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Dynamics of an Electromagnetic Control Element
S/103/60/021/04/05/007
B014/B014

armature travels. Next, formulas are derived for the three components, and it is shown that $P_2 = 0$ if the conductance of the circuit is constant as compared to the magnetic flux of the control coil. Thus, formula (21) is obtained: $P = P_3 + P_1$, which is explicitly written down with (22). The latter equation leads to a reduced form of the equation of motion (26) of the armature, which is used to calculate small angles of deflection. Here, the term describing the friction of the bearings is negligible, and one obtains a differential equation for the forced vibration (27). The transmission function is given in equation (28). Next, some experimental results are discussed. Fig. 7 is a graphical representation of the phase-frequency characteristic for different moments of inertia of the armature. Results of measurement are compiled in Table 1. The characteristic indicates that the amplitude-frequency characteristic is deformed by loading the armature spindle in such a way that the phase delay is prolonged. The experiments were carried out by L. P. Levin, G. Yu. Chubarova, and G. M. Val'kova. There are 7 figures, 1 table, and 3 Soviet references.

√C

SUBMITTED: June 30, 1959

Card 2/2

30446

S/119/61/000/012/001/006
D209/D303

9,2140(1001,1150,1161

AUTHORS: Kozlov, N.P., Engineer and Krassov, I.M., Candidate of Technical Sciences

TITLE: Determining the dynamic characteristic of an electromagnetic control element

PERIODICAL: Priborostroyeniye, no. 12, 1961, 1-4

TEXT: This paper introduces a simplified method of plotting a frequency response characteristic of certain types of electromagnetic control devices. In many cases the accuracy of the characteristic constructed by this method is completely adequate. The analytical solution of the equation of motion and of the static characteristic of such an element can be quite laborious, whereas the empirical derivation of the static characteristic is comparatively easy. Using the experimental characteristic, the constant coefficients of the static equation can be determined as well as the coefficients of the equation of motion. An example is worked out for an electromagnetic control element

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Determining the dynamic... S/119/61/000/012/001/006
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consisting of an armature, control winding, magnet and an exciting winding, whose static characteristic is known. Having a complex expression for the amplification factor, the real and the imaginary parts are worked out and the calculated coefficients of the equation of motion are substituted into the resulting expression. In this way, by the method of Ye. P. Popov (Ref. 4: Dinamika sistem avtomaticheskogo regulirovanya, Gostekhizdat, M. 1954), the amplitude phase characteristic of the control element is determined (Fig. 3), where the curve A is obtained by calculation and the curve B - experimentally. Utilizing the approximate method of plotting it is sufficient to use the basic points on the curve. These points are: The initial point of the curve; the point corresponding to the natural frequency of oscillations; the point of cross-section of the curve with the imaginary axis jv and the condition of deformation of the curve in the horizontal direction to the right and left of the jv axis. The straight line U=1 is the characteristic line in the construction of the frequency response characteristic. The condition that the curve does not extend to the right of the line U=1 is given. If

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Determining the dynamic...

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this condition is infringed, the curve is deformed and extends to the right of the line U=1. In order to plot the curve, the values of the frequencies corresponding to the two maximum values of U, as well as the abscissae themselves, are found by differentiation and subsequent substitution into the real part of the characteristic. The corresponding ordinates can also be found. The point of cross-section of the curve with jv is found from the condition U=0. The point of the natural frequency of oscillations is also determined. Thus several basic points are obtained. They are sufficient to plot an approximate amplitude-phase characteristic. There are 3 figures, 1 table and 4 Soviet-bloc references.

Card 3/[illegible] 3

KRUGLOV, M.G.; KOZLOV, N.P.

Simulation of gas exchange processes in two-cycle engines. Trudy MIIT no.139:244-254 '61. (MIRA 16:4)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche imeni Baumana.
(Gas and oil engines) (Thermodynamics)

KRUGLOV, M.G., dotsent; KOZLOV, N.P., starshiy prepodavatel'

Using models in investigating gas exchange in two-cycle engines. Izv.vys.ucheb.zav.; mashinostr. no.5:101-111 '62. (MIRA 15:10)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche inemi Baumana.
(Gas and oil engines—Testing)

KRUGLOV, M.G., kand.tekhn.nauk, dotsent; KOZLOV, N.P., inzh.; IVIN, V.I., inzh.

Problems in designing a two-cycle tractor engine with a loop scavenging. Izv.vys.ucheb.zav.; mashinostr. no.5:124-129 '62. (MIRA 15:10)

1. Moskovskoye vyssheye tekhnicheskoye uchilische imeni Baumana. (Tractors—Engines)

KOZLOV, N.P.; KRASSOV, I.M.; LEVIN, L.P.

Analysis of differential electromagnetic elements for automatic control systems. Priborostroenie no.1:5-8 Ja '64. (MIRA 17:2)

PEREKRESTOV, Anatoliy Vasil'yevich; KOZLOV, N.P., red.

[Design of switching circuits for hydraulic control]
Postroenie releinykh skhem gidroavtomatiki. Moskva,
Energiia, 1965. 72 p. (Biblioteka po avtomatike, no.126)
(MIRA 18:4)

KOZLOV, N.P., kand.tekhn.nauk; KRASSOV, I.M., kand.tekhn.nauk

Amplification ratios of hydraulic valve-type amplifiers.
Priborostroenie no.6:1-5 Je '65. (MIRA 18:7)

KOZLOV, N.S.

Scientific and public activity of A.N. Engel'gardt. Trudy Inst. ist.est.i tekh.30:111-134 '60. (MIRA 13:8)
(Engel'gardt, Aleksandr Nikolaevich, 1832-1893)

KOZLOV, N.S., fel'dsher (selo Krutoy Log Kurskoy oblasti).

My work in prophylaxis. Fel'd.i akush. no.12:49-50 D '53.
(MLRA 6:12)

(Krutoy Log--Hygiene, Rural) (Hygiene, Rural--Krutoy Log)

DENSHCHIKOV, I.Ye.; KOZLOV, N.S.; VARSHAVER, G.N.; STOLPER, A.M.

Electric tensometric scales for lorry cars. Koks i khim. no.2:61-63 '63. (MIRA 16:2)

1. Yenakiyevskiy koksokhimicheskiy zavod.
(Scales) (Coke industry—Equipment and supplies)

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

10A

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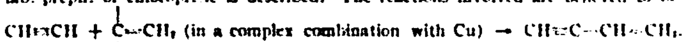
Preparation of chloroprene rubber from acetylene. N. D. Zelinskii, N. S. Kozlov, R. S. Shter and N. G. Pesin. *Sintet. Kauchuk* **1932**, No. 3, 4-6.—A procedure for lab. prepn. of chloroprene is described. The reactions involved are believed to be:



$CH{\equiv}CH + C{=}CH_2$ (in a complex combination with Cu) $\rightarrow CH{\equiv}C{-}CH{=}CH_2$.

The vinylacetylene is treated with HCl, CuCl, NH_4Cl and yields 80% of chloroprene.

James Sorrel

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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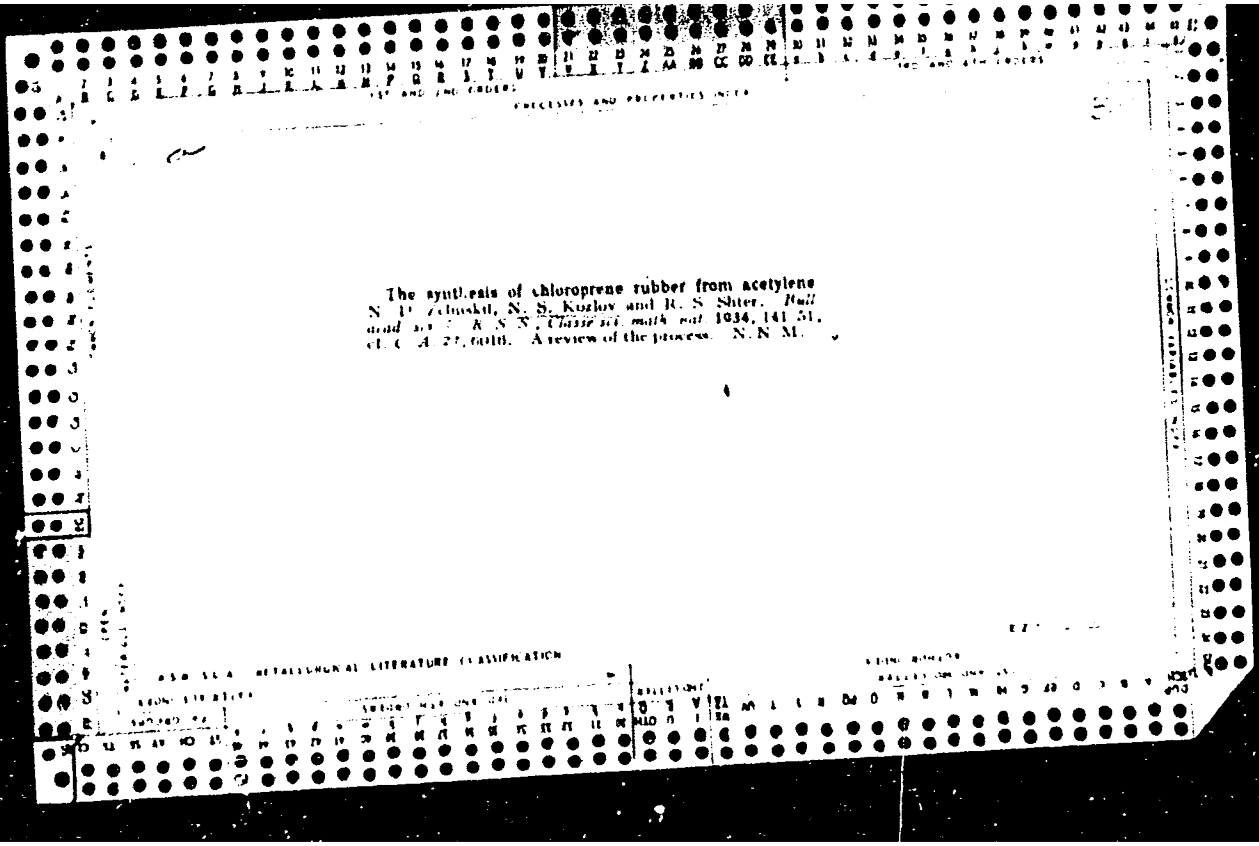
30

Natural and synthetic rubbers, and their behavior on thermal decomposition in the presence of aluminum chloride. N. D. Zelinskiĭ and N. S. Kozlov. *J. Applied Chem.* (U. S. S. R.) 6, 36-44(1933).—The thermal decompn. of natural as well as of butadiene rubber in the presence of $AlCl_3$ leads to almost the same results. Cracking carried out in the presence of $AlCl_3$ produces a gasoline-like fluid high in aromatics, which leads to the conclusion that the polymerization of butadiene hydrocarbons goes through an aromatization stage. The decompn. reaction is very energetic and is at a considerably lower temp. than that used in cracking. Isoprene is not formed, and the satd. hydrocarbons formed are of the gasoline type. The expts. are described.

A. A. Boehtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

The synthesis of chloroprene rubber from acetylene. N. D. Zelinskii, N. S. Kozlov and R. S. Shter. *Bull. acad. sci. U. R. S. S., Classe sci. math. nat.* 1934, 141-51; cf. C. A. 27, 6010. A review of the process. N. N. M.

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The condensation of ethylene and acetylene. N. S. Kozlov and P. N. Fedoseev. *Sintet. Kauchuk* 3, No. 5, 36-8(1934); *Chem. Zentr.* 1935, II, 1801; cf. *C. A.* 31, 4320^{4}; 32, 565^{5,6}.—Expts. are reported on the condensation of C_2H_4 and C_2H_2 to form butadiene under the influence of Al_2O_3, Al_2O_3-activated C, activated C, NiO, $ZnCl_2$, NiO-asbestos and Ni on Al_2O_3 as catalysts. The gas mixt. was led over the catalyst at 200-600°. With Al_2O_3 a liquid condensate was first formed at 400° but only benzene could be detected in it. Activated C was the most suitable catalyst but even with it the butadiene yield was unsatisfactory. Ni was no more satisfactory as a catalyst than Al_2O_3. W. A. Moore

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BC

18 II 9

Synthesis of chloroprene rubber from acetylene. N. D. ZELINSKII, N. S. KOZLOV, and R. S. SCHTERN (Bull. Acad. Sci. U.R.S.S., 1934, 8, No. 1, 141—151).—C_2H_2 is absorbed by a mixture (I) of 1 kg. of CuCl, 400 g. of NH_4Cl, 100 g. of Cu, 30 g. of conc. HCl, and 426 g. of H_2O at 40°–60°. Saturation is attained when about 60 g. of C_2H_2 have been absorbed (3 hr.); the mixture is kept at room temp. for 24 hr., and then distilled from an oil-bath at 140°, when the distillate contains 33% of $CH_2{:}CH{\cdot}C{:}CH$ (II), and 67% of higher condensation products, amongst which $[{:}C{\cdot}CH{:}CH_2]_2$ and C_6H_6 were identified. The yield of (II) falls with prolongation of the time elapsing between saturation and distillation to 1% after 140 hr. (II) is obtained in 70% yield by passing C_2H_2 through (I) at 80°, and collecting the reaction gases in two receivers, cooled in ice and CO_2-snow respectively; the liquid in the second receiver contains (II), C_2H_2, and MeCHO. Chloroprene is obtained in 80% yield by shaking (II) with 70 g. of conc. HCl, 10 g. of CuCl, and 4 g. of NH_4Cl at room temp. during 3 hr. R. T.

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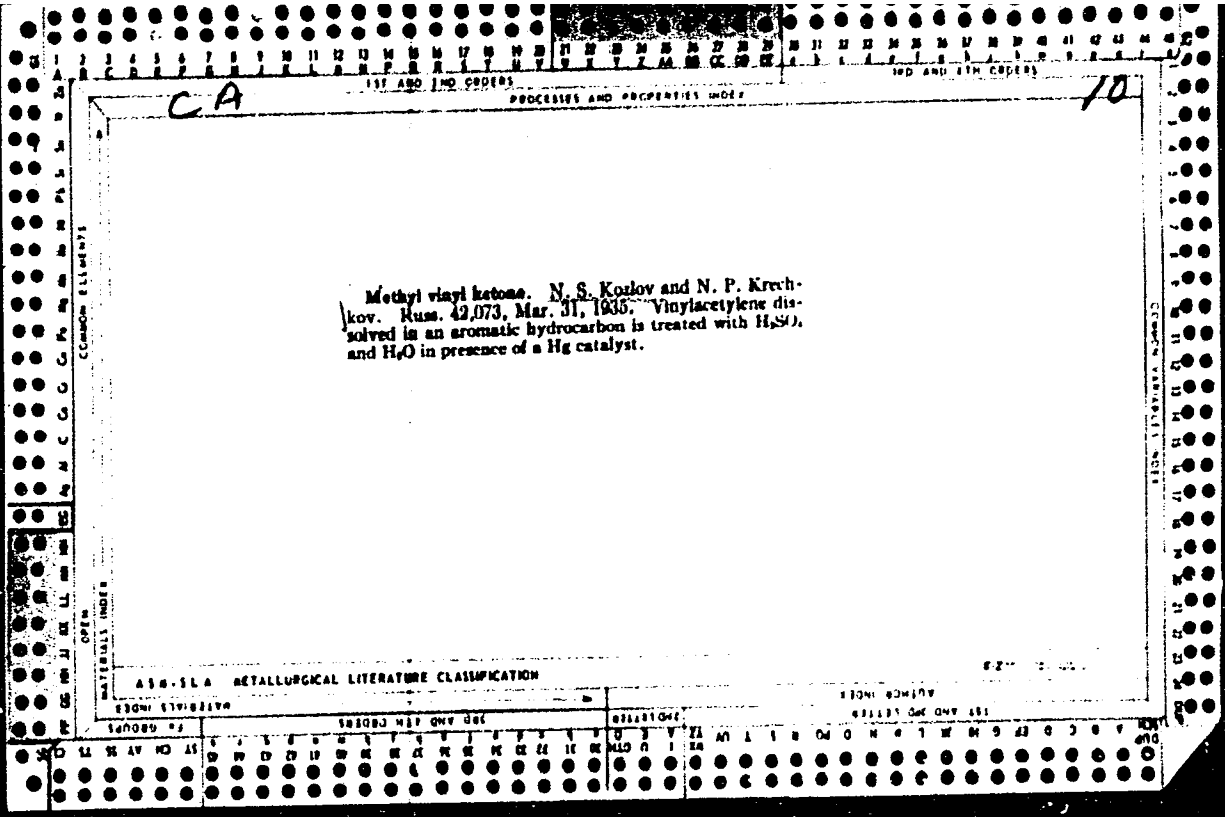

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

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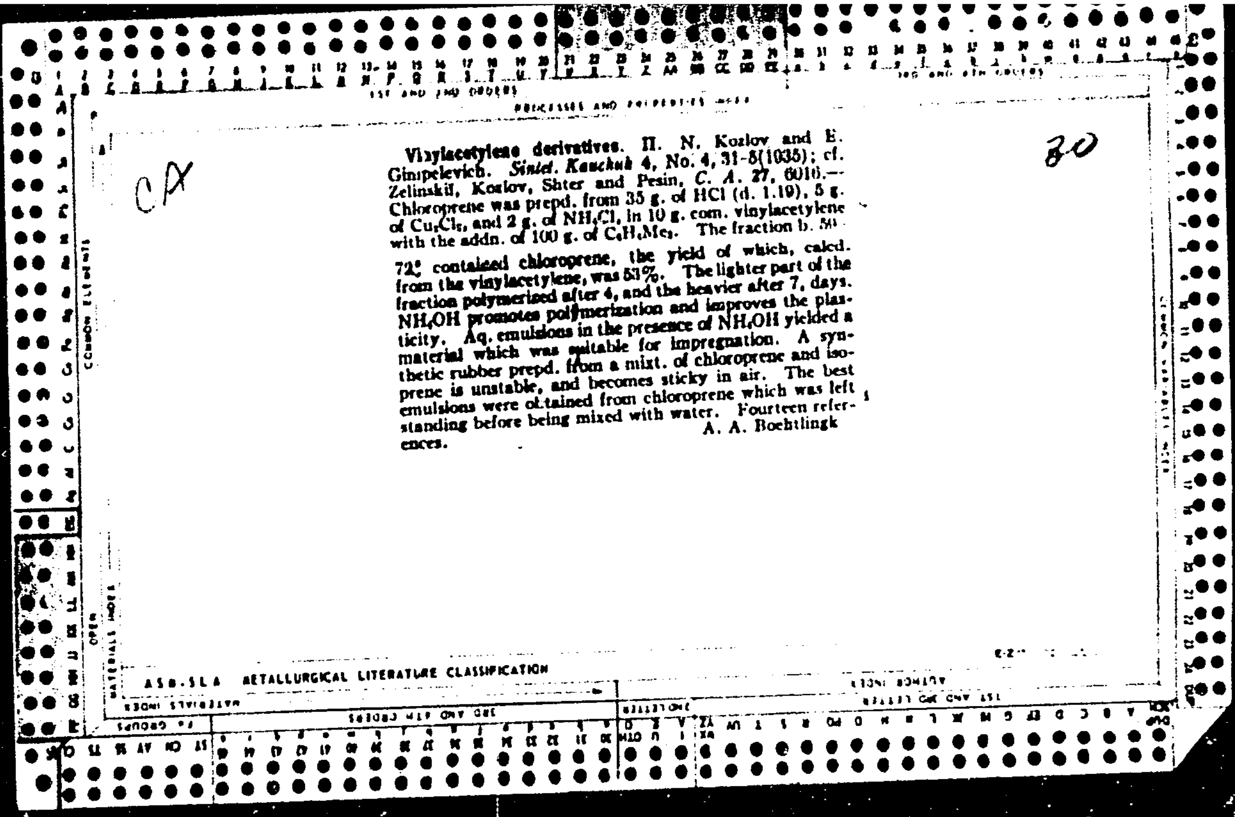
Methyl vinyl ketone. N. S. Kozlov and N. P. Krechkov. Russ. 42,073, Mar. 31, 1935. Vinylacetylene dissolved in an aromatic hydrocarbon is treated with H_2SO_4 and H_2O in presence of a Hg catalyst.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

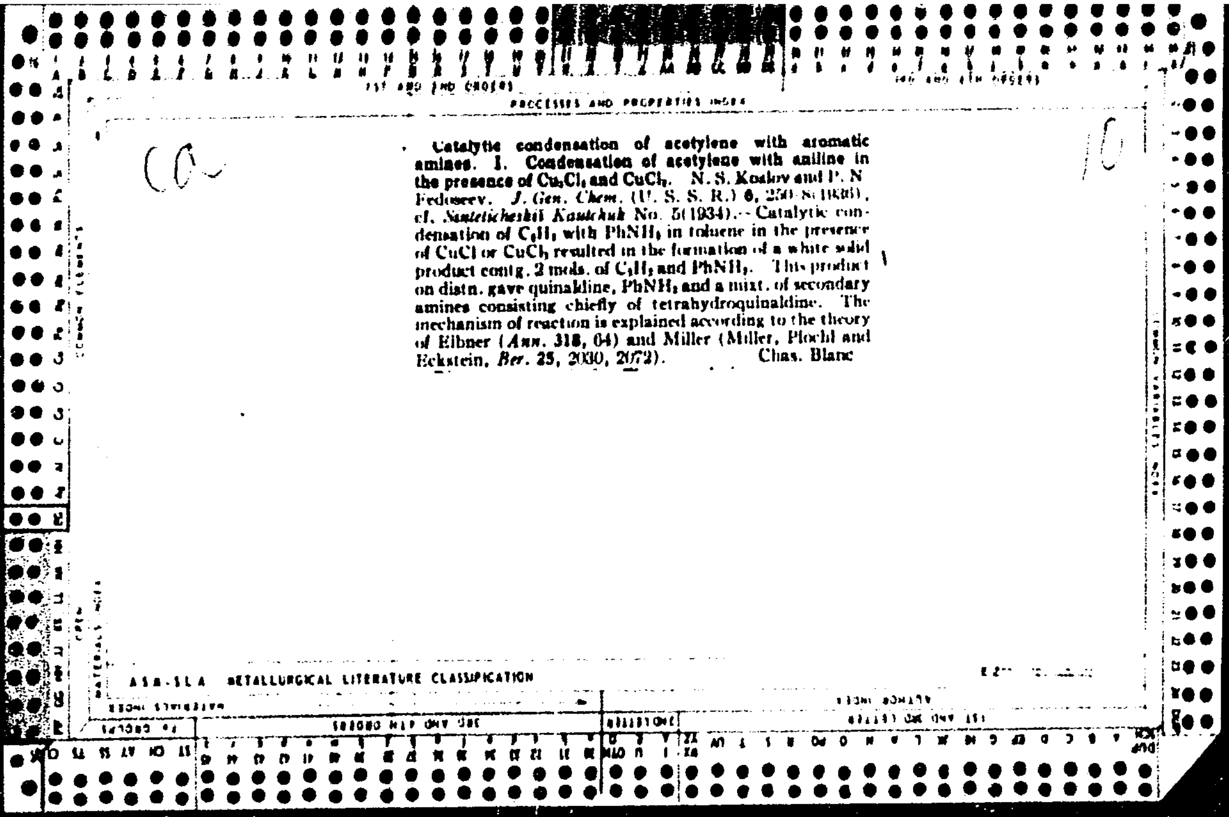


CA

30

Vinylacetylene derivatives. II. N. Kozlov and E. Gimpelevich. *Sintet. Kauchuk* 4, No. 4, 31-5(1935); cf. Zelinskii, Kozlov, Shter and Pesin, *C. A.* 27, 6016.—Chloroprene was prepd. from 35 g. of HCl (d. 1.19), 5 g. of Cu_2Cl_2, and 2 g. of NH_4Cl, in 10 g. com. vinylacetylene with the addn. of 100 g. of $C_6H_4Me_2$. The fraction b. 50-72° contained chloroprene, the yield of which, calcd. from the vinylacetylene, was 51%. The lighter part of the fraction polymerized after 4, and the heavier after 7, days. NH_4OH promotes polymerization and improves the plasticity. Aq. emulsions in the presence of NH_4OH yielded a material which was suitable for impregnation. A synthetic rubber prepd. from a mixt. of chloroprene and isoprene is unstable, and becomes sticky in air. The best emulsions were obtained from chloroprene which was left standing before being mixed with water. Fourteen references.

A. A. Boehtlingk



PROCESSES AND PROPERTIES INDEX

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Catalytic condensation of acetylene with aromatic amines. I. Condensation of acetylene with aniline in the presence of Cu_2Cl_2 and $CuCl_2$. N. S. Kozlov and P. N Fedoseev. *J. Gen. Chem.* (U. S. S. R.) **6**, 250-8(1936), cf. *Sinteticheskii Kauchuk* No. 5(1934).—Catalytic condensation of C_2H_2 with $PhNH_2$ in toluene in the presence of CuCl or $CuCl_2$ resulted in the formation of a white solid product contg. 2 mols. of C_2H_2 and $PhNH_2$. This product on distn. gave quinaldine, $PhNH_2$ and a mixt. of secondary amines consisting chiefly of tetrahydroquinaldine. The mechanism of reaction is explained according to the theory of Elbner (*Ann.* **318**, 64) and Miller (Miller, Plochl and Eckstein, *Ber.* **25**, 2030, 2072). Chas. Blanc

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A-3

Action of alkalis on aromatic ketones. N. S. Kozlov, P. N. Fedoseev, and L. E. Olifson (J. Gen. Chem. Russ., 1936, 6, 259—264).—Ketones of the type $C_6H_4R{\cdot}COPh$ decompose when heated at 250—300° for 60 min. with KOH, to yield $C_6H_4R{\cdot}CO_2H + C_6H_6$, whilst with $C_6H_3R_2{\cdot}COPh$ the products are $C_6H_4R_2$ and BzOH. Thus o- and p-$C_6H_4Et{\cdot}COPh$ yield o- and p-$C_6H_4Et{\cdot}CO_2H$ and C_6H_6. p-$C_6H_4Pr^{\beta}{\cdot}COPh$ affords p-$C_6H_4Pr^{\beta}{\cdot}CO_2H$ (I) and C_6H_6. 4 : 4'-*diisopropylbenzophenone*, b.p. 195—196°/1 mm. (from $PhPr^{\beta}$ and $COCl_2$ in presence of $AlCl_3$), gives (I) and $PhPr^{\beta}$, and 4 : 4'-*diethylbenzophenone*, b.p. 344° (from PhEt, $COCl_2$, and $AlCl_3$), yields p-$C_6H_4Et{\cdot}CO_2H$ and PhEt, whilst 2 : 4-*diisopropylbenzophenone*, b.p. 334—335° (from m-$C_6H_4Pr^{\beta}_2$ (II) and BzCl in presence of $AlCl_3$), gives (II) and BzOH, and $C_6H_3MePr^{\beta}{\cdot}COPh$ yields $C_6H_3MePr^{\beta}{\cdot}CO_2H$, BzOH, C_6H_6, and p-cymene. R. T.

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

N.S. KOZLOV

10

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Etherates of aluminum chloride. N. S. Kozlov, [illegible] Bogdanovskaya and I. Dubogub. (J. Gen. Chem. (U. S. S. R.) 6, 315-17(1936). Study of the mechanism of the reaction of $AlCl_3$ on org. compds. was begun with the reactions of $Et_2O.AlCl_3$ (I) with AcCl, Ac_2O, BzCl and Bz_2O with the formation of the corresponding acid esters. Of the 2 possible mechanisms of the interaction of I with acid anhydrides: I + $Ac_2O \rightarrow$ 2AcOEt + $AlCl_3$, and I $\rightarrow$ EtOH + C_2H_4 + $AlCl_3$; 2EtOH + Ac_2O = AcOEt + H_2O, the former is more probable because of no formation of C_2H_4. The reaction of I with acid halo anhydrides is: AcCl + I $\rightarrow$ AcOEt + EtCl + $AlCl_3$. The liberation of EtCl in the process of reaction was demonstrated by the formation of PhEt in the presence of C_6H_6 in the reaction mixt. AcCl (30 g.) was gradually added, with cooling, to 45 g. of anhyd. $AlCl_3$ in 100 cc. of dry Et_2O, and the mixt. was refluxed 6-8 hrs. in a water bath. The top layer was sepd., dried with anhyd. H_2SO_4 and redistd., giving 70% AcOEt, b. 77-8°. From 50 cc. Et_2O, 30 g. BzCl and 30 g. $AlCl_3$ resulted 80% BzOEt. A mixt. of 25 g. $AlCl_3$ in 50 cc. Et_2O with 25 g. Ac_2O treated as above gave 14% AcOEt. A mixt. of 25 g. $AlCl_3$, 50 cc. Et_2O and 20 g. Bz_2O, heated in a sealed tube, gave 20% BzOEt. Under similar conditions $Et_2O.TiCl_4$ with AcCl and BzCl gave smaller yields of the corresponding esters. Evidently $AlCl_3$ and $TiCl_4$ act as catalysts in activating the mol. of Et_2O. C. B.

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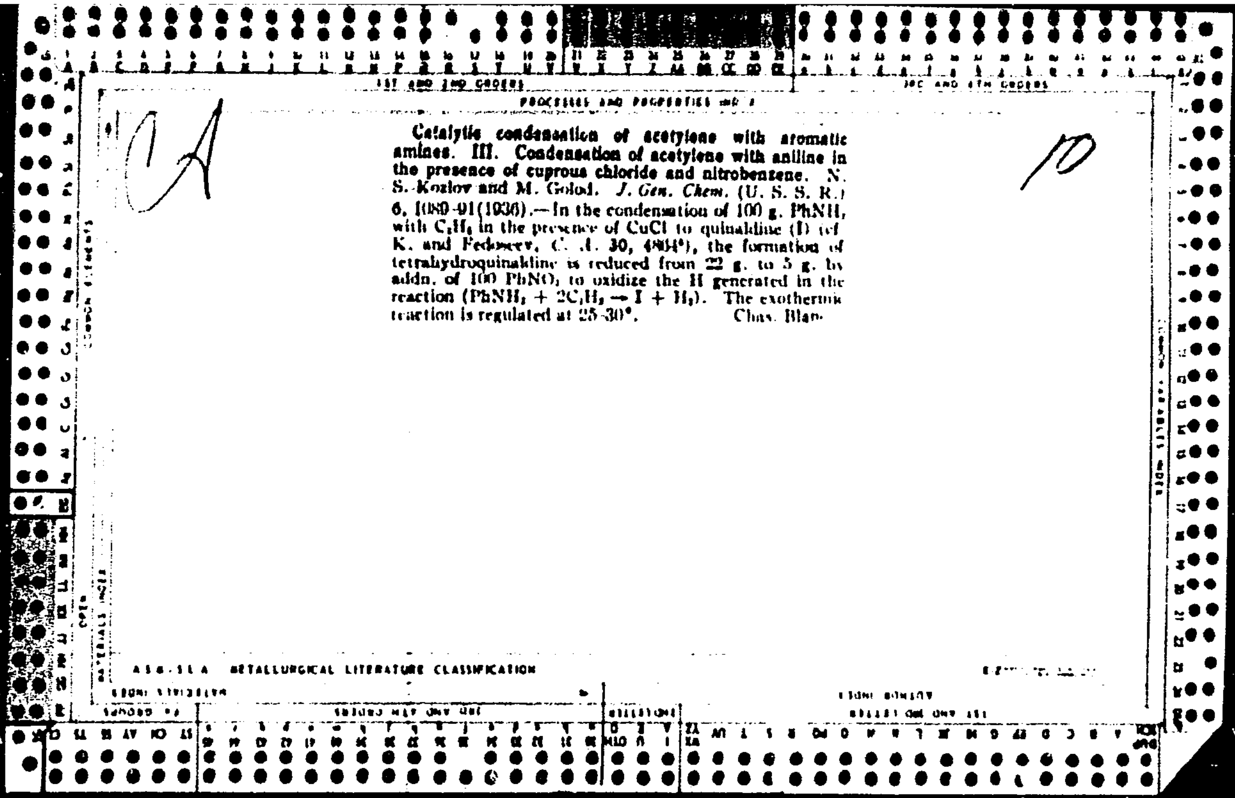
10

Synthesis of toluic acids N. S. Kozlov, P. N. Fedoseev and V. S. Lazarev. *J. Gen. Chem.* (U. S. S. R.) 6, 485-9(1936). The production of aromatic acids by alk. decompn. of ketones was studied. A mixt. of powd. KOH and a ketone in a Ni flask fitted with an upright condenser was heated in a metal bath at 260-70° for 45-55 min. 4-MeC_6H_4COPh (10 g.) with 25 g. KOH gave 87% *p*-toluic acid (I) contg. 2% BzOH, and some C_6H_6 (cf. Kollarits and Merts, *Ber.* 6, 540). 2,4-$Me_2C_6H_3COPh$ gave chiefly BzOH, $Me_2C_6H_3CO_2H$, m. 136°, and some C_6H_6 and PhMe. From 5 g. di-*p*-tolyl ketone and 15 g. KOH at 283-5° for 45 min. resulted 92% of pure I, m. 177-8° (cf. Ador and Krafts, *Ber.* 10, 2176). The work is being continued. Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



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3RD AND 4TH ORDERS

CA

10

Catalytic condensation of acetylene with aromatic amines. III. Condensation of acetylene with aniline in the presence of cuprous chloride and nitrobenzene. N. S. Kozlov and M. Golod. *J. Gen. Chem.* (U. S. S. R.) 6, 1080-91(1936).—In the condensation of 100 g. $PhNH_2$ with C_2H_2 in the presence of CuCl to quinaldine (I) (cf. K. and Fedoseev, C. A. 30, 4864^9), the formation of tetrahydroquinaldine is reduced from 22 g. to 5 g. by addn. of 100 $PhNO_2$ to oxidize the H generated in the reaction ($PhNH_2 + 2C_2H_2 \rightarrow I + H_2$). The exothermic reaction is regulated at 25-30°. Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

a-3

Condensation of acetylene with aromatic amines. IV. Condensation with aniline and *p*-toluidine in presence of silver nitrate. N. KOZLOV and E. GINZBURG-LEVITSCH. V. Condensation with *o*- and *p*-anisidine in presence of CuCl and $HgCl_2$. N. KOZLOV and R. BOGDANOVSKAJA. VI. Condensation with aniline in presence of $HgCl_2$, HgCl, and $HgBr_2$. N. KOZLOV, B. DINABURSKAJA, and T. RUBINA. VII. Condensation with aniline in presence of HgI_2. N. KOZLOV and R. PATSCHANOVA (J. Gen. Chem. Russ., 1936, 6, 1341—1345, 1346—1348, 1349—1351, 1352—1354).—IV. NH_2Ph and C_2H_2 in presence of $AgNO_3$ yield quinaldine (I) and tetrahydroquinaldine (II), whilst with *p*-toluidine the only identified product was 2 : 6-dimethylquinoline. The reaction consists probably of : $NH_2Ph + C_2H_2 \rightarrow NPh{:}CHMe$ (III) : 2(III) $\rightarrow$ NHPh·CHMe·CH:CH·NHPh (IV) $\rightarrow NH_2Ph +$ (I) $+ H_2$; (I) $+ 2H_2 \rightarrow$ (II).

V. *o*- or *p*-Anisidine and C_2H_2 in PhMe and CuCl yield 8-, m.p. 123—125°, or *6-methoxy-2-methylquinoline*, b.p. 176—178°/23 mm. (*methiodide*, m.p. 229—230°); in presence of $HgCl_2$ in place of CuCl the respective products are *diethylidene*-o-, m.p. 102—103°, and -p-*anisidine* (cis- and trans-), m.p. 60° and 160°, which yield the appropriate quinaldines when heated.

VI. NH_2Ph and C_2H_2 in presence of HgCl, $HgCl_2$, or $HgBr_2$ afford (IV), converted by heating into (I) and (II).

VII. The catalytic action of HgI_2 is identical with that of other Hg salts.

R. T.

KOSLOV, N.

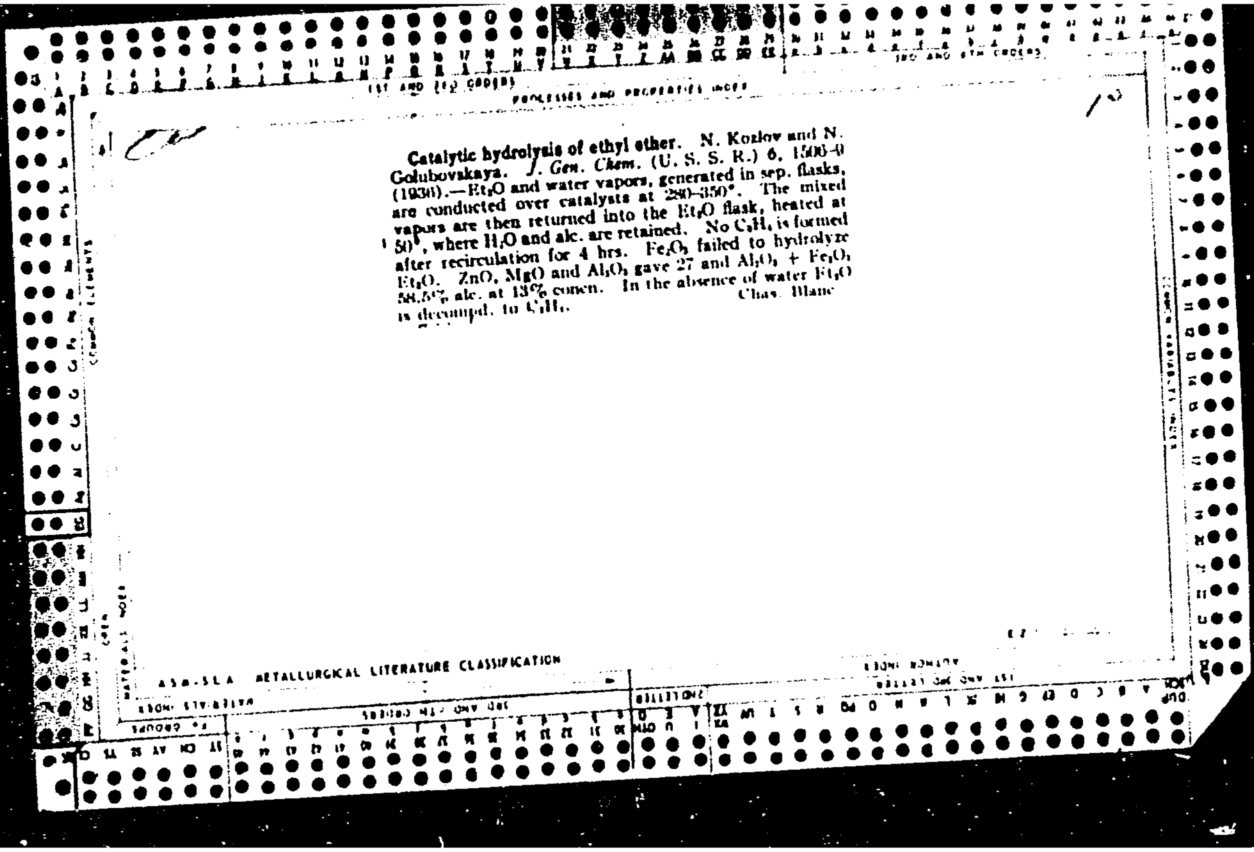
"Condensation de l'acetylene avec les o- et p-anisidines. Communication IV".
Koslow, N. et Bogdanowskaha, R. (p. 1346)

SO; Journal of General Chemistry. (Zhurnal Obshchei Khimii) 1936, Vol. 6, No. 9.

KOSLOW, N.

"Condensation catalytique de l'acetylene avec les amines aromatiques. Communication VI". Koslow, N., Dinabourskaja, J. et Boubina, T. (p. 1349)

SO: Journal of General Chemistry. (Zhurnal Obshchei Khimii) 1936, Vol. 6, No. 9



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3RD AND 4TH ORDERS

Catalytic hydrolysis of ethyl ether. N. Kozlov and N. Golubovskaya. *J. Gen. Chem.* (U. S. S. R.) 6, 1500-0 (1936).—Et_2O and water vapors, generated in sep. flasks, are conducted over catalysts at 280-350°. The mixed vapors are then returned into the Et_2O flask, heated at 50°, where H_2O and alc. are retained. No C_2H_4 is formed after recirculation for 4 hrs. Fe_2O_3 failed to hydrolyze Et_2O. ZnO, MgO and Al_2O_3 gave 27 and Al_2O_3 + Fe_2O_3 58.5% alc. at 13% concn. In the absence of water Et_2O is decompd. to C_2H_4.

Chas. Blanc

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The action of alkalies on aromatic and aliphatic-aromatic ketones. N. S. Kozlov, P. N. Fedoseev and I. Drabkin. *J. Gen. Chem.* (U. S. S. R.) 6, 1086-9(1936); cf. *C. A.* 30, 4845⁴.—*p*-Toluylcumene (I) and triphenylbenzophenone (II) were fused with KOH at 225-75° for 1 hr. I gave *p*-toluic acid (III), m. 176°, and cumic acid, m. 113-14° and II gave nearly 100% $C_6H_3Ph_3$, m. 170° and BzOH. The alk. decompn. of PhAc and its derivs. resulted in the formation of a fatty hydrocarbon and an aromatic acid and a condensation similar to that of Me_2CO to mesitylene. PhAc gave BzOH, CH_4 and a resinification product from which 8% $C_6H_3Ph_3$ was isolated. *p*-MeC_6H_4Ac gave III, *p*-EtC_6H_4Ac gave *p*-$EtC_6H_4CO_2H$, m. 109° and 1,3-$Me_2C_6H_3Ac$ gave 1,3-$Me_2C_6H_3CO_2H$, m. 125-6°. I, b. 338-40°, d_4^{20} 0.9947, n_D^{20} 1.5514, resulted in 11.2 g. yield by heating 9 g. cumene and 11 g. $AlCl_3$ in 50 cc. CS_2 on a water bath and adding gradually within 2 hrs. 10 g. *p*-MeC_6H_4COCl. II, m. 168°, was prepd. in 9.2 g. yield from 13.5 g. $C_6H_3Ph_3$ (cf. *C. A.* 30, 5574⁴) and 7 g. $AlCl_3$ in 120 cc. CS_2 with 6.5 g. PhCl Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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CA

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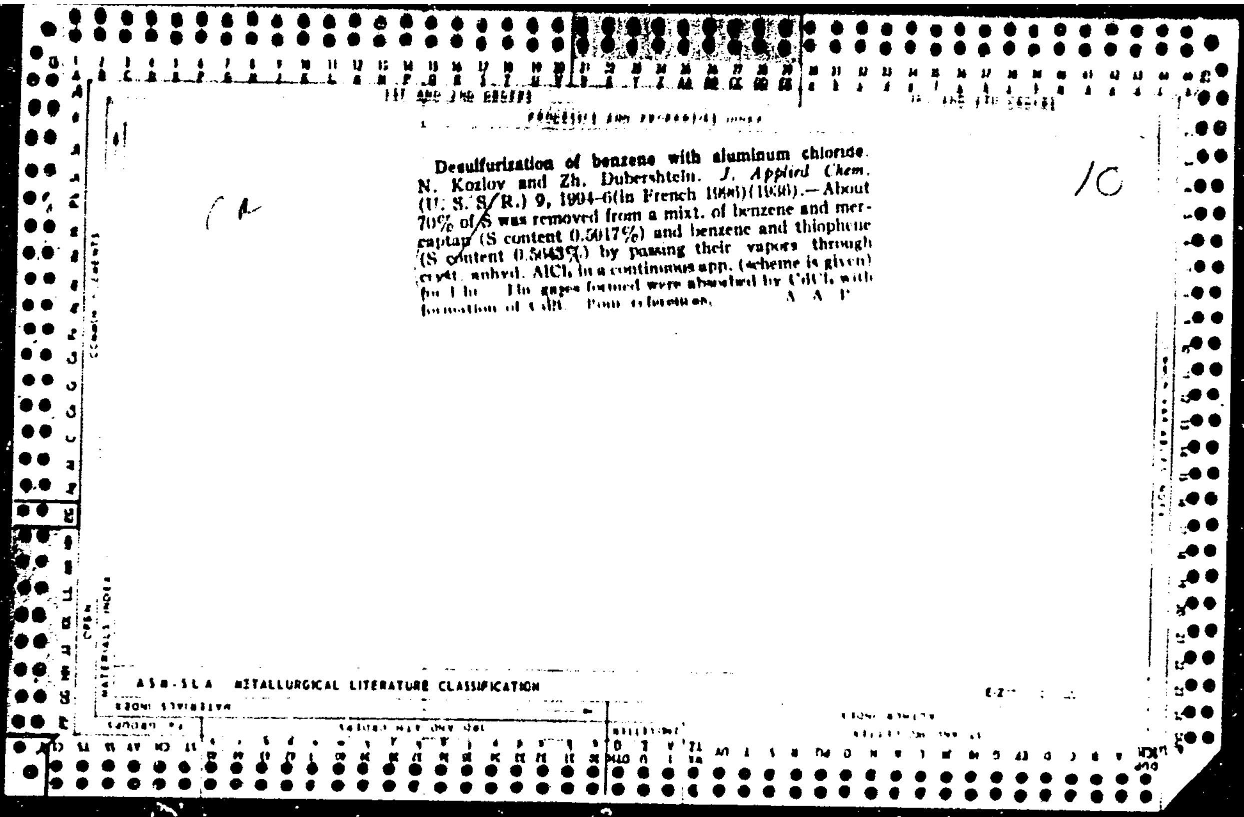
Catalytic condensation of acetylene with toluidines. N. S. Kozlov and Ya. D. Mogilyanskii. *J. Gen. Chem.* (U. S. S. R.) 6, 1897–1901(1936); cf. *C. A.* 31, 1374⁴.—Treatment of *o*-, *m*- and *p*-toluidines in toluene in the presence of Cu_2Cl_2 with excess C_2H_2 forms the corresponding diethylidenetoluidines. These bases on distn. give *o*-, *m*-, and *p*-methylquinaldine, resp., and some ethyltoluidine and tetrahydroquinaldine. Allowing the primary reaction product to crystallize gives *trans*-diethylidene-*o*-toluidine, m. 116°. *p*-Toluidine gives *trans*-*diethylidene-p-toluidine*, needles from alc., m. 140°.

John Livak

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

10

Desulfurization of benzene with aluminum chloride. N. Kozlov and Zh. Dubershtein. *J. Applied Chem.* (U. S. S. R.) 9, 1904-6(in French 1906)(1936).—About 70% of S was removed from a mixt. of benzene and mercaptan (S content 0.5017%) and benzene and thiophene (S content 0.5043%) by passing their vapors through cryst. anhyd. $AlCl_3$ in a continuous app. (scheme is given) for 1 hr. The gases formed were absorbed by $CdCl_2$ with formation of CdS. Four references. A. A. P.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

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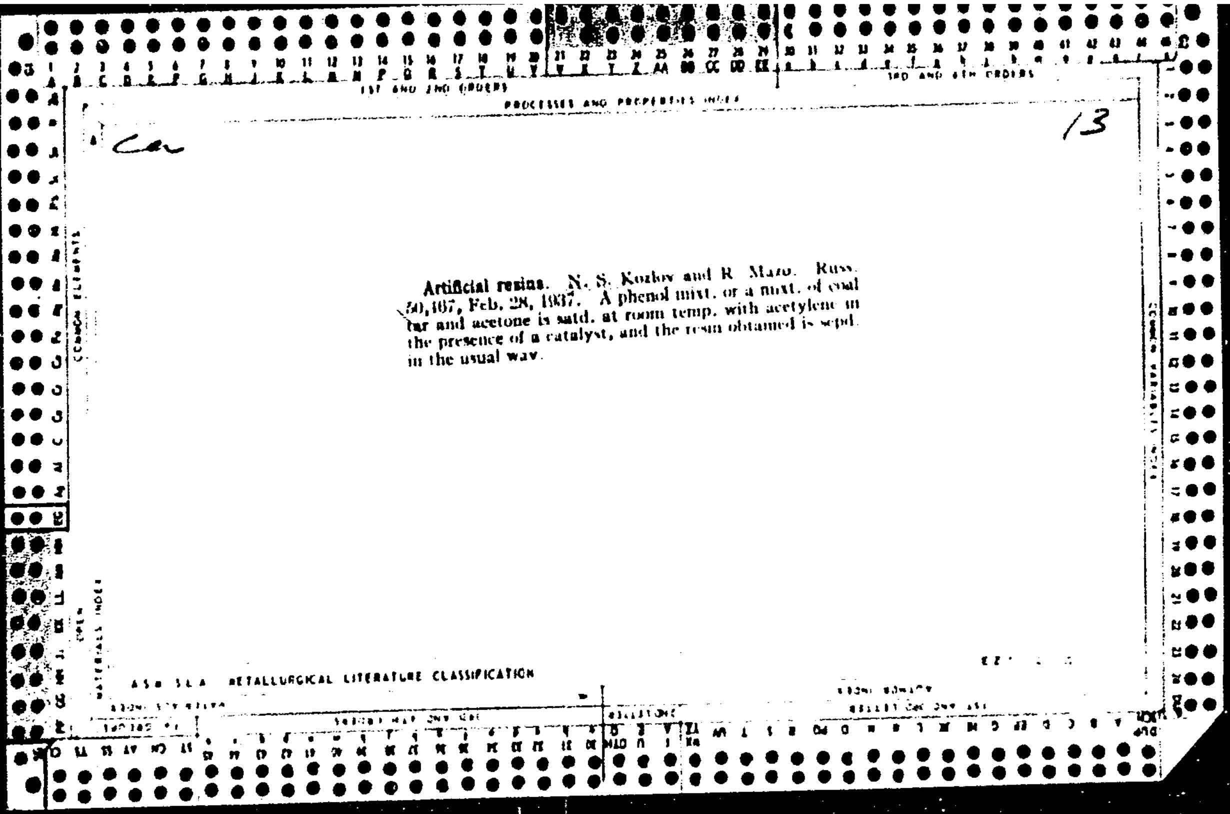
3RD AND 4TH ORDERS

23

New method for determining cellulose in wood materials. N. S. Kozlov, L. E. Olifson and S. M. Gol'dina. *Bumazhnaya Prom.* 15, No. 10, 16-20(1936).—The method of Engel and Wedekind (Ger. pat. 581,800, *C. A.* 28, 1180^1) for disintegration of fibrous vegetable material with dioxane was developed into a method of detg. cellulose. Tests with pine, spruce, birch and alder wood flour gave results accurate to 0.5-0.7% and cellulose practically unchanged and free from pentosans and lignin. Dioxane was prepd. from $C_2H_4(OH)_2$ by the method of Favorskii (*J. Russ. Phys.-Chem. Soc.* 38, 1745(1906)). Reflux a 1-g. sample with 15 cc. dioxane contg. 2-3 drops of concd. HCl in a water bath for 6 hrs. Filter the cellulose in a weighed Schott filter, wash it with water, dry at 100-5° and weigh. To det. lignin in the filtrate, reduce the vol. to $^1/_5$ by distg. off the dioxane, ppt. lignin with water, filter through a Schott filter, dry first in a vacuum desiccator and then at 100-5°, and weigh. Det. the sugars in the filtrate from lignin by the Bertrant method. C. B.

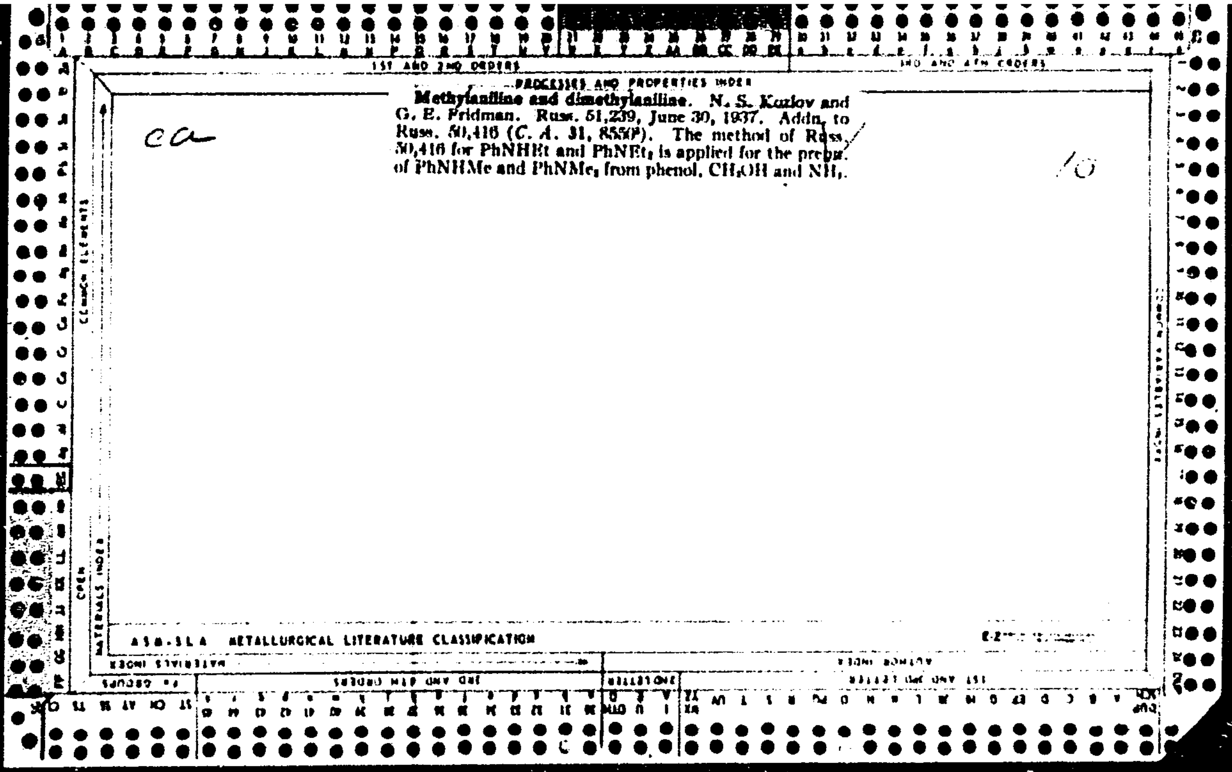
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Ca

13

Artificial resins. N. S. Kozlov and R. Mazo. Russ. 50,407, Feb. 28, 1937. A phenol mixt. or a mixt. of coal tar and acetone is satd. at room temp. with acetylene in the presence of a catalyst, and the resin obtained is sepd. in the usual way.



ca

Methylaniline and dimethylaniline. N. S. Kozlov and G. E. Pridman. Russ. 51,239, June 30, 1937. Addn. to Russ. 50,416 (*C. A.* 31, 8550^7). The method of Russ. 50,416 for PhNHEt and PhNEt$_2$ is applied for the prepn. of PhNHMe and PhNMe$_2$ from phenol, CH$_3$OH and NH$_3$.

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1ST AND 2ND ORDERS

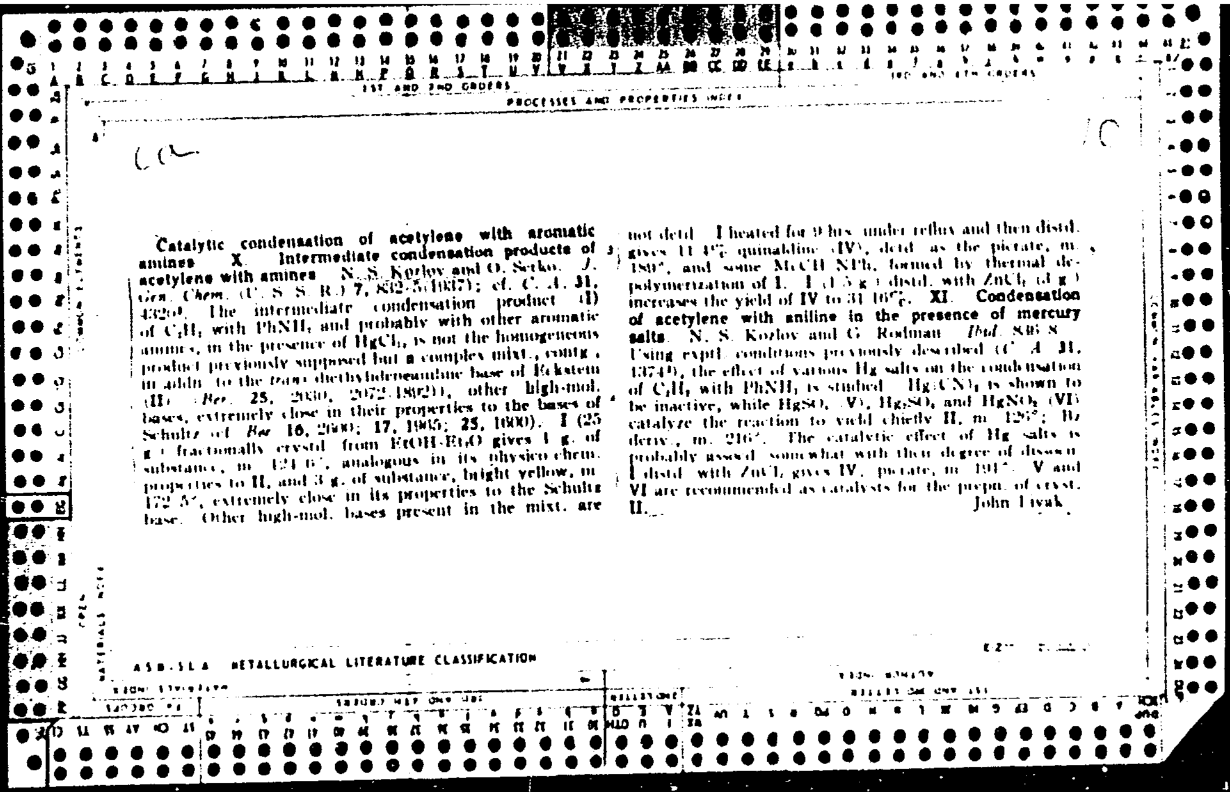
PROCESSES AND PROPERTIES INDEX

10

Catalytic condensation of acetylene with the esters of aminobenzoic acids. N. S. Kozlov and P. N. Fedoseev *J. Gen. Chem.* (U. S. S. R.) 7, 61-3(1937).—Condensation of *p*-$EtO_2CC_6H_4NH_2$ (I) and *o*-$MeO_2CC_6H_4NH_2$ (II) with C_2H_2 in alc. in the presence of $HgCl_2$ resulted chiefly in the formation of corresponding dimer bases of the type $(RN:CHMe)_2$ (cf. *C. A.* 30, 4804⁹). I afforded *cis* (III) and *trans*-*p*,*p*'-$EtO_2CC_6H_4NHCHMeCH:CHNHC_6H_4CO_2Et$, m. 168-9° and 184-5°, resp. These sapond with alc. KOH gave the free acid, m. 208°. III on boiling gave Et *p*-quinaldinecarboxylate. The corresponding deriv. of II, m. 140°, is identical with the condensation product of II and AcH obtained by Mehner (*J. prakt. Chem.* [2], 63, 261(1854)). It is decompd. on heating into quinaldine, $PhNH_2$, CO_2 and H_2. **Catalytic condensation of acetylene with *p*-nitroaniline. New method of *p*-nitroquinaldine synthesis.** *Ibid.* 54-6; cf. *C. A.* 31, 1374⁴.—Conducting C_2H_2 into *p*-$H_2NC_6H_4NO_2$ (I) in alc. in the presence of $HgCl_2$ resulted in a mixt. of stereoisomeric diethylidenenitroaniline bases (cf. Eibner, *Ann.* 318, 64(1901)), m. 196° and 231°, resp. Heating the mixt in an oil bath gave *p*-nitroquinaldine (50% yield) and I.

Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



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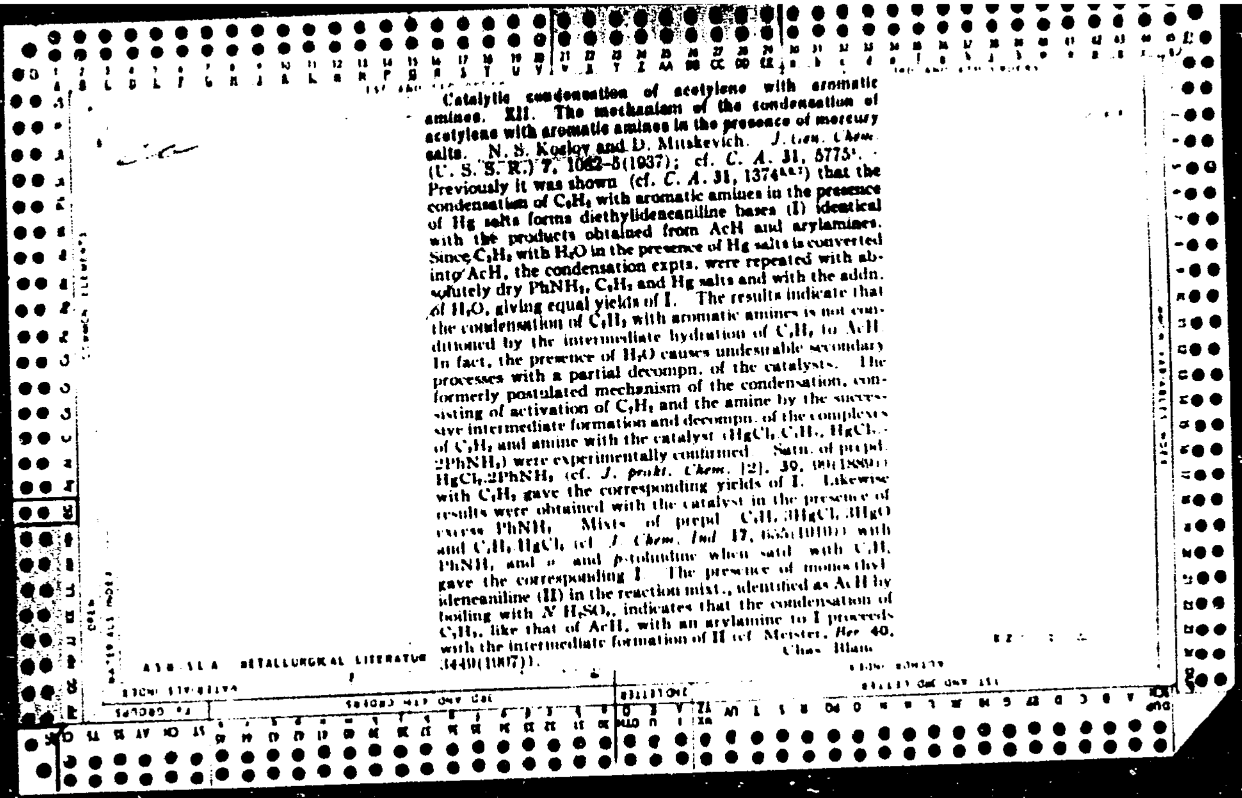
10

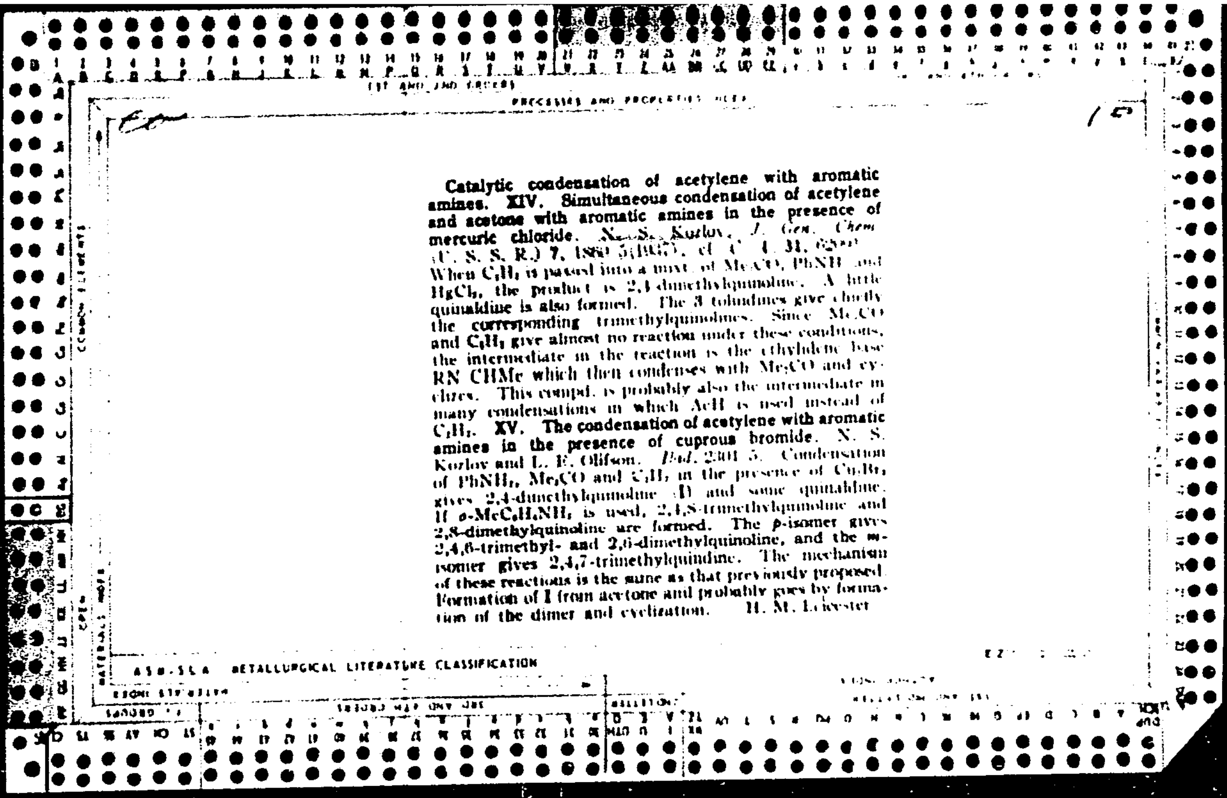
Catalytic condensation of acetylene with aromatic amines X. Intermediate condensation products of acetylene with amines N. S. Kozlov and O. Setko. *J. Gen. Chem.* (U. S. S. R.) **7**, 832-5(1937); cf. *C. A.* **31**, 4320. The intermediate condensation product (**I**) of C_2H_2 with $PhNH_2$ and probably with other aromatic amines, in the presence of $HgCl_2$, is not the homogeneous product previously supposed but a complex mixt., contg., in addn. to the *trans*-diethylideneaniline base of Eckstein (**II**) (*Ber.* **25**, 2030, 2072 (1892)), other high-mol. bases, extremely close in their properties to the bases of Schulz *et al.* (*Ber.* **16**, 2600; **17**, 1905; **25**, 1000). **I** (25 g.) fractionally crystd. from EtOH-Et_2O gives 1 g. of substance, m. 124.5°, analogous in its physico-chem. properties to **II**, and 3 g. of substance, bright yellow, m. 172.5°, extremely close in its properties to the Schulz base. Other high-mol. bases present in the mixt. are not detd. **I** heated for 9 hrs. under reflux and then distd. gives 11.4% quinaldine (**IV**), detd. as the picrate, m. 180°, and some MeCH:NPh, formed by thermal depolymerization of **I**. **I** (1.5 g.) distd. with $ZnCl_2$ (4 g.) increases the yield of **IV** to 31.16%. **XI. Condensation of acetylene with aniline in the presence of mercury salts.** N. S. Kozlov and G. Rodman. *Ibid.* 836-8. Using exptl. conditions previously described (*C. A.* **31**, 1374^9), the effect of various Hg salts on the condensation of C_2H_2 with $PhNH_2$ is studied. $Hg(CN)_2$ is shown to be inactive, while $HgSO_4$ (**V**), Hg_2SO_4 and $HgNO_3$ (**VI**) catalyze the reaction to yield chiefly **II**, m. 125°; Bz deriv., m. 216°. The catalytic effect of Hg salts is probably assocd. somewhat with their degree of dissocn. **I** distd. with $ZnCl_2$ gives **IV**, picrate, m. 191°. **V** and **VI** are recommended as catalysts for the prepn. of cryst. **II**.

John Livak



Catalytic condensation of acetylene with aromatic amines. XII. The mechanism of the condensation of acetylene with aromatic amines in the presence of mercury salts. N. S. Kozlov and D. Mitskevich. *J. Gen. Chem.* (U. S. S. R.) 7, 1082-5(1937); cf. *C. A.* 31, 5775³. Previously it was shown (cf. *C. A.* 31, 1374⁴⁴⁷) that the condensation of C_2H_2 with aromatic amines in the presence of Hg salts forms diethylideneaniline bases (I) identical with the products obtained from AcH and arylamines. Since C_2H_2 with H_2O in the presence of Hg salts is converted into AcH, the condensation expts. were repeated with absolutely dry $PhNH_2$, C_2H_2 and Hg salts and with the addn. of H_2O, giving equal yields of I. The results indicate that the condensation of C_2H_2 with aromatic amines is not conditioned by the intermediate hydration of C_2H_2 to AcH. In fact, the presence of H_2O causes undesirable secondary processes with a partial decompn. of the catalysts. The formerly postulated mechanism of the condensation, consisting of activation of C_2H_2 and the amine by the successive intermediate formation and decompn. of the complexes of C_2H_2 and amine with the catalyst ($HgCl_2.C_2H_2$, $HgCl_2.2PhNH_2$) were experimentally confirmed. Satn. of prepd. $HgCl_2.2PhNH_2$ (cf. *J. prakt. Chem.* [2], 30, 99(1884)) with C_2H_2 gave the corresponding yields of I. Likewise results were obtained with the catalyst in the presence of excess $PhNH_2$. Mixts. of prepd. $C_2H_2.3HgCl_2.3HgO$ and $C_2H_2.HgCl_2$ (cf. *J. Chem. Ind.* 17, 655(1930)) with $PhNH_2$ and *o*- and *p*-toluidine when satd. with C_2H_2 gave the corresponding I. The presence of monoethylideneaniline (II) in the reaction mixt., identified as AcH by boiling with *N* H_2SO_4, indicates that the condensation of C_2H_2, like that of AcH, with an arylamine to I proceeds with the intermediate formation of II (cf. Meister, *Ber.* 40, 3440(1907)).

Chas. Blanc



1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Catalytic condensation of acetylene with aromatic amines. XIV. Simultaneous condensation of acetylene and acetone with aromatic amines in the presence of mercuric chloride. N. S. Kozlov. *J. Gen. Chem.* (U. S. S. R.) 7, 1860-5(1937); cf. C. A. 31, 62[illegible]. When C_2H_2 is passed into a mixt. of Me_2CO, $PhNH_2$ and $HgCl_2$, the product is 2,4-dimethylquinoline. A little quinaldine is also formed. The 3 toluidines give chiefly the corresponding trimethylquinolines. Since Me_2CO and C_2H_2 give almost no reaction under these conditions, the intermediate in the reaction is the ethylidene base RN:CHMe which then condenses with Me_2CO and cyclizes. This compd. is probably also the intermediate in many condensations in which AcH is used instead of C_2H_2. **XV. The condensation of acetylene with aromatic amines in the presence of cuprous bromide.** N. S. Kozlov and L. E. Olifson. *Ibid.* 2301-5. Condensation of $PhNH_2$, Me_2CO and C_2H_2 in the presence of Cu_2Br_2 gives 2,4-dimethylquinoline (I) and some quinaldine. If o-$MeC_6H_4NH_2$ is used, 2,4,8-trimethylquinoline and 2,8-dimethylquinoline are formed. The p-isomer gives 2,4,6-trimethyl- and 2,6-dimethylquinoline, and the m-isomer gives 2,4,7-trimethylquinoline. The mechanism of these reactions is the same as that previously proposed. Formation of I from acetone and probably goes by formation of the dimer and cyclization. H. M. Leicester

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

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3RD AND 4TH ORDERS

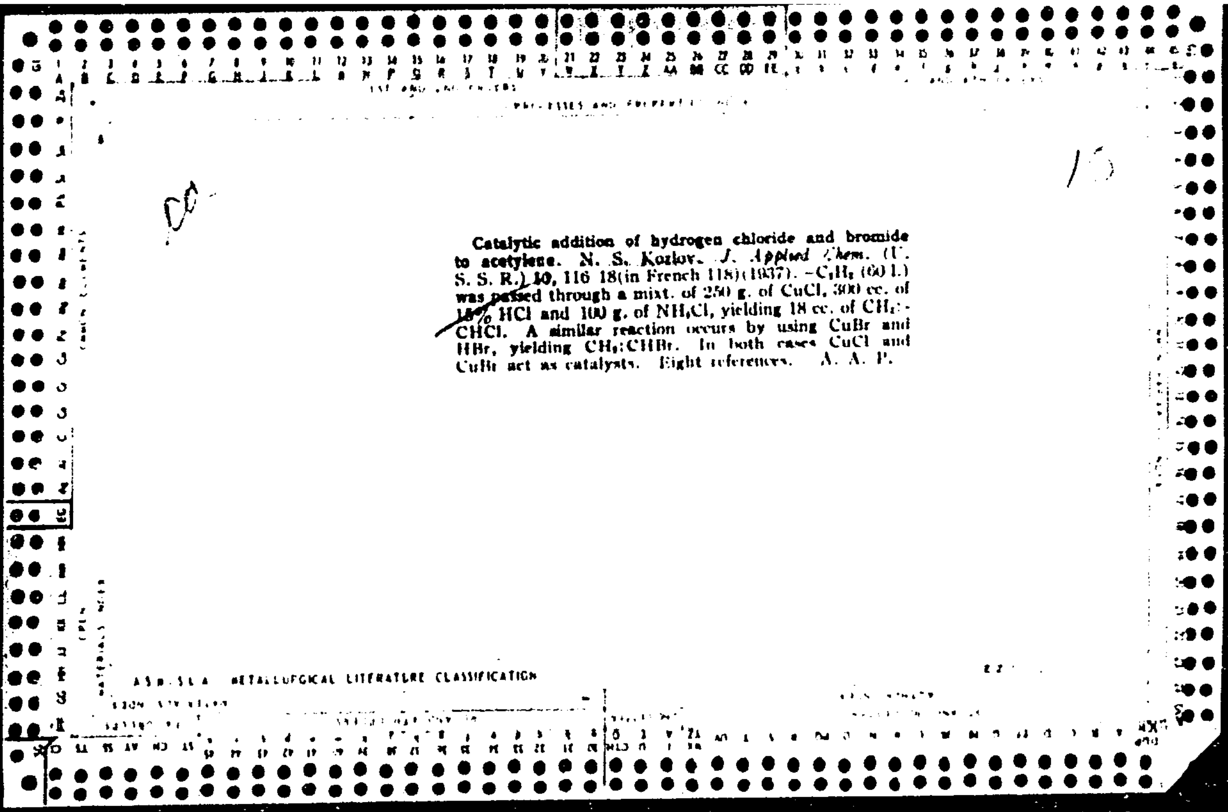
BC

2-2

Condensation of acetylene with aromatic amines in presence of Cu_2Br_2. XV. N. Kozlov and L. Olifson (J. Gen. Chem. Russ., 1937, 7, 2301—2305).—NH_2Ph or *o*-, *m*-, or *p*-toluidine, $COMe_2$, and C_2H_2 in presence of CuBr yield respectively 2 : 4-dimethyl- or 2 : 4 : 8-, 2 : 4 : 7-, or 2 : 4 : 6-trimethyl-quinoline.

R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

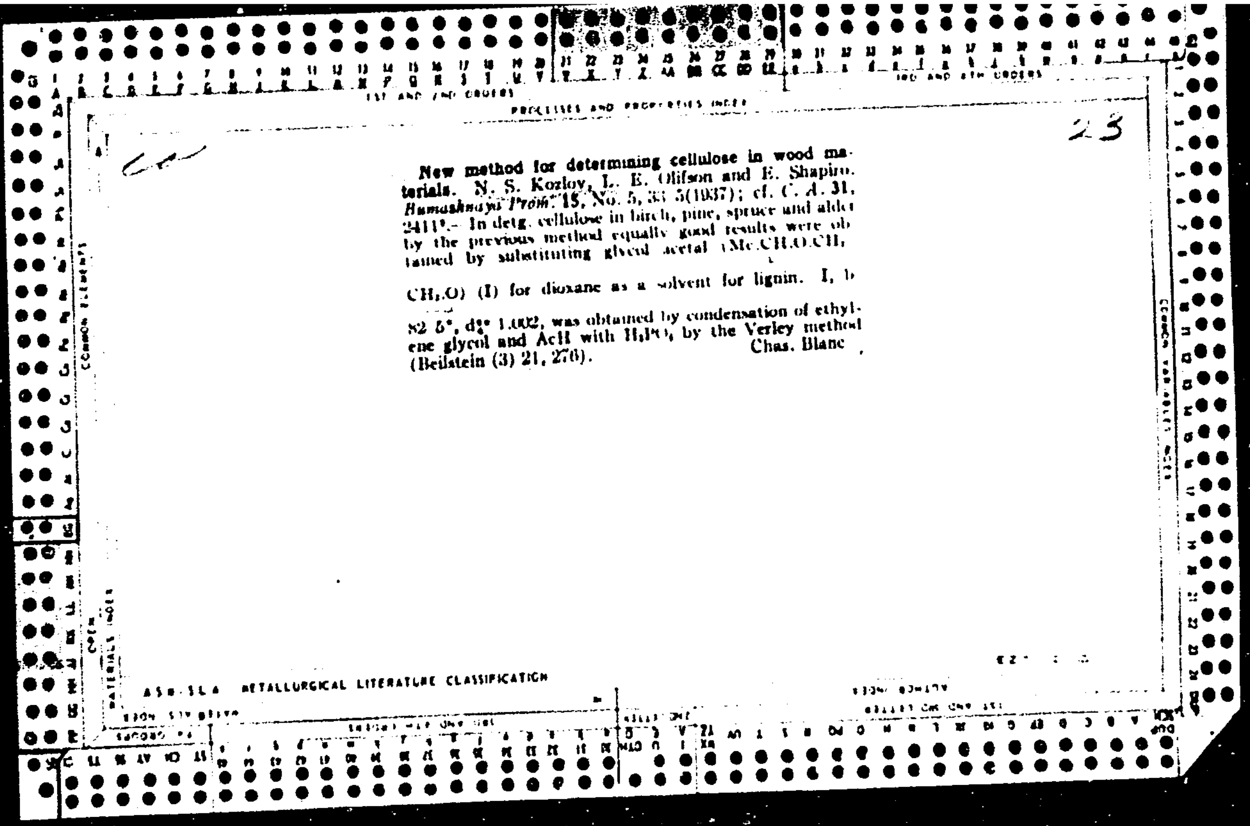


PROCESSES AND PROPERTIES INDEX

Catalytic addition of hydrogen chloride and bromide to acetylene. N. S. Kozlov. *J. Applied Chem.* (U. S. S. R.) 10, 116-18 (in French 118) (1937).—C_2H_2 (60 l.) was passed through a mixt. of 250 g. of CuCl, 300 cc. of 15% HCl and 100 g. of NH_4Cl, yielding 18 cc. of $CH_2:CHCl$. A similar reaction occurs by using CuBr and HBr, yielding $CH_2:CHBr$. In both cases CuCl and CuBr act as catalysts. Eight references. A. A. P.

15

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



23

New method for determining cellulose in wood materials. N. S. Kozlov, L. E. Olifson and E. Shapiro. *Bumazhnaya Prom.* 15, No. 5, 33-5(1937); cf. C. A. 31, 2411⁹.—In detg. cellulose in birch, pine, spruce and alder by the previous method equally good results were obtained by substituting glycol acetal (MeCH.O.CH$_2$.CH$_2$.O) (I) for dioxane as a solvent for lignin. I, b 82.5°, d_4^{20} 1.002, was obtained by condensation of ethylene glycol and AcH with H$_3$PO$_4$ by the Verley method (Beilstein (3) 21, 276). Chas. Blanc

[redacted]

1ST AND 2ND ORDERS 3RD AND 4TH ORDERS

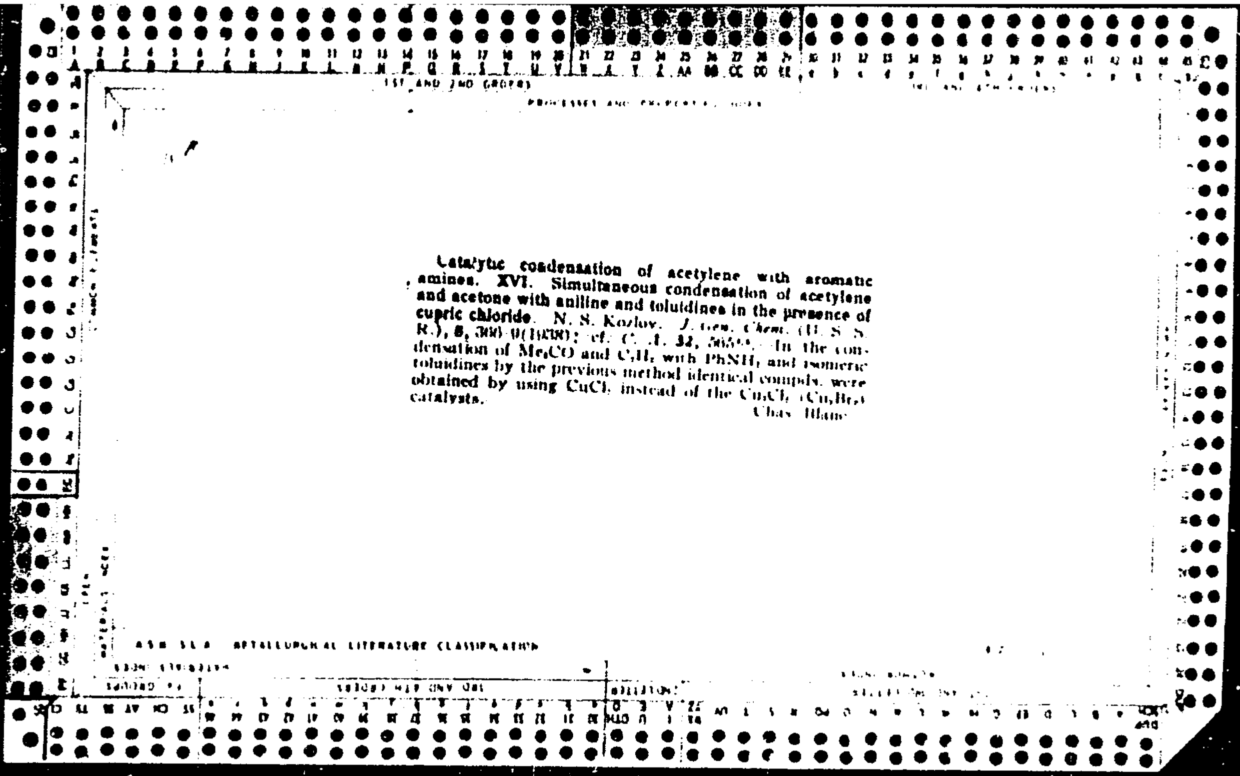
PROCESSES AND PROPERTIES INDEX

ea

10

a-**Substituted quinolines.** N. S. Kozlov. Russ. 54,023, Oct. 31, 1938. A soln. of aromatic amine and aromatic aldehyde in an org. solvent is satd. with C_2H_2 in the presence of Cu and Hg halides and the product is sepd. in the usual manner.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



1ST AND 2ND ORDERS

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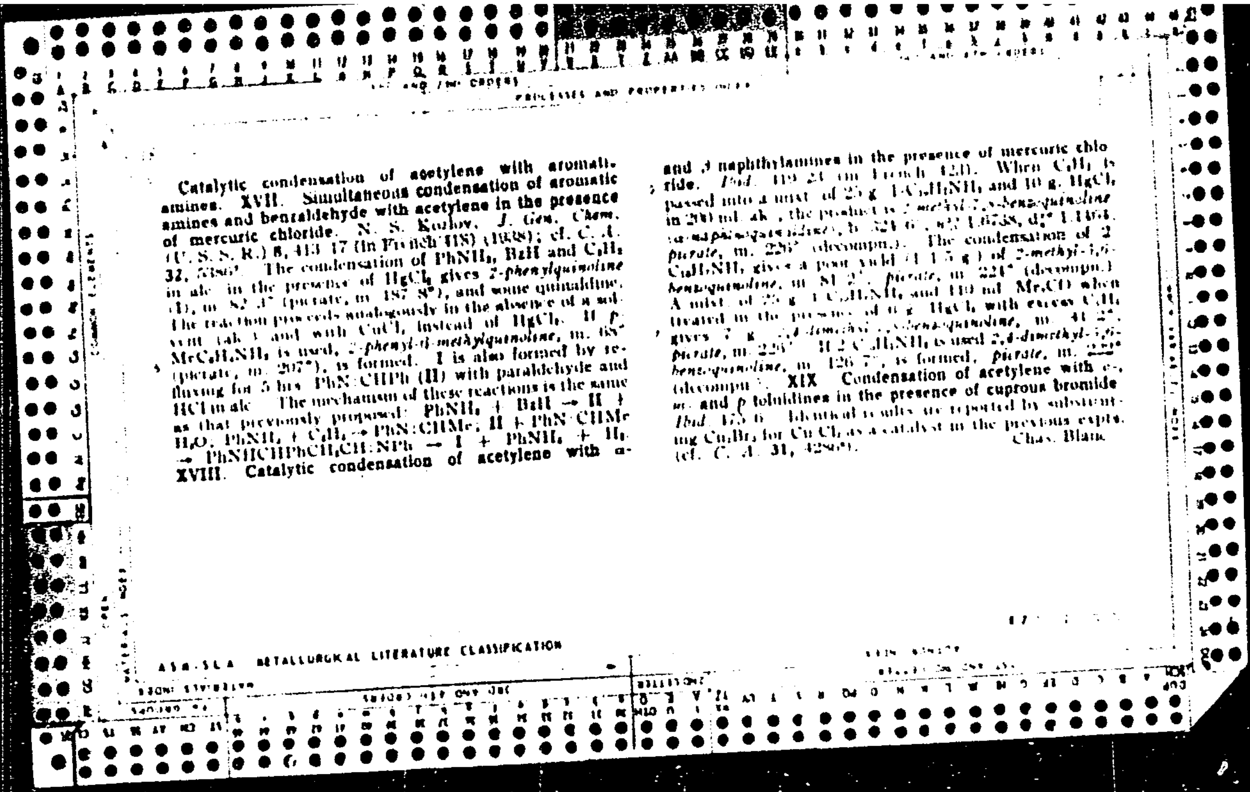
3RD AND 4TH ORDERS

Catalytic condensation of acetylene with aromatic amines. XVI. Simultaneous condensation of acetylene and acetone with aniline and toluidines in the presence of cupric chloride. N. S. Kozlov. *J. Gen. Chem.* (U. S. S. R.), **8**, 300-9(1938); cf. *C. A.* **32**, 5655. —In the condensation of Me_2CO and C_2H_2 with $PhNH_2$ and isomeric toluidines by the previous method identical compds. were obtained by using $CuCl_2$ instead of the Cu_2Cl_2 (Cu_2Br_2) catalysts.

Chas. Blanc

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

Catalytic condensation of acetylene with aromatic amines. XVII. Simultaneous condensation of aromatic amines and benzaldehyde with acetylene in the presence of mercuric chloride. N. S. Kozlov. *J. Gen. Chem.* (U. S. S. R.) **8**, 413-17 (in French 418) (1938); cf. *C. A.* **32**, 5386. The condensation of $PhNH_2$, BzH and C_2H_2 in alc. in the presence of $HgCl_2$ gives *2-phenylquinoline* (I), m. 82-3° (picrate, m. 187-8°), and some quinaldine. The reaction proceeds analogously in the absence of a solvent (alc.) and with $CuCl_2$ instead of $HgCl_2$. If *p*-$MeC_6H_4NH_2$ is used, *2-phenyl-6-methylquinoline*, m. 68° (picrate, m. 207°), is formed. I is also formed by refluxing for 5 hrs. PhN:CHPh (II) with paraldehyde and HCl in alc. The mechanism of these reactions is the same as that previously proposed: $PhNH_2$ + BzH → II + H_2O, $PhNH_2$ + C_2H_2 → PhN:CHMe; II + PhN:CHMe → $PhNHCHPhCH_2CH{:}NPh$ → I + $PhNH_2$ + H_2. **XVIII. Catalytic condensation of acetylene with α- and β-naphthylamines in the presence of mercuric chloride.** *Ibid.* 419-24 (in French 424). When C_2H_2 is passed into a mixt. of 25 g. 1-$C_{10}H_7NH_2$ and 10 g. $HgCl_2$ in 200 ml. alc., the product is *2-methyl-7,8-benzoquinoline* (*α-naphthoquinaldine*), b. 324-6°, n_D^{20} 1.6758, d_4^{20} 1.1464, *picrate*, m. 225° (decompn.). The condensation of 2-$C_{10}H_7NH_2$ gives a poor yield (1-1.5 g.) of *2-methyl-5,6-benzoquinoline*, m. 81-2°, *picrate*, m. 221° (decompn.). A mixt. of 25 g. 1-$C_{10}H_7NH_2$ and 110 ml. $MeCHO$ when treated in the presence of 6 g. $HgCl_2$ with excess C_2H_2 gives 7 g. *2,4-dimethyl-7,8-benzoquinoline*, m. 41-2°, *picrate*, m. 225°. If 2-$C_{10}H_7NH_2$ is used *2,4-dimethyl-5,6-benzoquinoline*, m. 126-7°, is formed, *picrate*, m. [illegible] (decompn.). **XIX. Condensation of acetylene with o-, m- and p-toluidines in the presence of cuprous bromide.** *Ibid.* 425-6. Identical results are reported by substituting Cu_2Br_2 for Cu_2Cl_2 as a catalyst in the previous expts. (cf. *C. A.* **31**, 4286). Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KOZLOV, N.

"Condensation catalytique de l'acetylene avec les amines aromatique.
Communication XVIII." N. Kozlov. (p. 423)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1938, Vol. 8, No. 5

KOZLOV, N.P.; KRASSOV, I.M.

Determining dynamic characteristics of an electromagnetic control element. Priborostroenie no.12:1-4 D '61. (MIRA 14:12)
(Electric controllers)

KOZLOV, N. P. (Kokchetav Oblast Agricultral Experimental Station)

"Experiment on rat liquidation in a populated point"

Veterinariya, vol. 39, no. 4, April 1962 p. 75

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

2

The boiling point of aromatic hydrocarbons. N. S. Kozlov. *Neftyanoe Khoz.* 25, No. 9, 40-4(1947).—A method for calcg. the b.p. of alkylbenzenes is based on the conception that the ring, each alkyl substituent, and each pair of substituents in different positions in the ring con-

tribute increments to the b.p. $T = A_n + B_n + C_n + \ldots$ The b.p. of the ring (A_n) $= (an + bn + cn + \ldots)$. The b.p. of each alkyl is assumed to be that of C_6H_6. The b.p. of each alkyl group (B_n, C_n, etc.) is calcd. as the difference between the exptl. b.p. of the corresponding alkylbenzene and C_6H_6, being 30.60 for Me, 56.10 for Et, etc. The no. (n) of structural elements, or identical combinations of substituents, is modified by factors (a, b, c) representing their mutual effect. These factors are calcd. for each pair of substituents from known exptl. b.ps. of isomers. For instance, in the o-, m-, and p-positions they are −3.25, −2.05, −2.85 for the pair Me-Me; −2.0, −5.25, −4.25 for the pair Me-Et, etc. Thus for 5-ethyl-m-xylene the b.p. is $T = 80.05 + 56.06 + (30.6 \times 2) - (2.05 \times 1) + (5.25 \times 2) = 184.8°$. The b.ps. of 72 alkylbenzenes calcd. by this method are tabulated along with exptl. values from handbooks. Discrepancies are attributed to noncur. exptl. values. 17 references.

Bruno C. Metzner

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

KOZLOV, N. S.

PA 51T1

USSR/Chemistry - Paraffins Jan 1948
Chemistry - Boiling Points

"Boiling Temperatures of Bonds of the Paraffin Series (Alkane)," N. S. Kozlov, Molotov, 5 pp

"Neft Khozyay" No 1

Discusses boiling temperatures of hydrocarbons of the methane series; temperature of boiling and length of the carbon chain; boiling temperature relating to construction of the carbon chain; and influence of internal factors on boiling temperature. From observations that made possible certain conclusions: Boiling temperature of paraffin hydrocarbons determined by molecular weight of the molecules, by structure of the

LC 51T1

USSR/Chemistry - Paraffins (Contd) Jan 1948

hydrocarbon atom chains, by relation of various particles to one another, and interrelation of separate molecules to one another.

LC 51T1

FA 2/49T12

USSR/Chemistry - Rubber, Substitute and Synthetic Apr 48

Rubber, Synthetic

"Synthetic Rubber," Prof N. S. Kozlov, Dr Chem Sci, 7 pp

"Nauka i Zhizn'" No 4

Describes properties of rubber and stresses its importance as strategic material. British, controlling 98% of world production of natural rubber, tried to use this as political lever. Stalin decided that USSR should produce its own rubber. Thousands of tons now produced from plantations of tau-sagyz and other plants.

2/49T12

[redacted]

USSR/Chemistry - Rubber, Substitute and Synthetic (Contd) Apr 48

Problems of synthetic rubber manufacture were first solved by USSR scientists. Describes history of latter project in detail.

2/49T12

[redacted]

KOZLOV, N. S. PROF

KOZLOV, N. S., PROF

PA 40/49T21

USSR/Chemistry - Albumen
Chemistry - Hydrolysis

Sep 48

"Albumen Chemistry," Prof N. S. Kozlov, Dr Chem Sci, 8 pp

"Nauka i Zhizn'" No 9

Discusses albumen and the emergence of life, chemical composition of organisms, elementary chemical composition of albumens, hydrolysis of albumens, structure of albumen molecule, and recent discoveries by Soviet scientists in this field. N. I. Gavrilov, a student of N. D. Zelinskiy, is credited with most of these discoveries.

40/49T21

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1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

F

J

3701. BOILING POINTS OF COMPOUNDS OF ALIPHATIC SERIES. Kozlov, N. S. (Neft Khoz., 1948, vol. 26, (4), 47-51; abstr. in Chem. Abstr., 1948, vol. 42, 7118).

The method of calculating the boiling points of alkanes having only methyl groups as substituents is now extended to cover the corresponding alkenes. The additional increment representing the depression in boiling point due to the presence of double bonds in different positions is - 5° for the 1-position, 0 for the 2-position, - 2° for the 3-position, -3° for the 4-position, etc. The effect of two methyl side chains at adjacent carbon atoms linked by a double bond has not yet been determined. The calculated values are tabulated along with known experimental values for some 120 olefins ranging from butenes to 2,6-dimethyloctene.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

10

The molecular structure and physicochemical properties of organic compounds. I. The boiling points of the halogen derivatives of the aromatic series. N. S. Kozlov (Molotov State Pedagog. Inst.). *J. Gen. Chem.* (U.S.S.R.) 19, No 10, a311-23(1949)(English translation). II. Structure and refractive index of hydrocarbons of the methane series. *Ibid.* a325-3 See C. A. 44, 1919f.

E. J. C.

CA

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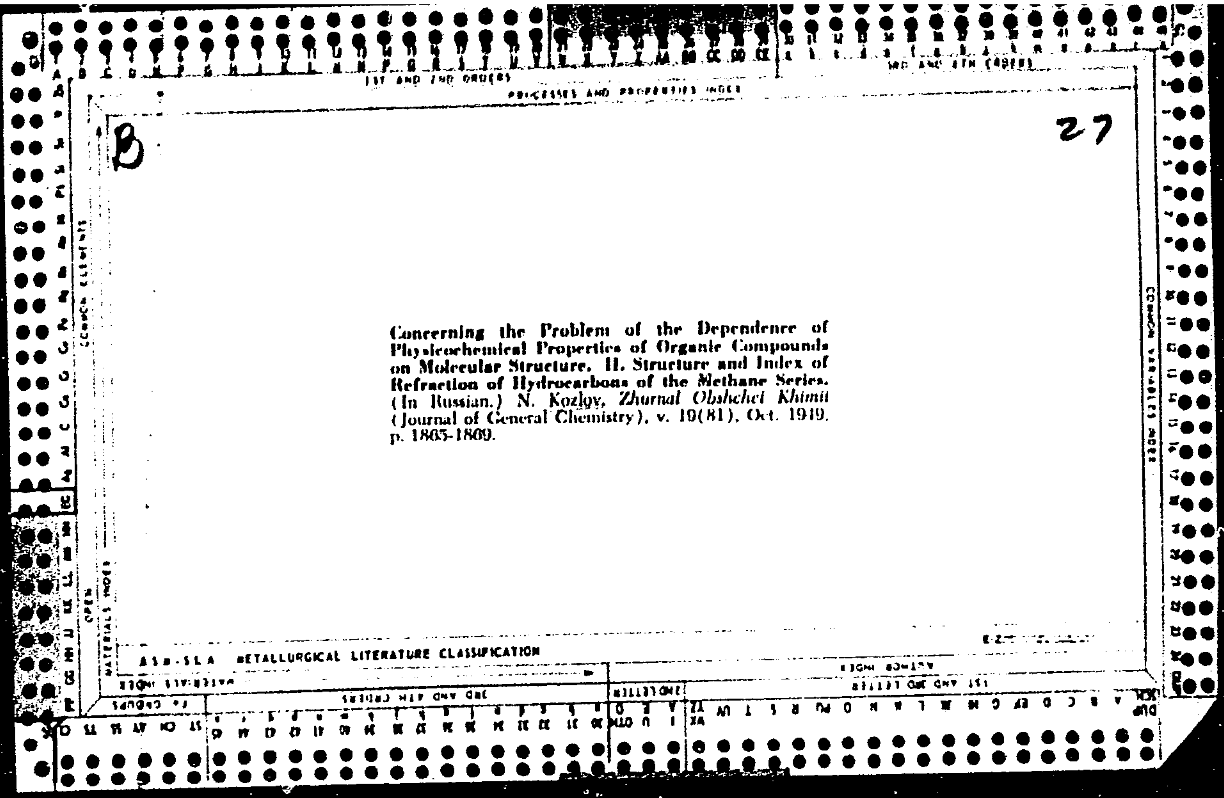
Structure of the molecule and physicochemical properties of organic compounds. I. Boiling points of aromatic halides. N. S. Kozlov (Molotov State Pedagog. Inst.). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 19, 1853-64(1949).—A formula is proposed for calcg. the b.ps. of aromatic halogen compds. on the basis of additivity of the effects of substituents. The formula takes the form $T = A_n + B_n + C_n + \ldots \pm (a_n + b_n + c_n \ldots)$, where T is the b.p. of the compd., A, B, C, . . . are the coeffs. of the structural elements of the mol., and a, b, c, . . . are coeffs. of corrective nature expressing the effect of "mutual interaction" of the substituents on the b.p.; **n** is the no. of given groups present. The coeffs. calcd. from the literature data are as follows: A, B, C type coeffs.: A (benzene itself) 80.05, Me 30.60, Et 56.10, Pr 79.20, iso-Pr 74.40, Cl 51, Br 76, I 108, OH 102, NO_2 131; coeffs. of a, b, c type: Me-Me ortho 3.25, meta −2.05, para −2.85; Et-Me ortho −2.0, meta −5.25, para −4.25, Me-Cl ortho −3.0, meta −1.0, para −1.0, Me-Br ortho −6.6, meta −3.6, para −3.0, Me-I ortho −8.6, meta −5.6, para −5.0, Me-F ortho −2.6, meta and para 0.0, Cl-Cl ortho −2.0, meta −8.0, para −8.0, Br-Br ortho −7.0, meta −11, para −12, Cl-I ortho −7.0, meta −12, para −14, F-F ortho −1.5, meta −0.0, para −2.0, Cl-Br ortho −4.0, meta −10, para −11, Br-I ortho −8.0, meta −13, para −13. A large no. of examples support the applicability of the formula. On this basis it is suggested that the correct b.p. of 1,2-dimethyl-3,4-dichlorobenzene is 240°, and not 222°, while the correct b.p. for 2,4,5,1,3-$Cl_3C_6HMe_2$ should be 255°, and for 2,4-$Br_2C_6H_3Me$ should be 243°, not 275°. II. **Structure and coefficient of refraction of hydrocarbons of the methane series.** *Ibid.* 1865-9(1949).—An empirical formula for calcn. of n_D of paraffins has been developed: $R = R' \pm (an + bn + cn + \ldots)$, where R' is the refraction coeff. of the normal hydrocarbon, R is the coeff. of the desired isomer, and a, b, c . . . are coeffs. of influence of structural factors on refraction and n is the no. of similar structural units. The a, b, c . . . type factors are: a C—C(—C)—C structure lowers R by 0.0025, C—C—C(—C)—C—C raises R by 0.0011, C—C—C—C(—C)—C raises R by 0.0004, a further shift of the side-chain has essentially no effect, C—C—C(—C—C)—C raises R by 0.0040, while a further shift of —C—C unit gives no substantial change, C—C(—C)$_2$—C—C lowers R by 0.0050, C—C—C(—C)$_2$—C raises R by 0.0022, C—C—C(—C)(—C—C)—C—C raises R by 0.0030. Adjacent Me groups raise R by 0.0050. A no. of successful applications are given.

G. M. Kosolapoff



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Concerning the Problem of the Dependence of Physicochemical Properties of Organic Compounds on Molecular Structure. II. Structure and Index of Refraction of Hydrocarbons of the Methane Series. (In Russian.) N. Kozlov, *Zhurnal Obshchei Khimii* (Journal of General Chemistry), v. 19(81), Oct. 1949. p. 1865-1869.

CA

The dependence of physico-chemical properties of organic compounds on molecular structure. III. Boiling points of phenols. N. S. Kozlov (Molotov State Pedagog. Inst.). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 20, 1008-18(1950); cf. *C.A.* 44, 6396*f*.—The additive formulation of b.ps. presented in the previous paper was applied to a large no. of phenols. Excellent agreement with the exptl. values was found when the coeffs. of the structural elements used were OH 102, MeO 74.5, EtO 90.0, OAc 111°, resp. The following b.ps. are suggested as the correct ones: for 2,3,4,5-Me_4C_6HOH 260°, 2,4,5-$Me_3C_6H_2OH$ 212-13°, 3,5-$(MeO)_2C_6H_3Me$ 227-8°, 2,3-isomer 214°, 4-methyl-3-isopropylphenol 241°. Predictions are made as follows for unknown compds.: 4,2,3,5-$MeEt_3C_6HOH$ 266°; Me_5C_6OMe 253°, Me_5C_6OEt 264°, Me_5C_6OAc, 273°. The following corrections for *o*-, *m*-, and *p*-locations, resp., of 2 groups are suggested: OH-Me −10, −9.6, −10.6; OH-Et −31.1, −24.1, −19.1; OH-Pr −36.2, −33.2, −29.2; OH-iso-Pr −40.4, −26.4, −25.4; Me-OMe −14.1, −8.6, −8.6; Me-EtO −15.6, −8.6, −10.6; HO-HO −42, −8, +2; OH-OMe −31.5, −12.5, −13.5; OMe-OMe −21, −15, −16; Me-OAc −17.6, −13.5, −12.6; HO-Cl −57, −19, −16; HO-Br −63, −22, −20; MeO-Cl −10.5, −7.5, −7.5; EtO-Cl −11, −10, −10; MeO-Br −12.5, −16.5, −15.5. Addnl. "cor." b. ps. are: 3,4,5-$Cl_3C_6H_2OMe$ 273°, 2,4,6-$MeBr_2C_6H_2OH$ 244°. **IV. Boiling points of alcohols and ethers of the paraffin series.** *Ibid.* 1019-29.—The b.ps. of alcs. may be calcd. from the b.p. of the normal member by means of the formula: $T' = T - (A_n + B_n + C_n + \ldots)$, where, T' is the b.p. of an alc. with branched structure, T is that of the alc. of normal structure, A, B, C coeffs. of structural factors and group effects, while *n* is the no. of similar such factors present in a mol. For alcs. the following factors are suggested. Position of OH group: in $MeCH(OH)CH_2$- −18°, $EtCH(OH)$- −21°, no change on further shift in the chain. Location of a Me group: $-CH(OH)CHMeCH$- −10°, $-CH(OH)CH_2CHMe$- −8°, $-CH(OH)CH_2CH_2CHMe$- −6°. Structural factor for $-CH(OH)CMe_2$- −20°, $-CH(OH)CH_2CMe_2$- −10°, no further change on shift along the chain; $Me_2C(OH)CH_2$- −16°, $MeEtC(OH)CH_2$- −13°. Addnl. structural factors for agglomerations of Me groups in the vicinity of O are: for $-CMe_2CH(OH)CHMe$- 8°, $-CMe_2CMe(OH)CHMe$- 12°, $-CMe_2CH(OH)CMe_2$- 16°, $-CMe_2CMe(OH)CMe_2$- 24°. For Me and Et ethers the following neg. corrections of b.p. are suggested: for OR located on the 2nd C atom from the end of the chain 10°, unchanged on location further from the chain ending; adjacent OR-Me groups 11°, spaced by 1 CH_2 8°, by 2 CH_2 groups 6°, OR adjacent to CMe_2 18°. The results of calcns. for numerous ROH and ROR compds. are cited.

G. M. Kosolapoff

KOZLOV, N.

"The dependence of the physico-chemical properties of organic compounds on molecular structure. IV. Boiling points of alcohols and ethers of the paraffinic series." (p. 1019)

SO: Journal ofGeneral Chemistry, (Zhurnal Obshchei Khimii), 1950, Vol. 20, No. 6.

KOZLOV, N.B.

Influence of carbon dioxide on the amount of ammonia, glutamine, and urea in the blood of animals following the administration of an ammonium chloride solution. Biul.eksp. biol. i med. 50 no.10: 73-78 O '60. (MIRA 14:5)

1. Iz kafedry biokhimii (zav. - prof. V.I.Panisyak) Smolenskogo meditsinskogo instituta. Predstavlena deystvitel'nym chlenom AMN SSSR V.V.Parinym.
(CARBON DIOXIDE—PHYSIOLOGICAL EFFECT)
(BLOOD—EXAMINATION) (AMMONIUM CHLORIDE—TOXICOLOGY)

CA

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**Molecular structure and physicochemical properties of
organic compounds. V. Boiling points of monohalides of
the aliphatic series.** N. S. Kozlov (State Pedagog. Inst.,
Molotov). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 20,
1616-20(1950); cf. C.A. 44, 8000.—Monochlorides of the
aliphatic series are shown to follow the b.p. formula $T =$
$T' - (A_n - B_n - C_n \ldots)$, where T is the b.p. of a given
isomer, T' is the b.p. of the primary halide with normal chain,
A, B, C, . . . are structural coeffs., and n is the no. of such
identical units. Placement of Cl on the 2nd carbon atom
lowers the b.p. by 10°; placement at the 3rd C atom gives a
7° lowering; further movement down the chain has no fur-
ther effect. Me on the C adjacent to that carrying Cl lowers
the b.p. by 8°; a spacing by 1 more C atom gives a 7° lower-
ing, while further sepn. gives no further effect; Me placed
on the same C atom as the Cl gives a 10° lowering. A C:C
group attached to a Cl-carrying C atom lowers the b.p. 5°
in a 3-C system; in a 4-C system the lowering is 0°; a C:C
group attached to a Cl atom and carrying a 2-C chain on the
terminal C lowers the b.p. 2°, while a straight 3-C terminal
chain gives a 3° drop. An Me_2C:CH group lowers the b.p.
by 4°, while —CHCMe:CH— gives a 2° lowering, in com-
parison with the primary halide with normal structure of
the same no. of C atoms. Comparison of numerous known
compds. with calcd. data is made. **VI. Boiling points of
aldehydes and ketones of the aliphatic series.** *Ibid.* 1621-5.
—A general formula $T = T' - (A_n + B_n + \ldots)$ (above
abstr.) is used for correlating the b.ps. of carbonyl compds.
While MeCO, used as reference structure, shows 0° depression,
EtCO gives a 2° drop, PrCO gives a 4° drop, and further
radical increase, i.e. shift of CO down the chain, has no
effect. The groups —COCHMe—, —COCH$_2$CHMe—,
—COCH$_2$CH$_2$CHMe—, —COCMe$_2$—, and —COCH$_2$-
CMe$_2$— give drops of 10°, 9°, 7°, 20°, and 18°, resp.
Numerous compds. are listed from the available data.

G. M. Kosolapoff

KOZLOV, N.

"Molecular structure and boiling points of organic compounds. VI. Boiling points of aliphatic aldehydes and ketones." (p. 1621)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1950, Vol 20, No 9.

CA

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Molecular structure and boiling points of organic compounds. VII. Boiling points of amines and nitro compounds of the paraffin series. N. S. Kozlov (*Zhur. Obshchei Khim.* (J. Gen. Chem.) 20, 2111-31(1950); cf. C.A. 45, 1019d. The previously proposed formulation of b.ps. $t = T' + (a + b + c + \ldots)$, where t is the b.p. of a substance with branched chain, T' is that of the straight-chain isomer, and $a, b, c, \ldots$ are structural coeffs., is applicable to aliphatic amines. The correction factors are: 12° for the $MeCHNH_2$ structure, 10° for $EtCH(NH_2)$, no change on further shift; 1° for $CH_3CMe(NH_2)CH_3$; 9° for $CH_3CH(NH_2)CHMe_2$, $H_2NCH_2CHMe_2$, $CH_3CH_2(NH_2)CH_2CHMe_2$, or $H_2NCH_2CH_2CHMe_2$; −4° for $CH_3CH(NH_2)CH_2CH_2CHMe-$ or $H_2NCH_2CH_2CH_2CHMe-$; zero for $-CH_2CH(NH_2)(CH_2)_4CHMe-$ or $H_2N(CH_2)_5CHMe-$; −18° for $CH(NH_2)CMe_3$. A double bond (C:C) system linked to a C atom carrying the NH_2 raises the b.p. by 8°. For nitro compds. the coeffs. are: 12° for $MeCH(NO_2)-$, or for $EtCH(NO_2)-$; −7° for $CH_2(NO_2)CHMe_2$; 5° for $-CH(NO_2)CH_2CHMe-$, −10° for $CH_3CMe(NO_2)CHMe-$, −10° for $CH_3CMe(NO_2)CH_3$, −11° for $CH_2(NO_2)CMe_3$. Numerous literature data are used in support of the values used. G. M. Kosolapoff

1951

KOZLOV, N.S.; PAK, V.D.

Catalyzed condensation of Schiff bases from p-aminobenzoic esters and aromatic aldehydes with aliphatic aromatic ketones. Izv.vys.ucheb.zav.;khim.i khim.tekh. 5 no.3:442-444 '62. (MIRA 15:7)

1. Permskiy sel'skokhozyaystvennyy institut imeni D.N. Pryanishnikova, kafedra khimii.

(Benzoic acid) (Schiff bases)

KOZLOV, N. S.

Acids, Organic

Determination of the nature of hydroxy acids. Usp. khim., 21, No. 1, 1952.

<u>Monthly List of Russian Accessions</u>, Library of Congress, June 1952. UNCLASSIFIED.

KOZLOV, N.

USSR/Chemistry - Catalytic Amination 1 Jul 52

"Catalytic Amination of Cyclohexanol," N. Kozlov, L. Akhmetshina

"Dok Ak Nauk SSSR" Vol LXXXV, No 1, pp 91-93

Catalytic amination of cyclohexanol can proceed in 2 directions, depending on the pressure. If the pressure of ammonia is 1 atm, the reaction is largely dehydrogenation of the cyclohexanol into cyclohexane; if the pressure is from 5 to 10 atm, the reaction of amination predominates. The optimum temp range for the reaction is 260-300°. At this temp and a pressure of 8-10 atm, the yield of cyclohexylamine was 70-74%. Presented by Acad N. D. Zelinskiy 16 Apr 52.

224T11

KOZLOV, N.S.

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5

Catalytic condensation of acetylene with aromatic amines. XX. Catalytic synthesis of halogen and sulfanilamido derivatives of quinaldine. N. S. Kozlov and O. E. Kostromina (State Pedagog. Inst., Stalino). Sbornik Statei Obshchei Khim. 2, 926-30(1953); cf. C.A. 32, 7918.—Dry C_2H_2 was passed 20 hrs. into 40 g. p-$ClC_6H_4NH_2$, 65 ml. EtOH, and 5 g. $HgCl_2$, 2 g. $HgCl_2$ then added, and the gas stream continued 12 hrs. longer; addn. of NaOH and steam distn. yielded 30.5% *6-chloroquinaldine*, m. 91°; *picrate*, decomp. 208°. Similarly was obtained 21.4% *6-bromoquinaldine*, m. 97°. Passage of C_2H_2 100 hrs. into 100 g. p-$H_2NC_6H_4SO_2NH_2$, 200 ml. EtOH, and 8 g. $HgCl_2$ gave a red tar with some Hg; the product was sepd., taken up in HCl, filtered, and neutralized with Na_2CO_3 yielding *6-sulfanilamidoquinaldine*, m. 212-13° (40.3%). Cf. Chelintsev and Zakotin, C.A. 36, 4771. XXI. Catalytic synthesis of 2-phenyl derivatives of quinoline. *Ibid.* 931-3.—Passage of C_2H_2 20 hrs. into 40.2 g. o-$MeC_6H_4NH_2$, 50 ml. EtOH, 36.5 g. BzH, and 5 g. $HgCl_2$, addn. of 5 g. $HgCl_2$, continuation of the gas stream 13 hrs., addn. of NaOH and steam distn. gave a residue of 68 g. crude product which on distn. yielded 14.8% *8-methyl-2-phenylquinoline*, m. 58°, isolated by distn., b_7 160-73°; after treatment with $K_4Fe(CN)_6$, then with KOH, and redistn., it b_5 165-70°; analyzed as the *chloroplatinate*. The following substituted *2-phenylquinolines* were similarly prepd.: *7-Me* (35.4% from m-$MeC_6H_4NH_2$), m. 100° (from EtOH) (*picrate*, m. 192°; *chloroplatinate*); *6-MeO* (30.1% from p-$MeOC_6H_4NH_2$), m. 133° (*picrate*, decomp. 205°; *chloroplatinate*); *8-EtO* (18% from o-$EtOC_6H_4NH_2$), m. 70° (*picrate*, m. 164°; *chloroplatinate*; the crude base, b_5 160-300°); *6-Et* (33% from p-$EtOC_6H_4NH_2$) m. 136-7° (*picrate*, decomp. 247°; *chloroplatinate*). XXII.

M., SPAZLO

Catalytic synthesis of 2-(*p*-methoxyphenyl)quinoline and its derivatives. *Ibid.* 931-6.—Passage of C_2H_2 into 20.5 g. $PhNH_2$, 100 ml. EtOH, 10.4 g. *p*-$MeOC_6H_4CHO$ and 5 g. $HgCl_2$ 10 hrs., addn. of 2 g. $HgCl_2$, and further gas passage 20 hrs. gave 40 g. tarry product which was taken up in 1:3 HCl, filtered, treated with $K_4Fe(CN)_6$ soln., and the pptd. complex treated with Na_2CO_3, yielding 24% *2-(p-methoxyphenyl)quinoline*, m. 121-12° (from C_6H_6); *picrate*, decomp. 201-2°; *chloroplatinate*, bright yellow. The same reaction with *p*-$MeC_6H_4NH_2$ gave 20% *6-methyl-2-p-methoxyphenylquinoline*, m. 134° (from C_6H_6); *picrate*, decomp. 213°; *chloroplatinate*, orange. Similarly were prepd. the following *substituted 2-(p-methoxyphenyl)quinolines*: *7-Me* (21.1% from *m*-$MeC_6H_4NH_2$), m. 141° (*picrate*, decomp. 208°; *chloroplatinate*, yellow); *8-Me* (23.7% from *o*-$MeC_6H_4NH_2$), b. 180-200° (crude), m. 83-4° (from EtOH) (*picrate*, decomp. 187°; *chloroplatinate*, bright yellow); *8-EtO* (15% from *o*-$EtOC_6H_4NH_2$), b. 210-12°, m. 98° (from C_6H_6) (*picrate*, decomp. 197°; *chloroplatinate*, yellow). XXIII. Catalytic synthesis of 2-(3,4-methylenedioxyphenyl)quinoline compounds. *Ibid.* 937-41.—Passage of C_2H_2 into 30 g. piperonal, $PhNH_2$, 75 ml. EtOH, and 5 g. $HgCl_2$ 20 hrs., addn. of 3 g. $HgCl_2$ and continuation of the C_2H_2 treatment 30 hrs. gave after the treatment described above (preceding abstr.) 20.1% *2-(3,4-methylenedioxyphenyl)quinoline*, $C_{16}H_{11}O_2N$, m. 91°; *picrate*, decomp. 216° (from EtOH); yellow *chloroplatinate*. Same reaction with *m*-$MeC_6H_4NH_2$ gave 20% *7-Me deriv.*, b. 188°; *picrate*, decomp. 231-3°; yellow *chloroplatinate*. The following *Schiff bases* were prepd. from *piperonal* and aromatic amines (amine component shown): *$PhNH_2$*, m. 67°; *o-$MeC_6H_4NH_2$*, m. 103°; *m-analog*, m. 71°; *p-analog*, m. 101°; *p-$ClC_6H_4NH_2$*, m. 79°; *p-$BrC_6H_4NH_2$*, m. 108°; *p-$MeOC_6H_4NH_2$*, m. 108°; *o-$EtOC_6H_4NH_2$*, m. 79°; *p-analog*, m. 104°. G. M. Kosolapoff

<u>KOZLOV</u>, N. and Kostromina, O. Ye.

Catalytic Condensation of Acetylene with Aromatic Amines. XXI. Catalytic Synthesis of α-Phenyl Derivatives of Quinoline. Page 931
Sbornik statey po obshchey khimii (Collection of Papers on General Chemistry), Vol II, Moscow-Leningrad, 1953, pages 1680-1686.

Molotov State Pedagogical Inst.

KOZLOV, M. and Kostromina, O. Ye.

Catalytic Condensation of Acetylene with Aromatic Amines. XXII. Catalytic Synthesis of 2- (p-Methoxphenyl) -Quinoline and its Derivatives, page 934. Sbornik statey po obshchey khimii (Collection of Papers on General Chemistry), Vol II, Moscow-Leningrad, 1953, pages 1680-1686.

Molotov State Pedagogical Inst.

KOZLOV, N. and O. Ye. Kostromina.

Catalytic Condensation of Acetylene with Aromatic Amines. XXIII. Catalytic Synthesis of α-Piperonyl Quinoline Compounds, page 937.
Sbornik statey po obshchey khimii (Collection of Papers on General Chemistry), Vol II, Moscow-Leningrad, 1953, pages 1680-1686.

Molotov State Pedagogical Inst.

USSR.

Dependence of physicochemical properties of organic compounds on the structure of their molecules. VII. Boiling points of aromatic amines. N. S. Kozlov (State Pedagog. Inst., Moscow). Sbornik Statei Obshchei Khim. 2, 1193-1207(1953); cf. C.A. 49, 1081f.—In the general equation for b.p. of substituted compounds: T = An + Bn + Cn... ± (an + bn + cn...), where A, B, C are structural coeffs. (the inherent effect of a substituent on the b.p. due to its structure) and a, b, c are coupling coeffs. of substituents and n is the no. of given elements in the molecule, the following values for structural coeffs. (the effect of interaction between substituent groups on b.p.) are detd.: NH2 104, OMe 74.5, NHMe 114, NMe2 118, Me 30.0, Et 60.1, Cl 61, Br 70. The coupling coeffs. (o-, m-, p-, resp.): Me, NH2 −18, −11.0, −13.0; Et, NH2 −20.1, −24, −24.1; OMe, NH2 −32, −18, −13; OEt, NH2 −40, −28, −20; NH2, NH2 −33, −0, −20; Me, NHMe, −28.6, −9.0, −13.0; Me, NHEt, −21.0, −14.0, −16.0; Me, NEt2 −31.0, −19.0, −17.0; NMe2, NMe2 −98, −44, −40; NH2, I −21, −4, −2; NH2, Cl −20, −0, −4; NHMe, Cl −21, −11, −3; NMe2, Cl −30, −12, −13; NHPh, Me −37, −20, −17. Numerous examples are used to support these values. It is suggested that 2,3-dimethylaniline b. 246.2°, rather than 233°. Numerous calcd. b.p. are given for unknown amines, as predictions.

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Kozlov, N. S.

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nary ammonium salt, the latter reacted in 60 min. Treated with excess NH_4Cl, the mixture placed in 1 hr. the mixt. shaken with H_2O, [illegible] Et_2O several times with 5N H_2SO_4 and the amines were isolated from the acidic ext. in the usual manner. In several cases neutral products were isolated from the Et_2O ext. The Et_2O layers, the original org. layer when [illegible] had usually yielded small amts. of the identical material. V thus gave in this manner 70% $PhCH_2NMe_2$, b. 180-1 (methiodide, m. 117-17.5 (from MeOH)), and 1% material b. 110-20°, apparently o-$MeC_6H_4CH_2NMe_2$ (picrate). V bromide yielded by the same procedure 53% $PhCH_2NMe_2$, b. [illegible] (methiodide, m. 170-80°), and 13% o-$MeC_6H_4CH_2NMe_2$ (IX), b. 137-8° (picrate m. 195.5-6° (from MeOH)). III iodide yielded in the same manner 11% styrene (obtained partly as polymer), b. 145-7°, 12% IV, b. 100-1° (became yellow after a few days but was readily purified and converted in 10% yield by refluxing with dil. H_2SO_4 a few hrs., followed by neutralization with alk. to [illegible], m. 110.5-11° (from EtOH)), and 11% [illegible] amine, b. 105-7°; the residue, presumably the tertiary amine (11%), began to distill at 125°/5 mm. IV MeI with $NaNH_2$ gave 90% V, b. 119°

Me on 3rd C [illegible] chain end -0.0050; $MeCH_2CHMe$ +0.0080; $MeCH_2CHCHMe$ +0.0050; Me_3C -0.010; $MeCH_2CMe_2$ [illegible]; $MeCH_2CHRCH_2$ +0.0100; $MeCHRCH_2$ [illegible]; $Me_2CHCHMe$ +0.100; $MeCHRCH_2$ [illegible]. Numerous examples are cited.

G. M. Kosolapoff

[illegible]

On the Physico-Chemical Properties of Organic Compounds as Determined by the Structure of Their Molecule, VIII. Boiling Points of Nitro Compounds of the Aromatic Series, [illegible], Sbornik statey po obshchey khimii (Collection of Papers on General Chemistry), Vol II, Moscow-Leningrad, 1953, pp [illegible].

Molotov State Pedagogical Inst

KOZLOV N.

Physico-Chemical Properties of Organic Compounds as Determined by the Structure of Their Molecule. IX. Specific Gravity and Molecular Structure of Methane Hydrocarbons, [illegible] 1950, Sbornik statey po obshchey khimii (Collection of Papers on General Chemistry), Vol II, Moscow-Leningrad, 1953, pages 1681-1686.

Molotov Statee Pedagogical Inst

KOZLOV, N. S.

Chem Abs v48
1-25-54
General Physical
Chemistry

Outstanding Russian chemist-scientist Nikolai Nikolaevich Sokolov. N. S. Kozlov. *Uspekhi Khim.* 22, 119-28 (1953).—Biography on 75th anniversary of S.'s death (1826-1877); 33 references. G. M. Kosolapoff

KOZLOV, N.

USSR/Chemistry - Structure of Organic [illegible] 53
Compounds

"[illegible] and the Structure of [illegible]," [illegible]

Zhur Fiz Khim, Vol 27, No 2, pp 219-233

On the basis of work by A. A. Nikol'skiy and [illegible] and other data one may conclude that the bp characterizes the compn and structure of mols of a multitude of org compds. The presence of C-C-C bond angles in straight chains [illegible], crit temp, and free surface energy of the compd. The bp's at 760 mm represent a sum of values corresponding to the mol wt and peculiarities of the compn and structure of mols. Every characteristic unit of compn and structure of the mol is reflected in the [illegible] of the difference and that of any other substance [illegible].

[illegible]

KOZLOV, N.S.

USSR/Chemistry - Catalytic synthesis

Card 1/1 Pub. 151 - 26/38

Authors : Kozlov, N. S., and Panova, N. I.

Title : Catalytic condensation of acetylene with aromatic amines. Part 24.- Catalytic synthesis of 2-(p-methylphenyl)-quinoline and its derivatives

Periodical : Zhur. ob. khim. 24/2, 317-319, Feb 1954

Abstract : The reaction of catalytic condensation of acetylene with various aromatic amines and p-toluyl aldehyde was investigated. The derivation of new 2-(p-methylphenyl)-quinoline, 6-methyl-2-(p-methylphenyl)-quinoline, 6-methoxy-2-(p-methylphenyl)-quinoline and 6-ethoxy-2-(p-methylphenyl)-quinoline as result of catalytic condensation of acetylene with different aromatic hydrocarbons is described. The chemical properties of these new derivatives are listed. Two USSR references (1938 and 1953).

Institution : State Pedagogical Institute, Molotov

Submitted : July 28, 1953

KOZLOV, N.S., professor

Aleksandr Porfir'evich Borodin. Khim.v shkole 10 no.2:25-29 Mr-Ap '55.
(Borodin, Aleksandr Porfir'evich, 1833-1887) (MLRA 8:7)

Kozlov, N.S

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Reaction of vinyl esters with primary aromatic amines. N. S. Kozlov and I. A. Shur (State Pedagog. Inst., Molotov). *Zhur. Obshchei Khim.* 25, 2105-6(1955).—To 6 g. PhNH$_2$ and 10 ml. concd. HCl on a steam bath there was added dropwise 7.5 g. CH$_2$:CHO$_2$CPr and the cooled mixt. was washed after 2 hrs. with aq. NaOH, extd. with Et$_2$O and distd., yielding 6 g. material, b. 190-260°, sol. in aq. HCl; treatment with picric acid gave 6 g. quinaldine picrate, m. 191°. Similar reaction with *p*-MeC$_6$H$_4$NH$_2$ (6 g.) gave 6 g. quinoline bases, b. 205-70°, which yielded 29.48% 2,6-dimethylquinoline picrate, m. 191°; free base, m. 60°. The use of *m*-MeC$_6$H$_4$NH$_2$ similarly gave 31.7% 2,7-dimethylquinoline, m. 62° (picrate, m. 180°), while *m*-xylidine gave 30.3% 2,6,8-trimethylquinoline picrate, m. 190°.

G. M. Kosolapoff

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KOZLOV, N.S., (Molotov); SHUR, I.A., (Molotov).

Method for teaching the phenomenon of isomerism in a secondary school. Khim.v shkole 11 no.5:40-42 S-O '56. (MLRA 9:11)
(Isomers--Study and teaching)

KOZLOV, N.S.; PINEGINA, L.Yu.

Catalytic condensation of acetylene with aromatic amines. Part 25. Synthesis of 2-(oxyphenyl) derivatives of quinoline. Zhur.ob. khim. 26 no.1:247-250 Ja '56. (MLRA 9:5)

1. Molotovskiy gosudarstvennyy pedagogicheskiy institut.
(Quinoline)

KOZLOV, N.S.; AKHMETSHINA, L.F.

Catalytic amination of phenol esters and ethers. Zhur.ob.khim. 26
no.3:709-711 Mr '56. (MLRA 9:8)
(Amination) (Phenols)

KOZLOV, N.S.; CHUMAKOV. S.Ya.

Catalytic condensation of acetylene with aromatic amines. Part 26: Catalytic condensation of compressed acetylene with aromatic amines in vapor phase. Zhur.ob.khim. 27 no.10:2861-2864 O '57.

(MIRA 11:4)

(Condensation (Chemistry)) (Acetylene) (Amines)

Kozlov, N. S.

AUTHORS: Kozlov, N. S., Koz'minykh, O. K. 79-11-44/56

TITLE: Catalytic Condensation of Acetylene With Aromatic Amines. XXX. Catalytic Synthesis of m-Nitro-, Amino- and Sulfamido-Derivatives of 2-Phenylquinoline and 2-Phenyl-5,6-Benzoquinoline (Kataliticheskaya kondensatsiya atsetilena s aromaticheskimi aminami. XXX. Kataliticheskiy sintez m - nitro-, amino - i sul'famidoproizvodnykh 2 - fenilkhinolina i 2 - fenil - 5,6 - benzokhinolina).

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, Nr 11, pp. 3122-3127 (USSR)

ABSTRACT: Nitro- and amino-derivatives of 2-phenylquinoline and 2-phenyl-5,6-benzoquinoline are very little investigated. In the present work the authors continued the investigation of the reaction of the joint condensation of acetylene with aromatic amines and aromatic aldehydes. They succeeded in working out a new application of this reaction for the synthesis of the nitro-derivatives of 2-phenylquinoline and in obtaining new amino- and sulfamide-derivatives of 2-phenylquinoline from them. In the synthesis of the nitro-derivatives the authors used aromatic amines, aniline, m- and p-toluidine, p-anisidine, p-phenetidine and

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Catalytic Condensation of Acetylene With Aromatic Amines. 79-11-44/56
XXX. Catalytic Synthesis of m-Nitro-, Amino- and Sulfamido-
Derivatives of 2-Phenylquinoline and 2-Phenyl-5,6-Benzoquinoline

β-naphthylamine; from the aromatic aldehydes - m-nitrobenzaldehyde. They synthesized a number of nitroderivatives of 2-phenylquinoline and 2-phenyl-5,6-benzoquinoline (see table 1). Thus the authors obtained a number of nitro-, amino- and sulfamido-derivatives of 2-phenylquinoline and 2-phenyl-5,6-benzoquinoline, of which 26 were hitherto not described in publications.
There are 2 tables, and 16 references, 9 of which are Slavic.

ASSOCIATION: **Perm' State University** (Permskiy gosudarstvennyy universitet).

SUBMITTED: September 4, 1956

AVAILABLE: Library of Congress

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1. 2-Phenylquinoline - Derivatives - Synthesis
2. 2-Phenyl-5,6-benzoquinoline - Derivatives - Synthesis
3. Acetylenes - Catalytic condensation
4. Amines - Catalytic condensation

AUTHORS: Kozlov, N. S., Panova, M. I. 79-12-8/43

TITLE: The Catalytic Amination of Organic Compounds (Kataliticheskoye aminirovaniye organicheskikh soyedineniy). VI. Amination of Acid Esters of the Aliphatic Series (VI. Aminirovaniye slozhnykh efirov kislot alifaticheskogo ryada).

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, Nr 12, pp. 3208-3210 (USSR)

ABSTRACT: The reaction of the esters with ammonia, has hitherto not been investigated sufficiently, although in publications it represents the general production method of acid-amides. Thereby it was stated that the amido-formation essentially takes place easier with ammonia under pressure. In the present work the authors put up the task to investigate more exactly this method described in patent publications. The vapours of the esters were made to pass over a heated catalyst in an ammonia stream. 7 different esters were used (see table!). As catalyst served: Activated granulated aluminium oxide, aluminium oxide with 10% of thorium oxide, aluminium oxide with 10% of silicon oxide and glassy silica from a factory. The aluminium oxide effected most efficaciously, the silica effected weakest. In all cases it was observed that in the presence of the

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interaction of the ammonia with esters from the alcohol residue the corresponding amine, and from the acid residue the nitrile formed, according to the following formula $R\text{-}COOR' + 2NH_3 = R\text{-}CN + R'NH_2 + 2\ H_2O$. In reality, this reaction takes place under the formation of intermediate products. The product effected consists of a mixture of primary, secondary and tertiary amines. There are 1 table and 13 references, 11 of which are Slavic.

ASSOCIATION: **Perm' Pedagogical Institute** (Permskiy pedagogicheskiy institut).

SUBMITTED: January 31, 1957

AVAILABLE: Library of Congress

1. Organic compounds - Catalysis 2. Amines - Chemical reactions 3. Esters - Chemical reactions
4. Aluminum oxide catalysts - Applications
5. Silica catalyst - Applications

Card 2/2

AUTHORS: Kozlov, N. S., Koz'minykh, O. K. 20-114-4-29/63

TITLE: A Catalytic Synthesis of Para-, Nitro-, Amino-, and Sulphamidoderivatives of 2-Phenylquinoline and 2-Phenyl-5,6-Benzoquinoline (Kataliticheskiy sintez para-, nitro-, amino- i sul'famidoproizvodnykh 2-fenilkhinolina i 2-fenil-5,6-benzokhinolina)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 4, pp. 785-788 (USSR)

ABSTRACT: The nitro- and aminoderivatives of 2-phenylquinoline and 2-phenyl-5,6-benzoquinoline have been described in publications only as individual representatives. The sulphamidoderivatives of this series were not discussed at all. Nevertheless, the considerable anti-bacteriological effect of some amines and sulphamides of the quinoline series is well known. For the purpose of producing the nitroderivatives of the 2-phenylquinoline the authors employed the well-known method of the catalytic condensation of acetylene with aromatic amines and aromatic aldehydes. Thereby the substances with aromatic amines and aromatic aldehydes. Thereby the substances I - III (table 1) were synthetised /6-methoxy-2-(4^1-nitrophenyl)-

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A Catalytic Synthesis of Para-, Nitro-, Amino-, and Sulphamido- 20-114-4-29/63
derivatives of 2-Phenylquinoline and 2-Phenyl-5,6-Benzoquinoline

-quinoline-$C_{16}H_{12}O_3N_2$; 6-ethoxy-2-(4^1-nitrophenyl)-quinoline $C_{17}H_{14}O_3N_2$ and 2-(4^1-nitrophenyl)-5,6-benzoquinoline $C_{19}H_{12}O_2N_2$/. Into the condensation reaction the authors introduced p-nitrobenzaldehyde and aromatic amines: p-anisidine, p-phenetidine and 2-naphthylamine. The nitro compounds obtained were then transformed into amines by the usual methods of reduction. Thereby the substances IV - VI (table 1) were isolated /6-methoxy-2 (4^1-aminophenyl)-quinoline $C_{16}H_{14}ON_2$; 6-ethoxy-2(4^1-aminophenyl)-quinoline $C_{17}H_{16}ON_2$ and 2-(4^1-aminophenyl)-5,6-benzoquinoline $C_{19}H_{14}N_2$/. From the amines thus produced a number of sulphamidoderivatives of 2-phenylquinoline and of 2-phenyl-5,6-benzoquinoline (compounds VII - XXX, table 2) was synthetized by condensation in the pyridine medium of the produced amines with chloroanhydrides of different sulfo acids: with benzenesulfochloride, β-pyridinesulfochloride, m- and p-nitrobenzenesulfochlorides. The compounds I - XXX have hitherto not been described in publications. This work was successful in completing the method of synthesis,

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A Catalytic Synthesis of Para-, Nitro-, Amino-, and Sulphamido- 20 114-4-29/63
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previously proposed by Kozlov, for the 2-phenyl derivatives of the quinoline, by starting with acetylene, aromatic amines and aldehydes. The principle of the method is based on the fact that a mixture of a primary aromatic amine and an aromatic aldehyde is saturated with acetylene in the presence of a catalyst. According to the authors' opinion of the reaction mechanism, the half amount of the aromatic amine forms a basis of interaction with the aromatic aldehyde; the other half of the same aromatic amine forms with acetylene the corresponding monoethylide basis. There then follows the interaction between thus obtained bases with one another, from which an intermediate product results which was insulated in one case and examined for its composition. The substance in which the intermediate product was formed is subsequently subjected to cyclisation by the thermal method and to heating with HCl of 10%. The intermediate product transforms into 2-phenylderivatives of the quinoline series. It was aniline that reacted most actively with acetylene. This the authors exploited for working out a new technique: they added an equimolecular amount of aniline to the produced basis of

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A Catalytic Synthesis of Para-, Nitro-, Amino-, and Sulphamido- derivatives of 2-Phenylquinoline and 2-Phenyl-5,6-Benzoquinoline 20-114-4-29/63

any aromatic aldehyde and amine and then saturated the thus obtained reaction matter with aniline in the presence of a catalyst. This makes the synthesis of the phenylquinoline bases still more accessible, increases the yields, and confirms previous opinions of Kozlov regarding the mechanism of these syntheses which is referred to here. Finally the technique is described in details.
There are 2 tables and 12 references, 12 of which are Soviet.

ASSOCIATION: Molotovskiy gosudarstvennyy universitet im. A. M. Gor'kogo (Molotov State University imeni A. M. Gor'kiy)

PRESENTED: March 1, 1957, by A. A. Balandin, Member, Academy of Sciences, USSR

SUBMITTED: February 26, 1957

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5(3),5(4)

AUTHOR: Kozlov, N. S.

SOV/153-58-2-15/30

TITLE: On the Rules Governing the Boiling Point Variation in the Series of the Methyl Derivatives of the Vinyl, Propenyl, and Butenyl Benzenes (O zakonomernosti v izmenenii temperatur kipeniya v ryadu metilproizvodnykh vinil-, propenil- i butenilbenzolov)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 2, pp 87 - 89 (USSR)

ABSTRACT: The relation between the chemical structure of the aromatic hydrocarbons containing unsaturated hydrocarbon radicals as substituents and their physical and chemical properties has hitherto never been investigated. Because of the theoretical and practical importance of this problem the authors made an approach to this problem. A method presented previously (Refs 1, 2) was employed. First the coefficients of the molecular structure elements of the compounds mentioned were determined; they turned out to be equal to each other. Furthermore, the coefficients determining the influence of the interaction of the structural factors upon the boiling temperatures in the case of ortho-, meta-, and para-position

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On the Rules Governing the Boiling Point Variation in the Series of the Methyl Derivatives of the Vinyl, Propenyl, and Butenyl Benzenes

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are presented (see Table). On the basis of the coefficients calculated and of the formula suggested previously, the boiling points of several hydrocarbons were computed. The table shows the results. The data on the boiling points originate from reference 3. The data in the table exhibit a very good agreement between the boiling temperatures found experimentally and the values calculated according to the author's formula. There are 1 table and 3 references, 2 of which are Soviet.

ASSOCIATION: Permskiy sel'skokhozyaystvennyy institut (Perm' Institute of Agriculture) Kafedra khimii (Chair of Chemistry)

SUBMITTED: September 20, 1958

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5(3)

AUTHOR: Kozlov, N. S.   SOV/153-58-3-14/30

TITLE: Chemical Structure and Boiling Temperatures of Acetylene and Diolefin Hydrocarbons (Khimicheskoye stroyeniye i temperatury kipeniya atsetilenovykh i diolefinovykh uglevodorodov)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 3, pp 75-79 (USSR)

ABSTRACT: The dependence of the physical and chemical properties of the hydrocarbons mentioned in the title on their chemical molecular structure is almost not investigated at all. These investigations are, however, necessary from the theoretical as well as from the practical point of view. 1) Rules governing the boiling temperature changes in the series of acetylene hydrocarbons. The presence of a triple bond on the first carbon atom causes an elevation of the boiling temperature by 5°, one on the second causes one by 16°, and one on the third and the others causes one by 9°. The effect of the position of the methyl group is different: if it is on the first carbon with respect to the carbon with a triple bond the boiling temperature is decreased by 14°; if the methyl group is on the second or on a further carbon the boiling temperature is decreased by 12°.

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