

PROCESSES AND PROPERTIES INDEX

21

ca

The purification of coke gases by a process analogous to the Thjor method, with separation of elementary sulfur. K. N. SHABALIN AND E. M. MIKHILSON. *J. Chem. Ind. (Moscow)* 1932, No. 9, 13-20. A soln. of Na_2AsO_3 from As_2O_3 and Na_2CO_3 reacts with H_2S to form Na_2AsS_3 . When air is passed through this soln. Na_2AsOS_3 is formed. With fresh H_2S this gives Na_2AsS_3 , which reacts with O_2 to give S and Na_2AsOS_3 . This last 2 steps may be repeated indefinitely. In alk. solns. NaHS is also formed. Since Na_2AsS_3 hydrolyzes, it is best to use a soln. of Na_2HAS_3 . The alky. of the soln. falls slowly during the reactions, and Na_2CO_3 must be added from time to time to maintain a ratio of Na to As of 2:1. However, the total amt. of Na_2CO_3 should not exceed 2%. The optimum temp. is 40° . Very pure S is obtained in high yield.

H. M. LEICESTER

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

SHOW SOMIRY

SHOW SOMIRY

18

Ca

PROCESSES AND PROPERTIES INDEX

The choice of a technological scheme for working of carnallite. K. N. Shabal'n. *Kajil* (U. S. S. R.) 1934. No. 1, 22-7. —A no. of schemes for the production of KCl and MgCl₂ from carnallite are presented: (1) Carnallite is decompd. by soln. in cold water; the undissolved solids, leave KCl in fine crystals and NaCl in coarse crystals, which are removed from the soln. and sepd. mechanically; the soln. is heated to 100° and evapd., then cooled to 20° to crystallize out carnallite, which is returned to the process; the remaining soln. is then evapd., yielding MgCl₂·6H₂O (contg. 0.42% KCl and 0.84% NaCl). KCl yield 98.8%. (2) This method is generally the same as (1) except that KCl and NaCl are dissolved and removed at 100°. (3) This method is the same as (2), except that KCl and NaCl are sepd. by a chem. method. (4) This is the same as (3), except that the NaCl content of carnallite is considerably reduced before the operation.

James Sorrel

METALLURGICAL LITERATURE CLASSIFICATION

E-27-1000-1000

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

2

CA

The rate of absorption of gases under conditions of bubbling. K. N. Shabalin, S. P. Krylov and V. I. Oborn. *Sov. Chem. Ind.* (U. S. S. R.) 16, No. 1, 10-14(1969).

Measurements of rate of absorption of bubbles of NH_3 and CO_2 by H_2O show that the rate is independent of the bubble diam. This is due to the intense convection currents inside the bubbles, and the rate can be calculated when these are considered. H. M. Leicester

1ST AND 2ND ORDERS

COMMON ELEMENTS

MATERIALS INDEX

ASM-31A METALLURGICAL LITERATURE CLASSIFICATION

REGION NUMBER

1ST AND 2ND ORDERS

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

1ST AND 3RD ORDERS

18D AND 4TH ORDERS

2

ea

Absorption of gas by a drop of liquid. K. Shabalin. J. Applied Chem. (U. S. S. R.) 13, 412-20 (in French, 430) (1940). Absorption of NH₃ (8.4% by vol.) in air saturated with water vapor and of 99.4% CO₂ by a drop of water was investigated. The diam. of the drop varied from 0.222 to 0.430 cm. The height of the absorption tube (diam. 5 cm.) was varied from 5 to 200 cm. and the total distance of fall of the drop was 10 m. The velocity of the drop inside the absorption tube was const. The drops of diam. less than 0.1-0.2 cm. absorbed slightly sol. gas considerably more slowly per unit of surface than the drops of larger diam. The absorption of gas by drops of small diam. is analogous to the heating of a solid sphere; it depends on diffusion in the immobile interior of the drop. For very sol. gases, the coeff. of velocity of absorption (K) changes but slightly with the size of the drop; absorption velocity follows the rules of resistance of a film to absorption. A. A. Podgorny

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METALLURGICAL LITERATURE CLASSIFICATION

REGION BINARY

1ST LAST LETTER

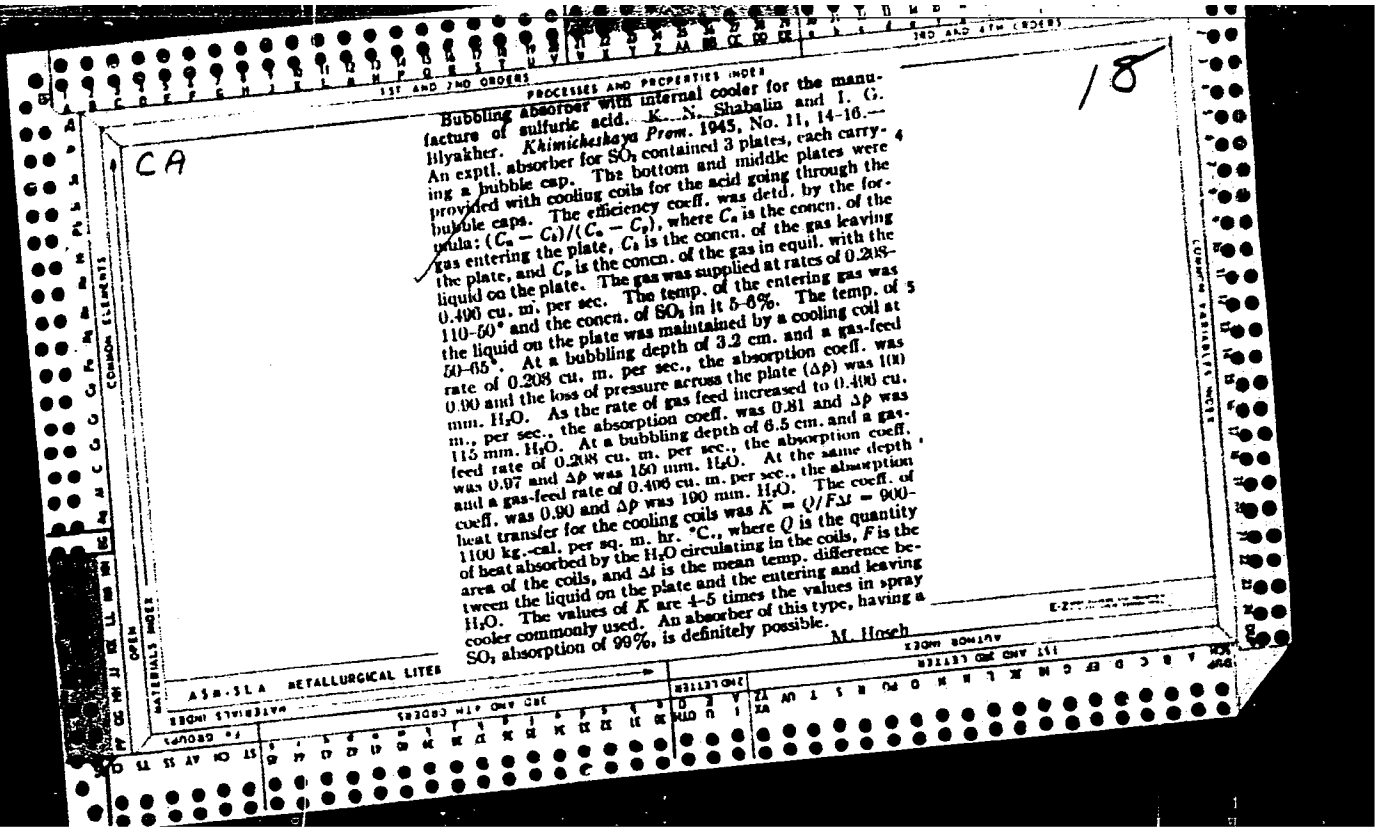
RELATIONS

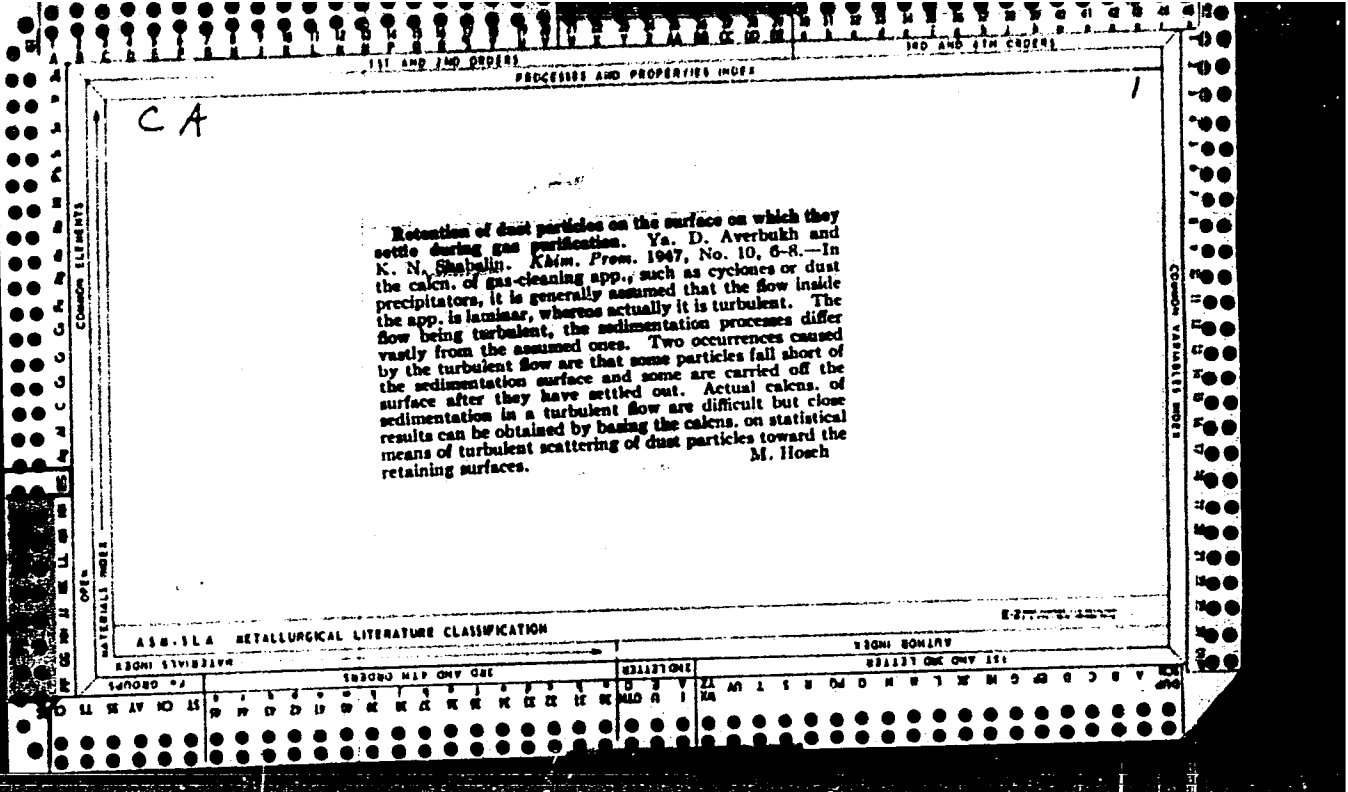
1ST AND 3RD ORDERS

COMMON ELEMENTS

OPEN

MATERIALS MODEL





SHABALIN, K.N.

AVERBUKH, Ya.D., kandidat tekhnicheskikh nauk; SHABALIN, K.N., professor
tekhnicheskikh nauk

Dust retention on the deposition surface in gas purification. Khim.
prom.no.10:290-292 0'47. (MLRA 8:12)

1. Ural'skiy industrial'nyy institut
(Scrubber (Chemical technology))

Beit. ad.

BT-1E Unit Process

Optimal conditions of liquid feed for extraction columns. E. S. Khol and K. N. Shabalin. *J. appl. Chem., U.S.S.R.*, 1950, 22, 145-149. —A countercurrent extraction column was used for the study of the feed of transformer oil into water and water into transformer oil. The entrance device (sprayer) consisted of Cu or glass tubes (nozzles) with openings of different diameter. Four stages of dispersed liquid flow are distinguishable as the flow rate increases at const. nozzle diameter. First, non-uniform drops appear, in the second stage drops become uniform, in the third a jet 5-10 cm long is formed and droplets uniform in size separate at the end of the jet, and in the fourth the drops are formed along the whole jet which starts to vibrate, and droplets become less and less uniform, their size decreasing until an emulsion results. In extraction columns the formation of jets should be avoided because of non-uniform size of drops, the difficulty of separation of the two phases after an emulsion has been formed, and formation of currents opposing the feed flow. For each nozzle diameter the upper and lower limits for the rates of flow have been determined between which only uniform drops are formed. Thus, for different nozzle diameters there are two curves limiting the area of drop-wise flow. This gives the limiting values for calculating the entrance devices for extraction columns. The diameter of the drop can be calculated in usual way, allowing for empirical corrections. It depends on the rate of flow and the η of feed. The optimal drop size should be chosen experimentally for each case of extraction. When the metal tube (nozzle) is wetted by feed (e.g., for transformer oil-Cu) only one opening should be made in each feed tube (nozzle), to prevent spreading of the feed along the metal surface and coalescence of droplets from different openings. For water feed this is not necessary and several openings may be made.

J. E. J. ZABA.

CA

1

Optimum conditions of fluid supply to extraction columns.
B. S. Ekel and K. N. Shabalin. *J. Applied Chem. U.S.S.R.*
23, 161-70(1980) (Eng. translation).—A counterflow tower
has definite advantages over parallel flow type for extrn. and
purification processes; a study of hydraulic conditions
governing operation indicates that drop feed of the sprayed
liquid is better and more efficient than jet feed. Trans-
former oil and distd. H₂O were used in this study, first oil
was sprayed into H₂O and secondly H₂O was sprayed into
oil; data are tabulated for aperture diam., discharge rate,
and drop diam.
M. McMahon

CA

18

Formation of sodium sulfate scale on a heated surface in the presence of chemically active reagents. K. S. Shabalov and Yu. P. Karetnikov. *Zhur. Priklad. Khim.* 24, 11-11 (1951). -To avoid scale formation, the sulfate soln. should be neutralized and freed from oxidizing agents prior to contact with a hot surface. B. Z. Kamich

Univ. Sci. Res. Inst. of Chemistry

SHABALIN, I. N.

2

Intensity of stirring solutions and size of resultant crystals. L. N. Matusevich and K. N. Shabalin. *Zhur. Priklad. Khim.* 25, 1157-63 (1952).—The effect of stirring upon crystal growth was detd. on satd. solns. of KNO_3 and $K_4Fe(CN)_6 \cdot 3H_2O$; the first was satd. at 30 and the last at 41°. Both solns. were preheated 15-20° before pouring into the crystallizer, and it took 40-45 min. for the system to cool to 23-20.5°. The detailed discussion and the analysis of the results were based on the theory of existing ultramicroscopic crystal formations in satd. solns. (Tovbin and Krasnova, *C.A.* 45, 5403e). These, upon stirring, form stable nuclei for further accelerated crystn. Plots of a fraction vs. time for several rates of stirring as well as micrographs indicate that the crystal size is due to aggregates of crystals rather than to growth of a monocrystal. At higher rates of stirring the no. of new crystals increased and the growth was retarded. Also grinding against the blades of the stirrer rather than against each other was noted at these higher rates. For best results the rate of stirring should be so adjusted that it is above that at which crystals agglomerate rather than grow and below that at which very small crystals form; this will vary with different solns. I. Bencowitz

SHABALIN, K.N.

Intensity of stirring solutions and size of resultant crystals.
L. N. Matusevich and K. N. Shabalin. *J. Appl. Chem.*
U.S.S.R. 25, 1219-24 (1952) (English translation).—See C.A.
48, 9778f. H. L. H.

723
6-13-55

SHABALIN, K.N.

U S S R .

The degree of turbulence in vapor-gas mixtures and their possible degree of supersaturation. V. P. Dorogol and K. N. Shabalini. *Zhur. Tekh. Fiz.* 23, 1140-51(1953).—
The degree of turbulence in vapor-gas mixts. on the degree of supersatn. required for fog formation (i.e., condensation) was detd. The crit. supersatn. decreases as the degree of turbulence is increased. This is attributed to an increase in the growth rate of the unstable nuclei to form stable drops. J. Rovtar Leach

SHABALIN, K. N.

6 Net
0
8 ph

*The Influence of Vibration on the Crystallization of Metals.
Y. M. Gurovokov and K. N. Shabalina (Zhur. Tekhn. Fiziki, 1954, 24, (1), 41-49). An apparatus is described in which specimens of Zn and Sb could be crystallized while subjected to vibrations of varying amplitude and frequency. The specimens were then examined by metallographic methods and by compression tests. The effect of increasing the frequency or amplitude of vibration is to produce a finer-grain structure, e.g. with Sb vibrated at 0-9 c./s., the grain size fell from ~1/mm. to ~4/mm. as the amplitude increased from zero to 0.2 mm. At higher frequencies of vibration the rate of decrease of grain size with vibration amplitude is greater. There is no significant difference between the effects of horizontal and vertical vibrations. Specimens produced in this way show the expected increase in yield stress with fall in grain size. Cooling curves show that for both Sb and Zn vibration does not significantly change the temp. at which the arrest occurs, but that the time during which the temp. is steady is less in the vibrating specimens. Since vibration cannot alter the thermal conductivity of solids nor (so long as the amplitude is small) that of liquids, the effect must be due to improved conductivity in the mixed solid/liq. phase, i.e. to the ability of the newly-formed crystal nuclei to move more freely in the surrounding liquid. In this way they are enabled to collect fresh material more readily and to grow to stable size. This explains the increase in the number of grains with vibration. It is suggested that this vibration technique may be of general use in the study of heterogeneous phases.—A. F. B.

SHABALIN, K.N., prof., doktor tekhn. nauk

Hydraulic conditions of technological processes. Sber. nauch.
trud. Ural. politekh. inst. no.122:93-101 '61. (MIRA 17:12)

18.8310

32641
S/076/62/036/001/013/017
B119/B101

AUTHORS: Sharnin, A. A., and Shabalin, K. N.

TITLE: Anodic passivation of steel in concentrated lyes by the current of the galvanic pair Fe-Ni

PERIODICAL: Zhurnal fizicheskoy khimii, v. 36, no. 1, 1962, 209 - 213

TEXT: This is a study of the protective effect of Ni coatings or Ni inclusions in nickel steels against the corrosion of steel in strong lyes. Circular Ni coatings (diameter 5, 8, 10, 15, 30 mm; thickness 40 - 50 μ) were electrodeposited on plates of electrolytically pure iron (electrolyte: 200 g/liter NiSO₄·7 H₂O, 3 g/l NaCl, 25 g/l H₂C₂O₄, 25 g/l Na₂SO₄; current density 0.8 a/dm²; duration 4 hrs) and exposed to NaOH in an autoclave, with the sample rotating continuously at 30 - 150 rpm. Temperature 140°C, duration of experiment 0.3 - 12 hrs. The lye concentration was varied between 200 and 400 g/l Na₂O. Around the edge of the Ni circle, a circular iron oxide film is formed, which protects the Fe against further corrosion. The film reaches its greatest width after 4 hrs. The investigation was
Card 1/2

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S/076/62/036/001/013/017
B119/B101

Anodic passivation of steel...

conducted with an МММ-8 (MIM-8) microscope. The size of the film increases with the radius of the Ni coating (cathode), but decreases with increasing lye concentration and with increased speed of the sample. With an Ni coating of 15 mm diameter and a lye concentration of 300 g/l Na₂O, the oxide ring is 0.05 mm wide. Its theoretical width is 0.06 mm. V. V. Losev, B. N. Kabanov, V. G. Levich, A. N. Frumkin, P. D. Lukovtsev, S. D. Levina, Z. A. Iofa, and K. G. Potaskuyev are mentioned. There are 6 figures, 1 table, and 8 Soviet references.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S. M. Kirova (Ural Polytechnic Institute imeni S. M. Kirov)

SUBMITTED: July 21, 1960

Card 2/2

SHARNIN, A.A.; SHABALIN, K.N.

Anodic passivation of steel in concentrated alkalies by the
current of the Fe.- Ni galvanic couple. Zhur. fiz. khim. 36
no.1:209-213 Ja '62. (MIRA 16:8)

1. Ural'skiy politekhnicheskiy institut in. Kirova.
(Steel, Galvanized) (Electrodes, Nickel)

GOVCRKOV, V.M.; SHABALIN, K.N.

Effect of vibration on gas evolution from the liquid phase. Inzh.-fiz.
zhur. 7 no.2:15-20 F '64. (MIRA 17:2)

1. Ural'skiv politekhnicheskij institut imeni S.M.Kirova, Sverdlovsk.

BARBER, M.B.; SHABALIN, K.N.

Effect of the hydrophobicity imparting agent (turpentine) on the
filtration of quartz. Izv. vys. ucheb. zav.; khim. i khim. tekhn.
7 no.4:675-677 '67. (NIPA 17:12)

1. kafedra professoy i apparatov Ural'skogo politekhnicheskogo
instituta im. S.M. Kirova.

ACCESSION NR: AP4025003

S/0070/64/009/002/0306/0307

AUTHORS: Inyushkin, G. V.; Shabalin, K. N.

TITLE: The effect of crystal rotation velocity on its growth

SOURCE: Kristallografiya, v. 9, no. 2, 1964, 306-307

TOPIC TAGS: salt crystal, $\text{NH}_4\text{H}_2\text{PO}_4$, $\text{K}_4\text{Fe}(\text{CN})_6 \cdot 3\text{H}_2\text{O}$, NaNO_3 , crystal growth, crystal movement in solution, rotation effect, parasite crystal, maximum crystal growth

ABSTRACT: The velocity of a crystal motion in a solution is known to affect crystal growth in general and to impede the development of certain crystal faces. A brief summary of the results obtained in investigations of the crystal rotation effect on the growth of monocrystals is presented here. The study involved $\text{NH}_4\text{H}_2\text{PO}_4$, $\text{K}_4\text{Fe}(\text{CN})_6 \cdot 3\text{H}_2\text{O}$, and NaNO_3 solutions. Original crystals were grown to 18-20 mm at rest, and their subsequent growth was continued during their rotation at various velocities while the solution temperature was gradually lowered. Data derived from these experiments proved the existence of maximum crystal growing

Card 1/2

ACCESSION NR: AP4025003

rotational velocities which differ for the crystals of different salts. The authors explain the appearance of the "parasite" crystals and the difference in the crystal growth maxima for various substances by the development of semi-ordered layers on the crystal surfaces, which foster the formation of the molecular groups and their transformation into the more complete crystalline forms. These blocks tend to detach themselves from the surface layers under the action of hydraulic and centrifugal forces. They continue their growth while floating and become the nuclei of the parasite crystals. At moderate rotation velocities the speed of the diffusion growth of the surface layer prevails over the rate of the block detachment. This activity proceeds up to a certain maximum rotation velocity, above which the reverse action takes place, and the rate of crystal growth begins to decline. "The authors express their gratitude to L. N. Matusevich for his valuable advice." Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 17Apr63

DATE ACQ: 16Apr64

ENCL: 00

SUB CODE: PH

NO REF SOV: 005

OTHER: 004

Card 2/2

L 6762-65 EWT(m)/EWP(q)/EWP(b) ASD(f)/AFMDC/ASD(m)-3 JD

ACCESSION NR: AP4045409

S/0136/64/000/009/0060/0064

AUTHOR: Sharnin, A. A.; Shabalin, K. N. 47TITLE: Corrosion of carbon and stainless steel in boiling alkaline solutions

SOURCE: Tsvetnyye metally*, no. 9, 1964, 60-64

TOPIC TAGS: carbon steel, stainless steel, steel corrosion, carbon steel corrosion, stainless steel corrosion, carbon steel alkaline corrosion, stainless steel alkaline corrosion, alkaline corrosion, high temperature corrosion

ABSTRACT: The tubes of evaporators for aluminum oxide production by the Bayer process are rapidly destroyed by concentrated alkaline solutions. Previous studies by Ya. D. Averbukh, K. G. Potaskiyev and A. A. Sharnin have shown that corrosion is increased by turbulence of the solution at the heated surface. In previous publications by the authors, the corrosion resistance of stainless steel was found to be higher than that of carbon steel. However, at the Bogoslovskiy alyuminiyevyy zavod (Bogoslovsk Aluminum Plant), stainless steel tubes were destroyed at the same rate as carbon steel tubes, while at the Bereznikovskiy sodovoy zavod (Berezniki Soda Plant) stainless steel tubes were found to be more durable than carbon steel tubes. It was assumed by the authors that the basic cause of rapid corrosion in the aluminum plant was boiling in the tubes, this being checked in Card 1/3

L. 6762-65

ACCESSION NR: AP4045409

the present paper. Tubes of carbon steel 20 and stainless steel 1Kh18N9T were tested under the influence of solutions containing 300 g/L of caustic soda or 60% NaOH and 40% KOH (concentrations of 500 g/L recalculated for caustic soda), at temperatures of 115 and 140C for 8 hours. The testing device for measuring tube wear is described. The inserted tubes were considered to be divided into three zones: upper, middle and lower. The lower zone was in the non-boiling solution and the upper one was in the steam. The intensity of steam formation was changed in different tests by varying the amperage in the heating coil. The rate of wear was found from the loss of weight. Analysis of the results showed that stainless steel tubes are 2-20 times as resistant to alkaline corrosion as carbon steel tubes. The corrosion rate increased with the heating rate and with stirring of the solution, and was higher in the middle than in the upper zone. At low heat loads in the upper zone, stainless steel tubes showed higher durability than carbon steel tubes, but as the heating rate rose the durability became equal. The durability of stainless steel tubes at Berezniki is explained by nickel passivation, but the passivated layer may easily be removed by a brush. The article concludes that stainless steel tubes should be used for aluminum oxide production only when the tubes are not located in the boiling zone. Orig. art. has: 4 figures.

Card 2/3

I 6762-65

ACCESSION NR: AP4045409

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MM

NO REF SOV: 005

OTHER: 000

Card 3/3

(N)L 8911-65 EWT(m)/EWP(w)/EWA(d)/EWP(i)/T/EWP(t)/EWP(z)/EWP(h)
ACC NR: AP5027593 MJW/JD/DJ/RM SOURCE CODE: UR/0145/65/000/009/0086/0089

AUTHOR: Konovalov, V. M. (Aspirant); Shabalin, K. N. (Doctor of Technical Sciences) ^{44,55} ^{44,55} 71
70
B

ORG: Ural Polytechnic Institute (Ural'skiy politekhnicheskiy institut) ^{44,55}

TITLE: Protection of metals from cavitation wear by resin coatings ¹¹₁₆

SOURCE: IVUZ. Mashinostroyeniye, no. 9, 1965, 86-89

TOPIC TAGS: cavitation, metal, protective coating, resin/ resin 3311-b

ABSTRACT: The experiments were carried out on a magnetostrictive test unit. The vibrating part of the unit was a nickel tube 310 mm long with a diameter of 18 mm. The sample was screwed into the bottom of the tube, whose working section was filled with tap water at a temperature of 16-20°C. The vibration frequency of the tube, determined by its dimensions and the weight of the test samples, was 8000 cycles. The amplitude of the vibrations was 0.035 mm. Tests were made on samples of St3 steel with an area of 2.5 cm² coated with resin and were compared with tests on the same samples without coating. The tests were made on soft resin 3311-b⁵ with a Jones hardness of 4.3 - 4.5, and a semihard resin of special composition, called "Sm-2", with a Jones hardness of 6.0. This last resin differs from the standard composition ^{44,55} ⁴

Card 1/2

UDC: 539.375

L 8911-66

ACC NR: AP5027593

3311-b only in that it contains 10.66 wt % sulfur, compared to 2.67 wt % in resin 3311-b. The thickness of the coating was 1 mm. The experimental data indicate that, when coatings of soft resins are subjected to vibrations, the incubation period increases by 8 times in comparison with coatings of semihard resins, and by 96 times in comparison with unprotected samples of St3 steel. In the case of cavitation wear of stationary samples by bubbles generated by external sources of vibration, the "incubation" period for coatings of soft resins is only 1.33 times greater than for semihard resin, and 8 times greater than the incubation period for unprotected samples of St3 steel. Orig. art. has: 5 figures.

SUB CODE: MM, MT/ SUBM DATE: 30Dec63/ ORIG REF: 002/ OTH REF: 002

CC

Cord 2/2

NEVSKIY, A.S.: SHABALIN, K.N.; KITAYEV, B.I.; ZABRODSKIY, S.S.

Nikolai Ivanovich Syromyatnikov, 1915- ; on his 50th birthday.
Inzh.-fiz. zhur. 8 no.3:411-412 Mr '65.

(MIRA 18:5)

L 43847-65 EWT(1)/EWP(m)/EWT(m)/EPF(c)/EPA(w)-2/T Pd-1/Pab-10/Pr-4 RMH/WH

ACCESSION NR: AP5010067

UR/0170/65/008/004/0445/0446

AUTHORS: Vivdenko, M. I.; Shabalin, K. N.

TITLE: On the mechanism of decay of a jet into coarse droplets

35
B

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 8, no. 4, 1965, 445-446

TOPIC TAGS: fluid jet, friction, oscillation, jet structure

ABSTRACT: The break-up or decay of a water jet into large drops was studied by means of an 1850-frame-per second high-speed camera. The water jet was 30×10^{-3} m long and came out of a 0.97×10^{-3} m diameter nozzle with a speed of 1.07 m/second. Figure 1 on the Enclosure shows clearly an enlarged sequence of jet oscillation and its eventual break-up into droplets. Analysis of this photograph shows an alternating sequence of contractions and expansions at a given jet cross section, caused by Laplace forces. This type of a behavior may allow a new way of determining effects of flow viscosity, surface tension, and flow velocity on droplet formation. Orig. art. has: 1 figure and 1 formula.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S. M. Kirova, Sverdlovsk
(Ural Polytechnic Institute)

Card 1/3

L 43847-65

ACCESSION NR: AP5010067

SUBMITTED: 09Jun64

NO REF SOV: 001

ENCL: 01

OTHER: 002

0
SUB CODE: ME

Card 2/3

L 43847-65

ACCESSION NR: AP5010067

ENCLOSURE: 01

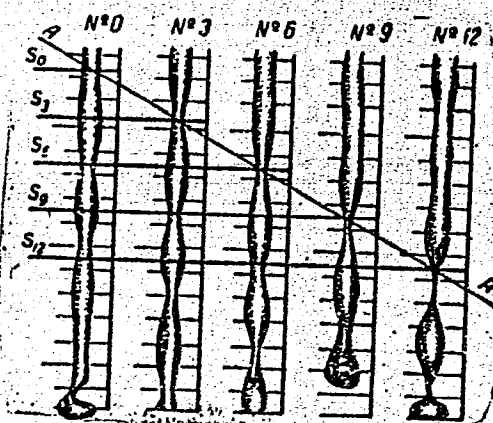


Fig. 1. Sequential displacement of the same jet cross section

Card *NW*
3/3

KONVALIN, V.M.; SHABALIN, K.N.

Theory of the rubber coating protection of metals from cavitation erosion. Mashin. met. 1 no.5:494-499 S-C 165. (MIRA 13:9)

1. Ural'skiy politekhnicheskii institut imeni S.M.Kirova.

VIVDENKO, M.I.; SHABALIN, K.N.

Studying the conditions of the forming of uniform deposit
measuring $(1,0-0,5) \cdot 10^{-3}$ m. Izv.vys.ucheb.zav.; khim. i
khim. tekhn. 8 no.4:685-690 '65.

(MIRA 18:11)

1. Ural'skiy politekhnicheskiy institut imeni Kirova,
kafedra protsessov i apparatov khimicheskoy tekhnologii.

L 17027-66 EPF(c)/EWP(j)/EWT(m)/EWP(b)/EWP(t)/T RM/WJ/WE/JD

ACC NR: AP5022656

SOURCE CODE: UR/0365/65/001/005/0494/0499

AUTHOR: Konovalov, V. M.; Shabalin, K. N.

64
B

ORG: Ural Polytechnical Institute (Ural'skiy politekhnicheskiy institut imeni C. M. Kirova)

TITLE: The theory of protection of metals against cavitation corrosion by rubber coatings

15.11.66

46.55.16

SOURCE: Zashchita metallov, v. 1, no. 5, 1965, 494-499

TOPIC TAGS: rubber, corrosion protection, corrosion inhibitor protective coating, cavitation

ABSTRACT: A theoretical and experimental study was made of protection by rubber coatings of various hardnesses against cavitation corrosion. Samples of steel St3 were rubber coated and subjected to streams of water from a tap. Two schemes were used: 1) mobile - the samples were attached to a vibratory stand, 2) immobile - the samples were attached under the vibratory stand; both sets of samples were subjected to cavitation by bubbles. The results of these tests are given in a table which

Card 1/3

UDC: 620.193.16

L 17027-66

ACC NR: AP5022656

shows the influence of the hardness and thickness of the coatings on cavitation erosion. Tests were also made of samples without coating. In general, the data proves that soft rubber is more protective than hard rubber, and more protection is guaranteed by the thicker coatings. The criterion used in the testing program was the incubation period: the time for the first visible trace of erosion on the surface (ranging from 5 to 10 sec for the hardest rubber to 60 hrs for the softest). A theoretical curve of the results gives the dependence of pressure amplitude on the thickness of the rubber coatings, for soft, half-hard and hard rubbers. The curve is derived from the following relation:

$$P = \frac{2\pi f \rho c A}{1 + 2\pi f \rho c \frac{h}{\beta E}}$$

where P = amplitude of the variable source pressure,
f = cyclic frequency,
A = amplitude of liquid displacement (m),
 ρ = density of the liquid ($\text{kg}=\text{sec}^2/\text{m}^4$),
c = speed of sound in the liquid (m/sec),
h = thickness of rubber coating,

Card 2/3

L 17027-66

ACC NR: AP5022656

E = modulus of elasticity,
 β = coefficient of hardening.

A relationship is also developed for the pressure (P) as a function of velocity of impact. The theoretical results are plotted for soft rubber of thicknesses 1, 3, and 5 mm, as well as for uncovered steel St3. At any velocity, the pressure on uncovered steel is higher; - the rubber coating decreases this pressure by a factor of 3 to 5, the decrease is greater for thicker coatings. Orig. art. has: 2 figures, 1 table.

SUB CODE: GC,MM/ SUBM DATE: 30Apr65/ ORIG REF: 012/ OTH REF: 000

Card 3/3 *nds*

CHERNOBROVKIN, Viktor Petrovich; SHABALIN, L.A., inzhener, retsenzont;
DUGINA, N.A., tekhnicheskikh redaktor

[New method of controlling the quality of iron while smelting
and pouring] Novyi metod kontrolya svoistv chuguna po khodu plavki
i zalivki. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry,
1956. 36 p. (MIRA 10:6)
(Iron--Metallurgy)

SHABALIN, L. A.

"Elimination of Rejects Due to Slag Inclusions"

Making of Large Castings, Moscow, Mashgiz, 1958, 108pp.

(This book was prepared for the 25th Anniversary of the Uralsmashzavod. The stages of founding development in the plant and the plant's progress and achievements in this field are described.

SHABALIN, L. A.

Avoiding rejects because of slag inclusions. Sbor.st.UZTM no.4:69-75
' 58. (MIRA 11:12)

(Foundries--Quality control)

GIMMEL'MAN, Nikolay Robertovich; KOCHUROV, Aleksey Stepanovich;
Prinimali uchast'nye: BORISOV, A.P., inzh.; ZHIDKIKH, I.A.,
inzh.; VOLEGOV, A.F., inzh.; SHABALIN, L.A., inzh.
MIKHEYEV, N.P., kand.tekhn.nauk, retsenzent; ABAKUMOV, S.F.,
inzh., retsenzent; ZASYPKIN, A.G., inzh., retsenzent;
ZALOZHNEV, G.N., inzh.; retsenzent; KLOTSMAN, M.I., inzh.,
retsenzent; KOLMOGOROV, S.M., inzh., retsenzent; BLANK, E.M.,
inzh., red.; DUGINA, N.A., tekhn.red.

[Making models] Model'nye proizvodstvo. 3. perer. izd.
Moskva, Mashgiz, 1961. 295 p. (MIRA 14:12)
(Engineering models)
(Molding (Founding)--Equipment and supplies)

KUZELEV, Mikhail Yakovlevich; SKVORTSOV, Aleksey Anatol'yevich;
SELYAKOV, Nikolay Nikolayevich; DUBITSKIY, G.M., doktor
tekhn. nauk, retsenzent; ZOBNIN, B.F., kand. tekhn. nauk,
retsenzent; KOROTKOV, V.G., kand. tekhn. nauk, retsenzent;
LEVCHENKO, P.V., kand. tekhn.nauk, retsenzent; MAKURIN, P.I.,
kand. tekhn. nauk, retsenzent; PASTUKHOV, A.I., kand. tekhn.
nauk, retsenzent; PORUCHIKOV, Yu.P., kand. tekhn. nauk, re-
tsenzent; ROZENBERG, I.A., kand. tekhn. nauk, retsenzent;
SERGEICHEV, N.F., kand. tekhn. nauk, retsenzent; FILIPPOV,
A.S., kand. tekhn. nauk, retsenzent; YAROSHENKO, Yu.G., kand.
tekhn. nauk, retsenzent; BAZAROVA, N.V., inzh., retsenzent;
BLANK, E.M., inzh., retsenzent; VOLFYANSKIY, L.M., inzh.,
retsenzent; ZAKHAROV, B.P., inzh., retsenzent; MYSHALOV, S.V.,
inzh., retsenzent; RAZUMOVA, M.S., inzh., retsenzent;
SHABALIN, L.A., inzh., retsenzent; SHKUNDI, R.M., inzh., re-
tsenzent; DUGINA, N.A., tekhn. red.

[Handbook of foundry practice] Spravochnik rabochego-
liteishchika. 1zd.3. Moskva, Mashgiz, 1961. 584 p.
(MIRA 15:4)

(Founding--Handbooks, manuals, etc.)

SHABALIN, L.I.

Diurnal dynamics of the growth of some meadow grasses. Bot.
zhur. 49 no.3:395-398 Mr '64. (MIRA 17:3)

1. Kazanskiy pedagogicheskiy institut.

PETROV, A.P.; SHABALIN, L.I.

Daily rhythm of the blooming of graminaceous plants in connection with growth processes. Bot.zhur. 49 no.10:1477-1480 0 '64.

(MIRA 18:1)

1. Kazanskiy pedagogicheskiy institut.

SHABALIN, L.M.; YUDIN, P.A.

Preheating of the sinter charge by hot sinter. Trudy Ural.
politekh. inst. no.105:37-48 '60. (MIRA 14:3)
(Sintering) (Waste heat)

SHARALIN, N. N. (Chief Vet.); SVIRIDOV, A. A.

"Pine-cresol-caustic liniment for treatment and prophylaxis of mange of cattle and horses."

SO: Vet. 25 (10) 1948, p. 21

Novosibirsk Union Milk Trust

ZELENIKOV, Vladimir Il'ich; SHABALIN, Nazar Nazarovich; BOYESHEKO, M.P.,
redaktor; KHITROV, P.A., tekhnicheskiiy redaktor

[Using new techniques in marshalling yards; the practices of the
Berdyaukh station of the Southern Urals Railroad] Ispol'zovanie
novoi tekhniki na sortirovochnoi stantsii; opyt st. Berdiaush
IUzhno-Ural'skoi dorogi. Moskva, Gos. transp.zhel-dor. izd-vo,
1956. 35 p. (MIRA 10:1)
(Railroads--Hump yards)

SHABALIN, N.N., kandidat tekhnicheskikh nauk; ZELENKOV, V.I., inzhener.

Improving station technology on the basis of new equipment. Tekh.
zhel.dor. 15 no.3:25-27 My '56. (MLRA 9:8)

1. Moskovskiy institut inzhenerov zheleznodorozhnogo transporta
imeni I.V. Stalina.
(Railroads--Station service)

SHABALIN, N.N., kandidat tekhnicheskikh nauk.

Efficient use of hump-yard technology. Zhel.dor.transp. 38 no.10:
35-38 0 '56. (MLRA 9:11)

(Railroads--Hump yards)

SHABALIN, N.N., kandidat tekhnicheskikh nauk.

Making up group trains by converting all cars to automatic
coupling. Vest.TSHII MPS 16 no.3:43-48 My '57. (MLRA 10:5)
(Railroads--Making up trains)

Shabalina, N.N.

SHABALIN, N.N., dots., kand. tekhn. nauk.

Marshalling work in stations with full change-over of the rolling
stock to automatic coupling. Trudy MIIT no.86:263-295 '57.
(Railroads--Making up trains) (MIRA 11:1)

SHABALIN, N.N., kand.tekhn.nauk, dotsent

Selecting the technology for making up trains: Trudy MIIT no.113:8-
22 '59. (MIRA 14:5)

(Railroads--Making up trains)

TARUNIN, G.V., inzh.; SHABALIN, N.N., dots.; DOBROSEL'SKIY, K.M.

Improving the station technology under present-day conditions.
Vest. TSNII MPS 18 no.5:54-58 Ag '59. (MIRA 13:1)

1. Moskovskiy institut inzhenerov zheleznodorozhnogo transporta im.
I.V. Stalina, stantsiya Chelyabinsk Yuzhno-Ural'skoy zheleznoy dorogi.
(Chelyabinsk--Railroads--Stations)

SHABALIN, N.N., kand.tekhn.nauk

Making up trains under new conditions. Zhel.-dor.transp. 41
no.9:56-59 S '59. (MIRA 13:2)
(Railroads--Making up trains)

SHABALIN, N.N., kand.tekhn.nauk

New equipment and improvement in the work of the classification
yard. Zhel.-dor.transp. 43 no.9:30-33 S '61. (MIRA 14:8)
(Railroads--Yards)

SHASALIN, Nazar Nazarovich; PARISTYY, Ivan Leont'yevich; FARBEROV,
Ya.D., inzh., retsenzent; MANYKOV, G.S., inzh., red.;
USENKO, L.A., tekhn. red.

[Efficient utilization of the technological equipment of sta-
tions; work practices of Bryansk II Station of the Moscow
Railroad] Effektivnoe ispol'zovanie tekhnicheskikh ustroystv
stantsii; opyt raboty stantsii Briansk II Moskovskoi dorogi.
Moskva. Vses. izdatel'sko-poligr. ob"edinenie M-va putei
soobshchenia, 1962. 44 p. (MIRA 15:3)
(Railroads--Equipment and supplies)

SHABALIN, N.N., kand.tekhn.nauk, dotsent

Potentials for increasing the processing capacity of humps.
Trudy MIIT no.168:152-171 '63. (MIRA 17:4)

SHABALIN, N.N., kand.tekhn.nauk

Increasing the traffic capacity of classification yards. Zhel.
dor.transp. 45 no.10:33-36 0 '63. (MIRA 16:11)

СОВЕТСКИЙ, А. И. ШИБАЛИН, Н.Н., канд. техн. наук, доцент

Operative planning of the making up of trains. Zhel. dor. transp.
47 no.6:23-27 Je '65. (MIRA 18:6)

1. Nachal'nik stantsii Proletarskoy.

SHABALIN, N.N., kand. tekhn. nauk

Parallel train sorting on double-track humps. Vest. TSNII MPS
25 no.1:49-53 '66. (MIRA 19:2)

GARIN, N.D., kand.med.nauk; SHABALIN, N.P.

Operation in immobilization of the elbow joint caused by ossifying hematoma in a patient with hemophilia. Khirurgiia no.9: 78-79 '61. (MIRA 15:5)

1. Iz khirurgicheskoy kliniki (zav. - prof. D.M. Grozdov) Tsentral'nogo ordena Lenina instituta gematologii i perelivaniya krovi (dir. - deystvitel'nyy chlen AMN SSSR prof. A.A. Bagdasarov) Ministerstva zdravookhraneniya SSSR.
(ELBOW—DISEASES) (HEMOPHILIA) (HEMATOMA)

SHABALIN, N.S.; LOBANOVA, Ye.V.; MIKHEYEV, D.I.; SIDOROV, G.P.

Studying work methods of mechanizers in the peat industry. Torf.prom. 30
no.8:28-31 Ag '53. (MLRA 6:7)

1. Karinskoye torfopredpriyatiye (for Shabalin, Mikheyev). 2. Kirovskiy
torfotrest (for Lobanova). 3. Ozeretskoye torfopredpriyatiye (for Sidorov).
(Peat industry)

SHABALIN ,N.S., inzh.

Increasing the reliability of remote-control devices. Elek.sta. 29
no.5:67-71 My '58. (MIRA 12:3)
(Remote control--Equipment and supplies)

S/105/60/000/06/21/023
B014/B011

AUTHOR: Shabalin, N. S., Engineer (Moscow)

TITLE: On the Reliability^b of the Operation of Telemechanic Devices

PERIODICAL: Elektrichestvo, 1960, No. 6, pp. 91-93

TEXT: The problem of the reliability of telemechanic systems^q is discussed in the introduction and it is stated that little attention is devoted to this problem, and that no theoretical investigations, calculation and measurement methods are available so far. The usual definition is given of the reliability of a device as being its ability of fulfilling its task. This definition, however, is said to be inadequate, inasmuch as it does not offer any possibility of evaluating the reliability of different kinds of devices. Fig. 1 shows a time diagram of the operation of a telemechanic device, and it is pointed out that the coefficient of the application of the device is made use of for evaluating its operation. A formula is given for this coefficient and it is pointed out that the coefficients of one and the same device can differ in different parts of one and the same power system. This ✓

Card 1/2

SHABALIN, N.S., inzh.

Contactless long-distance calling device. Elek.sta. 32 no.8:70-73
Ag '61. (MIRA 14:10)
(Electric substations) (Electric protection)

S/196/62/000/002/021/023
E194/E155

AUTHOR: Shabalin, N.S.

TITLE: A contactless device for 'calling' tele signalling

PERIODICAL: Referativnyy zhurnal, Elektrotehnika i energetika,
no.2, 1962, 37-38, abstract 2E 214. (Elektr. stantsii,
no.8, 1961, 70-73).

TEXT: Service experience with unattended sub-stations indicates that it would often be possible to use only simple tele signalling equipment. For this purpose the Mosenergo power system uses calling tele signalling device type YTC-3 (UTS-3) developed and made by TsLEM Mosenergo. The device is intended for transmission of three emergency warning signals from a manned substation to a central control point. Two signals can be transmitted simultaneously; the third is given priority. The signals are identified by different durations of impulses and pauses. The device is mainly based on semiconducting elements and consists of two main parts, a transmitter and receiver. Schematic circuit diagrams of both parts are given and their
Card 1/2

A contactless device for 'calling'... S/196/62/000/002/021/025
E194/E155

operating principles are described. The communication channels
may be communication lines on wires (with or without
multiplexing) or high-frequency channels on transmission lines.
Operating experience with the equipment has proved its
reliability.

[Abstractor's note: Complete translation.]

Card 2/2

SHABALIN, N.S., inzh. (Moskva)

Experience in the operation of remote control systems at the Moscow
Regional Power System Administration. Elektrichestvo no.9:82-86
S '61. (MIRA 14:9)
(Remote control) (Electric power distribution)

S/194/62/000/012/024/101
D201/D308

AUTHOR: Shabalin, N. S.

TITLE: Automatic supply reserving in remote control and HF channel installations

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 12, 1962, 57, abstract 12-2-114 p (Elektr. stantsii, no. 5, 1962, 90-91)

TEXT: Problems of increasing the reliability of remote control of 35 to 110 kW sub-stations are considered. It is pointed out that one of the methods of increasing the reliability is the automation of supply reserving of remote control installations and of HF points of remote control and communication installations. It is shown that this automation is sufficiently simple and is designed using rotary single-armature d.c. to a.c. converters П0-300 (PO-300), PO-600 or PO-1000. Switching is made by intermediate ПП-41Б (EP-41B) or ПП-23 (RP-23) relays. The sequence of operations, of the automatic circuit is described for the case when the supply breaks

Card 1/2

Automatic supply reserving ...

S/194/62/000/012/024/101
D201/D308

down. The signals operating the automatic switching-in of the re-
serve supply and signalling the circuit insulation breakdown, are
transmitted to the area control point by the common remote signal
"PS failure". Several recommendations as to the design and opera-
tion of automation circuits are made. It is recommended in partic-
ular that the automation circuits for remote control and HF channel
equipment be installed on a common panel. The d.c. reserve power
supplies are recommended for use as reserve for normally a.c. opera-
ted equipment. [Abstracter's note: Complete translation.]

Card 2/2

BERDICHEVSKIY, I.M., inzh.; SHABALIN, N.S., inzh.

Simplified control board for dispatcher control stations of
municipal cable networks. Elek. sta. 33 no.8:86-88 Ag '62.
(MIRA 15:8)
(Moscow--Electric power distribution) (Remote control)

SHABALIN, N.S., inzh. (Moskva)

Overall automation and remote control of 35 to 110 kv.
traction network substations. Elektrichestvo no.10:80-83 0 '62.
(MIRA 15:12)

(Electric railroads--Current supply)
(Remote control) (Automatic control)

SHABALIN, N.S.

Reservation of power supply for telemetering devices.
Energetik 11 no.4:41 Ap '63. (MIRA 16:3)
(Telemetering)
(Electric power supply to apparatus)

SHABALIN, N.S., inzh.

Engineering and economic efficiency of complex telemechanical
and automatic control system in electric power distribution
networks. Elek. sta. 34 no.1:60-64 Ja '63. (MIRA 16:2)
(Electric power distribution)
(Automatic control) (Remote control)

SHABALIN, N.S.

Transmission of ammeter readings on a distance. Energetik. 13
no.7:40-41 JI '65. (MIRA 18:8)

1. Zamestitel' nachal'nika Tsentral'noy sluzhby zashchity, avtomatiki
i telemekhaniki Moskovskogo rayonnogo upravleniya energeticheskogo
khozyaystva.

SHABALIN, N.S., inzh.

Author's reply to remarks on the article "Technical and economic effectiveness of overall automation and remote control in electrical power distribution networks." Elek. sta 36 no.4; 81-83 Ap '65. (MIRA 18:6)

SHABALIN, Nikolay Vasil'yevich; GREBTSOV, P.P., red.; PEVZNER, V.I.,
tekh.n.red.

[From manual labor to machine] Ot truda ruchnogo k mashinnomu.
Moskva, Gos.izd-vo sel'khoz.lit-ry, 1957. 52 p. (MIRA 11:1)
(Agricultural machinery)

SHABALIN, N.

Achievements of socialist agriculture in 40 years. Vop.ekon.

no.10:98-104 0 '57.

(MIRA 10:12)

(Agriculture)

TILEKMETOV, B.; LOSS', G.; KALININ, N.; SHABALIN, S.

In the photography sections of the Union of News Reporters. Sov.foto
20 no.10:44 0'60. (MIRA 13:10)

1. Predsedatel' pravleniya fotoseksii Soyuza zhurnalistov Kazakhskoy SSR (for Tilekmetov).
2. Predsedatel' pravleniya fotoseksii Soyuza zhurnalistov Estonskoy SSR (for Loss').
3. Predsedatel' pravleniya fotoseksii Altayskogo otdeleniya Soyuza zhurnalistov SSSR (for Kalinin).
4. Fotokorrespondent gazety "Orlovskiy komsomolets" (for Shabalin).
(Photography, Journalistic)

(

S/084/60/000/03/045/083
D047/D002

AUTHOR: Shabalin, V., Senior Aviation Technician (Yakutsk)

TITLE: Improve MP-85M Heaters

PERIODICAL: Grazhdanskaya avitasiya, 1960, Nr 3, p 19 (USSR)

ABSTRACT: This states that the MP-85²⁸ heater must be improved so that it can be used in up to 60 degrees of frost. The rubber covering of the cable of the present model breaks if it is bent in 45-50 degrees of frost. Intense cold also causes failure of the starting system of the electric motor. ✓

Card 1/1

SHABALIN, V. A.

Sovety sotsial'nogo strakhovaniia na tekstil'nykh predpriatiiakh /Social insurance councils at textile enterprises/. Ivanovo, Ivanovskoe knizhnoe izdatel'stvo, 1953. 88 p.

SO: Monthly List of Russian Accessions, Vol. 7 No. 1 April 1954.

SHABALIN, V.A., kand.med.nauk, mayor meditsinskoy sluzhby

Method for instructing medical corpsmen in first aid for tank
personnel. Voen.med.zhur. no.3:14-17 '59. (MIRA 12:6)

(MEDICINE, MILITARY AND NAVAL, educ.

med. corpsmen, first aid instruction (Rus))

(FIRST AID

instruction for med. corpsmen (Rus))

SHABALIN, V.A., kand.med.nauk

Method for cephalography. Gig. i san. 25 no.3:62-67 Mr '60.
(MIRA 14:5)

(EQUILIBRIUM (PHYSIOLOGY))

SHABALIN, V.A.; YEGURNOV, N.I.

Oscillographic registration of blood pressure in animals in acute experiments. Biul. eksp. biol. i med. 49 no. 6:109-110
Je '60. (MIRA 13:8)

1. Predstavlena deystv. chlenom AMN SSSR V.N. Chernigovskim.
(BLOOD PRESSURE) (OSCILLOGRAPHY)

SHABALIN, V.A., kand.med.nauk (Moskva)

Influence on the human body of angular displacements of an impulsive
nature. Gig. i san. 26 no.6:46-51 Je '61. (MIRA 15:5)
(INDUSTRIAL HYGIENE) (MOVEMENT(PHYSIOLOGY))

27.2100
27.6330

39279

S/219/62/053/001/006/007
1015/1215

AUTHOR: Shabalin, V. A.

TITLE: Characteristics of changes in the conditioned reflex responses in man affected by carbon monoxide and vibration

PERIODICAL: Byulleten' eksperimental'noy biologii i meditsiny, v. 53, no. 1, 1962, 45-47

TEXT: Observations were made on 36 young persons divided into four groups of nine persons each. Conditioned reflexes, latent periods, and reaction-time were measured. CO had a stabilizing effect on the latent period, in contrast to fluctuations observed before administration of the gas; simpler conditioned-reflexes were more resistant to the untoward effect of CO. Vibration showed the same effect as CO. The author assumes that the phenomenon of stabilisation of the latent periods must be regarded as a result of a general decrease in the dynamic cortical processes, caused by the experimental conditions. There are 2 tables.

SUBMITTED: January 21, 1961

Card 1/1

SHABALIN, V.D.

Problems relating to the radioactive control of industrial operations.
Vest.AN SSSR 31 no.9:136-137 S '61. (MIRA 14:10)
(Isotopes---Industrial applications)

DOL'NIK, V.A.; SHABALIN, V.I.; MAKELINA, M.I.; SUCHILIN, A.P.

Ways of improving the bonus system in geological organizations.
Razved. i okh.nedr 31 no.4:57-59 Ap '65.

(MIRA 19:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut ekonomiki mineral'nogo syr'ya i geologorazvedochnykh rabot (for all except Suchilin). 2. Gosudarstvennyy geologicheskii komitet SSSR (for Suchilin).

SHAEALINA, V.I.; GORYAYEV, M.I.; DEMBITSKIY, A.D.

Study of the constituents of essential oils. Part 20:
Isomerization transformations of d-sabinene under the
effect of the KU-1 cation exchanger and metatitanic acid.
Khim.prirod.soed. no.4:247-250 '65.

(MIRA 19:1)

1. Institut khimicheskikh nauk AN KazSSR. Submitted
February 17, 1964.

1ST AND 2ND ORDERS PROCESSES AND PROPERTIES INDEX

9

CA

Physico-mechanical properties of hard alloys of the "Pobedit" type in relation to chemical composition and heat treatment. G. A. Meerman and V. I. Shatalin. *Trudy Metal.* 1940, No. 3, 77-85.—An investigation was made to det. the influence of various methods of manufg. WC-Co alloys ("Pobedit" type) with varying Co content on their phys., mech. and cutting properties. It was established that: (1) Max. hardness, which increases with decreasing Co content, max. toughness, which increases with increasing Co content, and optimum cutting properties (on cast iron) of the alloys with the Co content of 4 to 13% are obtained at 1450° sintering temp.; (2) at this temp. the sintering of medium size articles can be completed in 45 min.; (3) increasing the temp. above 1450° results in grain growth and impairment of the properties; (4) the best cutting properties (on cast iron) are obtained in alloys with 4 to 6% Co.; and (5) reheating of hot pressed alloys at the same temp. is beneficial, as it improves the soundness and refines the grain. 4 references. B. N. Danilov

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

E-Z

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

SHABALIN, V. I.

PA 19/49T38

USSR/Engineering

Jan 48

Welding - Inspection

Welding - Cracks

"Some Cases of Rupture of Welded Tanks at Low
Temperatures," V. I. Shabalín, Engr, 1 p

"Avtogemnoye Delo" No 6 - pp. 29-30

Discusses causes for failure of a number of
welded tanks at an oil base during cold
weather.

19/49T38

SHABALIN, V. I.

PA 167T89

USSR/Metals - Welding

Oct 50

"Classification of Internal Stresses," Engr
V. I. Shabalin

"Avtogen Delo" No 10, pp 31-32

Suggests classification of internal stresses created in metal by welding. Says technical literature gives insufficient, sometimes erroneous information on subject. Introduces concept of internal stress never before mentioned in literature; a stress created in the entire structure due to changes in dimensions of one or several of its elements.

167T89

1ST AND 2ND COLUMNS

3RD AND 4TH COLUMNS

PROCESSES AND PROPERTIES INDEX

a

K

26-K. One Case of Crack Formation in Welds During Construction of Tanks. (In Russian.) V. I. Rhabalin. *Autopogonos Deto* (Welding), v. 21, Sept. 1950, p. 27-28. Crack formation under subzero weather conditions was investigated. Methods of minimizing this tendency. (K1, CN)

OPEN MATERIALS INDEX

RETALLURGICAL LITERATURE CLASSIFICATION

RELATIONS

1ST AND 2ND COLUMNS

3RD AND 4TH COLUMNS

USSR/Engineering - Welding, Testing Nov 51

"Concerning the Number of Cycles in Fatigue Testing of Welded Joints," V. I. Shabalyn, Engr

"Avtozen Delo" No 11, pp 4-6

Analyzes results obtained in fatigue tests of 251 specimens of Cromansil-type steel and concludes that N - 5.106 may be accepted as quite satisfactory number of cycles for testing welded joints of low-alloy steels of martensite type. Such a decrease of base number may shorten

200T60

USSR/Engineering - Welding, Testing Nov 51
(Contd)

testing time by 43%. Discusses also behavior of welds under repeated loads.

200T60

SHABALYN, V.I.

ASM

402-Q. The Problem of the Number of Cycles During Fatigue Testing of Welded Joints. (In Russian.) V. I. Shaballer. *Avtoгенное Дело*, v. 22, Nov. 1961, p. 4-5.

Determination of the number of cycles of stress application necessary to indicate the fatigue strength of welds, particularly in steel of the "Cromansh" type. Tables, graphs, and photomicrographs. (Q7. AY)

SOV/32-24-9-25/53

AUTHOR: Shabalin, V. I.

TITLE: The Investigation of the Influence on the Resistance of Armco Iron of the Frequency of the Change of Stress (Issledovaniye vliyaniya chastoty peremen nagruzheniya na vynoslivost' armko-zheleza)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 9, pp 1110-1112 (USSR)

ABSTRACT: The investigations hitherto carried out in connexion with the question mentioned in the title have not resulted in a consensus of opinion. The discrepancy in experimental data is explained by the fact that the tests were not conducted under identical conditions. In the paper under discussion, an experimental arrangement and a method have been evolved, which contain only one variable quantity - the frequency of the change of stress. The fatigue resistance of a metal was estimated, not only from the stability of the samples in the field of cyclic overstress, but also from the resistance limits. Tests were carried out with standardized bracket samples of armco iron (the segment diameter being 8 mm). The mechanical properties of the metal, which were obtained in static extension in a 10-ton test

Card 1/2

SOV/32-24-9-25/53

The Investigation of the Influence on the Resistance of Armco Iron of the Frequency of the Change of Stress

machine GURM-10, are given. 8 test plants were built, 4 of which operating at a frequency of 3000 cycles/minute, and 4 at 20 cycles/minute. Diagrams of the two types are given, together with the fatigue graphs plotted by the method of Mitropol'skiy-Shashin (Ref 3). N. N. Tranov, V. N. Ivashkevich, and R. A. Bekurina participated in the carrying out of the investigations under discussion. There are 4 figures and 2 references, which are Soviet.

Card 2/2

30V/20-122-4-16/57

10(4)

AUTHOR:

Shabalina, V. I.

TITLE:

On a Discontinuity in the Curves of Fatigue of Duralumin
(O razryve v krivyykh ustalosti duralumina)

PERIODICAL:

Doklady Akademii nauk SSSR, 1956, Vol 123, Nr 4, pp 600-602
(USSR)

ABSTRACT:

In the investigation of the fatigue of metals, one endeavors to carry out the experiments at high frequencies of the variable stress, (1500; 3000; 6000 and more cycles per minute) in order to carry out the experiments in a short time. Under such conditions, however, the sample may be investigated only for stresses below yield point (predel tekuchesti). In the opposite case the metal would become very hot. Some constructions (especially in aviation), are, however, calculated with a very small safety factor. It is necessary, therefore, to investigate the fatigue of metals and alloys not only in the elastic, but also in the elastic-plastic region of the stresses. In order to solve such problems, the author designed and constructed 10 1,5-ton excenter pulsators for the testing of the specimens by repeated stretching with a

Card 1/3

SOV/26-123-4-16/57

On a Discontinuity in the Curves of Fatigue of Duralumin

frequency of 10 cycles per minute. This remarkable number of testing engines permits mass experiments on a great number of samples. The author investigated the fatigue of a sheet of plated (plakirovanny) duralumin of the type Д16Т (thickness 2,5 mm). The fatigue of 136 samples was investigated without removal of the plating aluminum layer. The results of the experiments are given as a fatigue curve in the coordinates $\sigma_{\max} \sim N$. σ_{\max} denotes the maximum tension and N - the number of the cycles divided by 1000. This curve consists of 2 branches which are separated by the tensions 33 and 32 kg/mm². The lower branch of the curve characterizes the efficiency of the alloy in the region of elastic stresses, the upper branch does so in the region of elastic-plastic stresses. 186 samples were tested after the removal of the plating layer. Also in this case, the fatigue curve was split into 2 branches if the stresses amounted to 32-33 kg/mm². The third diagram shows the results of the fatigue tests of welded seams of duralumin. Also this curve has a distinct discontinuity. The results of this paper may be explained on the basis of the theory of dislocations in crystals. There

Card 2/3

On a Discontinuity in the Curves of Fatigue of Duralumin SOV/20-122-4-16/57

one figure and 1 reference, 1 of which is Soviet.

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Card 3/3