SOV/110/58-7-3/21

AUTHOR: Fradkin, A.M., Engineer, and Petrenko, F.N., Engineer.

TITLE: Electrostatic Spray-painting of electric motors (Okraska elektrodvigateley v elektrostaticheskom pole.

PERIODICAL: Vestnik Elektropromyshlennosti, 1958. Nr 7, pp 12-16 (USSR)

ABSTRACT: This article describes a method of painting electric motors in an electrostatic field. The paint is delivered to an atomising head which is in the form of a cup with its interior surface carefully polished. The cup rotates at a speed of 900 - 1500 r.p.m. on a hollow shaft through which the paint is delivered. This atomising device is maintained at high voltage, so that the drops of paint leaving the end of the cup are highly charged: a general view of the installation is given in Fig 1. The main components comprise a high-voltage rectifier with current-limiting resistance and automatic discharging devices. The painting chamber measures 3.5 x 3.2 x 3 m and a conveyor passes through it. The arrangement of the chamber is shown in Fig 2; the motors, suspended from the conveyor,

Card 1/4

Spray-painting of electric motors SOV/110-58-7-3/21

rotate at 6 - 7 r.p.m. and are painted uniformly. The atomisers, as illustrated in Fig 3, are mounted on vertical insulators. The atomiser cups are driven by a small electric motor. The paint metering device is illustrated diagrammatically in Fig 4; connections to the atomisers are made by insulating polyvynyl chloride tube. A voltage of 100 kV is applied to the atomisers. A small extraction fan is installed in the paint chamber, primarily to remove solvent vapours. The chamber can handle 48 motors an hour. The conveyor is described and illustrated in Figs 5 & 6. The paint is dried in 25 minutes by an infra-red lamp installation, which can also be seen in Fig 6. The control panel is described. Compressed-air aotmisers were tried, and so was compressed-air-turbine drive for the cups, but

Card 2/4

Spray-painting of electric motors SOV/110-58-7-3/21

electric motor drive was found best. The process ensures that most of the paint is applied to the motors and a mist of paint is not formed. External surfaces of motors are uniformly painted, but hidden internal surfaces are not touched and may require painting by a brush on the conveyor after leaving the electrostatic field. It is important that the distance between the atomiser and the product should not vary too greatly. If the distance becomes too small, flashover may occur and if it is too great the method is not so effective. When bituminous paint 462P is used there is no risk of fire or explosion any more than in ordinary paint chambers, and no special precaution is necessary. Explosive mixtures cannot form in the chamber and the paint does not burn if a flashover occurs provided that its power is properly limited. The process is used at the Khar'kov Electromechanical works for various types of explosion-proof motors, the general layout of the equipment being

Card 3/4

Spray-painting of electric motors SOV/110-58-7-3/21

illustrated diagrammatically in Fig 7 and briefly described. It is concluded that the main advantage of the method is the economy of paint, consumption of which was cut by half. The process is automatic, output is high and manual labour is practically eliminated. There are 7 figures.

Card 4/4

SUBMITTED: February 27, 1958.

1. Paint sprayers--Design 2. Paint sprayers--Performance
3. Paints--Applications 4. Electric motors--Coating

PETRENKO, G., general-mayor

Commitments have been fulfilled. Voen.vest. 41 no.10:99 O '61.
(MIRA 15:2)

(Chemical warfare--Safety measures)

PETRENKO, G.

Advanced practices must be used in all enterprises. Sov.shakht. 10 no.5:13 My '61. (MIRA 14:9)
(Donets Basin--Coal mines and mining)

LAZEBNIK, M.; PETRENKO, G.

Determining the bearing capacity of piles. Mech. transp. 20 no.8: 42-43 Ag '61. (MIRA 14:10)

(Piling (Civil engineering))

BASSZINA, M. [Bassina, M.] (Lvov); DEGTYALEVA, L. (Volgograd); LAVRENYEV, G. (Leningrad); MIHAJLOV, A. [Mikhaylov, A.] (Samarkand); PETRENKO, G. (Tiraspol); ROZSNOV, V. [Roshnov, V.] (Donetsk); TARTAKOVSZKIJ, N. [Tartakovskiy, N.] (Kiev)

Radio amateurism into the schools! Radiotechnika 12 no.12:394-395 D '62.

ARTEM'YEV, N. L., GERUS, V. L., PETRENKO, G.

Television

Soviet priority to the Superorthicon type of the television pick-up tube. Zhur. tekh. fiz. 22 no. 5, 1952.

9. Monthly List of Russian Accessions, Library of Congress, November 1953. Unclassified.
2

PETRENKO, G.

USSR/Electronics - Television, Iconoscope May 52

"Soviet Priority on TV Transmitting Tube of Superopticon Type," N. L. Artem'yev, V. L. Gerus, G. Petrenko

"Zhur Tekh Fiz" Vol XXII, No 5, pp 890, 891

After the invention of the 1st iconoscope by S. I. Katayev and improvements by P. V. Timofeyev and P. V. Shmakov and after the invention of secondary electron multipliers by L. A. Kubetskiy, a new achievement was the supersensitive superopticon, much described in the US without reference to the inventor G. V. Braude (cf. Certificate 55712) "Sbornik Izobreteniy SSSR" (Collection of Inventions of the USSR) No 9, 1939. Letter to the editor, received 20 Feb 52.

222T23

PETRENKO, G.G., gornyy inzhener-electromekhanik

Mechanized method of changing cables on hoisting installations. Gor.zhur. no.3:55-56 Mr '55. (MLRA 8:7)
(Krivoy Rog--Hoisting machinery)

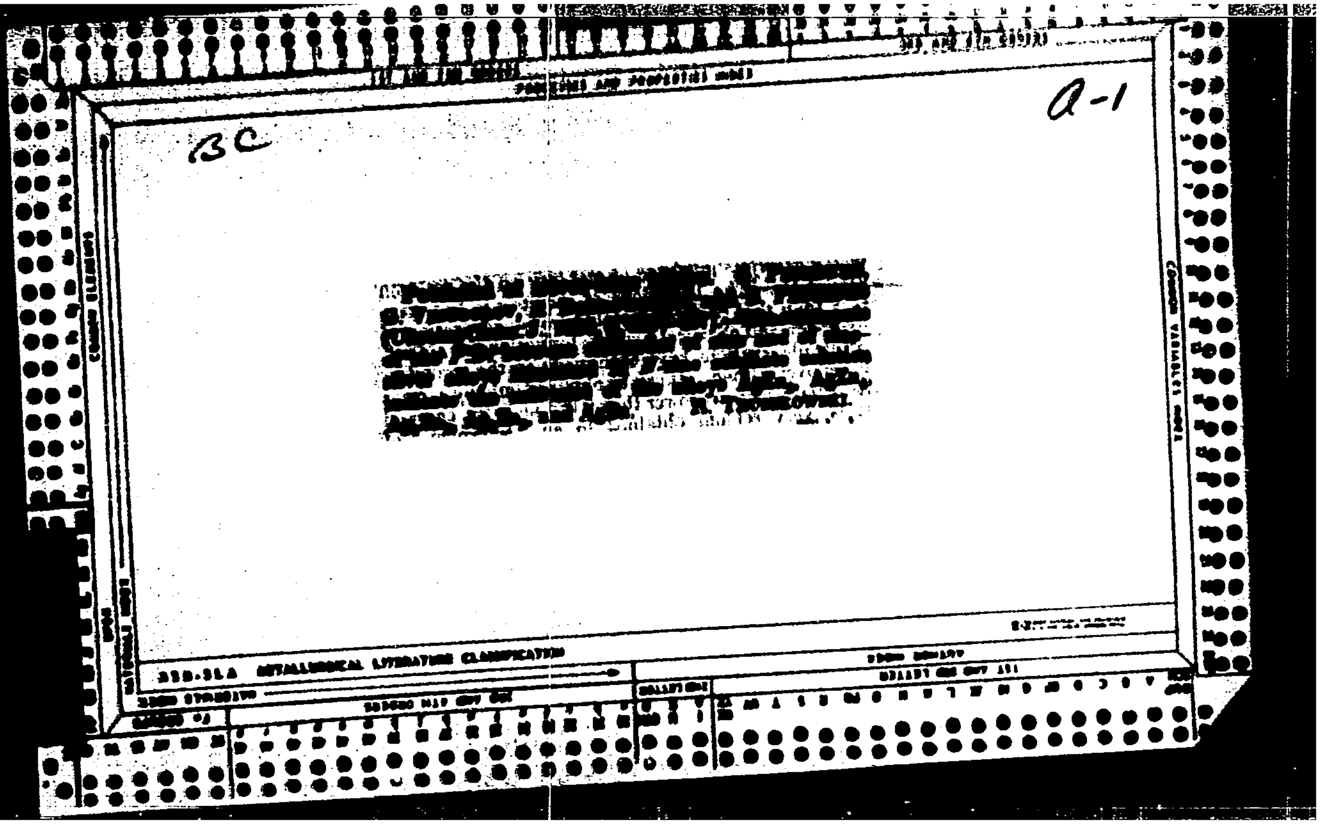
PROCESSES AND PROPERTIES INDEX

ca

4

Potential of silver-zinc alloys. G. PETRENKO, G. VINOGOROV, A. DOBROVOLSKII AND B. PETRENKO. *Ukrainskii Khem. Zhur.* 4, 429-37(1929); cf. C. A. 24, 704, 1930.—Measurements of the p. d. between electrodes of Zn and of Zn-Ag alloys immersed in N ZnSO$_4$ soln. indicate the existence of the alloys AgZn$_3$, AgZn$_2$, Ag$_2$Zn$_3$, Ag$_3$Zn$_2$ and AgZn. B. C. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



BC

a-1

[illegible]

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PETRENKO, G.G.

Movable, direct current electric welding machines for mines. Biul. TSIICHM no.9:38-39 '60. (MIRA 15:4)

1. Rudoupravleniye imeni Rozy Lyuksemburg.
(Electric welding--Equipment and supplies)
(Iron mines and mining--Equipment and supplies)

PETRENKO, G.G.

Automatic couplings for mine railroad cars. Gor. zhur. no.9: 36-38 S '61. (MIRA 16:7)

1. Glavnyy mekhanik shakhty "Novaya" rudoupravleniya im. R.Lyuksemburg.

(Car couplings) (Automatic control)

VOLOTKOVSKIY, S.A., doktor tekhn.nauk; BAKHURIN, K.I., kand.tekhn.nauk;
PETRENKO, G.G., inzh.

Technical and economic comparison of the efficiency of using cars with a closed and a dumping body in the Krivoy Rog Basin. Vop. rud. transp. no.6:356-360 '62. (MIRA 15:8)

1. Dnepropetrovskiy gornyy institut (for Volotkovskiy, Bakhurin).
2. Shakhta "Novaya", rudoupravleniya im. Rozy Lyuksemburg (for Petrenko).

(Krivoy Rog Basin—Mine railroads—Cars)

PETRENKO, G.G.

Improve the chute-drawer operation in mines of the Krivoy Rog Basin. Gor.zhur. no.5:45-46 My '62. (MIRA 16:1)

1. Glavnyy mekhanik shakhty "Novaya" rudoupravleniya im. R.Lyuksemburg.

(Krivoy Rog Basin--Ore handling)

PETRENKO, G.G., gornyy inzh.

Practical construction of a chute drawer for mines in the Krivoy Rog Basin with large railroad cars. Gor.zhur. no.3:73-74 Mr '60. (MIRA 14:5)

1. Rudoupravleniye im.R.Lyuksemburg, Krivoy Rog.
(Mine haulage)

PETRENKO, G.G., gornyy inzhener-elektromekhanik; PETRENKO, L.N., gornyy
inzhener-elektromekhanik.

Replacing sliding bushings in mine hoisting machinery. Gor.zhur.
no.10:37-40 O '55. (MIRA 9:2)
(Krivoi Rog--Hoisting machinery)

PETRENKO, G.G., inzhener.

New method of replacing hoisting devices. Gor.zhur.no.8:60 Ag '56.
(MLRA 9:10)

1.Glavnyy mekhanik shakhty Novaya.
(Mine hoisting)

PETRENKO, G.G.

Repairing underground storage pits. Bezop.truda v prom. 5 no.1:29-30 Ja '61. (MIRA 14:2)

1. Glavnyy mekhanik shakhty "Novaya" rudoupravleniya im. Rozy Lyuksemburg.

(Mining engineering)

PETRENKO, G.G.

Parallel telescopic feeder for drilling vertical holes. Gor. zhur. no.4:31 Ap '57. (MLRA 10:5)

1. Glavnyy mekhanik shakhty Novaya.
(Rock drills)

PETRENKO, G.G., inzh.

Pneumatic drives for switch boxes. Bezop. truda v prom. 2 no.6:30 Je '58. (MIRA 11:7)

(Mine railroads--Switches--Pneumatic driving)

PETRENKO, G.G.

A useful booklet ("Booklet for miners drilling holes" by L.M. Feigin). Reviewed by G.G.Petrenko. Bezop.truda v prom. 5 no.6:37-38 Je '61. (MIRA 14:6)

1. Glavnyy mekhanik shakhty "Novya" Krivorozhskogo basseyna.
(Boring--Safety measures)
(Feigin, L.M.)

PETRENKO, G.G., inzh.

Loading ores without chutes with me "Krivbass 250" machine. Mekh. i avtom. proizv. 15 no. 5:18-19 My '61. (MIRA 14:5)
(Krivoi Rog Basin—Mining machinery)

LUKASHEV, I.I., prof.; PETRENKO, G.G.

Etiology and pathogenesis of atrophic rhinitis in young pigs.
Veterinariia 37 no.9:36-37 S '60. (MIRA 14:11)

1. Khar'kovskiy veterinaryyy institut. 2. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk imeni Lenina (for Lukashev).

(Swine--Diseases and pests)

PETRENKO, G. G. Cand Vet Sci -- (diss) "The Diagnostic Significance of Detecting Hemosiderocytes in Peripheral Blood XXX ~~at~~ in Infectious Diseases of Horses." Khar'kov, 1957. 15 pp 20 cm. (Min of Agriculture USSR, Khar'kov XXX Veterinary Inst), 100 copies (KL, 17-57, 98)

PETRENKO, G.G.

Hydraulic press for the bending of heavy rails. Ugol' Ukr. no.6: 37 Je '60. (MIRA 13:7)

1. Glavnyy mekhanik shakhty "Novaya" rudoupravleniya im.Rozy Lyuksemburg.

(Mine railroads--Equipment and supplies)
(Hydraulic presses)

PETRENKO, G.G. [Petrenko, H.H.]; TERYSHNIK, V.I. [Tertyshnyk, V.I.]

Certain biochemical characteristics of the blood and milk of sows during lactation. Ukr.biokhim.zhur. 32 no.1:107-110 '60. (MIRA 13:6)

1. Department of Biochemistry and Department of Epizootology of the Kharkov Veterinary Institute.

(LACTATION) (BLOOD) (MILK)

PETRENKO, G.G.

Container for lowering cbejcts into the mine. Ugol' 35 no.5:51-53 My '60. (MIRA 13:7)

1. Glavnyy mekhanik shakhty "Novaya" rudoupravleniya im.Rozy Lyuksemburg DnepropetrovsKoy oblasti.
(Coal mines and mining--Equipment and supplies)

PETRENKO, G. G. (Khar'kov Veterinary Institute), and LUKASHEV, I. I. (Member-Correspondent
VASKHNIL, Professor).

"An addition to the eitiology and pathogenesis of atrophic rhinitis of piglets."

Veterinariya, Vol. 37, No. 9, 36, 1960.

PETRENKO, G.G.

PETRENKO, G.G., gornyy inzhener-elektromekhanik.

Mine screen made of round iron bars. Gor.zhur. no.9:74 S '57.
(MIRA [illegible])

1. Shakhta Novaya. (Screens (Mining))

MALAYEV, I.I., gornyy inzhener; SAMOYLOV, S.S., gornyy inzhener; PETRENKO, G.G., gornyy inzhener

Independent flow of water into drill holes in horizontal mining. Bor'ba s sil. 2:99-102 '55. (MLRA 9:5)

1. Krivorozhskiy zhelezorudnyybasseyn.
(BORING) (DUST--PREVENTION)

PETRENKO, Grigoriy Grigor'yevich; DOLGOLEVICH, N.G., retsenzent;
FEYGIN, L.M., otv. red.; MIRONOVA, T.A., red.izd-va;
LAVRENT'YEVA, L.G., tekhn. red.

[Crushing machinery operator] Mashinist drobil'noi ustanovki.
Moskva, Izd-vo "Nedra," 1964. 140 p. (MIRA 17:3)

PETRENKO, G.G., gornyy inzhener-elektromekhanik; PETRENKO, L.M., gornyy inzhener-elektromekhanik.

Replacing sliding bushings in mine hoisting machinery. Gor.zhur. no.10:37-40 O '55. (MIRA 9:2)
(Krivoi Rog--Hoisting machinery)

LUKASHEV, I.I., prof., doktor, zasluzhenyy deyatel' USSR;PETRENKO, G.G., kand.
veterinarnykh nauk;ANDRIYAN, Ye.A., veterinarnyy vrach

Research on methods for preventing infectious atrophic rhinitis
in swine. Veterinariia 36 no.11:16-18 N '59 (MIRA 13:3)

1. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh
nauk imeni Lenina (for Lukashev). 2. Khar'kovskiy veterinarnyy institut (for Andriyan).
(Swine--Diseases and pests)

PETRENKO. G. I.

"Etude des equilibres de phases dans le systeme Al - Ag au moyen des methodes d'analyse thermique et de la conductibilite electrique"., Cerkasine, E. E. et Petrenko, G. I. (p. 1526)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1940, Volume 10, no. 16.

CHERKASHIN, Ye. Ye.; PETRENKO, G. I.

" A Study of Phase Equilibria in the System Al--by the Method of Thermal Analysis and Electrical Conductivity," Zhur. Obshch. Khim., 10, No. 16, 1940. Inst. of Chem., Khar'kov State Univ. imeni Gor'kiy. Received 13 March 1940.

Report U-1610, 3 Jan 1952

CHERKASHIN, YE. YE; PETRENKO, G. I.

"A Study of Phase Equilibria in the System Al--by the Method of Thermal Analysis and Electrical Conductivity," Zhur. Obshch. Khim., 10, No 16, 1940. Inst. of Chem., Khar'kov State Univ. imeni Gor'kiy, Received 13 March 1940.

Report U-1610, 3 Jan 1952.

PROCESSES AND PROPERTIES INDEX

M

2

***Investigations of Phase Equilibria [of Silver-Rich Alloys] in the System Aluminium-Silver by the Method of Thermal Analysis.** E. E. Cherkashin and G. I. Petrenko (*Zhur. Obshey Khim.* (*J. General Chem.*), 1940, **10**, 1526-1530; *C. Abs.*, 1941, **35**, 3211).—[In Russian.] Thermal analyses were made of aluminium-silver alloys with 0-16% aluminium by weight. Two peritectic reactions were found: $\alpha_{6\%}$ + l [illegible] ⇌ β [illegible] (780° C.) and $\beta_{10\%}$ + l [illegible] ⇌ $\gamma_{11\%}$ (720° C.). The saturation limit of the γ solid solution is 14-33% aluminium. Measurements of the electrical conductivity at 500° and 350° C. showed that the transition α + γ ⇌ β′ takes place very slowly. A normal change of the electrical conductivity is observed only for the γ phase. Measurements of the tempered and hardened alloys containing 0-14% aluminium showed that the maximum solubility for the α phase and the minimum solubility for the γ phase are at 500° C. At 400-600° C. there is a heterogeneous region γ + α. At 400° C. a β′ phase forms which is characterized by a maximum electrical conductivity. Each homogeneous and heterogeneous region in the aluminium-silver system has its own characteristic branch on the electrical resistance isotherms. 11 references are given.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

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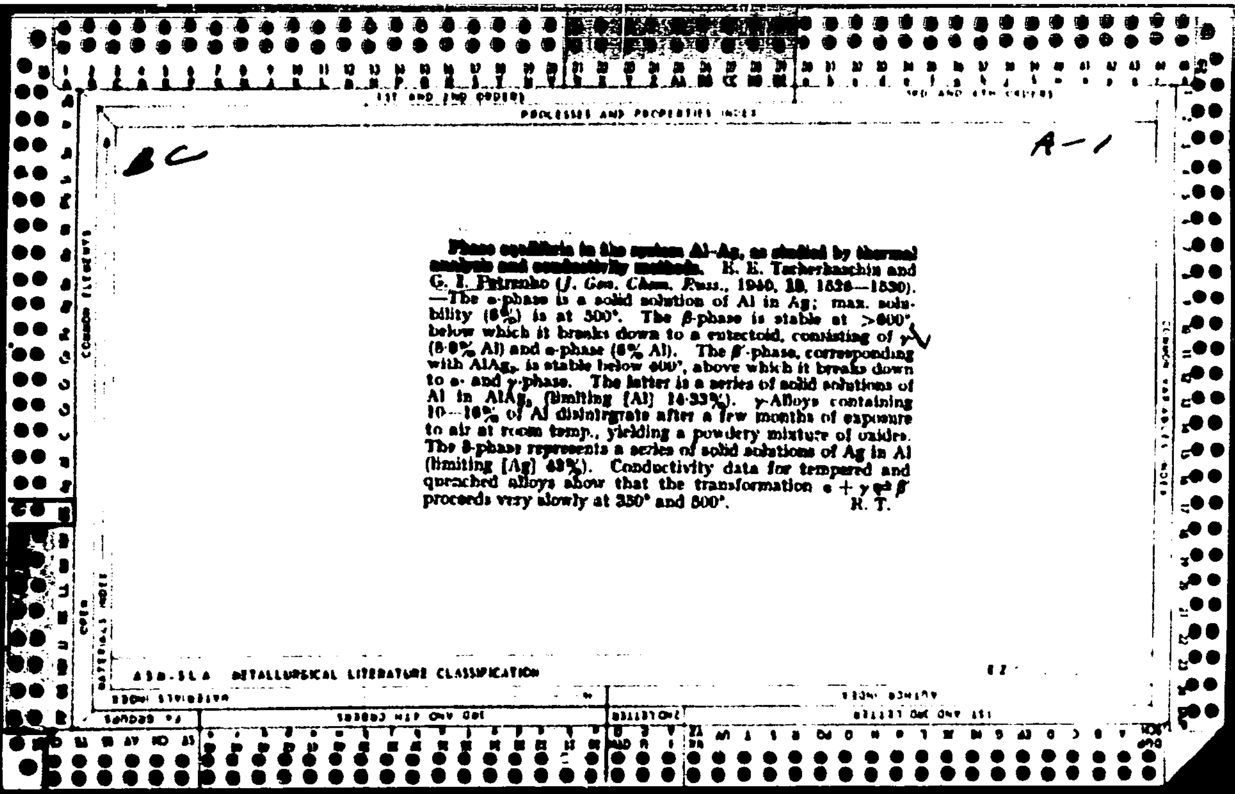
a-1

Widmannstätten structure of aluminium-silver alloys. G. I. PETRENKO and F. A. DERKATSCH (Ukrain. Chem. J., 1938, 13, 69—79).—Widmannstätten structure can be produced in alloys with 60—80% Al by heating at 300—400° for a time which is inversely ∝ degree of saturation of the solid solutions. When these are highly unsaturated (40—45% Al) the alloys have to be heated for a short time at the sintering point, and then at 400°, in order to develop the structure. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



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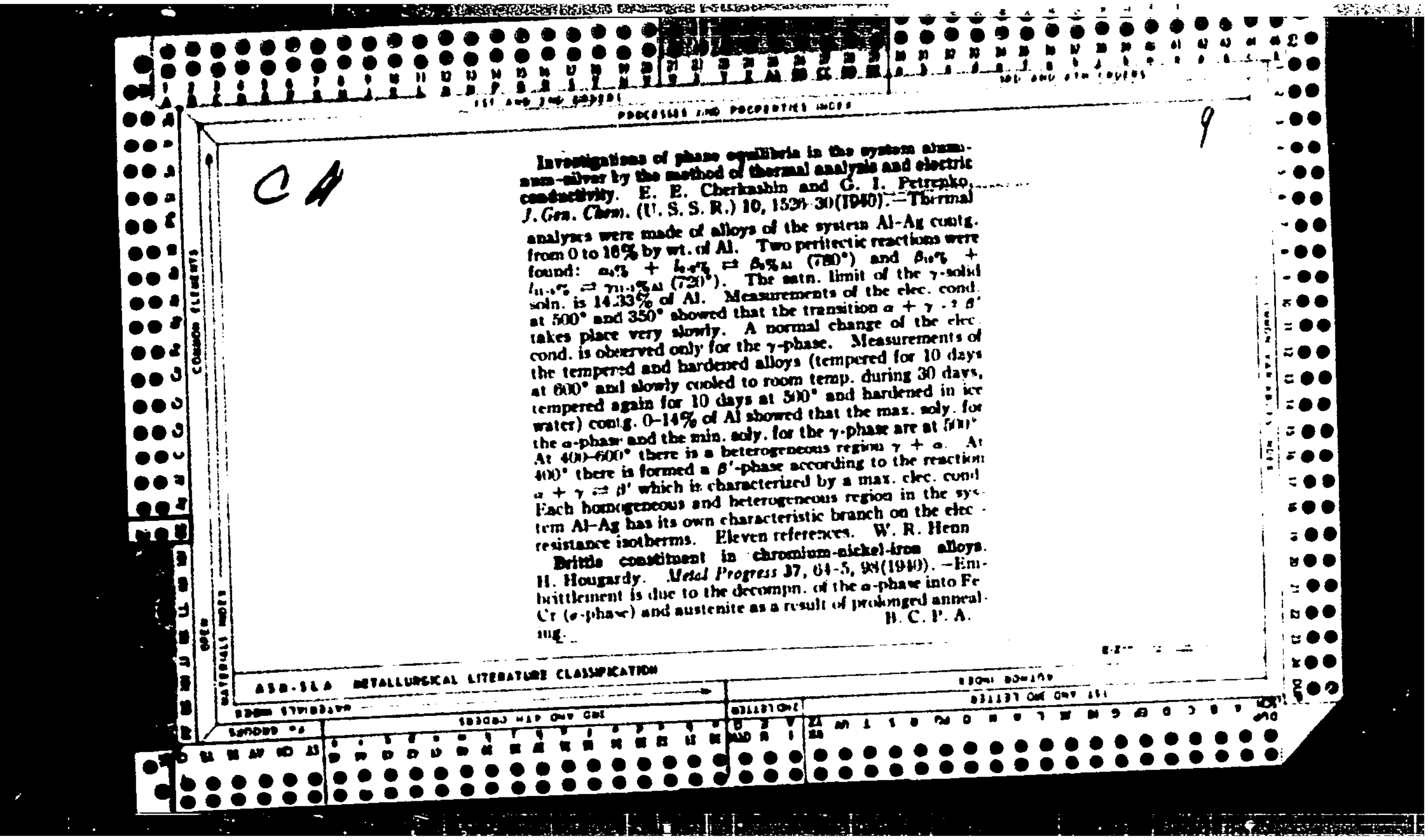
A-1

Phase equilibria in the system Al–Ag, as studied by thermal analysis and conductivity methods. E. E. Tscherbaschin and G. I. Petrenko (*J. Gen. Chem. Russ.*, 1940, **10**, 1526—1530). —The α-phase is a solid solution of Al in Ag; max. solubility (6%) is at 300°. The β-phase is stable at >600°, below which it breaks down to a eutectoid, consisting of γ- (8·0% Al) and α-phase (6% Al). The β′-phase, corresponding with $AlAg_3$, is stable below 600°, above which it breaks down to α- and γ-phase. The latter is a series of solid solutions of Al in $AlAg_2$ (limiting [Al] 14·33%). γ-Alloys containing 10—16% of Al disintegrate after a few months of exposure to air at room temp., yielding a powdery mixture of oxides. The δ-phase represents a series of solid solutions of Ag in Al (limiting [Ag] 48%). Conductivity data for tempered and quenched alloys show that the transformation $\alpha + \gamma \rightleftharpoons \beta$ proceeds very slowly at 350° and 600°. R. T.



CA

9

Investigations of phase equilibria in the system aluminum-silver by the method of thermal analysis and electric conductivity. E. E. Cherkashin and G. I. Petrenko. *J. Gen. Chem.* (U. S. S. R.) 10, 1526-30(1940).—Thermal analyses were made of alloys of the system Al-Ag contg. from 0 to 16% by wt. of Al. Two peritectic reactions were found: α[illegible] + l[illegible] ⇄ β[illegible] (780°) and β[illegible] + l[illegible] ⇄ γ[illegible] (720°). The satn. limit of the γ-solid soln. is 14.33% of Al. Measurements of the elec. cond. at 500° and 350° showed that the transition α + γ → β' takes place very slowly. A normal change of the elec. cond. is observed only for the γ-phase. Measurements of the tempered and hardened alloys (tempered for 10 days at 600° and slowly cooled to room temp. during 30 days, tempered again for 10 days at 500° and hardened in ice water) contg. 0-14% of Al showed that the max. soly. for the α-phase and the min. soly. for the γ-phase are at 600°. At 400-600° there is a heterogeneous region γ + α. At 400° there is formed a β'-phase according to the reaction α + γ ⇄ β' which is characterized by a max. elec. cond. Each homogeneous and heterogeneous region in the system Al-Ag has its own characteristic branch on the elec. resistance isotherms. Eleven references. W. R. Henn

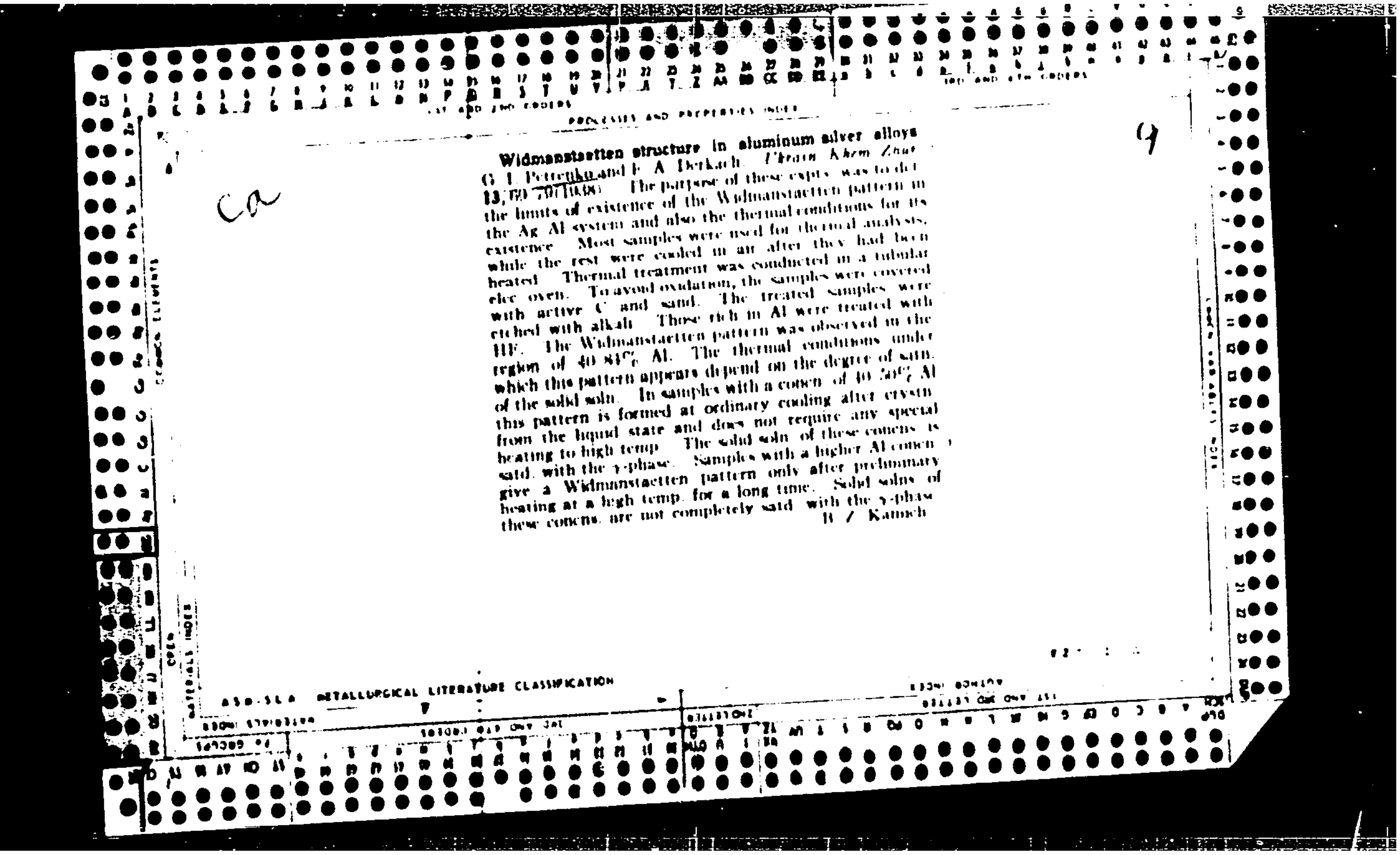
Brittle constituent in chromium-nickel-iron alloys. H. Hougardy. *Metal Progress* 37, 64-5, 98(1940).—Embrittlement is due to the decompn. of the α-phase into Fe-Cr (σ-phase) and austenite as a result of prolonged annealing. B. C. P. A.

PROCESSES AND PROPERTIES INDEX

Widmanstaetten structure in aluminum-silver alloys
G. I. Petrenko and F. A. Derkach. *Ukrain. Khem. Zhur.* 13, 60-79(1938). The purpose of these expts. was to det. the limits of existence of the Widmanstaetten pattern in the Ag-Al system and also the thermal conditions for its existence. Most samples were used for thermal analysis, while the rest were cooled in air after they had been heated. Thermal treatment was conducted in a tubular elec. oven. To avoid oxidation, the samples were covered with active C and sand. The treated samples were etched with alkali. Those rich in Al were treated with HF. The Widmanstaetten pattern was observed in the region of 40-84% Al. The thermal conditions under which this pattern appears depend on the degree of satn. of the solid soln. In samples with a concn. of 40-50% Al this pattern is formed at ordinary cooling after crystn. from the liquid state and does not require any special heating to high temp. The solid soln. of these concns. is satd. with the γ-phase. Samples with a higher Al concn. give a Widmanstaetten pattern only after preliminary heating at a high temp. for a long time. Solid solns. of these concns. are not completely satd. with the γ-phase.

B. Z. Kamich

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

CA

9

Widmanstaetten structure in aluminum silver alloys
G. I. Petrenko and E. A. Derkach. *Ukrain. Khem. Zhur.*
13, 70-70 (1938). The purpose of these expts. was to det.
the limits of existence of the Widmanstaetten pattern in
the Ag Al system and also the thermal conditions for its
existence. Most samples were used for thermal analysis,
while the rest were cooled in air after they had been
heated. Thermal treatment was conducted in a tubular
elec. oven. To avoid oxidation, the samples were covered
with active C and sand. The treated samples were
etched with alkali. Those rich in Al were treated with
HF. The Widmanstaetten pattern was observed in the
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of the solid soln. In samples with a concn. of 40-50% Al
this pattern is formed at ordinary cooling after crystn.
from the liquid state and does not require any special
heating to high temp. The solid soln. of these concns. is
satd. with the γ-phase. Samples with a higher Al concn.
give a Widmanstaetten pattern only after preliminary
heating at a high temp. for a long time. Solid solns. of
these concns. are not completely satd. with the γ-phase.
B. Z. Kamich

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

ER PETRASHEN, G. I. and NIKOLAYEV, B. G.

"Method of Series Expansions in Diffraction Problems in Wedge-Shaped Regions."

paper presented at the 4th All-Union Conf. on Acoustics, Moscow, 26 May - 2 Jun 58.

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

BC

b-I6

Hardness of aluminium-silver alloys. G. I. Petrenko and V. E. Tikhontschenko (Trav. Inst. Chim. Charkov, 1936, 2, 81—86).—The hardness-composition diagram suggests the compound AlAg$_3$ in ordinary alloys, and, in addition, the compound AlAg$_2$ in reheated alloys. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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3

•**Widmanstätten Structure in Aluminium Silver Alloys.** G. J. Petrenko and F. A. Derkach (*Ukrain. Khim. Zhur.* (*J. Chim. Ukraine*), 1938, **13**, (2), 69-79; *C. Abs.*, 1938, **32**, 660).—[In Ukrainian.] The purpose of the experiments was to determine the limits of the existence of the Widmanstätten structure in the silver-aluminium system, and also the thermal conditions for its existence. Most of the samples were used for thermal analysis, while the rest were cooled in air after heating. Thermal treatment was carried out in a tubular electric furnace. To obviate oxidation, the samples were covered with active carbon and sand. The treated samples were etched with alkali; those rich in aluminium were treated in hydrofluoric acid. The Widmanstätten pattern was observed in the region of 40-84% aluminium. The thermal conditions under which this structure appears depend on the degree of saturation of the solid solution. In samples with a concentration of 40-50% aluminium, the pattern is formed at ordinary cooling after crystallization from the liquid state and does not require special heating to high temperature. The solid solution of these concentrations is saturated with the γ phase. Samples with a higher aluminium concentration give a Widmanstätten pattern only after preliminary heating at a high temperature for a long time. Solid solutions of these concentrations are not completely saturated with the γ phase. S. G.

KHRASHK[illegible], [illegible]A., inzh.; [illegible], G.K., inzh.

Using granulated slag in the production of portland cement. TSement 30 no.[illegible]:18-19 [illegible] '[illegible]. (MIRA 17:[illegible])

1. Slantsevskiy tsementnyy zavod.

PETRENKO, G.M., kand.tekhn.nauk

New method of determining the force of lateral attrition in soils. Transp. stroi. 13 no.6:57-59 Je '63. (MIRA 16:9)
(Foundations)

BUDNIKOV, Mikhail Sergeyevich, doktor tekhn. nauk, prof.; CHECHIK, Aron Abramovich, kand. tekhn. nauk, dots.; OBOZNYY, Aleksey Pavlovich, kand. tekhn. nauk, dots.; PETRENKO, Grigoriy Mikhaylovich, dots.; AL'PEROVICH, Semen Zinov'yevich, kand. tekhn. nauk, dots.; KHAZAN, Moisey Yakovlevich, kand. tekhn. nauk, dots.; REZNICHENKO, I.Ye., red.; NARINSKAYA, A.L., tekhn. red.

[Building techniques] Tekhnologiia stroitel'nykh protsessov. Kiev, Gos. izd-vo lit-ry po stroit. i arkhit. USSR, 1961. 487 p. (MIRA 14:12)

1. Deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR (for Budnikov). (Building)

PETRENKO, G. M. Cand Tech Sci -- "Study of the force of friction of ~~ground~~ [illegible] against the lateral ~~edges~~ surfaces of concrete structures." Kiev, 1960 (Acad of Construction and Architecture [redacted] UkSSR). (KL, 1-61, 196)

PETRENKO, G.M. [Petrenko, H.M.]

Experimental study of the forces of lateral friction of concrete surfaces against soil. Dop.AN URSR no.6:740-745 '60. (MIRA 13:7)

1. Kiyevskiy inzhenerno-stroitel'nyy institut. Predstavleno akademikom AN USSR F.P.Belyankinym [F.P.Bieliankinym].

(Friction) (Soil mechanics)

PETRENKO, Grigoriy Mikhaylovich; ALEKSANDROVSKIY, A., red.; IOAKIMIS, A., tekhn.red.

[Shaft method for constructing deep columnar foundations] Shakhtnyi sposob ustroistva glubokikh stolbchatykh fundamentov. Kiev, Gos. izd-vo lit-ry po stroit. i arkhit. USSR, 1957. 125 p. (MIRA 11:5)
(Foundations)

PETRENKO, G.M., inzhener.

Building concrete foundations for sub-stations without using forms. (MLRA 7:12)
Elek.sta. 25 no.12:40 D '54.
(Electric substations) (Concrete construction)

PETRENKO, G. M.

PETRENKO, G. M.-- "A Shaft Method of Abutment of Deep Columnar Foundations A against Large Concerted Loads." Min Higher Education USSR, Kiev Engineering-Construction Inst., Kiev, 1955. (Dissertation for the Degree of Candidate in Technical Sciences)

SO: Knizhnaya Letopis', No. 35, 1955

PETRENKO, G.P.

1 Structure of some polybromo derivatives of acenaphthene. I. M. M. Dashevskii and G. P. Petrenko (Polytech. Inst., Odessa). *Sbornik Statei Obshchei Khim., Akad. Nauk S.S.S.R.* 1, 630-7(1953).—The hexabromide of acenaphthene [Blumenthal, *Ber.* 7, 1092(1874)] is shown to be *1,2,3,4-tetrahydro-1,2,3,4,5,10-hexabromoacenaphthene* (*C.A.* 6,7,8,8a-tetrahydro-1,5,6,7,8,8a-hexabromoacenaphthene) (I). None of the tetrabromides reported by De-Fazi (*C.A.* 18, 255) and Mayer and Kaufmann (*C.A.* 14, 2799) could be duplicated. To 100 g. acenaphthene suspended in 150 ml. CCl_4 or $CHCl_3$ was added with cooling 120 ml. Br in 70 ml. CCl_4 or $CHCl_3$; soln. occurs and later an abundant pptn. begins. After several hrs. there was obtained 180-200 g. colorless product, mixed penta- and hexabromo derivs. in nearly equal proportions. The mixt. was sepd. by dissolving in 1600-1700 ml. $(CH_2Cl)_2$ and keeping overnight; 80-90 g. I crystallized out, while concn. of the filtrate gave 70-80 g. *3,4-dihydro-3,4,5,9,10-pentabromoacenaphthene* (II). Pure I, decomp. 162-3° (from C_6H_6), heated with KI cleaves 1 mole Br and 2 moles HBr; alc. $AgNO_3$ cleaves 4 Br atoms, while alc. KOH cleaves 3 Br atoms. Oxidation of 20 g. I with 60 g. $Na_2Cr_2O_7$ in 200 ml. AcOH 3 hrs. at reflux gave 4.9 g. *4-bromonaphthalic acid*, m. 219-20°, identical with the oxidation product of 4-bromoacenaphthene. To 20 g. powd. I in 400 ml. hot C_6H_6 was added a hot soln. of 10 g. KOH in 400 ml. EtOH and the mixt. was boiled 0.5 hr. to give 8 g. *2,4,5-tribromoacenaphthylene*, m. 142.5-3.0° (from C_6H_6), which adds a theoretical amount of Br required for 1 double bond. Oxidation of this with $Na_2Cr_2O_7$ in AcOH 1 hr. at reflux gave *2,4,5-tribromonaphthalic acid*, m. 222-3°, whose analysis corresponds to the anhydride rather than the free acid. The acid (2.0 g.) and 5.2 g. fresh HgO in 30 ml. H_2O heated in autoclave 3 hrs. at 205-15°, then 3 hrs. at 225-30° and boiled 3 hrs. in concd. HCl, gave 0.8 g. *2,4,5-tribromonaphthalene*, m. 140-1°. To 3.1 g. 4,5-dibromoacenaphthene in $CHCl_3$ was added in the cold 1.15 ml. Br in $CHCl_3$; the mixt., on standing overnight, gave 2.35 g. heptabromide, solid. To 4 g. *2,4,5-tribromoacenaphthylene* in 20 ml. CCl_4 was added 57 ml. soln. of Br in CCl_4 (0.57 g. Br/ml.); rapid uptake of Br occurred without evolution of HBr; after 24 hrs. there was recovered 4.9 g. *2,4,5,9,10-pentabromoacenaphthene*, m. 212-13° (from C_6H_6), which oxidized with $Na_2Cr_2O_7$ to 2,4,5-tribromonaphthalic acid, m. 222-3°. The pentabromide (2 g.) in C_6H_6 was treated with hot soln. of 0.4 g. KOH in 50 ml. EtOH and heated briefly yielding 1.5 g. orange *2,4,5,10-tetrabromoacenaphthylene*, m. 199-200°, which oxidized with $Na_2Cr_2O_7$ to the same 2,4,5-tribromonaphthalic acid. Pure II, m. 162-3° (from C_6H_6; with decompn.), loses 2 Br atoms with hot alc. KOH and 3 Br atoms with alc. $AgNO_3$; oxidized with $Na_2Cr_2O_7$ it yields *4-bromonaphthalic acid*, m. 219-20°. II (40 g.) in 350 ml. C_6H_6 treated with 18 g. KOH in 350 ml. EtOH and refluxed 45 min. gave 14 g. orange product, identified as *3,5,10-tribromoacenaphthylene*, m. 182-3° (from C_6H_6), which oxidized with $Na_2Cr_2O_7$ to *3,5-dibromonaphthalic acid*, m. 200° (from Ac_2O), which decarboxylated as described above to *3,5-dibromonaphthalene*, m. 78° (from EtOH). Refluxing I in AcOH 45 min. gave about 50% II. To 10 g. acenaphthene in 20 ml. hot CCl_4 was added 13.4 ml. Br in 30 min. and the mixt. on cooling gave 5.5 g. yellow product; this (1 g.) in 23 ml. C_6H_6 was heated 15 min. with 0.8 g. KOH in 23 ml. EtOH yielding 0.47 g. product, m. 181.5-2.5°, identified as *3,5,10-tribromoacenaphthylene*. Thus the main product of bromination of acenaphthene under conditions given by M. and K. is not the material claimed by them (hexabromide), but II, which on sapon. yields not a

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M. M. DASHEVSKII

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tribromoacenaphthene but tribromoacenaphthylene.

Some polychloro derivatives of acenaphthene. II. *Ibid.* 638-45; cf. *Trudy Odessk. Ind. Inst* 3 (9), (1941).—Treatment of 30 g. acenaphthene in 45 ml. AcOH with 3-5 moles Cl premixed with an equal vol. of SO_2, with cooling allowing the mixt. to stand overnight and filtering the deposited solids, gave after washing with AcOH and Et_2O, about 30 g. chlorination products consisting of penta- and hexachloro derivs. If the chlorination is run in the presence of 2% iodine, the hexa-Cl deriv. predominates, while in the presence of 2% $FeCl_3$ the penta-Cl deriv. is predominant. Sepn. of the 2 isomers is difficult. Crystallization from $(CH_2Cl)_2$ or C_6H_6 yields dense crystals of the hexa-Cl deriv. simultaneously with fine and light crystals of the penta-Cl deriv., thus affording a method for mech. sepn. Heating is avoided, owing to possible decompn. Thus was obtained *1,2,3,4-tetrahydro-1,2,3,4,5,10-hexachloroacenaphthene*, decomp. 160°, which, when heated with alc. KOH, loses 3 Cl atoms, while 4 Cl atoms are removed in alc. $AgNO_3$. Oxidation with $Na_2Cr_2O_7$ in AcOH 3-5 hrs. at reflux gave a polymer and a low yield of *4,5-dichloronaphthalic acid*, m. 327-8°, which heated with HgO in H_2O in an autoclave 6 hrs. to 210° gave a moderate yield of *4,5-dichloronaphthalene*, m. 88.5-9° (from EtOH). Since this m.p. does not agree with previous reports (83°), this material was also prepd. similarly from 4,5-dichloroacenaphthene, which yielded the product, m. 89°. The hexa-Cl deriv. (5 g.), in 50 ml. C_6H_6 refluxed 0.5 hr. with 3.8 g. KOH in 50 ml. EtOH yielded 2.6 g. *3,4,5-trichloroacenaphthylene* (I), m. 192-4° (crude), m. 197-8° (pure), which readily adds Br to its double bond. This (2.5 g.) oxidized with 13 g. $Na_2Cr_2O_7$ in AcOH 4 hrs. at reflux gave 1.15 g. *3,4,5-trichloronaphthalic acid*, which on crystn. from Ac_2O gave the *anhydride*, m. 219-21°. This heated in an autoclave with HgO and H_2O 6 hrs. at 205-10°, then refluxed with concd. HCl 3 hrs. gave after steam distn. 0.8 g. *2,4,5-trichloronaphthalene*, m. 89-9.5° (from EtOH). Treatment of 2 g. I in CCl_4 with the theoretical amt. of Cl over 3 hrs. gave 1 g. *3,4,5,9,10-pentachloroacenaphthene*, decomp. 157° (from C_6H_6), which (1 g.) refluxed 3 min. with 0.35 g. KOH in 40 ml. EtOH and 40 ml. C_6H_6 gave 0.75 g. orange *3,4,5,10-tetrachloroacenaphthylene*, m. 215-17°, while oxidation of the penta-Cl deriv. with $Na_2Cr_2O_7$ in AcOH gave *3,4,5-trichloronaphthalic acid*, m. 219-21°. The 2nd product of chlorination of acenaphthene is *3,4-dihydro-3,4,5,9,10-pentachloroacenaphthene* (II), decomp. 204-5° which loses 3 Cl atoms with alc. $AgNO_3$, while in alc. KOH, 2 atoms of Cl are cleaved. Oxidation yields *4,5-dichloronaphthalic acid*, m. 327-8° (from Ac_2O). Refluxing 1.65 g. II in 30 ml. C_6H_6 with 0.9 g. KOH in 25 ml. EtOH 15 min. gave 0.8 g. orange *3,5,10-trichloroacenaphthylene*, m. 165° (from C_6H_6), which readily adds Br to its double bond. Oxidation of this with $Na_2Cr_2O_7$-AcOH gave *3,5-dichloronaphthalic acid*, m. 373-4° (from Ac_2O); decarboxylation yields *3,5-dichloronaphthalene*, m. 82° (from AcOH). Oxidation with $KMnO_4$ of 4,5- and 3,5-dichloronaphthalic acids yields 4- and 5-*chlorohemimellitic acids*, resp. G. M. Kosolapoff

PETRENKO, G. P., and DASHERVSKIY , M. M.

On Some Polychloro Derivatives of Acenaphthene. II. page 638. Sbornik statey po obshchey khimii (Collection of Papers on General Chemistry), Vol 1, Moscow-Leningrad, 1953, pages 762-766.

Odessa Polytechnic Inst.

PETRENKO, G.P.

USSR/Chemistry - Organic chemistry

Card 1/1 Pub. 116 - 17/30

Authors : Dashevskiy, M. M., and Petrenko, G. P.

Title : About 4,5-dichloroacenaphthene and its oxidation products

Periodical : Ukr. khim. zhur. 21/3, 370-372, June 1955

Abstract : A new method for the oxidation of 4,5-dichloroacenaphthene into 4,5-dichloronaphthalic acid with a yield of 80 - 83% is briefly described. It was proven experimentally that the chlorination of acenaphthene with sulfuryl chloride in the presence of an aluminum chloride catalyst yields up to 75% of 4,5-dichloroacenaphthene plus small amounts of monochloroacenaphthene and tars. It was established that the yield of 4,5-dichloroacenaphthenequinone does not exceed 52% of the theoretical. Four USSR references (1934-1952).

Institution : Polytechnical Inst., Odessa

Submitted : January 19, 1955

PETRENKO, G.P.

Halogen substituted hemimellitic acids. M. M. Dashev-
skii and G. P. Petrenko (Odessa Polytech. Inst.). Zhur.
Obshchei Khim. 25, 1191-[illegible] (1955).—To 0.1 mole halo-

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naphthalic anhydride in warm 0.2 mole NaOH and 300-400
ml. H_2O was added a hot soln. of 0.6 mole $KMnO_4$ in 600 ml.
H_2O to maintain a vigorous reaction; after 2 hrs. on a steam
bath the excess $KMnO_4$ was decompd. with EtOH, the mixt.
filtered hot, the filtrate treated with 0.1 mole 20% H_2SO_4 and
then 0.06 mole $KMnO_4$ in 75 ml. H_2O, heated 0.25 hr. on a
steam bath, filtered hot, and the filtrate subjected to isolation
of the halohemimellitic acid. 4-Cl and 4-Br derivs. were
isolated by evapn. and extn. with Et_2O; the 5-isomers
formed concurrently were sepd. by sparing soly. of their
mono-K salts. The dihalo derivs. were sepd. by fractional
pptn. of Pb salts. The following are reported. *4-Chloro-
hemimellitic acid*, m. 187.5-[illegible]° (from aq. HCl) (heated to
180-[illegible]° it forms the *anhydride*, which heated with urea to

100° gave the *imide*, m. 265-6.5°); *5-chlorohemimellitic
acid*, m. 207°, forms sparingly sol. *mono-K salt* for which at
[illegible]° the soly. is 0.350 g. per 100 g. soln. (heating yields the
anhydride, which formed the *imide*, m. 220-1.5°, for which
the soly. at 15° is 0.1400 g. per 100 g.); *4,6-dichlorohemi-
mellitic acid*, m. 226-7°, forms a *dihydrate*; *4-bromohemi-
mellitic acid*, m. 198-201° (*Ag salt* reported; imide, m. 207-
8°, for which the soly. at 22° is 0.174 g. per 100 g. [illegible]
bromohemimellitic acid, m. 218-21° (soly. at 23° 1.03 g. per
100 g.), forms a *mono-K salt dihydrate* (soly. at 22° 0.[illegible] g.
per 100 g.) (the free *acid* forms a *monohydrate* and an *imide*,
m. 242°); *4,6-dibromohemimellitic acid* (by oxidation of
2,4,5-tribromonaphthalic anhydride), m. 195-7° (*imide*,
m. 275-7°). In oxidation the ring which is free of halogen
is attacked; if halogen is present in both rings of naphthalic
acid, that ring is attacked more rapidly which contains the
greatest no. of halogen atoms. Transfer of halogen from
p- to *m*-position in respect to CO_2H does not appear to affect
the ease of oxidation of the ring. 4-Halohemimellitic
acids are much more sol. in H_2O than the 5-isomers. Also in
J. Gen. Chem. U.S.S.R. 25, 1139-42(1955)(Eng. transla-
tion).

G. M. Kosolapoff

(1)

PETRENKO, G.P.

Petrenko, G. P

Mixed polyhalo substituted acenaphthenes. III. M. M. Dashevskiĭ and G. P. Petrenko (Polytech. Inst., Odessa). *Zhur. Obshchei Khim.* 25, 1378-82(1955); cf. *C.A.* 49, 988*c*.—To 100 g. 5-chloroacenaphthene in 125 ml. $CHCl_3$ was added in 0.5 hr. 70 ml. Br in 50 ml. $CHCl_3$; on the following day the pptd. mixt. of hexa- and pentahalo derivs. was sepd. and washed with petr. ether. Heating 107.9 g. of this mixt. in 770 ml. MePh and allowing the soln. to stand 2 days gave 71.5 g. pptd. *1,6,7,8,8a-pentabromo-5-chloro-6,7,8,8a-tetrahydroacenaphthene*, decomp. 154-6° (from MePh), in which the position of Br in 1- or 2-position was uncertain; the product readily decomps. on warming in air. Oxidation with $Na_2Cr_2O_7$ gave *4-chloronaphthalic acid*, isolated as the *anhydride*, m. 210-11°. Stirring the hexahalo deriv. with KOH in EtOH-C_6H_6 1 hr. at room temp. gave 11.5 g. crude, or 7 g. pure, *1,5-dibromo-6-chloroacenaphthalene*, m. 145° (from C_6H_6), which with $Na_2Cr_2O_7$ in AcOH gave *2,4-dibromo-5-chloronaphthalic anhydride*, m. 208-8.5°; this autoclaved at 220° with HgO-H_2O gave *2,4-dibromo-5-chloronaphthalene*, m. 130.5-40°, thus confirming the location of the last Br atom in position 1. The MePh mother liquor after sepn. of the hexahalide was evapd. yielding *4,5-dihydro-1,2,4,5-tetrabromo-6-chloroacenaphthene* (I), decomp. 155°, also obtained from the penta-Br deriv. by refluxing with AcOH. Oxidation of I with $Na_2Cr_2O_7$ also gave 4-chloronaphthalic anhydride, while stirring with KOH in EtOH-C_6H_6 at reflux 15 min. gave *1,7(or 4)-dibromo-5(or 6)-chloroacenaphthene*, m. 107-8° (from C_6H_6), which with $Na_2Cr_2O_7$ in AcOH gave *3-bromo-5-chloronaphthalic anhydride* (I), m. 205°, which decarboxylated as above to *1-chloro-7-bromonaphthalene*, m. 68-8.5°. Oxidation of I with $KMnO_4$ gave 6-bromohemimellitic acid (isolated as mono-K salt) and more sol. 4-chlorohemimellitic acid (isolated also as K salt), in a ratio such as to indicate more rapid oxidation of the ring contg. the Br atom. Also in *J. Gen. Chem. U.S.S.R.* 25, 1325-8(1955)(Engl. translation).

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PETRENKO, G.P.; TERENT'YEVA, G.N.

Oxidation of acenaphthene to naphthalic anhydride and fluorene to fluorenone on ferric vanadate. Zhur. prikl. khim. 38 no.5: 1109-1113 My '65. (MIRA 18:11)

1. Odesskiy politekhnicheskiy institut.

DASHEVSKIY, M.M.; PETRENKO, G.P.

Vapor phase oxidation of fluorene. Zhur.prikl.khim. 35 no.3:
693-696 Mr '62.
(MIRA 15:4)
(Fluorene) (Oxidation)

PETRENKO, G. P.

Cand Chem Sci - (diss) "Paraffin oxidation of acenaphthene." Odessa, 1961. 12 pp; (Ministry of Higher and Secondary Specialist Education of the Ukrainian SSR, Odessa Polytechnic Inst); 200 copies; price not given; bibliography at end of text (1[illegible] entries); (KL, 5-61 sup, 177)

25394
S/080/61/034/002/015/025
A057/A129

5 3300

AUTHORS: Dashevskiy, M.M., Petrenko, G.P.

TITLE: Dehydrogenation of acenaphthene

PERIODICAL: Zhurnal Prikladnoy Khimii, v 34, no 2, 1961, 391-395

TEXT: Vapor phase dehydrogenation of acenaphthene with and without
catalyst was investigated. Various diluents (nitrogen or carbon dioxide
gas, steam, or air) were used and a technically suitable catalytic method
with a Zn/Al catalyst was developed giving a yield of 90% of a product
containing 95-96% acenaphthylene. The latter is of interest for syntheses
of copolymers with special properties and thus for the production of
plastics. Some of the first syntheses of acenaphthylene were made by
K. Dziewonski, G. Rapalski (Ref 10, Ber., 45, 249 (1912)), and K. Dzie-
wonski, T. Stolyhwo (Ref 12, Ber., 57, 1540 (1924)), while later investi-
gations were carried out by J. Jones (Ref 13, J.Soc.Chem.Ind., 68, 225

Card 1/8

25394

S/080/61/034/002/015/025
A057/A129

Dehydrogenation of acenaphthene

surface (5-6 mm layer) and left to stand for 24 hrs at room temperature. Then 4-7 mm pieces were dried for 2-3 hrs at 125°C, and for 2-3 hrs at 600°C. After this the catalyst was treated for several hours with steam at the temperature of the experiment. The diagram of the device used for dehydrogenation experiments with this catalyst is presented in Fig 1. Hot water was passed through the cooler (5) to avoid obstruction of the outlet. The present authors consider it unnecessary to pass acenaphthene vapors with a corresponding diluent as it is suggested in the German patent 921989, CBI 5424 (1959). The second cooler was water-cooled. In each experiment 30 - 100 g acenaphthene were used and the duration varied from 15 - 120 min. Some of the obtained results are presented in Tab. 2. Considerable effect of temperature was observed (Fig 2). The drop in acenaphthylene content above 600°C is explained by an increase of side reactions, i.e., formation of naphthalene methylnaphthalene etc. An essential effect on dehydrogenation is exercised by the contact time. There are 2 figures, 2 tables and 17 references: 4 Soviet-bloc, 13 non-Soviet-bloc.

Card 3/8

25394
S/080/61/034/002/015/025
A057/A129

Dehydrogenation of acenaphthene

ASSOCIATION: Odesskiy politekhnicheskiy institut (Odessa Polytechnic Institute)

SUBMITTED: February 5, 1960

Card 4/8

SHISHKOV, A.I., kand.tekhn.nauk; KUR'YAN, A.I., kand.tekhn.nauk; [illegible],
G.I., inzh.

Calculation of static mechanical characteristics of an asynchronous motor with saturable reactors in the stator circuit. Elektrichestvo no.9:92-93 S '60. (MIRA 13:10)
(Electric motors, Induction)

PETRENKO, G.P.; TERENT'YEVA, G.N.

Determination of fluorenone and phthalic acid in the product of vapor-phase oxidation of fluorene. Zhur.anal.khim. 18 no.8: 1012-1015 Ag '63. (MIRA 16:12)

1. Odessa Polytechnical Institute.

DASHEVSKIY, M.M.; PETRENKO, G.P.

Dehydrogenation of acenaphthene. Zhur. prikl. khim. 34 no.2:391-395 F '61. (MIRA 14:2)

1. Odesskiy politekhnicheskiy institut.
(Acenaphthene) (Dehydrogenation)

SHISHKOV, A.I., kand.tekhn.nauk; KUR'YAN, A.I., kand.tekhn.nauk;
PETRENKO, G.P., inzh.

Calculating the mechanical characteristics of an asynchronous motor considering the nonlinearity of the saturation throttle in stator circuits. Izv.vys.ucheb.zav.; gor.zhur. no.11:171-178 '60. (MIRA 13:12)

1. Dnepropetrovskiy ordena Trudovogo Krasnogo Znameni gornyy institut imeni Artema. Rekomendovana kafedroy gornoy elektrotekhniki Dnepropetrovskogo gornogo instituta.
(Electric motors, Induction)

5(3)

SOV/80-32-5-34/52

AUTHORS: Petrenko, G.P., Dashevskiy, M.M.

TITLE: The Oxidation of Acenaphthene to Naphthalic Anhydride

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 5, pp 1126-1132 (USSR)

ABSTRACT:

The vapor-phase oxidation of acenaphthene to naphthalic anhydride is studied here. The oxidation was carried out by air at 320 - 435°C over vanadium catalysts and manganese dioxide. Vanadium pentoxide as catalyst produces a mixture of acenaphthilene with unreacted acenaphthene. At an increased air supply naphthalic anhydride may be present to the maximum amount of 29%. The addition of potassium sulfate to the catalyst raises its activity and with the increase of the temperature the yield of naphthalic anhydride rises sharply. Naphthalic anhydride is the principal product of the reaction, if the air supply is sufficient. The oxidation of acenaphthene over manganese peroxide leads to a yield of 28 - 30% acenaphthilene at 325°C. The highest yield of naphthalic anhydride is obtained with a catalyst of iron vanadate with potassium sulfate at 350 - 370°C and a volume ratio acenaphthene : air = 1 : 100. The time of contact is 2.9 sec. The yield of anhydride is 75 - 80% of the theoretical.

Card 1/2

The Oxidation of Acenaphthene to Naphthalic Anhydride SOV/80-32-5-34/52

There are 3 graphs, 2 tables, 1 diagram and 16 references, 1 of which is Soviet, 5 American, 4 English, 3 German, 1 French, 1 Swiss and 1 Italian.

SUBMITTED: January 8, 1958

Card 2/2

5 (3)

AUTHORS: Dashevskiy, M. M., Petrenko, G. P. SOV/75-14-3-26/29

TITLE: Quantitative Determination of Acenaphthylene (Kolichestvennoye opredeleniye atsenaftilena)

PERIODICAL: Zhurnal analiticheskoy khimii, 1959, Vol 14, Nr 3, pp 375-377 (USSR)

ABSTRACT: The authors investigated several methods which are based either on the unsaturated constitution of the acenaphthylene or on its intense yellow coloration without having obtained satisfactory results. Finally a gravimetric method was found which is characterized by the fact that acenaphthylene forms a sparingly soluble polymer under the influence of strong acids (sulfuric acid with glacial acetic acid). Table 1 presents the determination results for mixtures of acenaphthylene and acenaphthene. The results which are not quite precise can be corrected by means of a calibration curve when strictly proceeding according to the analysis directions. Simpler is the colorimetric method in which the acenaphthylene is distilled rapidly in low absolute pressure (in order to avoid resinification) and investigated photometrically in the monochromator UM-2. A figure shows the

Card 1/2

Quantitative Determination of Acenaphthylene SOV/75-14-3-26/29

dependence of the optical density on the concentration of the acenaphthylene. Table 2 presents the determination results which show a maximum error of 1 %. There are 1 figure, 2 tables, and 5 references, 2 of which are Soviet.

ASSOCIATION: Odesskiy politekhnicheskiy institut (Odessa Polytechnical Institute)

SUBMITTED: March 7, 1958

Card 2/2

SOV/105-58-9-9/34

AUTHORS: Shafranov, V. P., Shishkov, A. I., Fursov, V. D., Petrenko, G. P.

TITLE: Large-Scale Testing of an Overburden Stripping Dragline Excavator Having a New Electric Drive System (Promyshlennyye ispytaniya vskryshnogo kanatno-kovshovogo ekskavatora s novoy sistemoy elektroprivoda)

PERIODICAL: Elektrichestvo, 1958, Nr 9, pp 43 - 46 (USSR)

ABSTRACT: Since 1946, dragline excavators of type ESh-4/40 (boom length 40 m, bucket capacity 4 cu.m) which are used in open pit coal and ore mining have been produced by the Soviet industry. Up to 1955, induction motors with phase rotors were used as a drive. However, a smooth starting or braking, and the flexibility required for changing load, could not be achieved with them. Therefore, production of an excavator of the same type but with a generator-motor drive, the generator being provided with three windings was taken up by the Novokramatorskiy mashinostroitel'nyy zavod (Novokramatorskiy factory for machine construction). This, however, involved substantially higher costs of electric equipment, and made an increase of the output of the power transformer

Card 1/3

Large-Scale Testing of an Overburden Stripping Dragline SOV/105-58-9-9/34
Excavator Having a New Electric Drive System

necessary. Since 1957, these excavators have been manufactured with a new type of drive using induction motors. At the above-mentioned factory five of these excavators were produced in 1957, and in the same year one of these, viz., the excavator Nr 153, was tested under the direction of N.Ye.Kuvayev, university teacher at the department for mining electrical engineering of the association given below, in the Razdolskiy sernyy kombinat (Razdol sulphur trust). The main results of these tests are given here. As they show, the technical and operating data have been substantially improved by the new technical solutions found. New features were: Use of saturated reactors in the stator circuit of the reversible motor, inductive reactances in the rotor circuit of the main winch drive motor, and singlephase braking of that motor. There are 6 figures.

ASSOCIATION: Dnepropetrovskiy gornyy institut (Dnepropetrovsk Mining Institute)

SUBMITTED: January 22, 1958

Card 2/3

PETRENKO, G.P.

Electric drive on drills for deep core boring of prospect holes.
Izv.DGI 28:105-120 '58. (MIRA 11:10)
(Boring machinery--Electric driving)

SHAFRANOV, V.P.; SHISHKOV, A.I.; FURSOV, V.D.; PETRENKO, G.P.

Industrial testing of a capping cable-bucket excavator equipped with a new electric driving system. Elektrichestvo no.9:43-46 S '58. (MIRA 11:10)

1. Dnepropetrovskiy gornyy institut.
(Excavating machinery--Electric driving)

KOVALEV, A.F., kand. tekhn. nauk; KRYLOV, Ye.G.; PETRENKO, G.T.

Effectiveness of automation in Krivoy Rog Basin mines. Met.
i gornorud. prom. no.[illegible]:51-5[illegible] [illegible] (MIRA [illegible])

PETRENKO, G.Ya., kandidat sel'skokhozyaystvennykh nauk.

Shortcomings in the production and use of bacterial fertilizers. Zemledelie 4 no.8:73-79 Ag '56. (MIRA 10:1)

1. Zonal'nyy nauchno-issledovatel'skiy institut zernobogo khozyaystva nechernozemnoy polosy.

(Fertilizers and manures)

PETRENKO, G.Ya.

Factors influencing the results of symbiotic interrelationships of Azorobacter with higher plants. Trudy Inst. mikrobiol. no.11: 111-129 '61 (MIRA 16:11)

1. Nauchno-issledovatel'skiy institut sel'skogo khozyaystva tsentral'nykh rayonov nechernozemnoy zony.

*

PETRENKO, G. Ya.

Petrenko, G. Ya. - "Productional significance of azotobacter preparations,"
Trudy Nauch.-issled. in-ta zernovogo khoz-va nechernozem.
polosy SSSR, Issue 14, 1949, p. 45-78 --- Bibliog: p. 78

So: U-3566, 15 March 53, (Letopis 'Zhurnal 'nykh Statey, No. 13, 1949)

PETRENKO, I.

Operation of VMA single-column diffusers [Zucker--Beihefte 2 no.3 '53.] Sakh.prom. 28 no.6:42-43 '54. (MLRA 7:11)
(Sugar industry--Equipment and supplies)

PETRENKO, L. **(Kirovograd)**

"Flying motorcycle." Nauka i zhyttia 11 no.9:50 S '61.
(MIRA 14:10)

(Flying-machines)

PETRENKO, F.F., kandidat tekhnicheskikh nauk.

The UVG-1 machine for drying hydro peat. Torf.prom.33 no.4:20-22 '56.
(MLRA 9:9)

1.Vsesoyuznyy nauchno-issledovatel'skiy institut torfyanoy promyshlennosti. (Peat machinery)

PETRENKO, I.

The auditing department should be independent. Sov. torg. 36 no.3: 39-40 Mr '63. (MIRA 16:3)

1. Nachal'nik kontrol'no-revizionnogo otdela upravleniya torgovli Kiyevskogo gorodskogo ispolnitel'nogo komiteta.
(Kiev—Retail trade—Auditing and inspection)

PETRENKO, I.A.

Interrelations of some species of house fungi in a mixed culture.
Trudy Inst. lesa i drev. 65:95-104 '63. (MIRA 16:10)

LIDOV, V.P.; NADEZHDINA, M.V.; PETRENKO, I.A.

Effect of light on the development of steppe vegetation in
forest stands under conditions prevailing in West Kazakhstan
Province. Vop.geog. no.48:223-241 '60. (MIRA 13:7)
(West Kazakhstan Province—Forest ecology)
(Plants, Effect of light on)

PETRENKO, I. G.

PROCESSES AND PROPERTIES INDEX

The alkali-forming variants of Eberth's bacillus. I. G. Petrenko and S. L. Mitelman. *Z. Mikrobiol. Epidemiol. Immunitätsforsch.* (U. S. S. R.) 17, 218-23(in German 223) (1936).—Of 156 cultures of Eberth's bacillus isolated in a recent epidemic, 6 were alkali-forming variants. They were capable of coagulating milk and developing an alk. reaction. They were also capable of assimilating N from NH_4 salts in the presence of citric and lactic salts (ammonia-pos. variants), even after long storage and dissocn., thus resembling organisms of the paratyphus B group.

S. A. Karjala

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PETRENKO, Ivan Gavrilovich; KASATOCHKIN, V.I., doktor khim. nauk, prof., otv. red.; [illegible] SHISHKOV, [illegible], tekhn. red.

[Isotopes in the geochemistry of caustobioliths]Izotopy v geokhimii kaustobiolitov. Moskva, Izd-vo Akad. nauk SSSR, 1962. 85 p. (MIRA 15:12)

(Caustobioliths—Analysis) (Isotopes)

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

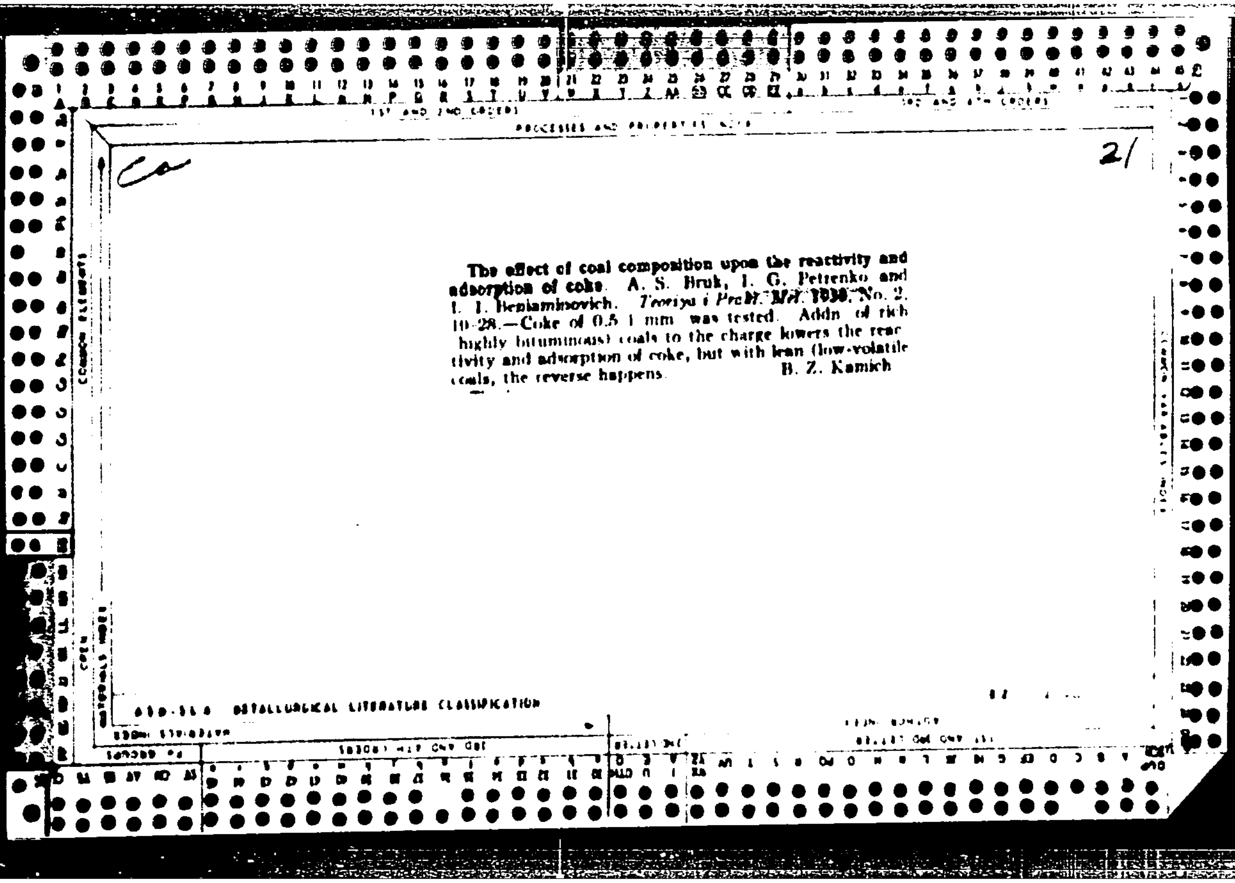
Co

7

Determination of volatile matter in coke for electrodes. M. E. Neimark and I. G. Petrenko. *Coke & Chem.* (U. S. S. R.) 4, No. 8, 66-9(1934); *Chimie & industrie* 34, 302.—The method is based on the calcination of the coke in vacuum. The sample in a Pt crucible is introduced into a test tube which is exhausted to a pressure of 2 mm. of Hg; the tube is then inserted to a definite depth in a Pt-resistance elec. furnace heated to a definite temp. (950-1100°) where it is allowed to remain for 2-30 min.; the tube is withdrawn from the furnace, allowed to cool, air is cautiously allowed to enter and the crucible is weighed.

A. Papineau-Cout

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Ca

21

The effect of coal composition upon the reactivity and adsorption of coke. A. S. Bruk, I. G. Petrenko and I. I. Beniaminovich. *Teoriya i Prakt. Met.* 1938, No. 2, 10-28.—Coke of 0.5-1 mm. was tested. Addn. of rich (highly bituminous) coals to the charge lowers the reactivity and adsorption of coke, but with lean (low-volatile) coals, the reverse happens.

B. Z. Kamich

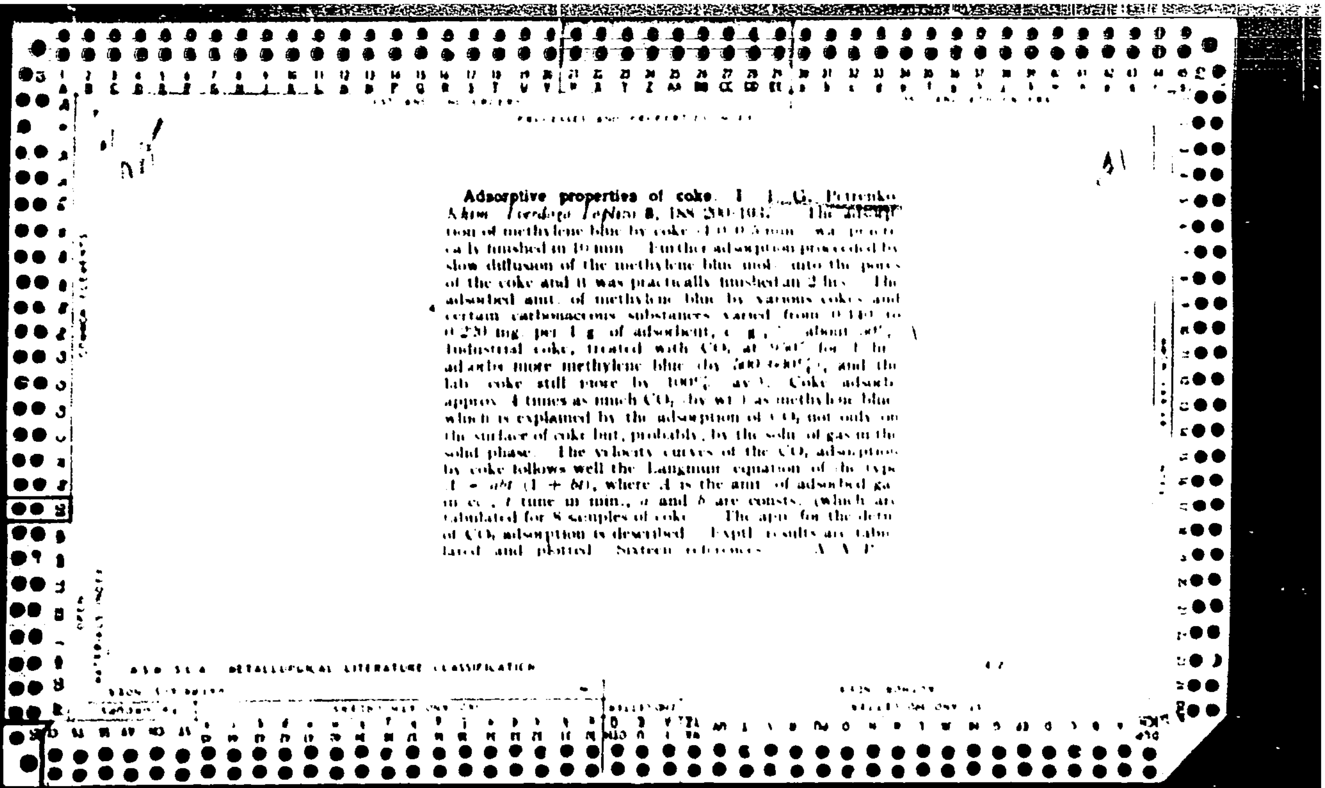
1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

Determination of reactivity of coke I. G. Petrenko. Coke and Chem. (U. S. S. R.) 6, No. 10, 61-5(1936). Pure CO_2 is passed through a layer of powd. coke at 950° and the CO content of the resulting gas detd.; the reactivity is given by $200a/(2b + a)$, where a is vol.-% CO in the issuing gas and b its CO_2 content. B. C. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

Adsorptive properties of coke. I. I. G. Petrenko. *Khim. Tverdogo Topliva* **8**, 188 200-103. The adsorption of methylene blue by coke (1.0-0.5 mm.) was practically finished in 10 min. Further adsorption proceeded by slow diffusion of the methylene blue mols. into the pores of the coke and it was practically finished in 2 hrs. The adsorbed amt. of methylene blue by various cokes and certain carbonaceous substances varied from 0.140 to 0.250 mg. per 1 g. of adsorbent, e. g., at about 30°. Industrial coke, treated with CO_2 at 950° for 1 hr. adsorbs more methylene blue (by 300-600%), and the lab. coke still more by 100% av.). Coke adsorbs approx. 4 times as much CO_2 (by wt.) as methylene blue which is explained by the adsorption of CO_2 not only on the surface of coke but, probably, by the soln. of gas in the solid phase. The velocity curves of the CO_2 adsorption by coke follows well the Langmuir equation of the type $A = abt/(1 + bt)$, where A is the amt. of adsorbed gas in cc., t time in min., a and b are consts. (which are calculated for 8 samples of coke. The app. for the detn. of CO_2 adsorption is described. Exptl. results are tabulated and plotted. Sixteen references. A. A. P.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND CODERS

3RD AND 4TH CODERS

PROCESSES AND PROPERTIES INDEX

Ca

COMMON ELEMENTS

Use of x-rays to study the fissures and foreign inclusions of coke. M. A. Levashevich, I. G. Petrenko and N. N. Podosinnikov. *Zavodskaya Lab.* 9, 1122-5(1940).—X-ray diagrams of coke were obtained by means of a Coolidge tube with a W anticathode, an e. m. f. of 60-70 kv. and current of 5 ma. Distance from focus of tube to object was 45 cm. Exposure was 5-10 min. depending on thickness. As a rule the transverse cracks both inside and on the "surface" were greater than the longitudinal and the latter were deeper. Ash inclusions of 0.1 sq. cm. and larger were calcd. The cracks in the coke increased with increasing amt. of inclusions but this was not true for all specimens.

B. Z. Kamich

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

B

19

The Physico-Chemical Basis of Coal Packing for Coking. Parts I and II. A. A. Agroskin and I. G. Petrenko. *Journal of Applied Chemistry* (U.S.S.R.), v. 19, nos. 5 and 6, 1946, p. 461-488. (In Russian.)

In Part I, the wetting of coal by different liquids is investigated. Curves of impregnation rate are presented, and a general equation and an "index of impregnation" are derived from the curves. In Part II, a method is described for determination of the angle of repose of the coal charge in the coke ovens. Dependence of this angle on heighth of coal inlet above the bed and amount dropped per unit of time, and also on addition of water or kerosene was investigated. 15 ref.

COMMON ELEMENTS

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

Ca

21

Physicochemical bases for packing of coal for coking. I. Kinetics of saturation of coal layer by organic liquids. A. A. Agroskin and I. G. Petrenko. *J. Applied Chem.* (U.S.S.R.) **19**, 461-76(1946)(in Russian).—The rate of wetting (satn.) of a layer of coal particles by org. liquids is expressed by a parabola of the type $h = at^n$, where h is the height of the liquid in cm., t = time in min., and n and a are consts. For nonpolar liquids n ranges from 0.4 to 0.3 and log a from 0.7 to 0.25. The results are presented graphically. The satn. increases with increased polydispersion of the coal; increase of density of the coal layer at a given dispersion leads to decreased satn. rate. Oxidized coal, having O film surfaces, gave lower satn. rate by nonpolar liquids. Nonpolar aromatic hydrocarbons gave the highest rate of satn., followed in order by light petroleum fractions and O-contg. liquids. Coal in the middle stages of carbonization gave the highest satn. rates. Coal which has a high order of adsorption was shown to lose the adsorbed gases by their displacement with the org. liquids. **II. Angles of natural gradient of a coal charge.** *Ibid.* 477-88.—The relation of the natural gradient angle of coal to the introduction of water or kerosene into the coal layer was studied. Increase of the liquid content to 14% led to a steady rise of the gradient. The effect is considered from the viewpoint of coeff. of friction and the presence of adsorptive and solvated surfaces of the coal particles. G. M. Kosolapoff

ASO-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND COURSES

PROCESSES AND PROPERTIES INDEX

21

21

Selective wetting of coal. A. A. Agroskin and I. G. Petrenko. *J. Applied Chem.* (U.S.S.R.) **19**, 737-48 (1946)(in Russian).—Contact angles θ were detd. at the boundaries coal-water-air and coal-water-org. liquid by projecting the contours of the drop with a 10,000-fold magnification. Drops of $C_6H_4(CH_3)_2$, $C_6H_5CH_3$, C_6H_6, gasoline, kerosene, deposited on polished coal immersed in water, showed a neg. wettability $B = \cos \theta$, the org. liquid failing to displace the water, the energy necessary to overcome the hysteresis is higher than the energy liberated in wetting. Alternation of the order of deposition of water and of the org. liquid showed the hysteresis to act in both ways, and to be of the order $\Delta \cos \theta = 0.5$ for water-kerosene. Hydrophilic or hydrophobic character of the coal depends on whether water or an org. liquid has been deposited first. Expts. consisting in depositing, at discrete points of the surface, drops of water and of hydrocarbon, resulting in a spreading of the latter, and tilting the sample, confirmed the formation of a film of hydrocarbon on the water surface. Owing to hysteresis, a water drop hanging vertically from a polished coal surface was not torn off by a spreading kerosene film, despite the equil. gain in surface energy (26.7-12.4 = 14.3 ergs/sq cm.)

N. Thon

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

AGROSKIN, A.A.; GRIGOR'YEV, S.M.; ZAGREBEL'NAYA, V.S.; LOSKUTOVA, Ye.N.;
PETRENKO, I.G.; PITIN, R.N.; CHIZHEVSKIY, N.P., akademik, otvetstvennyy redaktor; VOROVITSKIY, I.B., redaktor; AUZAN, N.P., tekhnicheskiy redaktor

[Increase of the weight of coal per cubic meter by microadditives of liquid hydrocarbon; a collection of articles] Uvelichenie nasypnogo vesa uglia mikrodobavkami uglevodorodnykh zhidkostei; sbornik rabot. Moskva, Izd-vo Akademii nauk SSSR, 1947. 398 p.
(Coke) (Coal) (MLRA 9:9)

AGROSKIN, A.A.; GRIGOR'YEV, S.M.; PETRENKO, I.G.

Effect of the weight of the bulk density of coal on the properties of the coke produced. Izv.AN SSSR Otd.tekh.nauk no.2:205-214 '47. (MLRA 6:12)

1. Energeticheskiy institut im. G.M.Krzhizhanovskogo Akademii nauk SSSR.
2. Predstavleno akademikom N.P.Chizhevskim. (Coal--Carbonization)