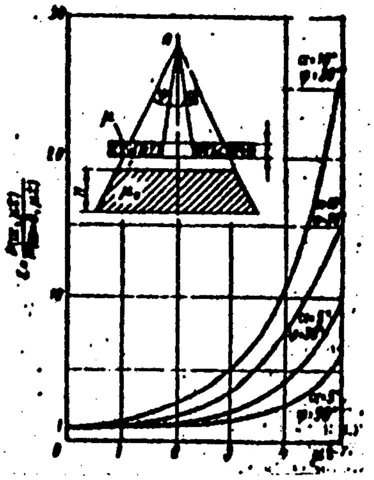
between channel axis and shield plane. For lead, steel and water and Co^{60} γ-rays (1.25 Mev) the theoretical results were partly compared with experimental data. For θ=90° agreement was close, for 60° a divergence was observed due to γ-ray reflections from the channel walls. There are 8 figures.

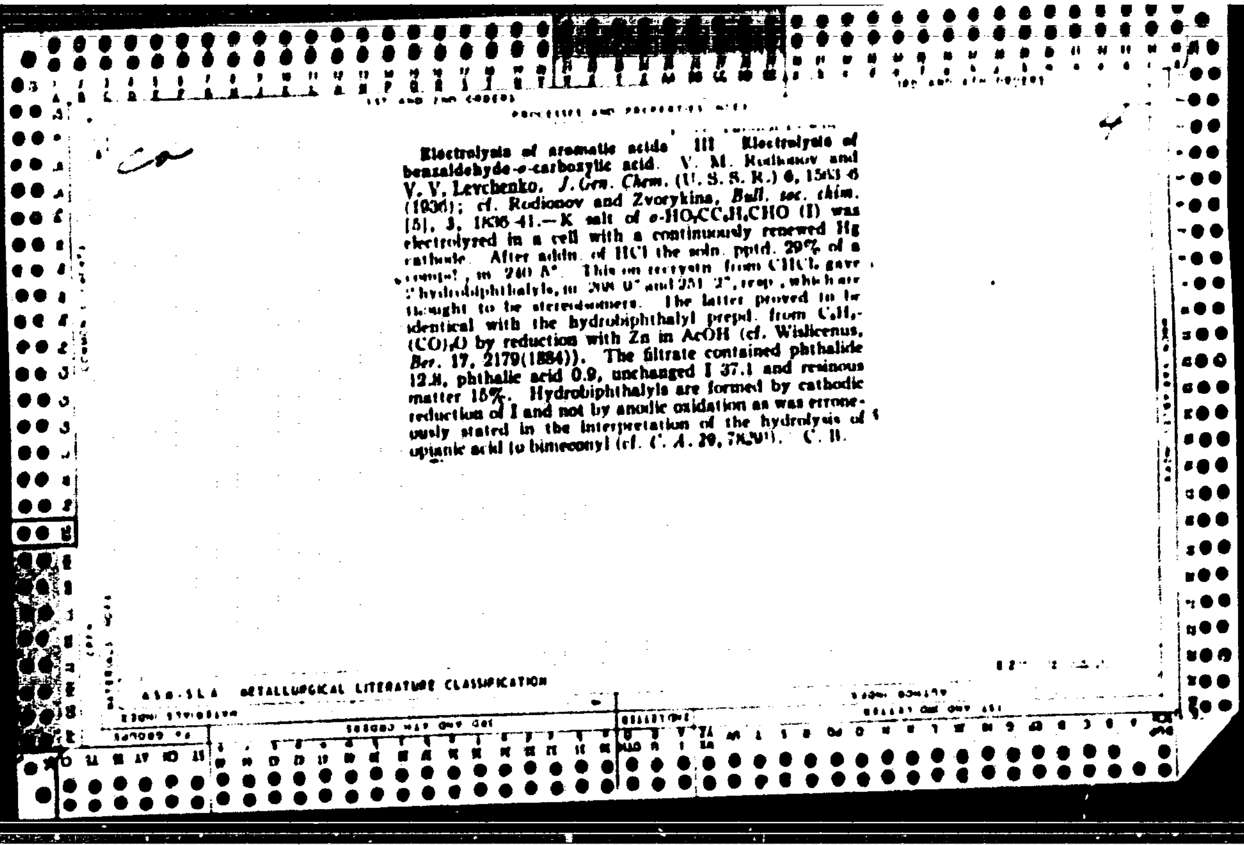
Fig. 1



Card 3/3

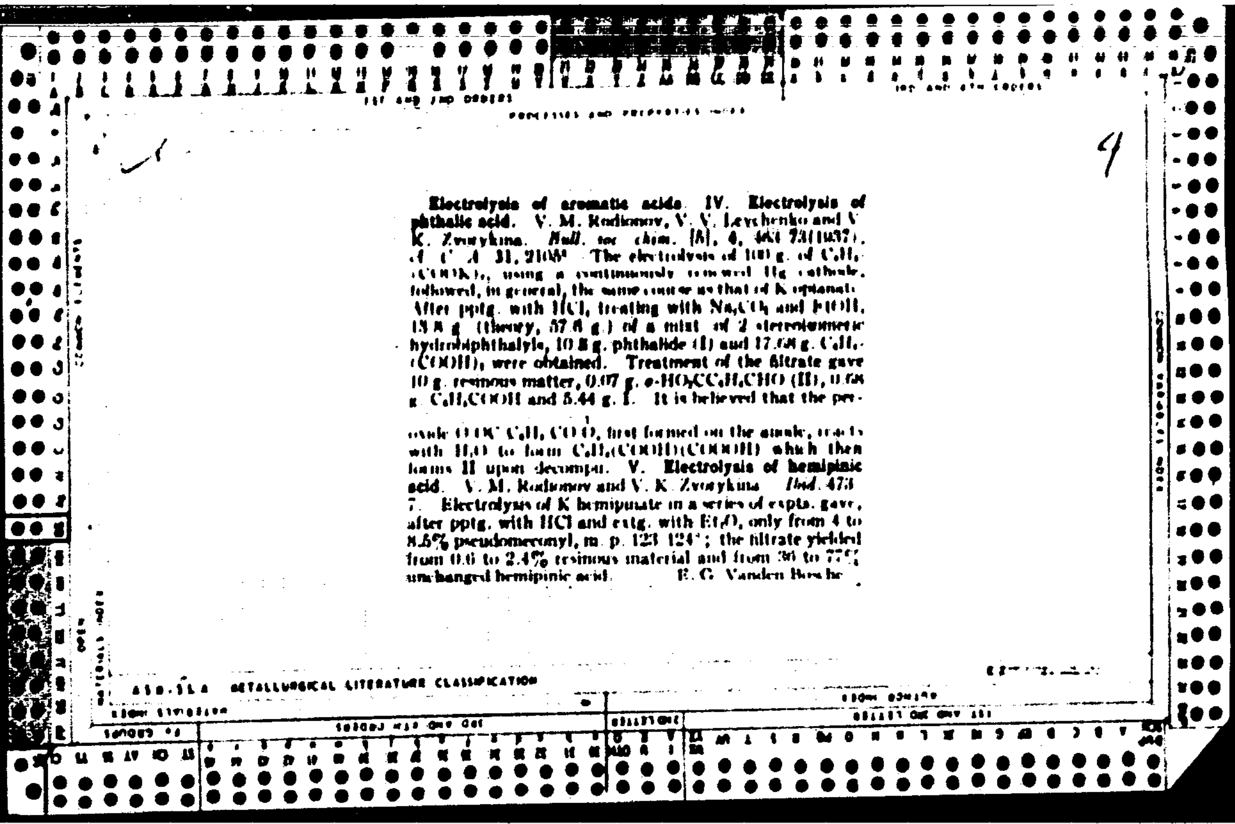
LEVCHENKO, V.V.

Calculating studs for sealing units of hydraulic cylinders of special-purpose presses. Sbor. Novo-Kram. mashinostroi. zav. no.3:112-121 '59. (MIRA 17:1)



Electrolysis of aromatic acids. III. Electrolysis of benzaldehyde-o-carboxylic acid. V. M. Rodionov and **V. V. Levchenko.** *J. Gen. Chem.* (U. S. S. R.) 6, 1563-6 (1936); cf. Rodionov and Zvorykina, *Bull. soc. chim.* [5], 3, 1836-41.—K salt of o-$HO_2CC_6H_4CHO$ (I) was electrolyzed in a cell with a continuously renewed Hg cathode. After addn. of HCl the soln. pptd. 29% of a compd., m. 240.5°. This on recrystn. from $CHCl_3$ gave 2 hydrobiphthalyls, m. 208.0° and 251.2°, resp., which are thought to be stereoisomers. The latter proved to be identical with the hydrobiphthalyl prepd. from $C_6H_4(CO)_2O$ by reduction with Zn in AcOH (cf. Wislicenus, *Ber.* 17, 2179(1884)). The filtrate contained phthalide 12.8, phthalic acid 0.9, unchanged I 37.1 and resinous matter 15%. Hydrobiphthalyls are formed by cathodic reduction of I and not by anodic oxidation as was erroneously stated in the interpretation of the hydrolysis of opianic acid to bimeconyl (cf. *C. A.* 29, 7830¹). C. B.

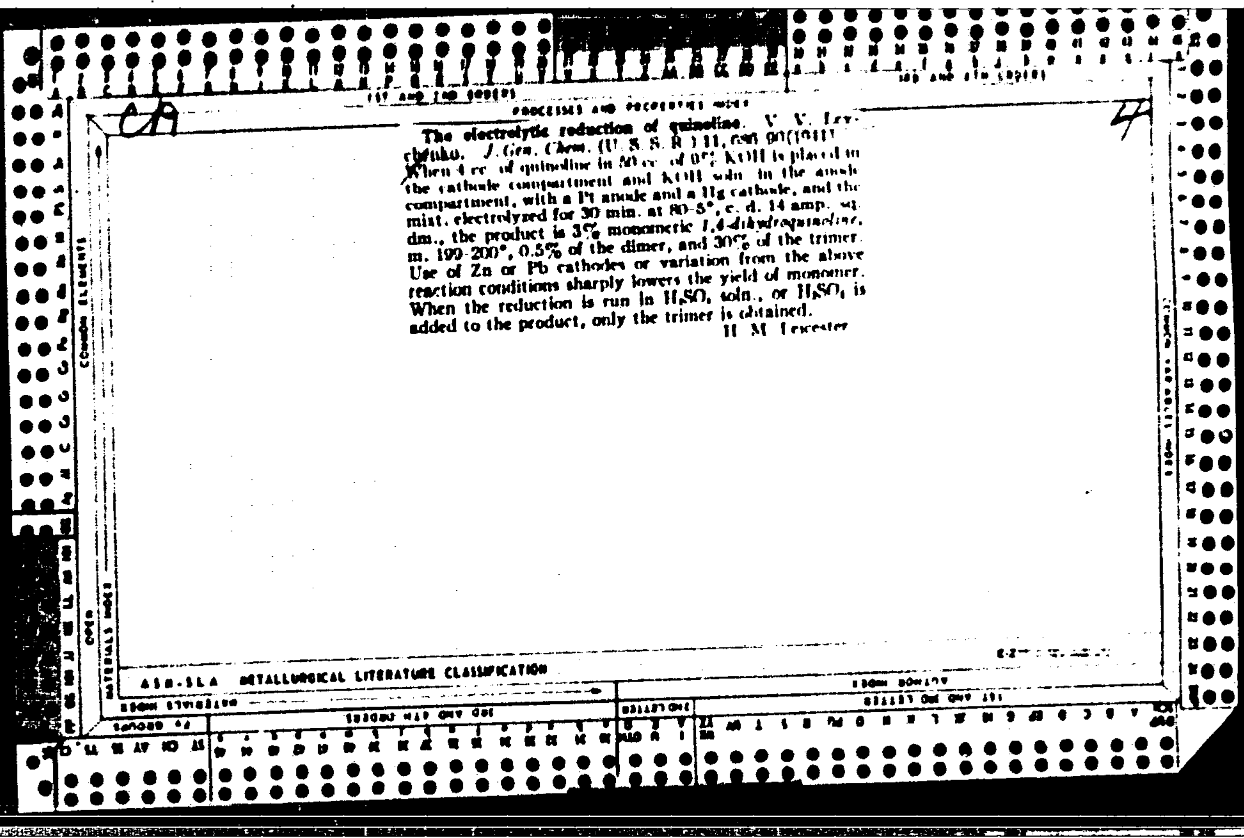
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



4

Electrolysis of aromatic acids. IV. Electrolysis of phthalic acid. V. M. Rodionov, V. V. Levchenko and V. K. Zvorykina. *Bull. soc. chim.* [5], 4, 463-73(1937); cf. C. A. 31, 2108[1]. The electrolysis of 100 g. of $C_6H_4(COOK)_2$, using a continuously renewed Hg cathode, followed, in general, the same course as that of K opianate. After pptg. with HCl, treating with Na_2CO_3 and EtOH, 13.8 g. (theory, 57.6 g.) of a mixt. of 2 stereoisomeric hydrodiphthalyls, 10.8 g. phthalide (I) and 17.68 g. $C_6H_4(COOH)_2$ were obtained. Treatment of the filtrate gave 10 g. resinous matter, 0.07 g. $o\text{-}HO_2CC_6H_4CHO$ (II), 0.68 g. C_6H_5COOH and 5.44 g. I. It is believed that the peroxide $(OOC\,C_6H_4\,COO)$, first formed on the anode, reacts with H_2O to form $C_6H_4(COOH)(COOOH)$ which then forms II upon decompn. **V. Electrolysis of hemipinic acid.** V. M. Rodionov and V. K. Zvorykina. *Ibid.* 473-7. Electrolysis of K hemipinate in a series of expts. gave, after pptg. with HCl and extg. with Et_2O, only from 4 to 8.5% pseudomeconyl, m. p. 123-124°; the filtrate yielded from 0.6 to 2.4% resinous material and from 36 to 77% unchanged hemipinic acid. E. G. Vanden Bosche

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

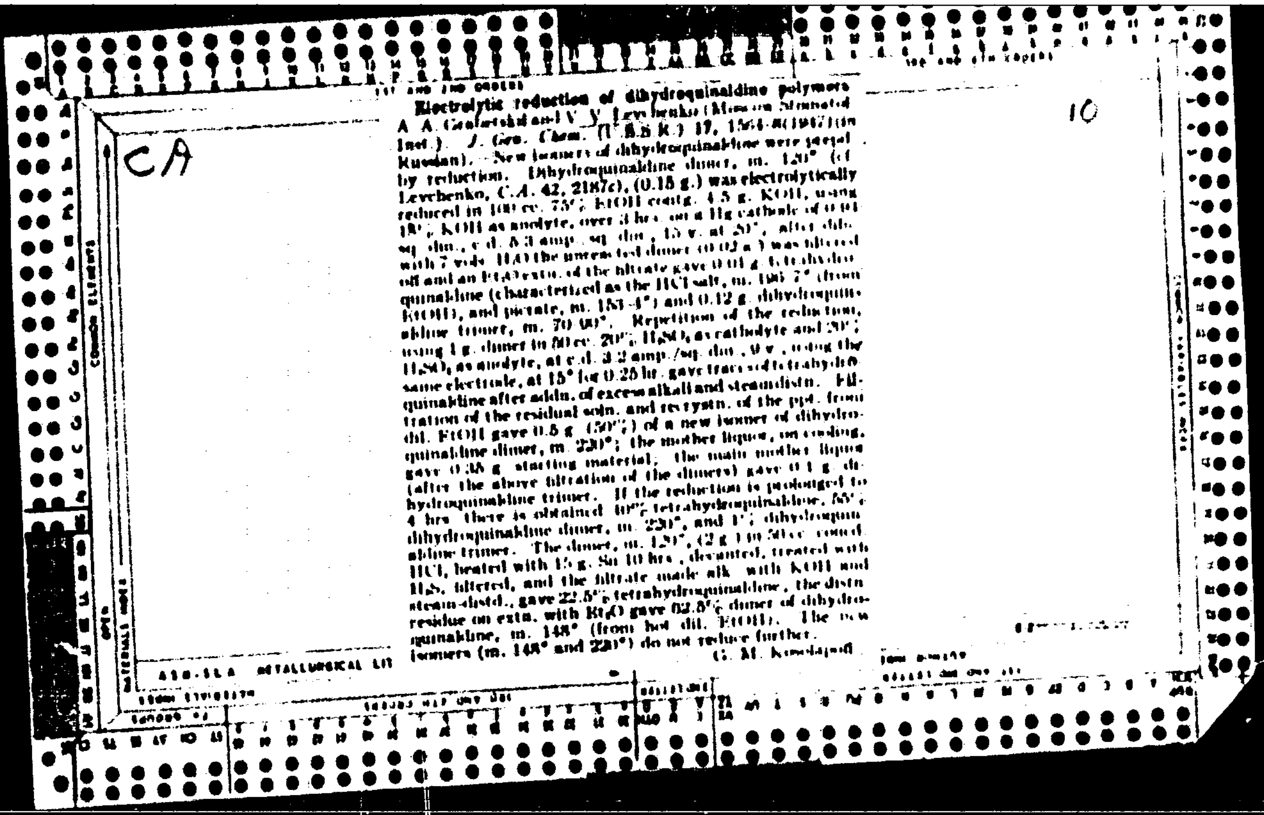
4

PROCESSES AND PROPERTIES INDEX

The electrolytic reduction of quinoline. V. V. Levchenko. *J. Gen. Chem.* (U. S. S. R.) 11, 693-8(1941). When 4 cc. of quinoline in 50 cc. of 0% KOH is placed in the cathode compartment and KOH soln. in the anode compartment, with a Pt anode and a Hg cathode, and the mixt. electrolyzed for 30 min. at 80-5°, c. d. 14 amp. sq. dm., the product is 3% monomeric *1,4-dihydroquinoline*, m. 199-200°, 0.5% of the dimer, and 30% of the trimer. Use of Zn or Pb cathodes or variation from the above reaction conditions sharply lowers the yield of monomer. When the reduction is run in H_2SO_4 soln., or H_2SO_4 is added to the product, only the trimer is obtained.

H. M. Leicester

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

10

Electrolytic reduction of dihydroquinaldine polymers. A. A. [illegible] and V. V. Levchenko (Moscow [illegible] Inst.). *J. Gen. Chem.* (U.S.S.R.) 17, 1564-8(1947)(in Russian).—New isomers of dihydroquinaldine were isolat[ed] by reduction. Dihydroquinaldine dimer, m. 120° (cf. Levchenko, *C.A.* 42, 2187c), (0.15 g.) was electrolytically reduced in 100 cc. 75% EtOH contg. 4.5 g. KOH, using 18% KOH as anolyte, over 3 hrs. on a Hg cathode of 0.01 sq. dm., c.d. 5.3 amp./sq. dm., 15 v. at 20°; after diln. with 7 vols. H_2O the unreacted dimer (0.02 g.) was filtered off and an Et_2O extn. of the filtrate gave 0.01 g. tetrahydroquinaldine (characterized as the HCl salt, m. 195-7° (from EtOH), and picrate, m. 153-4°) and 0.12 g. dihydroquinaldine trimer, m. 70-80°. Repetition of the reduction, using 1 g. dimer in 50 cc. 20% H_2SO_4 as catholyte and 20% H_2SO_4 as anolyte, at c.d. 3.2 amp./sq. dm., 9 v., using the same electrode, at 15° for 0.25 hr. gave traces of tetrahydroquinaldine after addn. of excess alkali and steam distn. Filtration of the residual soln. and recrystn. of the ppt. from dil. EtOH gave 0.5 g. (50%) of a new isomer of dihydroquinaldine dimer, m. 220°; the mother liquor, on cooling, gave 0.35 g. starting material; the main mother liquor (after the above filtration of the dimers) gave 0.1 g. dihydroquinaldine trimer. If the reduction is prolonged to 4 hrs. there is obtained 10% tetrahydroquinaldine, 65% dihydroquinaldine dimer, m. 220°, and 1% dihydroquinaldine trimer. The dimer, m. 120°, (2 g.) in 50 cc. concd. HCl, heated with 15 g. Sn 10 hrs., decanted, treated with H_2S, filtered, and the filtrate made alk. with KOH and steam-distd., gave 22.5% tetrahydroquinaldine; the distn. residue on extn. with Et_2O gave 62.5% dimer of dihydroquinaldine, m. 148° (from hot dil. EtOH). The new isomers (m. 148° and 220°) do not reduce further.

G. M. Kosolapoff

4

Electrolytic reduction of quinaldine. I. Electrolytic reduction of quinaldine in acid medium. V. V. Levchenko (Moscow Stomatol. Inst.). *J. Gen. Chem.* (U.S.S.R.) 17, 1656-8(1947)(in Russian).—Electrolytic reduction of quinaldine in acid medium yields not only the trimer of dihydroquinaldine, described by Ahrens (*Z. Elektrochem.* 2, 577(1895)), but also a dimer of dihydroquinaldine identical with that obtained by chem. reduction of quinaldine by Heller and Sourlis (*C.A.* 2, 3352). Quinaldine (42 g.) was reduced in 4 2-g. portions in 50 cc. 20% H_2SO_4 as catholyte, with 20% H_2SO_4 as anolyte, with a porous diaphragm and pure Hg cathode and Pt anode at 5.3 amp./sq.dm., 10 v. at 20 2° for 1 hr. On completion of the reduction the soln. was dild. with water to 500 cc. to give 7.1% cryst. solid, identified as Geller's dimer, m. 177-8° (from dil. EtOH). Diln. of the EtOH mother liquor to 5 vols. gave a further small amt. of the same material. The catholyte filtrate was concd. after further acidification, then made alk. to give 17.0% original quinaldine contaminated with some tetrahydroquinaldine (sepd. by steam distn.). The steam-distn. residue was extd. with Et_2O to give 2.2 g. insol. material (not studied) and 23.8% Ahrens' trimer, softens at 60°, melts up to 90° (by pptn. with NH_4OH from dil. HCl). G. M. K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

LEVCHENKO, V. V.

LEVCHENKO, V.V.; SMORGONSKIY, L.M.

[Chemistry in school] Khimiia v shkole. Moskva, Uchpedgiz, 1948.
205 p. (MIRA 7:5)
(Chemistry--Study and teaching)

LEVCHENKO, V. V.

Jul 48

USSR/Chemistry - Organic Compounds
Chemistry - Reduction, Electrolytic

"Effect of Continuous Restoration of Cathode Mercury on the Process of Electrolytic Reduction of Organic Compounds," V. V. Levchenko, Chair of Gen Chem, Moscow Stomatological Inst, 8 pp

"Zhur Obshch Khim" Vol XVIII (LXXX), No 7 p.1237

Restoration of cathode mercury accelerates reduction of aconitic acid, quinoline and its derivatives. Author considers this due to catalytic action of mercury. Submitted 18 Apr 1947.

9/49T30

[redacted]

USSR/Chemistry- Quinaldine Jul 48
Chemistry- Reduction, Electrolytic

"Electrolytic Reduction of Quinaldine. II. Electrolytic Reduction of Quinaldine in an Alkaline Medium," V. V. Levchenko, Lab of Chair of Gen Chem, Moscow Stomatological Inst, 3 3/4 pp

"Zhur Obshch Khim" Vol XVIII (LXXX), No 7
pp. 1245-9

Shows that various isomers of dimer dihydroquinaldine are produced by electrolytic reduction of quinaldine, depending on reaction in medium. In an acid medium, Heller's polymer is formed. In an alkali medium, a heretofore unknown crystalline

[redacted] 9/49T31

USSR/Chemistry - Quinaldine (Contd) Jul 48

product, formula $(C_{10}H_{11}N)_2$, is obtained. Submitted 9 Jun 1946.

[redacted] 9/49T31

LEVCHENKO, V.V., doktor khim.nauk, prof.; IVANTSOVA, M.A.; SOLOV'YEV,
N.G.; FEL'DT, V.V.; BALEZIN, S.A., doktor khim.nauk, prof.,
red.; SERGEYENKOV, A.A., red.; MAKHOVA, N.N., tekhn.red.

[Chemistry; textbook for grades 8-10 of secondary schools]
Khimiia; uchebnik dlia VIII-X klassov srednei shkoly. Pod red.
S.A.Balesina. Izd.3. Moskva, Gos.uchebno-pedagog.izd-vo M-va
prosv.RSFSR, 1950. 455 p.
(Chemistry) (MIRA 14:7)

cA

2

Effect of continuous renewal of the mercury of the cathode on the process of electrolytic reduction of organic compounds. II. V. V. Levchenko and K. V. Meleshko (Moscow Med. Stomatol. Inst.). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 20, 831-6(1950); cf. *C.A.* 43, 9559.—The rate of cathodic reduction of aconitic acid, of quinoline, and of its deriv. is markedly increased by continuous renewal of the Hg surface, but in the case of the reduction of naphthalene and anthracene to the corresponding dihydro derivs., the rate is decreased. At sufficiently high rates of Hg motion, the reduction process is stopped. Thus, the yield of dihydronaphthalene in alk. soln. is 25% on immobile Hg, 4.6% on Hg renewed at the rate of 0.15 kg. per min., 3.1% on Hg renewed at 0.5 kg. per min., and 0.0% at 1 kg. per min. The yields of dihydroanthracene under the same conditions are 67.3, 49.5, 11.8, and 0.0%, resp. In acid soln. no reduction occurs under any conditions. Motion of the Hg surface has no effect on the reduction of sorbic acid to the dihydrosorbic acid. In the Δ$^{\alpha}$ acid, the yield is 4.4-5.9%, but in the Δ$^{\beta}$ + Δ$^{\gamma}$ acids, the yields are 50.9-50.7%. Renewal of the Hg surface has an accelerating effect on the cathodic reduction whenever the process is catalyzed by Hg. Where the Hg has no catalytic effect, and the reduction is due to the electrolytically produced amalgam, renewal of the Hg surface must counteract the reduction. There will be no effect where the reduction depends only on a definite cathode potential. An example of 2 different mechanisms is provided by benzoic acid, which is reduced to hydrobenzoic acids with a 76.0% yield on a motionless Hg surface in alk. soln. together with 8.0% benzyl alc., but yielding only benzyl alc. with 25% yield in acid soln. The alk. reduction is completely suppressed by rapid Hg motion, whereas the acid reduction is unaffected by the motion of the Hg.

N. Thon

7

CA

The effect of continuous renewal of the cathodic mercury on the process of electrolytic reduction of organic compounds. II. V. V. Levchenko and K. V. Meleshko (Moscow Inst. Stomatol. Med.). *J. Gen. Chem. U.S.S.R.* 20, 867-74(1950)(English translation). —See C.A. 45, 188e.
R. M. S.

LEVCHENKO, V. V.

Chemical Abst.
Vol 48 No. 5
Mar. 10, 1954
Electrochemistry

The electrolytic reduction of lepidine. I. The electrolytic reduction of lepidine in an acid medium. V. V. Levchenko and A. A. Zats (Moscow Inst. Stomatol. Med.). *J. Gen. Chem. U.S.S.R.* 22, 1301-2(1952)(Engl. translation).--See *C.A.* 47, 421i. H. L. H.

USSR/Chemistry - Heterocyclic Compounds Nov 52

"Electrolytic Reduction of Lepidine: II. Electrolytic Reduction of Lepidine in an Alkaline Medium," V. V. Levchenko and A. A. Zats, Moscow Med Stomatological Inst

238T45

"Zhur Obshch Khim" Vol 22, No 11, pp 2071-2076

State no previously published data on the electrolytic reduction of lepidine in an alk medium. Their research established that during this electrolytic reduction of lepidine in an alk medium, the dihydro lepidine which is formed (in the form of the monomer

238T45

$C_{10}H_{11}N$) remains in soln. By means of steam distn, this monomer can be obtained in a mixt with tetrahydro lepidine, $C_{10}H_{13}N$ and unreduced lepidine, $C_{10}H_9N$. At a low temp, the monomer of dihydro lepidine, which is found in the catholyte together with tetrahydro lepidine, produces the dimer of dihydro lepidine. But under the influence of the oxygen of the air, the monomer is oxidized and forms two cryst products: the oxide of dihydro lepidine $(C_{10}H_{10}N)_2O$ and hydroxydihydro lepidine, $C_{10}H_{11}ON$, to which is ascribed the formula of the γ-hydroxydihydro lepidine

238T45

LEVCHENKO V. V. AND ZATS. A. A.

ZATS, A.A.; LEVCHENKO, V.V.

Chemical reduction of lepidine. Zhur. Obshchey Khim. 22, 2076-8 '52.
(CA 47 no.18:9328 '53) (MLRA 5:12)

LEVCHENKO, V. V.

3

2 · Chem

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
Organic Chemistry

7 Chemical reduction of lepidine. A. A. Kats and V. V. Levchenko. *J. Gen. Chem. U.S.S.R.* 22, 2129-31(1952) (Engl. translation).—See *C.A.* 47, 9328e. H. L. H.

L 5383-66 EWT(1)/EWP(m)/FCS(k)/EWA(1) WW
ACC NR: AP5027286 SOURCE CODE: UR/0207/65/000/005/0142/0146

AUTHORS: Volchkov, E. P. 44,55 (Novosibirsk); Levchenko, V. Ya. 44,55 (Novosibirsk)

52
28

ORG: none

TITLE: Effectiveness of gaseous screening in a turbulent boundary layer 1,44,55

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no, 5, 1965, 142-146

TOPIC TAGS: turbulent boundary layer, transpiration cooling, temperature distribution, heat transfer, Reynolds number

ABSTRACT: The effectiveness of slot and porous wall injection on the temperature distribution of a wall immersed in a hot flowing gas is investigated. The two types of transpiration cooling are described schematically in Figs. 1a and 1b. The wall is assumed to be adiabatic, and the heat transfer coefficient is expressed by the Stanton number

$$S = \frac{A}{R^{0.2-m_1}} P^{-0.75}$$

L 5383-66
ACC NR: AP5027286

2

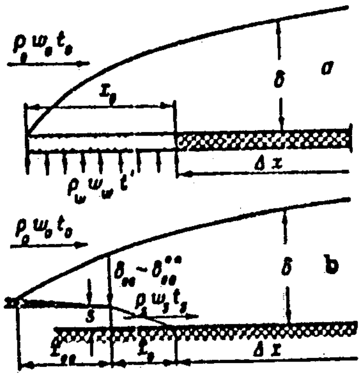


Fig. 1

For the porous wall case the wall temperature is described by the expression

$$\theta = \frac{t_0 - t_{aw}}{t_0 - t'} = \frac{([1 + 62.5(\mu_e q^{-1} R_{\Delta x}^{0.8})^{-1.25}]^{0.116} - 1)^{0.8}}{[1 + 0.016(\mu_e q^{-1} R_{\Delta x}^{0.8})^{1.25}]^{0.16}} .$$

Two similar equations are obtained for the single slot injection case which for $m \ll 1$ becomes $\theta = ([1 + 62(K + 0.143)^{-1}]^{0.116} - 1)^{0.8} [1 + 0.016K]^{-0.16}$

Card 2/3

L 5383-66
ACC NR: AP5027286

and for $m \approx 1$ becomes $0 = ([1 + 02.5(K+2)^{-1}]^{0.5} - 1)^{0.6}(1 + 0.010K)^{-0.16}$.

All three equations above are shown graphically and compared with experimental data. The results are found to be satisfactory. Orig. art. has: 21 equations and 7 figures.

SUB CODE: ME/ SUBM DATE: 01Feb64/ ORIG REF: 006/ OTH REF: 005

Card 3/3

L 54827-65 EWT(m)/EPF(c)/EWG(v)/EPR/EPA(w)-2/EWP(j) Pc-4/Pab-10/Pe-5/Pr-4/Ps-4
WW/RM
ACCESSION NR: AP5016677 UR/0170/65/008/006/0703/0706
532.517.4

55
54
B

AUTHOR: Volchkov, E. P.; Levchenko, V. Ya.

TITLE: Thermal turbulent boundary layer on a plane plate with a heat-insulated section

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 8, no. 6, 1965, 703-706

TOPIC TAGS: heat transfer, heat boundary layer, heat transfer coefficient

ABSTRACT: A thermal turbulent boundary layer on a plane plate with a heat-insulated section has been theoretically studied. Equations were derived for the thermic conditions both in front of and behind the insulated section using the published equation

$$St = A/Re_T^{**m}\,Pr^n.$$

Results of the studies of the influence of the initial insulated section on the heat transfer coefficient and the distribution of temperature in the heat-insulated wall behind the heat transfer section are graphed. Orig. art. has: 20 formulas and 3 figures. [AC]

Card 1/2

L 54827-65

ACCESSION NR: AP5016677

ASSOCIATION: Institut teplofiziki SO AN SSSR, Novosibirsk (Institute of Thermophysics, SO AN SSSR)

SUBMITTED: 28Jul64 ENCL: 00 SUB CODE: ME,TD

NO REF SOV: 002 OTHER: 002 ATD PRESS: 4030

Card 2/2

L 22675-66 EWT(1)/EWP(m)/EWA(d)/EWA(1)
ACC NR: AP6009058 SOURCE CODE: UR/0207/66/000/001/0115/0120

AUTHOR: Volchkov, E. P. (Novosibirsk); Levchenko, V. Ya. (Novosibirsk)

ORG: none

TITLE: Efficiency of gas screens on a tubular surface

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 1, 1966, 115-120

TOPIC TAGS: heat transfer, cooling, thermal protection, wall cooling

1,5

ABSTRACT: Experiments were made to determine the efficiency of cold gas jets used for protecting duct walls from the heat transferred from a main gas stream. Cold air and air preheated to 55—100C were used as the hot and cold gases. The cold air was injected at 1—6 m/sec through a slit parallel to a corrugated wall consisting of ebonite cylinder sections. These sections were mounted on a panel and placed in the 150-mm-wide rectangular test section. Velocity and temperature profiles were measured at the inlet and in various cross sections of the test section. The data were correlated in terms of the main gas flow viscosity, wall temperature, Reynolds number, and distance from the inlet. The efficiencies of cold gas jets for protecting smooth and corrugated walls are compared. Orig. art. has: 4 formulas and 11 figures. [PV]

SUB CODE: 01/ SUBM DATE: 18Mar64/ ORIG REF: 004/ OTH REF: 005/ ATD PRESS: 4216

Card 1/1

L 26613-66 EWT(1)/EWP(e)/EWT(m)/ETC(f)/EPF(n)-2/EWG(m)/EWA(d)/EWP(v)/EWP(j)/T/
ACC NR: AP6013934 ETC(m)-6/EWA(1) IJP(c) SOURCE CODE: UR/0207/66/000/002/0135/0137
IG/WW/RM/WH

AUTHOR: Volchkov, E. P. (Novosibirsk); Levchenko, V. Ya. (Novosibirsk)

88
B

ORG: none

TITLE: Heat exchange during jet shielding of surfaces 7 15

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 2, 1966, 135-137

TOPIC TAGS: heat exchange panel, heat transfer, boundary layer flow, slender body, aerospace structure

ABSTRACT: The authors give experimental data on heat exchange during jet shielding of a smooth plate. The heat exchange surface was a steel plate with transverse grooves filled with epoxy resin to prevent the heat from flowing along the plate. Beneath the steel plate was an electric heater separated from the metal by an asbestos layer 0.5 mm thick. Heat exchange experiments were conducted on a tubular surface with and without forced gas cooling parallel to the surface. It is found that when the ratio of boundary layer thickness to tube radius reaches a certain point, the heat exchange process depends only on the nature of flow close to the tube and becomes self-similar with respect to this thickness. The coefficients of heat exchange with and without forced gas cooling are nearly the same for a very rough surface. Orig. art. has: 3 figures, 3 formulas.

SUB CODE: 20/ SUBM DATE: 23Sep64/ ORIG REF: 001/ OTH REF: 003

Card 1/1 BLG

L 09825-67 EWT(1)/EWP(m) WW

ACC NR: AP6021363 SOURCE CODE: UR/0207/66/000/003/0149/0153

AUTHOR: Volchkov, E. P. (Novosibirsk); Kutateladze, S. S. (Novosibirsk); Levchenko, V. Ya. (Novosibirsk); Leont'yev, A. I. (Novosibirsk)

38

ORG: none

TITLE: Baffle cooling in the case of a current blowing into a turbulent boundary layer through multi-aperture and grid grates

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 3, 1966, 149-153

TOPIC TAGS: turbulent flow, boundary layer, cooled boundary layer

ABSTRACT: An analytic method is proposed for determining the effectiveness of baffle cooling of a plane thermally insulated wall when a cooling gas is delivered through grates. Results obtained for the cooling effect of a gas passing through a single aperture are shown to be applicable to the more complex problem. Equations for the degree of energy and momentum loss are introduced for the second aperture as an extension of those for the first. An estimate is then made of the effectiveness of heat protection, the measure of which is taken to be the temperature of the insulated wall. These estimates are shown to agree with experimental data. Orig. art. has: 23 formulas, 6 figures.

SUB CODE: 13/ SUBM DATE: 21Apr65/ ORIG REF: 006/ OTH REF: 002

Card 1/1 nst

LEVCHENKO, V.Ye.

[redacted]

Conference on the use of oxygen in open-hearth furnaces. Metallurg. no.8:34-35 Ag '56. (MLRA 9:10)

1. Zamestitel' predsedatelya Ukrainskogo respublikanskogo pravleniya Nauchno-tekhnicheskogo otdela chernoy metallurgii.
(Open-hearth process) (Oxygen--Industrial applications)

AUTHOR: Levchenko, V.Ya. 130-58-5-3/16

TITLE: Blast-furnace Operation with a Sized Charge (Rabota domennykh pechey na sortirovannoy po krupnosti shikhte)

PERIODICAL: Metallurg, 1958, Nr 5, pp 4 - 6 (USSR).

ABSTRACT: The author points out that with unsized charge materials, satisfactory blast-furnace driving rates can only be obtained at the expense of good distribution (and hence of fuel efficiency). He suggests, on the basis of model experiments, that this can be avoided by sizing the burden. He considers that then the coke rate could be reduced to some limiting value without affecting charge permeability and that higher blast temperatures could be used, again saving coke and gives figures for the Domnarvet (Swedish) furnace in support. The author concludes by indicating the importance of charge sizing for obtaining the greatest benefits from measures such as the oxygenation of the blast and the injection of fuel through the tuyeres and mentioning preparatory work by the Dnepropetrovskiy metallurgicheskiy institut (Dnepropetrovsk Metallurgical Institute) jointly with the imeni Dzerzhinskogo (imeni Dzerzhinskiy) Works for burden sizing at one of their furnaces.

ASSOCIATION: Dnepropetrovskiy metallurgicheskiy institut (Dnepropetrovsk Metallurgical Institute)

Card 1/1

ORESHKIN, Georgiy Grigor'yevich; LEVCHENKO, V.Ye., otv.red.;
LIBERMAN, S.S., red.izd-va; ANDREYEV, S.P., tekhn.red.

[Greater efficiency in blast-furnace operations] Voprosy ratsionalizatsii raboty domennykh pechei. Khar'kov, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii. 1960. 189 p. (MIRA 13:12)

(Blast furnaces)

GOTIB, A.D.; GONCHAROV, P.G.; LEVCHENKO, V.Ye.; GIMMEL'FARB, A.A.; PEVTSOV, V.P.; LAPA, A.M.

Controlling the thermal conditions of a blast furnace by the composition of the blast furnace gas. Iav.vys.ucheb.zav.; chern.met. no.4:31-37 '61. (MIRA 14:4)

1. Dnepropetrovskiy metallurgicheskiy institut i Zavod imeni Petrovskogo.

(Blast furnaces) (Gases--Analysis)

GOTLIB, A.D., prof., doktor tekhn. nauk, otv. red.; KRASAVTSEV, N.I.,
dotsent, kand. tekhn. nauk, otv. red.; LEVCHENKO, V.Ye., inzh.,
spets. red.; MIKHAYLOVSKIY, Vs., tekhn. red.

[Scientific investigations as an aid to blast-furnace practices]
Nauchnye issledovaniia v pomoshch' domennomu proizvodstvu.
Dnepropetrovsk, Dnepropetrovskoe knizhnoe izd-vo, 1960. 285 p.
(MIRA 15:2)

(Blast furnaces)

GOTLIB, A.D., prof.; POLOVCHENKO, I.G., kand.tekhn.nauk; LEVCHENKO, V.Ye.,
inzh.; CHECHURO, A.N., inzh.; KHARCHENKO, N.M., inzh.;
YASHIN, Yu.F., inzh.

Blast furnace operations with use of screened sinter. Biul.
TSIICHM no.2:12-15 '61. (MIRA 14:9)
(Blast furnaces)

LEVCHENKO, V.Ye.; GIMMEL'FARB, A.A.

Homogenousness of the charge mixture in its lump size and gas flow utilization. Izv. vys. ucheb. zav.; chern. met. 5 no.3: 30-37 '62. (MIRA 15:5)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Blast furnaces--Equipment and supplies)

LEVCENKO, V.E. [Levchenko, V.Ye.]; GHIMMELFARB, A.A. [Gimmel'farb, A.A.]

Homogeneity of the granulation of furnace loads and utilization of gas flux. Analele metalurgie 16 no.4:27-35 O-D '62.

VOLCHKOV, E.P.; LEVCHENKO, V.Ye.

Thermal turbulent boundary layer on a flat plate with a heat-insulated section. Inzh.-fiz. zhur. 8 no.6:703-706 Je '65. (MIRA 18:7)

1. Institut teplofiziki Sibirskogo otdeleniya AN SSSR, Novosibirsk.

LEVCHENKO, Ya., kand. ekonom. nauk; MARGOLIN, A., starshiy nauchnyy sotrudnik

Introduce cash payment on all collective farms of the district. Nauka i pered. op. v sel'khoz. 9 no.4:31-35 Ap '59.
(MIRA 12:6)

1. Dnepropetrovskiy sel'skokhozyaystvennyy institut.
(Collective farms) (Wages)

LEVCHENKO, YA. I. PA 62T90

USSR/Mines and Mining Mar 1948
Coal - Production
Statistics

"Incorrect Calculations--Erroneous Results," Ya. I. Levchenko, Engr, Tula, 1 p

"Ugol'" No 3

Reviews "Production Losses of Coal in Mines of the Moscow Basin, and the Struggle Against Them" by S. D. Sonin. Exhaustive and destructive criticism of book which contains production figures, stated in percentages, for the main coal combines in the Moscow basin.

[redacted] 62T90

LEVCHENKO, Ya. I.

LEVCHENKO, Ya. I. -- "Analysis of Operating Losses and Means of Decreasing Them in the Mines of the 'Tulaugol" Combine." Sub 24 Dec 52, All-Union Sci Res Coal Inst. (Dissertation for the Degree of Candidate in Technical Sciences).

SO: <u>Vechernaya, Moskva</u>, January-December 1952

LEVCHENKO, Yakov Ivanovich, kandidat tekhnicheskikh nauk; OKHRIMENKO, V.A.,
otvetstvennyy redaktor; NADEINSKAYA, A.A., tekhnicheskiy redaktor;
ANDREYEV, G.G., tekhnicheskiy redaktor

[Development openings in mines of the Moscow Coal Combine] Provedenie
podgotovitel'nykh vyrabotok na shakhtakh kombinata Moskvougol'.
Moskva, Ugletekhizdat, 1957. 86 p. (MLRA 10:7)
(Moscow Basin--Coal mines and mining)

LEVCHENKO, Ya.I., kand. tekhn. nauk

Deciding role of advancing in the increase of labor productivity and of coal output from one mine face. Ugol' 36 no.9:11-14 S '61. (MIRA 14:9)

(Coal mines and mining)

MAMONTOV, Igor' Ivanovich; SMIRNOV, N.A., prof., red.; LEVCHENKO, Ya.V., red.; VASIL'YEV, Yu.A., red. izd-va; BELOGUROVA, I.A., tekhn. red.

[Overall mechanization and automation at reinforced concrete products plants in Leningrad]Kompleksnaia mekhanizatsiia i avtomatizatsiia na zavodakh zhelezobetonnykh izdelii g. Leningrada. Pod obshchei red. N.A.Smirnova. Leningrad, Leningr. dom nauchno-tekhn.propagandy, 1961. 20 p. (Bibliotechka stroitelia po mekhanizatsii i avtomatizatsii stroitel'stva, no.4) (MIRA 15:8)

(Leningrad—Concrete plants)

SMIRNOV, Nikolay Aleksandrovich, prof.; LEVCHENKO, Ya.V., inzh., red.; FREGER, D.P., red. izd-va; GVIRTS~~, V.L., tekhn.~~ red.

[Basic tendencies in the development of the mechanization and automation of construction]Osnovnye napravleniia razvitiia mekhanizatsii i avtomatizatsii stroitel'stva. Leningrad, Leningr. dom nauchno-tekhn.propagandy, 1961. 46 p. (MIRA 15:8)

1. Zaveduyushchiy kafedroy stroitel'nogo proizvodstva Leningradskogo inzhenerno-stroitel'nogo instituta (for Smirnov).
(Construction equipment) (Automation)

PRIBYL'SKIY, Mikhail Pavlovich, inzh.; LEVCHENKO, Ya.V., inzh., red.; FREGER, D.P., red.izd-va; GVIRTS, V.L., tekhn. red.

[Cutter-type trench digger for working frozen ground]Frezernyi transheekopatel' dlia otryvki transhei v merzlom grunte. Leningrad, 1962. 10 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Stroitel'naia promyshlennost', no.6) (MIRA 15:8)
(Excavating machinery) (Frozen ground)

LIBER, Isaak Semenovich; LEVCHENKO, Ya.V., inzh., red.; FREGER, D.P., red. izd-va; BELOGUROVA, I.A., tekhn. red.

[Heating systems with concrete heating surfaces]Sistemy otopleniia s betonnymi nagrevatel'nymi poverkhnostiami; stenogramma lektsii. Leningrad, 1962. 28 p. (MIRA 15:8)
(Concrete construction) (Radiant heating)

LAKTYUSHKIN, Aleksey Aleksandrovich; YAKOVLEV, Petr Sergeyevich;
SMIRNOV, N.A., prof., red.; LEVCHENKO, Ya.V., inzh., red.;
FOMICHEV, A.G., red. izd-va; GVIRTS, V.L., tekhn. red.

[Overall mechanization of sanitary engineering operations] Kompleksnaia mekhanizatsiia proizvodstva sanitarno-tekhnicheskikh rabot. Pod obshchei red. N.A.Smirnova. Leningrad, Leningr. dom nauchno-tekhn. propagandy, 1961. 28 p. (Bibliotechka stroitelia po mekhanizatsii i avtomatizatsii stroitel'stva, no.12) (MIRA 15:8)
(Sanitary engineering)

GREBNEV, Nikolay Andreyevich; LEVCHENKO, Ya.V., red.; FREGER, D.P., red. izd-va; BOL'SHAKOV, V.A., tekhn. red.

[Automatic stations for pumping waste water by means of compressed air]Avtomaticheskie stantsii perekachki stochnykh vod szhatym vozdukhom. Leningrad, 1961. 21 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Stroitel'naia promyshlennost', no.26) (MIRA 16:2)
(Pumping machinery) (Compressed air)

LANTSOV, Vladimir Anatol'yevich; SEDLUKHA, Georgiy Andrianovich;
LEVCHENKO, Ya.V., inzh., red.; FREGER, D.P., red.; BOL'SHAKOV,
V.A., tekhn. red.

[Assembly of tower cranes in crowded conditions]Montazh bashennykh kranov v stesnennykh usloviiakh. Leningrad, 1961. 23 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Stroitel'naia promyshlennost', no.27)
(MIRA 16:2)

(Cranes, derricks, etc.)

MIRONOV, Boris Petrovich; LEVCHENKO, Ya.V., inzh., red.; SHILLING, V.A., red. izd-va; GVIRTS, V.L., tekhn. red.

[Inclined tubular kiln for burning vermiculite]Trubchataia naklonnaia pech' dlia obzhiga vermikulita. Leningrad, 1962. 12 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Stroitel'naia promyshlennost', no.23)
(MIRA 16:2)

(Vermiculite) (Kilns)

DONSKOY, Viktor Mikhaylovich; LANTSOV, Vladimir Anatol'yevich;
LEVCHENKO, Ya.V., red.; FREGER, D.P., red.izd-va;
BELOGUROVA, I.A., tekhn. red.

[Small loading and unloading construction machinery] Malogabaritnye pogruzochno-razgruzochnye mashiny v stroitel'stve. Leningrad, 1963. 33 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Stroitel'noe proizvodstvo, no.2) (MIRA 16:10)
(Construction equipment)

GORYACHEVA, Inna Aleksandrovna, kand. tekhn. nauk; LEVCHENKO, Ya.V., inzh., red.; VASIL'YEV, Yu.A., red.izd-va; BOL'SHAKOV, V.A., tekhn. red.

[Assembly of bathrooms for large-panel apartment houses in Leningrad] Opyt montazha sanitarno-tekhnicheskikh kabin krupnopanel'nykh zhilykh domov v Leningrade. Leningrad, 1961. 25 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Stroitel'naia promyshlennosti', no.25) (MIRA 16:3)

(Leningrad—Bathrooms)

NIKITIN, Nikolay Anatol'yevich; LEVCHENKO, Ya.V., inzh., red.;
FREGER, D.P., red. izd-va; GVIRTS, V.L., tekhn. red.

[Experience in the use of average prices in centralized automotive transportation of freight] Opyt primeneniia srednikh tsen pri tsentralizovannykh perevozkakh gruzov avtomobil'nym transportom. Leningrad, 1962. 23 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Stroitel'naia promyshlennost', no.3) (MIRA 15:5)
(Transportation, Automotive--Rates)
(Building materials--Transportation)

TOPOLYANSKIY, Abram Borisovich; LEVCHENKO, Ya.V., red.; TELYASHOV, R.Kh., red.izd-va; GVIRTS, V.L., tekhn. red.

[The simplest automatic devices in construction] Prosteishie avtomaticheskie ustroistva v stroitel'stve; opyt tresta N^{o}3 Glavleningradstroia. Leningrad, 1963. 30 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Stroitel'noe proizvodstvo, no.1) (MIRA 16:8)

(Automatic control)
(Construction equipment)

GODES, Emmanuil Grigor'yevich; LEVCHENKO, Ya.V., red.; FREGER,
D.P., red.izd-va; GVIRTS, V.L., tekhn. red.

[New methods for the sinking of coffers] Novye sposoby pogruzheniia opusknykh kolodtsev. Leningrad, 1963. 22 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Stroitel'noe proizvodstvo, no.8)
(MIRA 17:1)

(Wells)

SAPOZHNIKOV, Mikhail Mikhaylovichkand. tekhn. nauk,[deceased];
LEVCHENKO, Ya.V., red.

[Saving metal in the construction of plumbing system] Ekonomii' metalla pri ustroistve sanitarno-tekhnicheskikh sistem. Leningrad, 1964. 24 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym nauchno-tekhnicheskim opytom. Seriia: Stroitel'noe proizvodstvo, no.1)
(MIRA 17:7)

SNITKO, Vladimir Aleksandrovich; SEDLUKHA, Georgiy Andrianovich;
LEVCHENKO, Ya.V., red.

[New machines for facade operations] Novye mashiny dlia fasadnykh rabot. Leningrad, 1965. 22 p. (MIRA 18:7)

[illegible]

[Improving the [illegible] equipment and [illegible] main structural [illegible]
74 p.

LEVCHENKO, Ye.

KOBIDZE, N.; LEVCHENKO, Ye.

Using chain bucket elevators for the fumigation of milling establishments. Muk. elev. prom. 23 no.12:26 D '57. (MIRA 11:2)

1. Odesskoye oblastnoye upravleniye khleboproduktov.
(Flour mills--Equipment and supplies) (Fumigation)

SOSEDOV, N.; BATANOVA, V.; FREYMAN, I.; MEN'SHOVA, L.; MARKIN, A.; NEPOKLONOV, A.; LEVCHENKO, Ye.; SKOPINSKIY, V.; ARKHIPOVA, Ye.

Disinfection of grain with methyl bromide in the ship's hold. Muk.-elev. prom. 26 no.10:12-14 0'60. (MIRA 13:10)
(Grain--Disinfection) (Methylene)

1sm LEVCHENKO, Ye. A.

K

558-K. (Russian.) Automatic Welding and Gas Cutting in Mass Production of Tractors. E. A. Levchenko. Avtogennoe Delo, v. 23, Apr. 1952, p. 25-28. Equipment and procedures. (K2, G22, CN)

MASLENIKOVA, Ye.M.; GVOZDOVA, L.G.; LEVCHENKO, Ye.A.; MOIN, M.L.

Studies on the metabolism of vitamin B_2 (riboflavin) and its therapeutic use in protracted nonhealing wounds. Khirurgiia 36 no.11:86-91 N '60. (MIRA 13:12)

1. Iz laboratorii izucheniya vitaminov (zav. - prof. V.V. Yefremov) Instituta pitaniya (dir. - chlen-korrespondent AMN SSSR prof. O.P. Molchanova) AMN SSSR i Moskovskogo ortopedicheskogo gospitalya (nach. - doktor med.nauk S.N. Voskresenskiy) Ministerstva zdravookhraneniya SSSR.

(ULCER) (WOUNDS) (RIBOFLAVIN)

LEVCHENKO, Yevgeniy Andreyevich; SOLODOVNIK, P.S., retsenzent;
RATANOVA, V.F., st. nauchn. sotr., kand. biol. nauk,
retsenzent; YEREMENKO, V.M., st. inzh., retsenzent;
KLEYMAN, L.M., red.

[Control of granary pests] Bor'ba s vreditelyami khlebnykh zapasov. Moskva, Kolos, 1965. 142 p. (MIRA 18:9)

1. Zaveduyushchiy laboratoriyey Vsesoyuznogo nauchno-issledovatel'skogo instituta zerna i produktov yego pererabotki (for Solodovnik). 2. Gosudarstvennyy proizvodstvennyy komitet po khleboproduktam i kombikormovoy promyshlennosti RSFSR (for Yeremenko).

LEVCHENKO, Ye. N.

"Combined Chemotherapy During Experimental Tuberculosis." Cand Biol Sci, All-Union Sci Res Chemicopharmaceutical Inst imeni Sergo Ordzhonikidze, Ministry of Health, USSR, 9 Dec 54. (VM, 30 Nov 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (11)

SO: Sum. No. 521, 2 Jun 55

KOBIDZE, N.; LEVCHENKO, Ye.

Degassing products with the 2AG apparatus. Muk.-elev.prom. 25
no.3:26 Mr '59. (MIRA 12:6)

1. Odesskoye oblastnoye upravleniye khleboproduktov.
(Grain elevators--Equipment and supplies)

SHEBOLDAYEVA, A.D.; LEVCHENKO, Ye.N.

Effect of the pH of the culture medium on the viability of the poliomyelitis virus. Trudy Mosk. nauch.-issl. inst. virus. prep. 2:137-141 '61. (MIRA 17:1)

L 25989-66 EWT(1)/T JK
ACC NR: AP6016100 (N) SOURCE CODE: UR/0402/65/000/006/0674/0677 28
27
B

AUTHORS: Unanov, S.S.; Neustroyev, V.D.; Levchenko, Ye.N.; Shutov, A.V.

ORG: Moscow Scientific Research Institute of Virus Preparations (Moskovskiy nauchnoissledovatel'skiy institut virusnykh preparatov)

TITLE: Isolation of strains of tick-borne encephalitis 6 virus from Ixodes persulcatus ticks 6 collected during the 1964 epidemic season

SOURCE: Voprosy virusologii, no. 6, 1965, 674-677

TOPIC TAGS: encephalitis, virus, mouse, epidemiology

ABSTRACT: The article presents the results of an investigation of the virus-carrying capacity of Ix. persulcatus ticks collected in certain endemic regions of Sverdlovskaya Oblast during the 1964 epidemic season, as determined by preparing a centrifuged suspension of the ticks and infecting with it mice weighting 7-8 g and observing the animals for 21 days. Altogether 59 strains of the tick-borne encephalitis virus had been isolated by the complement fixation test. The nonuniform distribution of the virus-carrying capacity of ticks over various periods is notable: the ticks collected in May carried

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L 25989-66 Isolation of strains of tick-borne encephalitis virus from Ixodes...
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more virus (45.7%), against 30% for June and 21% for July. An overwhelming majority of the strains was isolated following the first infection of white mice. Use of suckling mice and culture tissue 6 (continuous swine embryo kidneys) markedly increased the number of positive results. It is noteworthy that the rate of morbidity due to tick-borne encephalitis during the 1964 1963 epidemic season when the virus-carrying capacity of the ticks was much lower and only a few strains of tick-borne encephalitis virus could be isolated from the collected ticks. Thus there exists a definite correlation between the degree of virus-carrying of ticks and the number of cases of tick-borne encephalitis. This warrants continuing research in this direction. Orig. art. has: 2 tables. (JPRS)

SUB CODE: 06 / SUBM DATE: 01Apr65 / ORIG REF: 010

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SHEBOLDAYEVA, A.D.; LEVCHENKO, Ye.N.; VASIL'YEVA, I.N.

Effect of repeated freezing and thawing on the viability of the poliomyelitis virus. Trudy Mosk. nauch.-issl. inst. virus. prep. 2:142-145 '61. (MIRA 17:1)

UNANOV, S.S.; NEUSTROYEV, V.D.; LEVCHENKO, Ye.N.; SHUTOV, A.V.

Isolation of tick-borne encephalitis virus strains from Ixodes persulcatus, collected during 1964 epidemic season. Vop. virus. 10 no. 6:674-677 N-D '65 (MIRA 19:1)

1. Moskovskiy nauchno-issledovatel'skiy institut virusnykh preparatov. Submitted April 1, 1965.

ACC NR: AP6021598 (N) SOURCE CODE: UR/0402/66/000/003/0376/0376

AUTHOR: Unanov, S. S.; Levchenko, Ye. N.; Shutov, A. V.

ORG: Moscow Viral Preparations Research Institute, Ministry of Health SSSR (Moskovskiy nauchno-issledovatel'skiy institut virusnykh preparatov Ministerstva zdravookhraneniya SSSR)

TITLE: Properties of tick-borne encephalitis virus strains isolated from patients and from corpses of suspected encephalitis cases

SOURCE: Voprosy virusologii, no. 3, 1966, 376

TOPIC TAGS: human disease, disease diagnosis, tick borne encephalitis, virology, virus, encephalitis [illegible], viral properties, ANIMAL PARASITE

ABSTRACT:
Fifteen strains isolated from blood and body fluids of patients and corpses infected white mice with tick-borne encephalitis. Laboratory tests identified the viruses as encephalitis viruses. Most of them were highly virulent for white mice regardless of route of infection. [W.A. 50; CBE No. 10]

SUB CODE: 06/ SUBM DATE: none/

Card 1/1

ACC NR: AP6028728 (N) SOURCE CODE: UR/0402/66/000/004/0477/0482

AUTHOR: Unanov, S. S.; Levchenko, Ye. N.

ORG: Moscow Scientific Research Institute of Viral Preparations (Moskovskiy nauchno-issledovatel'skiy institut virusnykh preparatov)

TITLE: Hemagglutination activity of various strains of tick-borne encephalitis virus

SOURCE: Voprosy virusologii, no. 4, 1966, 477-482

TOPIC TAGS: encephalitis, ~~tick-borne encephaliti~~s, virus, serotyping, hemagglutination reaction, animal parasite

ABSTRACT: The hemagglutination activity of 4 strains of tick-borne encephalitis virus (# 276, 205, 190, and 323) isolated from *Ixodes persulcatus* ticks was studied in different cell cultures: HeLa cells, RES (fetal pig kidney) cells, transplanted RES cells, SOTs cells, and NEr-2 cells. Good accumulation of hemagglutinins in all cell cultures was noted, except when the virus was cultivated in chick fibroblast cells. The size of the infecting dose of virus did not affect the hemagglutination titer of the culture fluids, although dose size did determine the periods required for hemagglutinins to accumulate. Differences

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ACC NR: AP6028728

in hemagglutination activity between viral strains were not observed during passaging on transplanted RES cells, except for strain #276, which showed a considerable decrease in hemagglutination activity after repeated passages. No correlation between hemagglutination activity and infectivity of strains could be detected. [WA-50; CBE No. 12]

SUB CODE: 06/ SUBM DATE: 01Apr65/ ORIG REF: 008/ OTH REF: 003/

Card 2/2

LEVCHENKO, G.S.

USSR.

4

Production of azotol-A from a mixed anhydride of silicic and 2,3-hydroxynaphthoic acids. A. V. Kirsanov, G. S. Levchenko, and G. S. Tret'yakova. *Ukrain. Khim. Zhur.* 19, [illegible](1953); *Referat. Zhur., Khim.* 1954, No. 23410.— The possibility of replacing PCl_5 by $SiCl_4$ in the synthesis of 2-hydroxy-3-naphthoic acid anilide (azotol-A) (I) is shown. When $SiCl_4$ reacts with 2-hydroxy-3-naphthoic acid (II), HCl is liberated and there forms an amorphous "yellow substance" (III) corresponding to the formula $[(O_2CC_{10}H_6O)_2Si]_n$, which is apparently a mixed anhydride of II and silicic acid. By the action of aniline on III is formed I. In the presence of excess $SiCl_4$ and large excess of aniline, besides I also forms 2-hydroxy-3-naphthoic acid diphenylamidine (IV). I obtained with the aid of $SiCl_4$ contains SiO_2 and needs to be purified by repptn. from alkali. A mixt. of 1 mole of II, a solvent (PhCl, C_6H_6, CCl_4, or ether), and from 0.6 to 1.2 moles $SiCl_4$ is heated at 40-60° until evolution of HCl stops and then for 20 min. more at 100°. Pptd. III is washed with C_6H_6 and dried *in vacuo*. The yield is quantitative. Boiling III with MeOH or EtOH gives the corresponding esters of II with yields of 68 and 61%, resp. To III obtained from 0.01 mole II and 0.012 mole $SiCl_4$ in C_6H_6 is added 0.11 mole aniline, and the mixt. is heated for 3 hrs. at 160°. After cooling, the product is treated with HCl and Na_2CO_3 soln. The product, I, is repptd. from alkali, yield 82%, and contains 10.7% SiO_2. To obtain I without sepn. of III, 0.06 mole of II, 30 ml. PhCl, and 0.034 mole $SiCl_4$ is heated for 30 min. at 50-60°, and then 30 min. at 100°. Then is added 0.36 mole aniline, the mixt. heated for 4 hrs. at 170°, neutralized with a soln. of Na_2CO_3, and the solvent is driven off with steam. Pptd. I is repptd. from *N* NaOH, yield 87%, and SiO_2 content 1%. Replacing C_6H_6 with C_7H_8 gives a yield of 67%. At molar ratios II-$SiCl_4$-$PhNH_2$ = 1:1.16:3.1, the yield of I drops to 42-6%, and the yield of IV increases to 25-34%.

M. Hosch

Nr. 62

Inst. Org. Chem., AS UkrSSR

[illegible]

KIRSANOV, A.V.; LEVCHENKO, Ye.S.; TRET'YAKOVA, G.S.

Diphenylamidination of carboxylic acids. Ukr.khim.zhur. 19 no.6:622-630 '53. (MIRA 8:5)

1. Institut organicheskoy khimii Akademii nauk ~~USSR~~ UkSSR
(Amidines) (Acids, Fatty)

LEVCHENKO, E. S.

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N,N'-Diphenylamidination of carboxylic acids. II. CH
A. V. Kirsanov, E. S. Levchenko, and Zh. M. Ivanova. *Ukrain. Khim. Zhur.* 21, [illegible](1955)(in Russian); cf. *C.A.* 49, 11610e.—The *N,N'*-diphenylamidination reaction in the presence of $SiCl_4$ was extended to the aliphatic α-hydroxy- and α-amino acid series and to aromatic thio- and hydroxyamino acids. Glycolic acid (1.52 g.) heated at 50° with 6.79 g. $SiCl_4$ in 10 ml. PhCl until HCl evolution has ceased, then with 18.6 g. $PhNH_2$ for 4 hrs. at 155-60°, the reaction mixt. neutralized with Na_2CO_3, the excess of PhCl and $PhNH_2$ steam distd. off, the residue filtered, and the filtrate treated with *N* HCl gave, after neutralization with Na_2CO_3, 68.6% *N,N'-diphenylglycolamidine*, m. 136-9° (from EtOH). Similarly were obtained the *N,N'-diphenylamidines of mandelic acid* (65%), m. 152-3° (from EtOH), yellowing on heating, and of *lactic acid* (72.1%), m. 170-1° (from EtOH). Under similar conditions $Ph_2C(OH)CO_2H$ gave 83.4% of its anilide, and thioglycollic acid gave 78.4% *N,N'*-diphenylamidine of AcOH. Other *N,N'-diphenylamidines* prepd. were those of: *phenylglycine* (68%), m. 179-83° (from EtOH), *glycine* (40.4%), m. 187-8° (decompn.) (from H_2O), *p-aminosalicyclic acid* (58%), m. 177-8° (from EtOH), and *thiosalicyclic acid* (I) (80.7%), yellow crystals, m. 137-40° (twice from EtOH), turns orange at 136°. Methylating I (0.4 g.) in 10 ml. 0.2*N* NaOH with 0.2 ml. Me_2SO_4 gave 91% o-$MeSC_6H_4C(:NPh)NHPh$, m. 110-11°, which is insol. in bases, while oxidizing I with H_2O_2 gave 75.2% $[o\text{-}PhNH(PhN:)CC_6H_4S]_2$, m. 174-6° (from EtOH).

Gary Gerard

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Levchenko, E. S.

[illegible]

m. 148-21°. In some cases only the amide [illegible] in other cases [illegible] with the [illegible]

[illegible]

Ph, [illegible]; p-MeOC$_6$H$_4$, 174-5°; 1-C$_{10}$H$_7$, 177-8°; p-MeC$_6$H$_4$, 168-70°. The azomethine dyes from the amides of II and III m. 199-200° and 145°, resp. The absorption spectra of I are similar to that of p-quinone [illegible], indicating the I [illegible] structure.

Levchenko, F.S

[illegible]

LEVCHENKO, YE. S.

KIRSANOV, A.V.; LEVCHENKO, Ye.S.

Chlorides and esters of arylcarbamidophosphoric acids. Zhur. ob. khim. 26 no.8:2285-2289 Ag '56. (MLRA 10:11)

1. Institut organicheskoy khimii AN USSR.
(Phosphoric acid)

KIRSANOV, A.V.; LEVCHENKO, Ye.S.

N-thiazolyl and N- pyridyl derivatives of carbamid-N'-phosphoric acid. Zhur. ob. khim. 27 no.9:2585-2590 S '57. (MIRA 11:3)

1. Institut organicheskoy khimii AN USSR.
(Pyridine) (Pyrrol)

LEVCHENKO, YE. S.

AUTHORS: Levchenko, Ye. S., Kirsanov, A. V. 79-11-36/55

TITLE: Salts of the Dichloranhydrides of Arylsulfonamidophosphoric Acids (Soli dikhlorangidridov arilsul'fonamidofosfornykh kislot).

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, Nr 11, pp. 3078-3082 (USSR)

ABSTRACT: By action of the dichloranhydride of phenylsulfonamidophosphoric acid upon aniline in an ether solution a compound of the formula

$$C_6H_5SO_2\ NHPO\ Cl_2 \cdot C_6H_5\ NH_2$$

forms as crystalline precipitate. On heating of the aqueous solution a salt compound of the following structure

$$[C_6H_8SO_2\ NPOCl_2]^-[C_6H_5NH_3]^+$$

seems to form by hydrolysis on the basis of its properties. The problem now was whether the dichloranhydrides of arylsulfonamidophosphoric acids are not capable of forming salts with alkali metals, as well. And it was possible indeed to

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Salts of the Dichloranhydrides of Arylsulfonamidophosphoric 79-11-36/56
Acids

obtain stable salts from these dichloranhydrides with potash - and soda-solutions. It proved to be a convenient method of producing potash salts to introduce the dichloranhydrides of arylsulfonamidophosphoric acids into a cold saturated potash-solution, where the salts separated as crystalline precipitates. In this manner the potash salts of the dichloranhydrides of phenyl-, p-tolyl, o, m- and p-nitrophenyl- and p-chlorophenylsulfonamidophosphoric acids were obtained. Most of the salts described by the authors were produced by the authors. Thus it is shown that the dichloranhydrides of arylsulfonamidophosphoric acids, regardless of the active chlorine atoms present in their molecules, form stable salts. The structure of these salts was proved by their conversion to the dimethyl esters of arylsulfonamidophosphoric acids.
There are 5 references, all of which are Slavic

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Salts of the Dichloranhydrides of Arylsulfonamidophosphoric Acids 79-11-36/56

ASSOCIATION: Institute for Organic Chemistry AS Ukrainian SSR (Institut organicheskoy khimii Akademii nauk Ukrainskoy SSR)

SUBMITTED: October 8, 1956

AVAILABLE: Library of Congress

1. Dichloroanhydrides - Chemical reactions
2. Arylsulfonamidophosphoric Acids - Derivatives
3. Anilines - Chemical reactions 3. Ether - Applications

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AUTHORS: Kirsanov, A. V., Levchenko, Ye. S. SOV/ 79-28-6-35/63

TITLE: Fluoranhydride Salts of the Arylsulfonamidophosphoric Acids (Soli ftorangidridov arilsul'fonamidofosfornykh kislot)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 6, pp. 1589-1594 (USSR)

ABSTRACT: In continuation of their own previous papers on trichlorophosphazosulfonaryls and on products of their hydrolysis, the dichloranhydrides of the arylsulfonamidophosphoric acids (Refs 1, 2) the authors were interested in synthesizing and investigating the fluorine containing analogues of the trichlorophosphazosulfonaryls and of the dichloroanhydrides of the arylsulfonamidophosphoric acids. The direct substitution of the chlorine in these compounds by fluorine, as for instance , with potassium fluoride, did not succeed. As is known chlorine is easily replaced by fluorine in the chloroanhydrides of various acids when potassium fluoride in aqueous solution is allowed to act on them. In the conversion of the trichlorophosphazosulfonaryls with a saturated solution of potassium fluoride heat is produced, on which occasion besides the substitution of chlorine by fluorine a partial

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hydrolysis takes part and potassium salts of the difluoranhydrides of the arylsulfonamidophosphoric acids are formed according to the summary scheme 1. The same products are obtained in the conversion of the dichloroanhydrides of the same phosphoric acids with potassium fluoride according to scheme 2. As was to be expected the potassium salts of the dichloroanhydrides of the arylsulfonamidophosphoric acids, the potassium salts of the difluoranhydrides of the arylsulfonamidophosphoric acids and the dipotassium salts of the monofluoranhydrides of the same acids are formed depending on the reaction conditions. The structure of the potassium salts of the difluoranhydrides of the same acids is proved by their conversion to the esters of these acids by means of sodium methylate. It was shown that the potassium salts of the difluoranhydrides of the arylsulfonamidophosphoric acids have a still greater resistance to hydrolysis than the potassium salts of the dichloroanhydrides of the same acids. The reasons for this phenomenon are discussed in detail. There are 3 tables and 10 references, which are Soviet.

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Fluoranhydride Salts of the Arylsulfonamidophosphoric Acids

ASSOCIATION: Institut organicheskoy khimii Akademii nauk Ukrainskoy SSR (Institute of Organic Chemistry, AS Ukr SSR)

SUBMITTED: February 21, 1957

1. Phosphoric acid--Hydrolysis

Card 3/3

LEVCHENKO, Ye.S.; BOBKOVA, Ye.N.; ARTEM'YEVA, O.A.; KARAYBOG, Ye.V.

Studying the crude oils of the Karabulak-Achaluki field in the Chechen-Ingush A.S.S.R. Trudy GrozNII no.4:27-39 '59. (MIRA 12:9)

(Chechen-Ingush A.S.S.R.--Petroleum--Analysis)

5(3)

SOV/79-29-4-47/77

AUTHORS: Levchenko, Ye. S., Sheynkman, I. E.

TITLE: Esters of N-arylthiocarbamide-N'-phosphoric Acids (Efiry N-ariltiokarbamid-N'-fosfornykh kislot)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 4, pp 1249-1254 (USSR)

ABSTRACT: As was shown by Levchenko and **coworkers** (Ref 1), the esters of isothiocyanate phosphoric acid react with amines, and particularly with aniline, in such a way as to form thiourea derivatives.

$$(RO)_2P(O)NCS + C_6H_5NH_2 \longrightarrow (RO)_2P(O)NHCSNHC_6H_5.$$

One of these compounds, the diethyl ester of N-phenylthiocarbamide-N'-phosphoric acid, $(C_2H_5O)_2P(O)NHCSNHC_6H_5$, possesses insecticide and anti-tuberculous properties. It was therefore of interest to prepare esters of N-arylthiocarbamide-N'-phosphoric acid with various substituents in the aromatic nucleus and to examine their physiological properties. The diethyl ester of isothiocyanate phosphoric acid (Ref 1) was caused to react with p- and o-toluidine, p- and o-anisidine,

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Esters of N-arylthiocarbamide-N'-phosphoric Acids

p-phenetidine, o-, m-, and p-chloro aniline, m-aminophenol, p-fluoro aniline, p-aminophenylsulfamide, p-sodiumaminosalicylate, and phenylhydrazine. The diethyl esters of N-arylthiocarbamide-N'-phosphoric acids obtained are colorless compounds with acid properties. They are slightly soluble in water, benzene, ether, and CCl_4, and can be recrystallized from alcohol and acetone. The diethyl- and diphenyl ester of isothiocyanate phosphoric acid and the diphenyl ester of isothiocyanate thiophosphoric acid form similar thiourea derivatives with o-aminothiophenol. These compounds are, however, unstable and cyclize as soon as they are left undisturbed for some time, while benzothiazole derivatives and H_2S form (Scheme 2). N-(benzothiazolyl-2)-diphenyl-diisobutylphosphamate and -diphenylthiophosphamate are colorless crystalline compounds. N-methyl-o-aminothiophenol reacts as easily with the esters if isothiocyanate thiophosphoric acid and results, via the thiourea derivative, in the derivatives of 3-methylbenzothiazolidene-2. The corresponding diphenyl ester of the same acid results in N-(3-methylbenzothiazolidene-2)-diphenylthiophosphamate according to scheme 3.

Card 2/3 α-aminopyridine and N-methylbenzothiazolonimine result, by reaction with the diethyl ester of isothiocyanate phosphoric acid, in the corresponding thiourea derivatives (Scheme 4). The esters of arylthiocarbamide phosphoric acids proved to be weakly insecticide and anti-tuberculous agents, with the exception of the diethyl ester of N-(p-chlorophenyl)-thiocarbamide-N'-phosphoric acid and the diethyl ester of N-phenylthiocarbamide-N'-phosphoric acid. There are 1 table and 3 references, 1 of which is Soviet.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk Ukrainskoy SSR (Institute of Organic Chemistry of the Academy of Sciences Ukrainskaya SSR)

SUBMITTED: January 6, 1958

5(3)

AUTHORS: Levchenko, Ye. S., Sheynkman, I. E., Kirsanov, A. V. SOV/79-29-5-14/75

TITLE: Preparation of Phosphorus-Diiodide and -Triiodide (Polucheniye dvukhyodistogo i trekhyodistogo fosfora)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 5, pp 1474-1477 (USSR)

ABSTRACT: In the work under review the authors devised a harmless and - as to preparation - convenient method for the production of phosphorus diiodide and at the same time a method for the production and purification of phosphorus triiodide without use of white phosphorus and carbon disulfide. After numerous experiments it was found that phosphorus diiodide and phosphorus triiodide can be obtained in absolutely pure form directly from iodine and red phosphorus with subsequent crystallization from suitable solvents. The reaction may be carried out by fusing iodine and phosphorus or by boiling of iodine and phosphorus in solvents applicable to crystallization. Butyl iodide and bromide, dichloro ethane, ethyl iodide and other alkyl- and alkene halogens can be used for the crystallization of phosphorus diiodide. Chloro benzene is the most suitable one. The phosphorus iodide obtained represents rather large, orange, longish lamina with a melting point of 126-127°. Higher quantities of this preparation

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Preparation of Phosphorus-Diiodide and -Triiodide SOV/79-29-5-14/75

can be prepared without difficulties. Carbon tetrachloride, chloroform, butyl iodide can be used for the recrystallization of phosphorus triiodide, but most suitable is dichloro-ethane. Phosphorus triiodide is obtained in the form of rather large brilliant, dark-red crystals with a melting point of 60-61°. There are 5 references, 2 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk Ukrainskoy SSR (Institute of Organic Chemistry of the Academy of Sciences, Ukrainian SSR)

SUBMITTED: May 6, 1958

Card 2/2

AUTHORS: Levchenko, Ye. S., Kirsanov, A. V. SOV/79-29-6-8/72

TITLE: Reaction of Phosphorus Pentachloride With the N-Chloro-Derivatives of Aryl Sulfamides (Reaktsiya pyatikhloristogo fosfora s N-khlorproizvodnymi arilsul'famidov)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 6, pp 1813-1814 (USSR)

ABSTRACT:

Two methods have so far been applied for the synthesis of the trichloro-phosphazo-compounds: The reaction of phosphorus pentachloride with acid amides (Ref 1) and the reaction of phosphorus trichloride with the sodium salts of the chloro amides of the sulfonic acids (Ref 2). The latter reaction proceeded according to the scheme $ArSO_2NNaCl + PCl_3 \longrightarrow NaCl + ArSO_2N{=}PCl_3$. It was previously assumed that the acting force of this reaction would prevalently be the tendency of the trivalent phosphorus atom to pass over into the pentavalent state. It was found, however, that also phosphorus pentachloride does not only vigorously react with the sodium salts of the N-chloro-amides of the sulfonic acids, but also with the N,N-dichloro-amides of the sulfonic acids, thus yielding trichloro-phosphazo-compounds

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Reaction of Phosphorus Pentachloride With the N-Chloro-Derivatives of Aryl Sulfamides

and free chlorine according to the scheme

$$ArSO_2NNaCl + PCl_5 \longrightarrow NaCl + Cl_2 + ArSO_2N{=}PCl_3,$$

$$ArSO_2NCl_2 + PCl_5 \longrightarrow 2Cl_2 + ArSO_2N{=}PCl_3.$$

This reaction proceeds readily, with good yields, and gives high-purity trichloro-phosphazo-compounds. Without solvent the reaction of phosphorus pentachloride with the above-mentioned salts takes place so abruptly that the reaction products are completely charred. In carbon tetrachloride the reaction proceeds normally under heating. The N,N-dichloro-amides of the sulfonic acids react slowly with PCl_5 in CCl_4 at room temperature, but rapidly when heated. There are 4 Soviet references.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk Ukrainskoy SSR (Institute of Organic Chemistry of the Academy of Sciences, Ukrainskaya SSR)

SUBMITTED: May 27, 1958

Card 2/2

5 (3)

AUTHORS: Levchenko, Ye. S., Zhmurova, I. N., ~~Kirsanov, A. V.~~ SOV/79-29-7-34/83

TITLE: Reaction of Phosphorus Pentachloride With Acid Dichlorides and Diesters of the Aryl Sulphonamidophosphoric Acids (Reaktsiya pyatikhloristogo fosfora s dikhlorangidridami i diefirami aril-sul'fonamidofosfornykh kislot)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 7, pp 2262 - 2267 (USSR)

ABSTRACT: Kirsanov succeeded in transforming the trichloro phosphazosulphonalkyls and aryls of the type $RSO_2N=PCl_3$ into the acid dichlorides of the corresponding alkyl- and aryl sulphonamidophosphoric acids according to the scheme $RSO_2N=PCl_3+H_2O \longrightarrow HCl+RSO_2NHPOCl_2$ by the action of water or formic acid (Ref 1). It was of interest to find out whether a reverse transformation was possible, i.e. whether the corresponding trichlorophosphazo compounds could be obtained according to the scheme $RSO_2NHPOCl_2+PCl_5 \longrightarrow HCl + POCl_3 + RSO_2N=PCl_3$(I) from the acid dichlor-

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ides of aryl sulphonamidophosphoric acids. The experiments showed that the reaction (I) for the acid dichlorides of o-, m-, and p-nitrophenyl sulphonamidophosphoric acids takes place at 130 - 135° within 10-15 min in yields of from 47 to 80% as well as for phenyl ester of the N-(dichlorophosphinyl)-monoamide of p-benzene disulphonic acid at 115-120° within 20-25 min in a yield of 49%. In all cases by-products of unknown nature are formed. Also in the reaction of PCl_5 with the potassium salts of the acid dichlorides of nitrophenyl sulphonamidophosphoric acids the same yields were obtained. In the action of PCl_5 on the acid dichlorides of aryl sulphonamidophosphoric acids, the molecules of which contain no other substituents in the aromatic nucleus, no corresponding trichlorophosphazo sulphonaryls are formed. In the reaction of PCl_5 with the diphenyl esters of the above acids the diphenoxy chlorophosphazosulphonaryls, irrespective of the nature and the position of the substituents, are obtained in the aromatic nucleus of sulphonic

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Reaction of Phosphorus Pentachloride With Acid Dichlorides and Diesters of the Aryl Sulphonamidophosphoric Acids SOV/79-29-7-34/83

acid (Scheme 3). The constants, analytical data and the yields of the diphenoxy chlorophosphazosulphonaryls are tabulated. There are 1 table and 7 Soviet references.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk Ukrainskoy SSR (Institute of Organic Chemistry of the Academy of Sciences of the Ukrainskaya SSR)

SUBMITTED: June 23, 1958

Card 3/3

S/081/61/000/013/015/028
B110/B205

AUTHORS: Levohenko, Ye. S., Ponomareva, Ye. A., Nesmeyanova, T. S., Mirskiy, Ya. V.

TITLE: Study of the hydrocarbon composition of Ozek-Suat petroleum

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 13, 1961, 524, abstract 13M279 (Tr. Groznensk. neft. n.-i. in-t, 1960, vyp. 7, 162 - 172)

TEXT: As a result of this investigation, the composition of the gasoline of Ozek-Suat petroleum was clarified to 91.9%. It was found to contain 43 hydrocarbons. The gasoline is characterized by a high content of paraffins (54.2%), most of which have a normal structure or are slightly branched with a methyl substituent (14%). In addition, it has a high content of cyclohexane hydrocarbons (24.5%). It was found that n-pentane, n-hexane, n-heptane, n-octane, n-nonane, and methyl cyclohexane are contained in the gasoline (initial boiling point, 150°C) in maximum amounts of 6 - 9%. [Abstracter's note: Complete translation.]

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Z/011/61/018/005/008/015
E030/E512

11.0123

AUTHORS: Levchenko, Ye.S., Ponomareva, Ye.A., Nesmeyanova, T.S. and Mirskiy, Ya.V.

TITLE: Chemical composition of gasoline from Ozek-Suat crudes

PERIODICAL: Chemie a chemická technologie; Přehled technické a hospodářské literatury, v.18, no.5, 1961, p.226, abstract Ch61-3128 (Khimiya i tekhnologiya topliv i masel, no.8, 1960, 9-11)

TEXT: A complete hydrocarbon analysis has been conducted on the straight-run gasoline (final boiling-point 150°C) from Ozek-Suat crude, which is noted for its high content (17.5%) of solid paraffins, and high pour point (52°). The fraction was from a pilot distillation unit with 100 theoretical plates. Qualitative and quantitative analyses of the fractions up to 133°C were performed with an ISP-51 spectrometer. The fraction between 133-150°C was investigated by catalytic dehydrogenation of the six-membered naphthenes and separation of the resultant aromatics over ASM silica gel. The secondary aromatics were qualitatively analysed by spectrometer, and calculated with respect to the

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Chemical composition of ...

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E030/E512

corresponding cyclo-hexane hydrocarbons. The mixture of cyclopentanes and isoparaffins were similarly analysed after further distillation on a 40 plate laboratory column. The data show that the gasoline contains 54.2% paraffins, 35.6% being straight chain, 14.0% with one tertiary carbon atom, 4.2% with two, and 0.4% with a quaternary carbon atom. There is a high (24.5%) content of cyclohexane-hydrocarbons, predominantly methylcyclohexane (8.0%). There is a 5.3% cyclopentane fraction, predominantly methylcyclopentane (1.96%). The aromatic content is 7.9%, made up of 3.5% xylenes (2.06% meta, 0.74% para, 0.68% ortho), 2.5% toluene, 1.3% ethyl benzene, and 0.6% benzene.
1 figure, 3 references.

[Abstractor's Note: This is an abstract of the original Russian paper and not a translation of the very brief Czech-language abstract.]

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S/079/60/030/05/31/074
B005/B016

AUTHORS: Levchenko, Ye. S., Kirsanov, A. V.

TITLE: Acid Chlorides of N-Dichloro-phosphinyl-arene-imino-sulfonic Acids

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 5, pp. 1553-1561

TEXT: The authors of the present paper checked a paper by I. Braun and K. Weissbach (Ref. 5) for its correctness. The investigations revealed that all statements of these authors regarding the reaction of phosphorus pentachloride with ethylamides of sulfonic acids were wrong. It was proved experimentally that in this reaction mainly PCl_3 is separated. Therefore, prevalently a chlorination occurs whereas the authors of Ref. 5 state that an oxygen atom of the sulfo group is replaced by chlorine with $POCl_3$ being separated. The principal products of the reactions of PCl_5 with the ethylamides of n-butane- and cyclohexane-sulfonic acid are liquids which do not form crystals and are distillable in vacuo with slight decomposition. In contradiction with the statements of Ref. 5, the acid chlorides of N-ethyl-butane-imino-sulfonic acid, or N-ethyl-cyclohexane-imino-sulfonic

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Acid Chlorides of N-Dichloro-phosphinyl-arene-imino-sulfonic Acids

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acid, respectively, could not be isolated from these liquids. When treating the diacid chlorides of aryl-sulfonamido-phosphoric acids (I) with PCl_5, acid chlorides of N-dichloro-phosphinyl-arene-imino-sulfonic acids (II) or trichloro-phosphazo-sulfonaryls (III) are formed. If the aryl radical of the diacid chloride used as initial product contains electronegative substituents, the compounds (III) result. If the aryl radical contains no electronegative substituents, the compounds (II) are obtained in good yields. Table 1 shows 9 compounds of this type (II) ($XC_6H_4SO(-NPOCl_2)Cl$) which were prepared in this way. Yields, appearance, melting point, empirical formula, and chlorine content are given for each compound. The solubilities of the compounds (II) in the common organic solvents are presented. The compounds (II) are typical acid chlorides, but show no acid properties contrary to the diacid chlorides (I). On the action of water at room temperature they are slowly hydrolyzed. They react readily with alcohols, phenols, ammonia, amines, alcoholates, phenolates, and other compounds with active hydrogen. Under the influence of phenolates the aryl esters of N-diaroxy-phosphinyl-arene-imino-sulfonic acids (IV) result in good yield. Table 2 gives 9 compounds of type (IV) which were obtained from the com-

Acid Chlorides of N-Dichloro-phosphinyl-arene-imino-sulfonic Acids

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in Table 1, this table contains data on the solubility in 6 organic solvents. The authors further investigated the direction of reactions of the type $XSO_2NHPOZ_2 + PCl_5 \longrightarrow XSO(-NPOZ_2)Cl$ or XSO_2-NPZ_2Cl in dependence on the character of the groups X and Z. The results are summarized in Table 3. The investigations are thoroughly discussed. In an experimental part all procedures carried out are described in detail. There are 3 tables and 7 references: 2 Soviet and 5 German.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk Ukrainskoy SSR (Institute of Organic Chemistry of the Academy of Sciences, Ukrainskaya SSR)

SUBMITTED: May 7, 1959

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LEVCHENKO, Ye.S.; SHEYNKMAN, I.E.; KIRSANOV, A.V.

Phenylamides of N-dianilidophosphinylareniminosulfonic acids.
Zhur.ob.khim. 30 no.6:1941-1946 Je '60.
(MIRA 13:6)

1. Institut organicheskoy khimii Akademii nauk Ukrainskoy SSR.
(Amides) (Sulfonic acids)

LEVCHENKO, Ye.S.; DERKACH, N.Ya.; KIRSANOV, A.V.

Chlorides of N-arylsulfonylareniminosulfonic acids. Zhur.ob.
khim. 30 no.6:1971-1975 Je '60. (MIRA 13:6)

1. Institut organicheskoy khimii Akademii nauk Ukrainskoy
SSR.
(Sulfonic acids) (Chlorides)