)_6\text{CO}$  (III).  
 is heated at  $240^\circ$  for 6 hr. in closed solution with varying amounts  
 of (II) or hexic acid or of (III). The mol. wt. falls according to  
 the expression  $s = (100/p) + 1$ , where  $s$  is the no. of links in the  
 polyamide chain,  $p$  the excess concn. of either constituent.  
 The apparent mol. wt. derived from reflexion of the products are  
 $>$  the actual val. owing to reactions of decarboxylation or de-  
 amidation proceeding under the experimental conditions.  
 VII. The average mol. wt.  $M_n$  of the condensation product is  
 given by  $M_n = (22,000/p) + 146$ , where the mol. concns. of (II)  
 and (I) are as  $h$ :  $(1 + g)$ . The no. of links in the chains attains  
 a const. val. for each val. of  $g$ , and is max. when  $g = 0$ . R. T.

ASR-524 METALLURGICAL LITERATURE CLASSIFICATION  
 SECTION NUMBER  
 SERIAL ONE ONLY

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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PROCEDURES AND PROPERTIES - 0001

C-2

Be

1046. Polycondensation reactions. F. Determination of terminal groups of polyamides. V. A. Zamiatina and V. V. Kocchak (*Dokl. Akad. Sci. U.R.S.S., Cl. Sci. Chem.*, 1948, 480-483). Polyamides are prepared by heating together hexamethylenetetramine (I) and adipic acid (II) at 230-240°. The product is dissolved in crumpled, reprecipitated by adding alcohol, collected, and dried. 1-g. portions are treated with 10 ml. 0.01N-HCl and also NaOH for 2 hr. and the excess of reagent is back-titrated. The mol. wt. is given by  $M = 200,000/a + b$  where a and b are the respective titres in ml. per g. of polyamide.  $M$  varies from 2000 to 20,000 depending on the proportions of (I) and (II) used, temp., and time of heating. Vals. of  $M$  obtained by viscosity measurements are similar. When (I):(II) = 1, terminal NH<sub>2</sub> groups predominate owing to decarboxylation of (II) during the reaction. E. A. B.

ASD-51A METALLURGICAL LITERATURE CLASSIFICATION

FROM SYNTHESIS

IRIGBO HEP QNY GUY

RELISTONIC

FROM HOWING

QUALITY ONE QNY 11

PROCESSING AND PROTECTIVE MARKS

A-3

BC

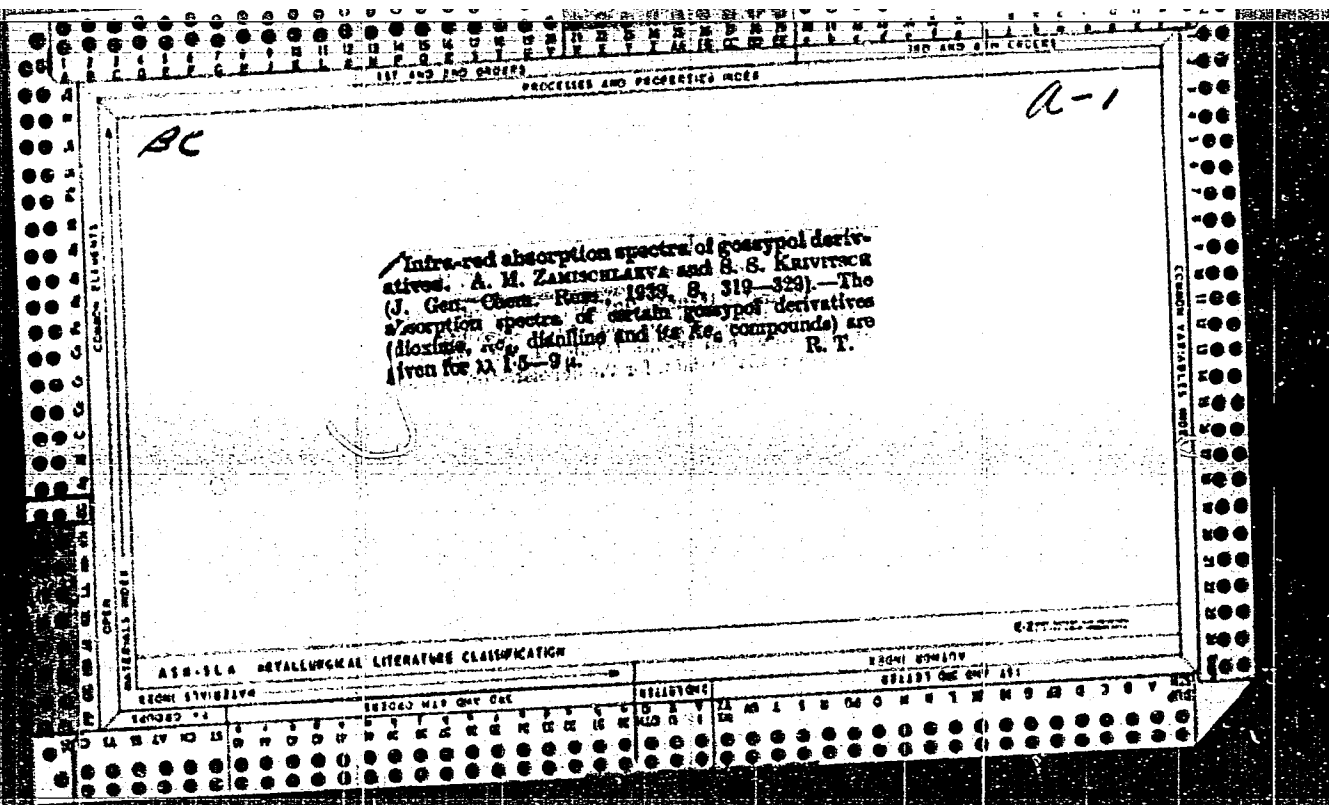
Tautomers of gonypol. A. KAMISCHLARVA  
 (Maslov. Zhiv. Delo, 1937, No. 2, 9).—The no. of OH  
 in gonypol (I), as determined by the Tschugayev-  
 Jarevskaya method, varies from 2-4 to 6-8, according  
 to the conditions. Solutions of (I) in  $C_2H_5OH$  or  
 become colored or turbid after 24 hr., in presence or  
 absence of light or air. This effect is not observed  
 with solutions in xylene. R. T.

GENERAL METALLURGICAL LITERATURE CLASSIFICATION

CLASSIFIED BY	CLASSIFIED ON	CLASSIFIED BY	CLASSIFIED ON







PROCEDURES AND PROPERTIES MSGS

114

BC →

Enzyme preparations from *Aspergillus oryzae*. V. G. Babukin and A. D. Lenzakov (*Biochimica*, 1959, 4, 810-816).—The paper. Have the ability to dissolve raw hides, and max. activity is obtained when the mould is grown on a medium made from wheat flour, peptone, glucose, and salts, and adjusted to pH 6-8. The prep. is stable and can be used as a bating agent. J. N. A.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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13-III-4

**Proteolysis in salting of herring. A. D. KAMINOV and SAVOZZHAROV (Biochimia, 1938, 1, 401-410).--Proteolytic processes in herring muscle are at a max. at pH 4-5. NaCl partly inhibits proteolysis, whilst addition (up to 0.25%) of CaCl<sub>2</sub> accelerates it. The process is one of autolysis, and is not appreciably affected by presence of bacteria or of gastro-intestinal enzymes. R. T.**

ASD-514 METALLURGICAL LITERATURE CLASSIFICATION

RECORD NUMBER      181003 419 007 005      441110000      000107 000 000 441

COPIES OF      1      2      3      4      5      6      7      8      9      10      11      12      13      14      15      16      17      18      19      20



ZAMITFER, H., dotsent, kandidat tekhnicheskikh nauk

Cylinder group of the piston engine. Kryl.rod. 3 no.12:15-16 D '52.  
(Airplanes--Engines) (MIEA 8:8)

ZAMITTEP, M.N., dotsent, kandidat tekhnicheskikh nauk

Airplane piston engines. Kryl.rod. 3 no.4:18-22 Ap '52.  
(Airplanes--Engines) (HIRA 8:8)

ZAIKOV, A.

"Self-propelled Vehicles," Reviews development of velocipedes, Za Oboronu,  
14, No. 3, 1948.



14-57-6-11682

Translation from: Referativnyy zhurnal, Geografiya, 1957, Nr 6,  
p 9 (USSR)

AUTHOR: Zamkov, A. K.

TITLE: Field Experience and Industrial Trips for Geography  
Students in Pedagogical Institutes (Polevaya proktika  
i proizvodstvennyye ekskursii studentov geograficheskikh fakul'tetov pedagogicheskikh institutov)

PERIODICAL: Izv. Akad. ped. nauk RSFSR, 1955, Nr 74, pp 213-231

ABSTRACT: This is a study of the experience gained by geography students in Moscow and Leningrad during the summer of 1953. Since the state had failed to do so, it was necessary for each institute to devise independently a summer program of practical experiences. The Leningrad Pedagogical Institute imeni Gertsen devised the best program for the first course; it was distinguished by the breadth of its scope and its

Card 1/2

14-57-6-11682

Field Experience and Industrial Trips (Cont.)

instructional content. A particularly good example of this institute's positive practical approach is the following: the students of the second course in the extracurricular work set up in a regional room in one of the district schools, planned scientific and instructional field trips in the area, and drew up a soil map for one of the area's collective farms. The absence of a unified program for all institutions of higher learning left room for considerable variation in field experiences. In 1954 the Ministry of Education of the RSFSR introduced a new program which definitely had polytechnic studies in view. It undoubtedly clarified and made uniform the field experience of every course. However, the new program does not have sufficient explanatory material and lacks methodical instruction, both of which are essential for group field work.

Card 2/2

L. Sh.

ZANCOV, A. E. Cand. Geograph. Sci.

Dissertation: "Trans-Carpathian Ukraine (Physicogeographical Characteristics and Regions)." Moscow State Pedagogical Inst. im: i V. I. Lenin, 2<sup>o</sup> Jun 47.

SO: Vechernyaya Moskva, Jun, 1947 (Project #17936)

ZAMKOV, D.G., inzh.

Investigating heat transmission and hydraulic resistance  
of marine circular-pipe coolers for viscous liquids. Sudostroenie  
25 no.5:21-27 My '59. (MIRA 12:8)  
(Marine engineering)

PROSHKIN, Ye.G.; KHOROSHAYLO, Ye.S.; GRISHA, G.V.; ZAMKOV, D.K.

Study of ultrashort radio wave propagation under conditions of a  
coke plant. Koks i khim. no. 5:29-31 '61. (MIRA 14:4)

1. Khar'kovskiy politekhnicheskii institut.  
(Coke industry—Equipment and supplies) (Remote control)  
(Radio waves)

ZAMKOV, N. S. and F. L. GEL'BART

Stakhanovskie metody v armaturnykh rabotakh. Moskva, Stoivoemmorizdat, 1948. 32 p. illus.

Stakhanov methods in armature work.

DLC: Tj1167.04

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

AKRAMOV, Z.M., kand. geogr. nauk; RAKITNIKOV, A.N., kand.  
geograf. nauk; ZAMKOV, O.K., kand. geograf. nauk;  
SHERMUKHAMEDOV, A.M. [deceased]; SAUSHKIN, Yu.G., doktor  
geograf. nauk, prof, otv. red.; DEGTYAR', V.I., red.;  
KHISAMOV, A.V., kand. geograf. nauk, red.;  
ASTAKHOV, A., red.; GOR'KOVAYA, Z.P., tekhn. red.

[Agricultural geography of Samarkand and Bukhara Provinces]  
Geografiia sel'skogo khoziaistva Samarkandskoi i Bukharskoi  
oblasti. [By] Z.M. Akramov i dr. Tashkent, Izd-vo Akad. nauk  
UzSSR. Pt. 2. 1961. 323 p. (Materialy Z'eravshanskoi ekspedi-  
tsii SOPS AN UzSSR, no.1) (MIRA 16:4)

1. Akademiya nauk Uzbekskoy SSR. Tashkent. Otdel geografii.
2. Nachal'nik Otdela sel'skogo khozyaystva Gosplana Uzbek-  
skoy SSR (for Degtyar').  
(Bukhara Province--Agricultural geography)  
(Samarkand Province--Agricultural geography)

ZAMKOV, O.K.

Agriculture of the Izhevsk flood land of the Ika Valley. Vop.  
geog. no.49:95-117 '60. (MIRA 13:8)  
(Ryazan Province--Agriculture)



ZAMKOV, O. K., Cand Geog Sci -- (diss) "Geography of the agriculture of the rayon of the Izhevskiy bottom-land mass of the Oka River." Moscow, 1960. 18 pp; (Moscow State Univ im M. V. Lomonosov); 225 copies; price not given; (KL, 17-60, 143)

USSR

535.417  
8207. A uncentric zone plate. V. A. ZAMKOV.  
Letter in Zh. eksper. teor. Fiz., No. 4, 567-8 (1953).  
In Russian.  
A uncentric reflection-type zone plate is described.  
The zones of which are spherical elements with radii  
forming arithmetical progression  $R + nd$ , where  $d$ , the  
height of the step, is equal to  $\frac{1}{2}$  the wavelength of inci-  
dent light. Properties of this zone plate are discussed.  
F. LACHMAN

ZAMKOV, V.A.

Phenomenological theory of electrooptical phenomena. Part 1.  
Opt. i spektr. 15 no.5:654-658 N '63. (MIRA 16:12)

120-3-20/40

AUTHOR: Zamkov, V.A.

TITLE: A Generator of High-Voltage, Rectangular Pulses (Generator vysokovol'tnykh pryamougol'nykh impul'sov)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1957, Nr 3, pp.73-75 (USSR)

ABSTRACT: A generator, which produces rectangular pulses smoothly variable in duration from 0.3 to 25 000  $\mu$ sec and with amplitudes up to 4 kV, is described. The slope of the leading edge of the pulses is of the order of 0.03  $\mu$ sec. The circuit (Fig.1) is based on the principle proposed by Agakhanyan (Ref.1). When a triggering pulse is applied to the grid of the hydrogen thyatron  $J_1$  the capacitor  $C_1$ , charged to a voltage  $E_0$ , commences to discharge through  $R_1$  and  $R_2$ , charging up the capacitor  $C_2$ . This process continues until all the circuit is at the same potential

$$E = E_0 C_1 / (C_1 + C_2)$$

relative to earth. If the time constants  $R_1 C_1$  and  $R_2 C_2$

Card 1/3 are equal, then the mid-point of the divider  $R_1$  and  $R_2$

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## A Generator of High-Voltage, Rectangular Pulses.

will be  $E$  at the instant when  $J_1$  is cut-off, and will remain at this potential until a pulse is applied to the grid of  $J_2$  which produces a rapid discharge of the capacitors. The circuit is triggered from a generator ГМС-1 which produces, from different outputs, two 10 V pulses, the delay between them being variable from  $10^{-7}$  to  $2.5 \times 10^{-2}$  sec. These pulses are too small to trigger the thyratrons ТГН-90/3 directly, and therefore they first trigger the thyratrons  $J_3$  and  $J_4$ , from the cathodes of which are taken pulses of approximately 350 V amplitude to trigger the basic circuit. The damping diode  $J_5$ , LG-4 (or its Russian equivalent 6ЛГОИ) protects  $J_3$  and  $J_4$  from high voltage pulses which appear on the grid of  $J_1$  at the instant it is switched off. To reduce the capacity between the cathode, heaters and earth of  $J_1$ , a special low capacity (2 pF) heater transformer was designed. To with-

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120-3-20/40

A Generator of High-voltage Rectangular Pulses.

stand heating,  $R_1$  and  $R_2$  were low-inductance, wire wound, nichrome resistors wound on a special mica former. It was necessary to arrange screening to prevent pre-ignition of  $\mathcal{N}_2$  when  $\mathcal{N}_1$  fired. By connecting cathode followers in the trigger circuits of  $\mathcal{N}_1$  and  $\mathcal{N}_2$  and replacing ТГМ1-90/8 by ТГМ2-325/6 it was possible to increase the pulse amplitude to 10 kV. For a low output impedance, a cathode follower (ГМ-17) is added to the circuit. K. N. Baranskiy assisted in this work. There are 3 figures and 1 Russian reference.

ASSOCIATION Department of Physics in M.V.Lomonosov (Fizicheskiy fakul'-tet in. M.V.Lomonosova)

SUBMITTED: January 29, 1957.

AVAILABLE: Library of Congress.

Card 3/3 1. Pulse generators-Application 2. Pulse generators-Operation

ZAMKOV, V.A.

Correlations in liquids. Ukr. fiz. zhur. 9 no.4:371-379  
Ap '64. (MIRA 17:8)

1. Moskovskiy gosudarstvennyy universitet.

ZAMKOV, V.A.

Electrooptical phenomena in solutions of macromolecules.  
Zhur. fiz. khim. 37 no.4:901-903 Ap '63. (MIRA 17:7)

1. Moskovskiy gosudarstvennyy universitet.



43925

S/188/62/000/006/007/016  
B187/B102

245300  
242130  
AUTHOR:

Zamkov, V. A.

TITLE: Thermodynamics of the critical effects in an electric field

PERIODICAL: Moscow. Universitet. Vestnik. Seriya III. Fizika, astronomiya, no. 6, 1962, 32-36

TEXT: The formula  $\epsilon - n^2 = \frac{2\pi N \bar{m} \bar{m}^*}{V_c k T_c (\epsilon - 1)} \cdot \frac{B}{B+1}$  is derived for sufficiently small  $T - T_c$  and large  $\epsilon$  on the basis of the general Fröhlich relation

$\frac{(\epsilon - n^2)(2\epsilon + n^2)}{3\epsilon} = \frac{4\pi N \bar{m} \bar{m}^*}{3V_c k T}$ . Here  $\epsilon$  is the dielectric constant,  $n$  is the refractive index,  $N$  is the number of cells in the volume  $V$  of molecules or molecule groups with equal mean polarizability in an external field,  $\bar{m}$  is the moment of the cell in the substance which is determined by the configuration of more closely interacting molecules,  $\bar{m}^*$  is the moment of an arbitrary sphere polarized by a cell  $m$  in it. The subscripts  $c$  indicate the critical values,  $\tau = T/T_c$  is the reduced temperature,  $B$  is a constant depending on

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S/188/62/000/006/007/016  
B187/B102

Thermodynamics of the critical...

the equation of state ( $B = 2/3$  for van der Waals). It can be seen that  $\epsilon$  passes a maximum for  $V = V_c$  and  $T = T_c$ . Scaife (Proc. Phys. Soc., 69B, 153, 1956) has given a formula for the pressure  $p$  in a uniform electric field  $E$ . This formula is used to derive an expression for the modulus of compression  $1/\kappa$ , which contains a factor of  $(\tau - 1)$  squared and which therefore has to vanish when the critical values for two values of  $\tau_1$  and  $\tau_2$  have been reached.

$$\tau_{1,2} - 1 = AE^2 \pm E \sqrt{(AE)^2 + B^2}, \quad A = \frac{(n^2 - 1)(n^2 + 2)}{72\pi p_c}, \quad B = \frac{N \overline{m m^*}}{6 p_c V_c k T_c}$$

For nonpolar substances a slight variation ensues in proportion to  $E^2$ . For highly polar substances ( $B^2 \gg A$ ) the displacement of the critical temperature goes linearly with the field strength. For molecules with a strong dipole

an estimation gives  $BE \approx \frac{\mu E}{2 k T_c}$  and  $AE^2 \approx \frac{\alpha E^2}{2 k T_c \cdot 1082}$ , where  $\mu$  is the dipole

Card 2/4

S/188/62/000/006/007/016  
B187/B102

Thermodynamics of the critical...

moment of the free molecule,  $\alpha$  is the polarizability. The increase of  $T_c$  in an electric field is proportional to the ratio of the energy of the molecular dipole to the energy of the rotational degrees of freedom. The above estimates yield  $RT_c/V_c P_c = 0.293$ . This value agrees to three decimal places with the empirical results for noble gases as obtained by Guggenheim (Thermodynamics North Holl. publ. Co., 1957). An estimate gives  $A \approx 0.0001 \text{ deg/v}$  and

$$B \approx \frac{A \cdot 10^{-2}}{2T_c} \approx 10^{-4} [\text{CGSE}]^{-1}$$

It is supposed that condensation in the presence of an electric field along and across the field takes place at different temperatures.  $\tau_1$  is reached first which corresponds to a two-dimensional condensation in a plane perpendicular to the field. A meniscus does not appear when the electric field and the gravitational field have the same direction. When the fields are crossed condensation occurs immediately. This state is described exactly by the Onsager theory (Phys. Rev., 65, 117, 1944).

Card 3/4

Thermodynamics of the critical...

S/188/62/000/006/007/016  
B187/B102

ASSOCIATION: Kafedra molekulyarnoy fiziki (Department of Molecular  
Physics)

SUBMITTED: March 20, 1962

Card 4/4

ZAMKOV, V.A.

Thermodynamics of critical phenomena in an electric field.  
Vest.Mosk.un. Ser.3:Fiz.,astron. 17 no.6:32-36 N-D '62.

(MIRA 15:12)

1. Kafedra molekulyarnoy fiziki Moskovskogo universiteta.  
(Electric fields--Thermodynamic properties)

ZAMKOV, V.A.

Measurement of dielectric constants in the neighborhood of the  
critical point. Zhur.fiz.khim. 36 no.5:1060-1061 My '62.  
(MIRA 15:8)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.  
(Dielectric constants) (Critical point)

ZAMKOV, V.A.

Theory of electrooptical phenomena in the critical region. Ukr.  
fiz.zhur. 7 no.7:720-723 J1 '62. (MIRA 15:12)

1. Moskovskiy gosudarstvennyy universitet.  
(Photoelectricity) (Light-Scattering)

S/185/62/007/007/002/010  
I048/I248

AUTHOR: Zamkov, V.A.

TITLE: The theory of electrooptical phenomena in the  
critical range

PERIODICAL: Ukrainskyy fizychnyy zhurnal, v.7, no.7,  
1962, 720-723

TEXT: The intensity of polarization of light passing  
through a mixture of critical concentration subjected to a strong  
electrical field increases sharply with decreasing  $\tau = (T/T_c) - 1$ ,  
where T is the temperature of the mixture and  $T_c$  the critical  
temperature. The experimental results conformed best when the  
mixture was entirely inside a uniform electrical field. These

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S/185/62/007/007/002/010  
1048/I248

The theory of...

phenomena are due to the superposition of the light scattering on the anisotropic fluctuations in density and the Kerr effect. The Kerr constant ( $K_F$ ) increased sharply near the critical temperature. Equations are derived for the index of refraction, the Kerr constant, the coefficient of extinction of critical opalescence, and for the depolarization of the light passing through the mixture.  $K_F$  in the vicinity of the critical temperature is a function of  $\kappa_0$ , where  $\kappa_0$  is the compressibility in the absence of a field. Coordination of the mathematical expressions with the experimental data is difficult, as the equations narrowly assumed that the dielectric constant is independent of electric field, even in the critical range. The scalar scattering of light by a substance placed in a strong electric field is anisotropic by compressibility in

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S/185/62/007/007/002/010  
I048/I248

The theory of...

the vicinity of the critical point. A verification of the Onsager theory (Phys.Rev., 65, 117, 1944) can be attempted at the temperature at which  $1/\chi_1 = 0$  (where  $\chi_1$  is the compressibility across the electric field), but strongly polar media must be used. ✓

ASSOCIATION: Moskovskiy Gosuniversitet (The Moscow State University)

Card 3/3

ZAMKOV, V.A.

Forced anisotropy. Vest. Mosk. un. Ser. 3: Fiz., astron.  
16 no.3:19-23 My-Je '61. (MIRA 14:7)

1. Kafedra molekulyarnoy fiziki Moskovskogo gosudarstvennogo  
universiteta.  
(Anisotropy) (Molecular dynamics) (Calculus of tensors)

SOV-120-58-1-35/43

AUTHOR: Zamkov, V. A.

TITLE: A Resistance Thermometer with Small Inertia (Maloinertsionnyy termometr soprotivleniya)

PERIODICAL: Priory i Tekhnika Eksperimenta, 1958, Nr 1, pp 134-136 (USSR)

ABSTRACT: The thermometer (Fig.1) is in the form of a U-tube made of pyrex and having a diameter of 1.5 mm and wall thickness of 0.1 mm. The U-tube is filled with helium and contains a platinum spiral, having a resistance of 25 ohms, the diameter of the platinum wire being 0.05 mm. The ends of this spiral are gold soldered to the current leads, having a diameter of 0.2 mm and are hermetically sealed to the ends of the pyrex tube. The total dimensions of the thermometer are 35 x 5 x 2 mm<sup>3</sup>, excluding the leads and its weight is 0.5 g. Its inertia is about 0.5 sec. A detailed description is given of the method by which this thermometer can be constructed in accordance with the specification of the International Temperature Scale. The thermometer can be used in the range -182.97°C to +444.6°C.

Card 1/2

SOV-120-58-1-35/43

A Resistance Thermometer with Small Inertia.

There is 1 figure, 3 references, 2 of which are English and 1 Soviet.

ASSOCIATION: Fizicheskiy fakul'tet MGU (Department of Physics of Moscow State University)

SUBMITTED: January 29, 1957.

1. Resistance thermometers--Design
2. Resistance thermometers--Performance
3. Resistance thermometers--Materials

Card 2/2

ZAMKOV, N.S., laureat Stalinskoy premii.

[My production methods in reinforcement work] Moi metody proizvodstva armaturnykh rabot. Moskva, Gos.izd-vo lit-ry po stroitel'stvu i arkhitekture, 1953. 44 p. (MLBA 6:8)

(Reinforced concrete construction)

ZAMKOV, O.K.

Flood lands as element of agricultural expansion. Nauch.dokl.vys.  
shkoly; geol.-geog. nauki no.2:213-222 '58. (MIRA 12:2)

1. Moskovskiy universitet, geograficheskiy fakul'tet, kafedra eko-  
nomicheskoy geofrafi SSSR.  
(Alluvial lands) (Agriculture)

1ST AND 2ND SHEETS      PREPARED AND FORWARDED UNDER      3RD SHEET (IN CASES)

CA

Single device for fluorescence microscopy. V. A. Zambow. *Mikroskopische 17*, 810-1 (1948).—An improved color filter cell is described and illustrated. A cuprammonium salt can be used as a blue filter. J. F. S.

COMMON ELEMENTS

MATERIALS INDEX

ASB-514 METALLURGICAL LITERATURE CLASSIFICATION

SYMBOLS	SYMBOLS	SYMBOLS	SYMBOLS
A	B	C	D
E	F	G	H
I	J	K	L
M	N	O	P
Q	R	S	T
U	V	W	X
Y	Z	AA	AB
AC	AD	AE	AF
AG	AH	AI	AJ
AK	AL	AM	AN
AO	AP	AQ	AR
AS	AT	AU	AV
AW	AX	AY	AZ
BA	BB	BC	BD
BE	BF	BG	BH
BI	BJ	BK	BL
BM	BN	BO	BP
BQ	BR	BS	BT
BU	BV	BW	BX
BY	BZ	CA	CB
CC	CD	CE	CF
CG	CH	CI	CJ
CK	CL	CM	CN
CO	CP	CQ	CR
CS	CT	CU	CV
CW	CX	CY	CZ
DA	DB	DC	DD
DE	DF	DG	DH
DI	DJ	DK	DL
DM	DN	DO	DP
DQ	DR	DS	DT
DU	DV	DW	DX
DY	DZ	EA	EB
EC	ED	EE	EF
EG	EH	EI	EJ
EK	EL	EM	EN
EO	EP	EQ	ER
ES	ET	EU	EV
EW	EX	EY	EZ
FA	FB	FC	FD
FE	FF	FG	FH
FI	FJ	FK	FL
FM	FN	FO	FP
FQ	FR	FS	FT
FU	FV	FW	FX
FY	FZ	GA	GB
GC	GD	GE	GF
GG	GH	GI	GJ
GK	GL	GM	GN
GO	GP	GQ	GR
GS	GT	GU	GV
GW	GX	GY	GZ
HA	HB	HC	HD
HE	HF	HG	HH
HI	HJ	HK	HL
HM	HN	HO	HP
HQ	HR	HS	HT
HU	HV	HW	HX
HY	HZ	IA	IB
IC	ID	IE	IF
IG	IH	II	IJ
IK	IL	IM	IN
IO	IP	IQ	IR
IS	IT	IU	IV
IW	IX	IY	IZ
JA	JB	JC	JD
JE	JF	JG	JH
JI	JJ	JK	JL
JM	JN	JO	JP
JQ	JR	JS	JT
JU	JV	JW	JX
JY	JZ	KA	KB
KC	KD	KE	KF
KG	KH	KI	KJ
KK	KL	KM	KN
KO	KP	KQ	KR
KS	KT	KU	KV
KW	KX	KY	KZ
LA	LB	LC	LD
LE	LF	LG	LH
LI	LJ	LK	LL
LM	LN	LO	LP
LQ	LR	LS	LT
LU	LV	LW	LX
LY	LZ	MA	MB
MC	MD	ME	MF
MG	MH	MI	MJ
MK	ML	MM	MN
MO	MP	MQ	MR
MS	MT	MU	MV
MW	MX	MY	MZ
NA	NB	NC	ND
NE	NF	NG	NH
NI	NJ	NK	NL
NM	NN	NO	NP
NQ	NR	NS	NT
NU	NV	NW	NX
NY	NZ	OA	OB
OC	OD	OE	OF
OG	OH	OI	OJ
OK	OL	OM	ON
OO	OP	OQ	OR
OS	OT	OU	OV
OW	OX	OY	OZ
PA	PB	PC	PD
PE	PF	PG	PH
PI	PJ	PK	PL
PM	PN	PO	PP
PQ	PR	PS	PT
PU	PV	PW	PX
PY	PZ	QA	QB
QC	QD	QE	QF
QG	QH	QI	QJ
QK	QL	QM	QN
QO	QP	QQ	QR
QS	QT	QU	QV
QW	QX	QY	QZ
RA	RB	RC	RD
RE	RF	RG	RH
RI	RJ	RK	RL
RM	RN	RO	RP
RQ	RR	RS	RT
RU	RV	RW	RX
RY	RZ	SA	SB
SC	SD	SE	SF
SG	SH	SI	SJ
SK	SL	SM	SN
SO	SP	SQ	SR
SS	ST	SU	SV
SW	SX	SY	SZ
TA	TB	TC	TD
TE	TF	TG	TH
TI	TJ	TK	TL
TM	TN	TO	TP
TQ	TR	TS	TT
TU	TV	TW	TX
TY	TZ	UA	UB
UC	UD	UE	UF
UG	UH	UI	UJ
UK	UL	UM	UN
UO	UP	UQ	UR
US	UT	UU	UV
UW	UX	UY	UZ
VA	VB	VC	VD
VE	VF	VG	VH
VI	VJ	VK	VL
VM	VN	VO	VP
VQ	VR	VS	VT
VU	VV	VW	VX
VY	VZ	WA	WB
WC	WD	WE	WF
WG	WH	WI	WJ
WK	WL	WM	WN
WO	WP	WQ	WR
WS	WT	WU	WV
WW	WX	WY	WZ
XA	XB	XC	XD
XE	XF	XG	XH
XI	XJ	XK	XL
XM	XN	XO	XP
XQ	XR	XS	XT
XU	XV	XW	XX
XY	XZ	YA	YB
YC	YD	YE	YF
YG	YH	YI	YJ
YK	YL	YM	YN
YO	YP	YQ	YR
YS	YT	YU	YV
YW	YX	YY	YZ
ZA	ZB	ZC	ZD
ZE	ZF	ZG	ZH
ZI	ZJ	ZK	ZL
ZM	ZN	ZO	ZP
ZQ	ZR	ZS	ZT
ZU	ZV	ZW	ZX
ZY	ZZ		



1.2300 also 1573

23283

S/135/61/000/007/006/012  
A006/A106AUTHORS: Asnis, Ye. A., Zankov, V. N., Engineers

TITLE: Peculiarities of welding copper on chrome-nickel steels

PERIODICAL: Svarochnoye proizvodstvo, no. 7, 1961, 20-22

TEXT: To replace brass employed for devices, operating at low temperatures, by 18-8 type steel, the authors investigated welding and soldering of copper parts on stainless steel components. The study was carried out at the welding laboratory of the Kiyev "Bol'shevik" Plant with the participation of engineer G. K. Gayduchenko. Grade M2 copper was welded on 1X18H9T (1Kh18NGT) austenite steel, MCr. 3 (MSt. 3) ferrite-perlite steel and double-phase high-alloy chrome-nickel steel containing over 30% ferrite. Building up was performed with the use of a 50 mm wide and 0.8 mm thick strip under AH-60 (AN-60) flux. The bi-metal specimens (copper+1Kh18NGT steel) were subjected to bending tests at +20 to -70 °C. Preliminary tests showed that copper in molten state can penetrate in the adjacent metal. The degree of penetration depends on the metal structure and stresses arising during the building-up process. The effect of these factors was investigated on microsections of specimens, built-up with cooling, pre-heating,

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23283

S/135/61/000/007/006/012  
A006/A106

X

Peculiarities of welding copper ...

different linear energy and different thickness. The effect of cooling and pre-heating on the proneness of austenite steel built-up with copper to hot crack formation was studied on 10 mm thick specimens. In the former case the specimens were cooled with running water at 12°C; in the latter case they were heated to 800°C. In both cases microcracks were not revealed in the built-up metal. The effect of linear energy was investigated with the use of 4 mm diameter M2 wire and a 16 mm thick 1Kh18N9T steel plate. Building up was performed at 12,350, 10,550, 8,450, 8,000 and 6,920 cal/cm. It was found that with reduced linear energy the proneness of the built-up metal to hot crack formation decreased. To determine the effect of the base metal structure on the penetration of copper, 10 mm thick MSt.3 steel and high-alloy chrome-nickel steel specimens were built-up. Macrocracks were not revealed. The effect of thickness was studied on 300 x 100 1Kh18N9T specimens built up with a copper strip under AN-60 flux, at 40-45 v arc voltage, 475-550 amps current and 12 m/h welding speed. In all specimens, up to 12 mm thick, microcracks were revealed, filled with copper, which run from the fusion zone of copper with steel over the whole section of the specimen. Mechanical tests were performed to determine the cohesion strength of the built up copper layer with the base metal. Sections of plates of different thickness and steel grades, built-up under various conditions, were microinvesti-

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Peculiarities of welding copper ...

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S/135/61/000/007/006/012  
A006/A106

gated in reagents of 4 g  $\text{CuSO}_4$ , 20 ml HCl and 20 ml water. The tests yielded the following results: The penetration of copper into the steel when welding copper on austenite 1Kh18N9T steel decreased with lower linear energy and greater thickness of the metal. The presence of a second phase in the steel reduces copper penetration; at a ferrite content of over 30% in austenite-ferrite steel, copper penetration is fully eliminated. Preheating of 1Kh18N9T steel to 800°C and continuous water cooling during building-up process considerably reduces penetration of copper into steel, due to the formation of a second phase. Eimetal obtained by building up copper on 1Kh18N9T steel of 32 mm thickness, shows satisfactory mechanical properties and deformation capacities. There are 4 figures and 5 Soviet-bloc references.

ASSOCIATION: Kiyevskiy zavod "Bol'shevik" (Kiyev "Bol'shevik" Plant)

X

Card 3/3

ASNIS, Ye.A.; ZAMKOV, V.N.

Welding thin-sheet stainless steel in an atmosphere of carbon dioxide. Avtom. svar. 14 no.10:49-51.0 '61. (MIRA 14:9)

1. Kiyevskiy zavod "Bok'shevik".  
(Steel, Stainless--Welding)  
(Sheet steel--Welding)

GUREVICH, S.M.; ZAMKOV, V.N.

Welding titanium with steel. Avtom. svar. 15 no.8:21-26 Ag '62.  
(MIRA 15:7)

1. Ordena Trudovogo Krasnogo Znameni institut elektrosvariki  
imeni Ye.O. Patona AN USSR.  
(Titanium--Welding)

(Steel--Welding)

ACCESSION NR: AP4029260

S/0125/64/000/004/0093/0094

AUTHOR: Gurevich, S. M. (Doctor of technical sciences); Zamkov, V. N. (Engineer); Zagrebenyuk, S. D. (Engineer); Kushnirenko, N. A. (Engineer)

TITLE: Effect of rare-earth-bearing fluxes on the structure and characteristics of VT15-alloy welds

SOURCE: Avtomaticheskaya svarka, no. 4, 1964, 93-94

TOPIC TAGS: welding, titanium alloy, titanium alloy welding, welding flux, lanthanum fluoride flux, AN-T7 flux, VT17 welding wire, VT15 titanium alloy

ABSTRACT: It was found that lanthanum fluoride, as a part of the welding flux, is conducive to good weld formation, welding-process stability, slag-crust separation, etc. in welding important constructions made from titanium alloys. Experiments were conducted with fluxes that contained various proportions of  $\text{LaF}_3$ ; AN-T7 refractory fused flux was taken as a basis. The oxygen content in a weld made by

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ACCESSION NR: AP4029260

VT17 wire (VT15 base metal) was 0.17% and 0.10% with 0 and 40%  $\text{LaF}_3$  in the flux, respectively. A weld obtained with an optimum content of  $\text{LaF}_3$  also showed superior mechanical characteristics (table given). Orig. art. has: 1 figure and 2 tables.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 27Apr64

ENCL: 00

SUB CODE: ML

NO REF SOV: 000

OTHER: 000

Card 2/2

ZAMKOV, V. N. (Engineer) and GUREVICH, S. M. (Dr. Tech) (Institute of electric welding,

"Welding of titanium with steel, bronze and aluminum." Concerning questions of direct welding of alloys of titanium with copper and also technology of welding of titanium alloys with aluminum. The possibility of welding of titanium with steel through a copper layer was demonstrated.

Report presented at the 1st All-Union Conference on welding of heterogeneous metals, at the Institute of Electric Welding im. Ye. O. Paton, 14-15 June 1963. (Reported in Avtomaticheskaya Svarka, Kiev, No. 9, Sept 1963, pp 95-96 author,

V. R. Ryabov)  
JPRS 24,651

19 May 64



L 14564-66 EWT(m)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b)/EWA(h) JD/EW  
ACC NR: AP6002587 SOURCE CODE: UR/0286/65/000/023/0081/0081

INVENTOR: Gurevich, S. H.; Zankov, V. H.; Zagrebenyuk, S. D.; <sup>27.4.55</sup> Kushnirenko, I. A. 24

ORG: none

TITLE: Flux for welding light alloys such as titanium and its alloys. Class 49, No. 176789 [announced by the Electrical Welding Institute in Ye. O. Paton AN UkrSSR (Institut electrosvarki AN UkrSSR)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 23, 1965, 81

TOPIC TAGS: welding, submerged arc welding, light alloy welding, titanium welding, titanium alloy welding, welding flux

ABSTRACT: This Author Certificate introduces a flux for welding light alloys such as titanium and its alloys. To improve mechanical properties and reduce the oxygen content of weld metal, the flux is composed of 83-91% calcium fluoride, 1.5-2.5% sodium chloride, and 7-15% lithium fluoride. [ND]

SUB CODE: 13/ SUBM DATE: 25Jul64/ ATD PRESS: 4169

CC  
Card 1/1

L 04560-67 EWP(K) / ENT(m) / T / EWP(V) / EWP(t) / EWI IJP(a) JD. EN

ACC NR: AP6014439

SOURCE CODE: UR/0125/65/000/012/0040/0045

AUTHORS: Grabin, V. F.; Dzykovich, I. Ya.; Kushnirenko, N. A.; Zankov, V. H.

52  
49  
16  
10

ORG: Institute for Electro-Welding imeni Ye. O. Paton, AN UkrSSR (Institut elektrosvarki AN UkrSSR)

TITLE: The formation of  $TiCr_2$  in welded joints of titanium alloy containing the unstable  $\beta$ -phase

SOURCE: Avtomaticheskaya svarka, no. 12, 1965, 40-45

TOPIC TAGS: titanium alloy, chromium containing alloy, molybdenum containing alloy, aluminum containing alloy, welding technology, welding inspection, seam welding / VT15 titanium alloy

ABSTRACT: The formation, distribution, and effect on the weld properties of  $TiCr_2$  formed during welding of alloy VT15 was investigated. The investigation was carried out by metallographic and electron microscope techniques. The distribution of  $\alpha$ - and  $\beta$ -phase stabilizing alloying elements was also studied. This study was carried out with the aid of microsonde "Kameka" as described by R. Castaing (Application des sondes électroniques à une méthode d'analyse ponctuelle chimique et cristallographique, Thesis, Univ. Paris, ONERA, Publ. N. 55, 1951). The experimental results are summarized in graphs and tables (see Fig. 1). It was established

UDC: 621.791.7:546.821

Card 1/3

ACC NR: AP6014439



Fig. 1. Metal structure in the seam after isothermal annealing up to 670°C for different time periods (x 250). a - 24 hours; b - 1500 hours, electropolished; c - 1500 hours, etched.

that  $TiCr_2$  is indeed present in welding seams of alloy VT15. To insure high impact strength of the seam, the latter must be quenched from a higher temperature than the base metal. The separation of  $TiCr_2$  along grain boundaries is accompanied by a

Card 2/3

ACC NR: AP6014439

redistribution of the alloying elements—chromium, molybdenum, and aluminum. Orig. <sup>5</sup>  
art. has: 3 tables and 6 graphs. <sub>27</sub> <sub>27</sub> <sub>27</sub>

SUB CODE: 11/  
13/ SUBM DATE: 09Mar65/ ORIG REF: 004/ OTH REF: 009

HH  
Card 3/3

L 40798-66 EWT(m)/T/EWP(w)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6021000

SOURCE CODE: UR/0125/66/000/006/0010/0015 49

AUTHOR: Grabin, V. F.; Vasil'yev, V. G.; Kushnirenko, A.; Zamkov, V. N.; Gordonnaya, A. A. 48ORG: Institute of Electric Welding im. Ye. O. Paton, AN UkrSSR (Institut elektrosvardki im. Ye. O. Patona AN UkrSSR)TITLE: Kinetics of phase transformations in welded joints of VT15 titanium alloy 18 27

SOURCE: Avtomaticheskaya svarka, no. 6, 1966, 10-15

TOPIC TAGS: titanium alloy, phase composition, metal joining, weld evaluation / VT15 titanium alloy, EG-100A electron diffraction camera

ABSTRACT: The mechanical properties of the welded joints of this alloy are largely determined by the decomposition of  $\beta$ -phase and the properties of the products of its transformation. Hence, the determination of the temperature intervals of formation of these products and of their effect on weld properties is highly important, since it makes possible not only the assessment of the role played by intermediate phases in the embrittlement of weld metal but also the determination of the ways and means of perfecting the welding techniques so as to

1/2

UDC: 621.791:620.181:669.295

L 10798-66

ACC NR: AP6021000

assure welds of improved quality. Accordingly, the authors investigated the kinetics of the  $\beta$ -phase in welded joints (obtained by submerged arc welding) of VT15 alloy under continuous heating. To this end the welded joints were subjected to dilatometric studies (with the aid of a vacuum differential dilatometer); the phase composition was investigated with the aid of an EG-100A electron diffraction camera; and the microstructure, with the aid of optical and electron microscopes. Findings: the presence of the martensite transformation  $\beta \rightarrow \omega$  at 450°C and the possibility of the formation of  $TiCr_2$  during continuous heating are established. It is further shown that the impact strength and plasticity of these welded joints may be optimized by quenching from 900°C since then the temperature interval of  $\beta \rightarrow \omega$  transformation is lower (~200-350°C) while the temperature interval of  $\alpha \rightarrow \beta$  transformation is higher (800-840°C). Orig. art. has: 7 figures, 1 table.

SUB CODE: 13,11,20/ SUBM DATE: 19Nov65/ ORIG REF: 007/ OTH REF: 003

rw  
Card 2/2

L 43827 66 ENT(m)/EMP(w)/EMP(v)/T/EMP(t)/ETI/EMP(k) LIP(c) JD/BI  
ACC NR: AP6030268 (A)

SOURCE CODE: UR/0125/66/000/008/0018/0021

AUTHOR: Gurevich, S. M.; Grabin, V. F.; Zamkov, V. N.; Kushnirenko, H. A. 47

ORG: Electric Welding Institute im. Ye. O. Paton, AN UkrSSR (Institut elektrosvarki AN UkrSSR) 46 B

TITLE: Some causes of the low ductility in heat-treated VT-15 alloy welds

SOURCE: Avtomaticheskaya svarka, no. 8, 1966, 18-21 16 16

TOPIC TAGS: titanium alloy, titanium alloy welding, titanium alloy weld, weld ductility, alloy weld heat treatment, TiC<sub>1</sub> welding, electron beam welding, submerged arc welding/VT15 titanium alloy

ABSTRACT: The causes of low ductility in VT15 <sup>27</sup>titanium alloy welds annealed and quenched after welding at 800—900C have been investigated. Alloy sheets 3.5 mm thick were joined either by submerged arc welding with ANT-7 flux, TIG welding with or without ANT-15A flux (in both cases without filler wire), or by electron beam welding. It was found that only in welds made with submerged arc did water quenching from 800—900C increase the weld impact toughness and bend angle from 1.1 mkg/cm<sup>2</sup> and 7° in the as-welded condition to 1.5—3.3 mkg/cm<sup>2</sup> and 40—73° after annealing. In all the other welds (which in general had better ductility than submerged-arc welds), annealing and quenching lowered both the notch toughness and bend angle: in T16 welds from 3.85 mkg/cm<sup>2</sup> and 160° to 2.8—3.0 mkg/cm<sup>2</sup> and 135—145°; TIG flux welds

Card 1/2

UDC: 621.791.011:669.295

ACC NR: AP6035755

SOURCE CODE: UR/0413/66/000/019/0125/0125

INVENTOR: Gurevich, S. M.; Zamkov, V. N.; Sabokar', V. K.

ORG: none

TITLE: Flux for welding austenitic steels. Class 49, No. 186842 [announced by the Electric Welding Institute im. Ye. O. Paton (Institut electrosvariki)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 19, 1966, 125

TOPIC TAGS: ~~steel~~ steel welding, welding flux, stainless steel, TIG welding, austenitic steel

ABSTRACT: This Author Certificate introduces a flux containing calcium fluoride and intended for use in TIG welding austenitic steels. To improve weld quality, the flux contains 80-90% lithium fluoride and 10-20% calcium fluoride.

SUB CODE: 13// SUBM DATE: 09Aug65/

Card 1/1

UDC: 621.791.048



ACC NR: AP7001926

(N)

SOURCE CODE: UR/0125/66/000/012/0013/0016

AUTHOR: Gurevich, S. M.; Zamkov, V. N.

ORG: Electric Welding Institute im. Ye. O. Paton, AN UkrSSR (Institut elektrosvarki AN UkrSSR)

TITLE: The effect of flux on TIG welding of titanium alloys

SOURCE: Avtomaticheskaya svarka, no. 12, 1966, 13-16

TOPIC TAGS: titanium alloy welding, flux, shielded arc welding, argon shielded arc welding, TIG welding, alloy welding, arc welding, inert gas welding

ABSTRACT: Several series of OT4 and VT15 titanium-alloy sheet specimens 2-5 mm thick were automatically TIG-welded with the use of fluxes of various composition. It was found that all the fluxes tested lowered the welding current and increased the arc voltage, with the arc power remaining constant. Increased voltage resulted in a deeper penetration and a narrower weld. All these changes are believed to depend on the physicochemical properties of fluxes, especially on their ability to wet solid titanium at high temperatures. The width of weld is also affected by the boiling temperature of the flux. An increase in voltage was found to depend not only on the increased arc length, but also on the increased anode voltage drop. Orig. art. has: 4 figures.

SUB CODE: 13, 11/  
Card 1/1

SUBM DATE: 29Dec65/ ORIG REF: 007/ ATD PRESS: 511  
UDC: 621.791.856:669.295

GUREVICH, S.M.; ZAMKOV, V.N.; ZAGREBENYUK, S.D.; KUSHNIRENKO, N.A.

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"The Role of the Thyroid Gland in the Embryogenesis of Vertebrates." Zef. Zhur.,  
Vol 33, No 4, 1947, p 449. Chair of Physiology of the State Leningrad Pediatric  
Med Inst.

SO: U-4396

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i Det., 16, No. 5, 1948.

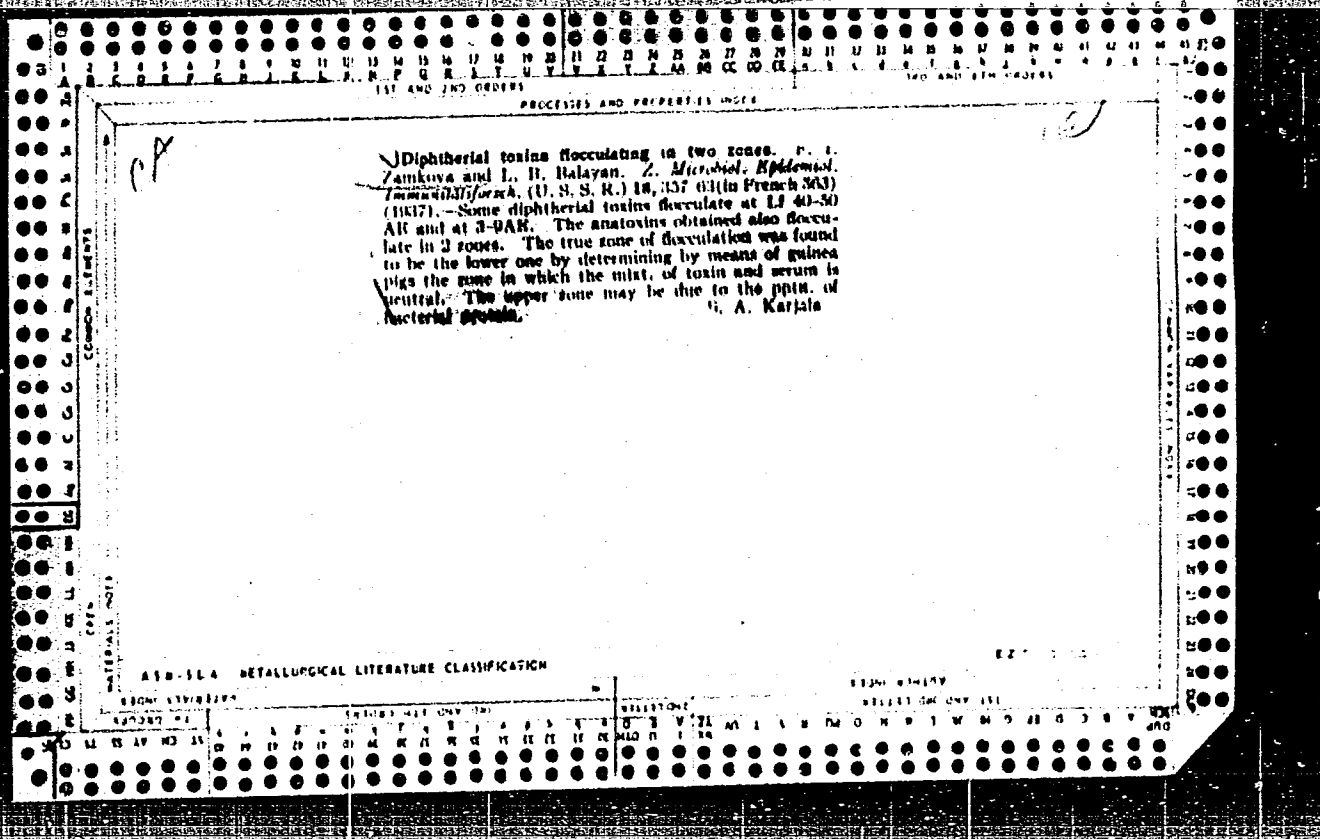
Leningrad Pediatrics Med. Inst. (Mbr., Chair Physiology, -c1948-; Mbr., Chair  
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Salmon

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SSSR 84 no. 5, 1952

Monthly List of Russian Accessions, Library of Congress, October 1952. UNCLASSIFIED



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11-I

Effect of thiourea on gas metabolism of larvae of salmon and sturgeon. M. G. Saks and M. A. Zamkova. *Doklady Akad. Nauk S.S.S.R.* 84, 1101-3(1952). Addn. of 0.033% thiourea to the water in which the young salmon and sturgeon (*Acipenser stellatus*) are kept at 9-12° for 10-150 hrs. leads to decreased consumption of O<sub>2</sub>. However, the treated specimens show a much lesser decline of utilization of O<sub>2</sub> when the partial pressure of O<sub>2</sub> is gradually decreased than is shown by normal specimens (results given on bar graphs). Addn. of thyroxine to the solns. (1:2,000,000) along with urea destroys the effect of thiourea. G. M. Kosciapoff

ACC NR: AP5023076

SOURCE CODE: UR/0125/65/000/009/0001/0004

AUTHOR: Gurevich, S. M. (Doctor of technical sciences); Zamkov, V. N. (Engineer)  
Kushnirenko, N. A. (Engineer)

ORG: Electric Welding Institute im. Ye. O. Paton, AN UkrSSR (Institut electrosvariki AN UkrSSR)

TITLE: Increasing the depth of penetration in argon-shielded arc welding of titanium alloys

SOURCE: Avtomaticheskaya svarka, no. 9, 1965, 1-4

TOPIC TAGS: titanium alloy, alloy welding, TIG welding, inert gas welding, welding flux, oxygen free flux/VT15 alloy, OT4 alloy, AN-T9A welding flux

ABSTRACT: Experiments have been made to determine the effect of oxygen-free fluxes on the penetration characteristics in TIG welding of titanium alloys. On the basis of the preliminary results, a complex alkali metal salt base flux AN-T9A was developed for use in argon-shielded arc welding of titanium alloys. With this flux, 6 or 3.5 mm thick VT14 alloy plates were welded in one pass with respective currents of 220 and 100 amp. Generally, the use of AN-T9A flux makes it possible to reduce the welding current for 3.5-mm thick VT15 and 4- and 6-mm thick OT4 alloys from 240, 320, and 310 to 100, 140, and 220 amp, respectively. The flux also cuts the heat input by about 60% and greatly decreases the weld width-to-height ratio (from about

Card 1/2

UDC: 621.791.856.546.821.



ACC NR: AP5023076

5.3 to 1). The structure of weld metal produced by TIG welding with AN-T9A flux is close to that produced by electron-beam welding. The VT15 alloy weld metal deposited with an AN-T9A flux had a tensile strength of 92.1 kg/mm<sup>2</sup> and a notch toughness of 5.8 kgm/cm<sup>2</sup>. The corresponding figures for joints electron-beam welded and argon-shielded arc welded without the flux were 93.0 and 92.0 kg/mm<sup>2</sup> and 6.3 and 3.7 kg/cm<sup>2</sup>, respectively. A similar beneficial effect of the flux on the geometry was observed in welding of niobium, molybdenum, and austenitic steels. For these metals, however, special fluxes have to be developed. Orig. art. has: 3 figures and 2 tables. [MS]

SUB CODE: MM, IE/ SUBM DATE: 08Feb65/ ORIG REF: 008/ OTH REF: 002/  
ATD PRESS: 4/23

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