RAZUMOVSKIY, V.V.

[redacted]

A.P. El'tekov's connections with Russian chemists. Ukr. khim.
zhur. 24 no.3:409-412 '58. (MIRA 11:9)
(El'tekov, Aleksandr Pavlovich 1846-1894)

AUTHORS: Yakubovich, A. Ya., Razumovskiy, V. V., 79-28-3-25/61
Belyayeva, I. N.

TITLE: The Synthesis of Vinyl Monomers (Sintezy vinilovykh monomerov).
III. Note on the Synthesis of Compounds With a Carbonyl Group (III. Zamechaniye k sintezu soyedineniy s karbonil'noy gruppoy)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 3, pp. 680-682 (USSR)

ABSTRACT: There are hints that in certain cases an easy course of the Mannichs reaction depends on the nature of the used base. Thus Levy and Nisbet (ref. 1) noted that 2-acetylfurfuran and formaldehyde enter into reactions with salts of dimethylamine and dipropylamine but never with a salt of diethylamine. Mannich and Heilner (ref. 2) described the synthesis of the phenylvinylketone when using the hydrochloride of dimethylamine. Joung and Roberts obtained the same ketone with the hydrochlorine of diethylamine. The authors synthetized the phenylvinylketone with the same salts; they found however,

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The Synthesis of Vinyl Monomers.
III. Note on the Synthesis of Compounds With a Carbonyl Group

79-28-3-25/61

that the reaction with the hydrochlorine of diethylamine takes place considerably slower and that the yield of the hydrochlorine of dialkylaminopropriophenon is smaller than with the use of the hydrochlorine of dimethylamine (63 to 75.5 % correspondingly). Phenylisopropyleneketone was synthetized from the hydrochlorine of dimethylamino-methylpropriophenon. It turned out that propriophenon and paraformaldehyde do not react with the hydrochlorine of diethylamine. According to Mannich also the 2,5-dichlorophenylketone was synthetized anew. The 2,5-dichloroacetophenon and its paraform react only little with the hydrochlorine of diethylamine; easier, however, with that of dimethylamine. The ketone obtained here easily polymerizes in the distillation, even in vacuo and in the presence of an inhibitor. In publications referring to the most simple unsaturated aldehydes, the acroleine and methacroleine, only patent data are known on the synthesis of the oximes of these aldehydes. The authors synthetized in a new way the oxime of macroleine by reaction of the meta-macroleine with hydroxylamine (yield 65 %).

Card 2/3

The Synthesis of Vinyl Monomers. 79-28 -3-25/61
III. Note on the Synthesis of Compounds With a Carbonyl Group.

There are 12 references, 4 of which are Soviet

SUBMITTED: January 24, 1957

Card 3/3

AUTHORS: Yakubovich, A. Ya., Razumovskiy, V. V. SOV/79-28-7-45/64
Vostrukhina, Z. N., Rozenshteyn, S. M.

TITLE: Syntheses of Vinyl Monomers (Sintezy vinilovykh monomerov)
III. On the Syntheses of the Vinylesters From Acet- and Chloromercuroacetaldehydes, and on the Mechanism of These Reactions (III. O sintezakh slozhnykh vinilovykh efirov iz atset-i khlormerkuratsetal'degidov i mekhanizme etikh reaktsiy)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 7, pp 1930 - 1936 (USSR)

ABSTRACT: The method of the reaction of acetaldehyde with the chlorine anhydride of the corresponding acid in the medium of a tertiary base described by A.M.Sladkov and G.S.Petrov (Ref 1) could not be proved by the authors in any case. In using pyridine, for instance, neither the vinylbenzoate, vinylacetate nor the vinyl esters of butyric-, caproic- or chloroacetic acids were obtained although the conditions mentioned in carrying out the reaction were strictly followed. Besides, the crystalline depositions occurring in this reaction are not mentioned. The vinyl

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Syntheses of Vinyl Monomers. III. On the Syntheses of SOV/79-28-7-45/64
the Vinylesters From Acet- and Chloromercuroacetaldehydes, and on the Mechanism
of These Reactions

esters of the phosphoric acids could be obtained by the reaction of the acetaldehyde with their chlorine anhydrides in the presence of triethylamine (Ref 3), the yield of vinylbenzoate amounting to 15% (Ref 3). In view of these facts another method of synthesis was tried (Ref 4) according to which the vinyl esters of a series of acids could be synthesized in good yields. Concluding the following results may be stated: In the synthesis of the vinyl esters of the carboxylic acids from acetaldehyde, acylchloride and pyridine only the chlorides of α-acyloxyalkylpyridinium could be obtained. In using triethylamine (instead of pyridine) with benzoylchloride a vinylbenzoate (yield 15%) was obtained. By the direct coupling of the halogen anhydrides of the acids to the aldehydes the following compounds were synthesized: α-chlorethylacetate, α-chlorethylbenzoate, chloromethylmethacrylate, bromomethylmethacrylate, and α-chlorethylmethacrylate. This reaction is of general preparative character. By the reaction of monochloromercury acetaldehyde with the

Card 2/3 halogen anhydrides of the acids the vinyltrifluoracetate and the

Syntheses of Vinyl Monomers. III. On the Syntheses of SOV/79-28-7-45/64
the Vinylesters From Acet- and Chloromercuroacetaldehydes, and on the Mechanism
of These Reactions

vinyl-p-cyanobenzoate were synthesized. There are 20 references, 8 of which are Soviet.

SUBMITTED: June 3, 1957

1. Vinyl esters--Synthesis 2. Acetaldehyde--Chemical reactions
3. Chemical reactions--Analysis

Card 3/3

YAKUBOVICH, A.Ya.; RAZUMOVSKIY, V.V.; BELYAYEVA, I.N.

Synthesis of vinyl monomers. Part 3: A note to the synthesis of compounds with a carbonyl group. Zhur. ob. khim. 28 no.3:680-682 Mr '58. (MIRA 11:5)
(Methacrylaldehyde) (Hydroxylamine)

Razumovskiy, V. V.

AUTHORS: Razumovskiy, V. V., Rychkina, Ye. F. 79-11-48/56

TITLE: Structure and Reactivity of Aromatic Hydrocarbons. (Stroyeniye i reaktsionnaya sposobnost' aromaticheskikh uglevodorodov).
II. On the Reaction of the Azobond of Phenylated Ethylenes With Hydrogen-Chloride-π-Nitrodiazobenzene (II. O reaktsii azosochetaniya fenilirovannykh etilenov s khloristovodorodnym π-nitrodiazobenzolom).

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, Nr 11, pp. 3143-3148 (USSR)

ABSTRACT: By the action of 1,1-diphenylethylene upon hydrogen-chloride-p-nitrodiazobenzene in pyridine solution two compounds form: 1,1-diphenyl-2-π-nitrophenylethylene and π-nitrobenzyldiphenyl-carbinol. During further investigation of this reaction in an acetic solution the authors found that nitrogen does not split off and that an azobond with formation of 1,1-diphenyl-2,2-di-π-nitrobenzolazo)-ethylene occurs: $(C_6H_5)_2 = C(N_2C_6H_4NO_2)_2$. In order to prove that this bond actually corresponds to a biazoformula, it was in the presence of hydrochloric acid reduced with stannic chloride.

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79-11-48/56

Structure and Reactivity of Aromatic Hydrocarbons.
II. On the Reaction of the Azobond of Phenylated Ethylenes
With Hydrogen-Chloride-π-Nitrodiazobenzene

In the reduction products they found π-phenylenediamine which was for identification converted to quinonedichlorimine. It was shown that 1,1-diphenylpropene-1 in reaction with hydrogen-chloride-p-nitrodiazobenzene in a pyridine solution yields 1,1-diphenyl-2 π-nitrophenylpropene-1 and 1,1-diphenyl-2-π-nitrophenylpropanol, but that in an acetic solution the extremely unstable 1,1-diphenyl-2-(π-nitrobenzolazo)-propene-1 develops. In the reaction of 2-phenylpropene with hydrogen-chloride π-nitrodiazobenzene in an acetic solution two products are obtained: 1 π-nitrophenyl-2-phenylpropene-1 and the unsymmetrical di-(π-nitrobenzolazo)-methylphenylethylene. The infrared spectra cannot, as the authors earlier thought, serve as means of proving the structure of the compounds obtained. There are 1 figure, and 5 references, 3 of which are Slavic.

Card 2/3

Structure and Reactivity of Aromatic Hydrocarbons. 79-11-48/56
II. On the Reaction of the Azobond of Phenylated Ethylenes
With Hydrogen-Chloride $\pi$-Nitrodiazobenzene

ASSOCIATION: **Leningrad Electrotechnical Communications Institute**
(Leningradskiy elektrotekhnicheskiy institut svyazi).

SUBMITTED: November 9, 1956

AVAILABLE: Library of Congress

1. Phenylated ethylenes - Chemical reactions
2. Hydrogen-chloride-$\pi$-nitrodiazobenzene - Chemical reactions 3. Cyclic compounds - Chemical reactions

Card 3/3

RAZUMOVSKiy, V.V.

Electronic structure and reactivity of free radicals. V. V. Razumovskii (Inst. Electrotech. Commun., Leningrad). Zhur. Obshchei Khim. 27, 1216-17(1957).—The relative reactivities of commonly known org. free radicals are discussed in light of the probable electron demand or supply by the groups attached to the atom bearing the odd electron. The literature on the subject is briefly reviewed. G. M. K.

7 3

1-4E4a
1-4E3d
1-4E2c (j)
1, 2maj

Pm

RAZUMOVSKIY, V. V.

Problems of chemical structure in works of D. I. Mendeleev. V. V. Razumovskii. *Zhur. Obshchei Khim.* 27, 1414-22(1957).—A historical review of views of Mendeleev concerning the dynamic nature of chem. bonding. 18 references. G. M. Kosolapoff

[redacted]

[illegible] ral [illegible] in [illegible] 's works. Zhur. [illegible]
[illegible] 22 Je '5[illegible]. ([illegible] 1[illegible]
, Dmitrii Ivanovich, 1[illegible]
[illegible] ical structure)

RAZUMOVSKIY, V.V.

Cit

The problem of structure of organic molecules. V. V. Razumovskii. *Zhur. Obshchei Khim.* 25, 1235-9(1955).—Polemical. A defense is presented for the views of R. on a mol. structure which is based on "electronic tautomerism" (cf. *C.A.* 40, $6075^4$), according to which, variability of structures can exist in some substances owing to the variation of residence time of the planetary electrons in the vicinity of one or another atom in the total structure. 27 references. Also in *J. Gen. Chem. U.S.S.R.* 25, 1183-7 (1955) (Engl. translation). G. M. Kosolapoff

RAZUMOVSKIY, V.V.

V.V.Markovnikov's scientific legacy ("Selected works". V.V.Markovnikov. Reviewed by V.V.Razumovskii).Vest.AN SSSR 26 no.8:130-133 Ag '56.
(Chemistry)(Markovnikov, V.V.) (MLRA 9:9)

RAZUMOVSKIY, Ye. A.

"Characteristic of the Temperature Dependence of the Viscosity of Lubricating Oils by the Method of Blowing off a Fine Layer." Sub 15 Nov 51, Inst of Petroleum, Acad Sci USSR

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

BOLDIN, K.M. (Yaroslavl'); DROZDOVA, Z.S.; LEVIN, R.I.; VAYSMAN, L.A. (Kuybyshev-obl.); PODOSINOVSKIY, V.V.(Kazan'); SAYFULLINA, Kh.M. (Kazan'); BUSYGIN, N.V.(Kazan'); RAZUMOVSKIY, Yu.K.(Leninogrosk); GEL'FER, G.A., dotsent (Gor'kiy); MAMISH, M.G.(Kazan'); RAFALOVICH, M.B., dotsent; MEL'NICHUK, S.P., kand.med.nauk; KRAPIVIN, B.V.; STAROVEROV, A.T. (Saratov); SURIN, V.M.; POROSENKOV, V.S.(Romodanovo, Mordovskoy ASSR); ANDROSOV, M.D.(Moskva); ZARIPOV, Z.A.(Urussu, Tatarskoy ASSR); MURAV'YEV, M.F.(Izhevsk); KUZ'MIN, V.I.(Batyrevo, Chuvashskoy ASSR); SITDYKOV, E.N.(Kazan'); YUDIN, Ya.B.(Novokuznetsk)

Short reports. Kaz.med.zhur. no.4:81-91 Jl-Ag '62. (MIRA 15:8)
(MEDICINE--ABSTRACTS)

RAZUMOVSKIY, Yu.K.

Morphology of the thyroid gland in the population of the southeastern part of the Tatar A.S.S.R. Kaz. med. zhur. no.6:20-21 '62. (MIRA 17:5)

1. Leninogorskaya gorodskaya bol'nitsa (glavnyy vrach - N.Sh. Khasanov); nauchnyy rukovoditel' - dotsent N.F. Koryvayev.

LAPTEVA, N.V.; PORYVAYEV, N.F.; RAZUMOVSKIY, Yu.K.

Pathomorphology of endemic goiter in the Tatar A.S.S.R. Nauch. trudy Kaz. gos. med. inst. 14:217-218 '64. (MIRA 18:9)

1. Kafedra patologicheskoy anatomii (zav. - prof. G.G.Nepryakhin) Kazanskogo meditsinskogo instituta i tsentral'naya bol'nitsa (glavnyy vrach - M.M.Gazymov) goroda Leninogorska Tatarskoy ASSR.

RAZUMOVSKIY, Yu.K.

Lithopedion following abdominal extrauterine pregnancy. Kaz. med. zhur. 41 no.3:76-77 My-Je '60. (MIRA 13:9)

1. Iz Leningorskoy gorbol'nitsy (glavvrach - N.Sh.Khasanov) i kafedry patologicheskoy anatomii (zav. - dotsent N.F. Poryvayev) Kazanskogo meditsinskogo instituta.
(LITHOPEDION) (PREGNANCY, EXTRAUTERINE)

RAZUMOVSKIY, Yu.K.

Fatal poisoning in a child by pyraphen and norsulfazole.
Kaz. med. zhur. no.1:69 Ja-F '62. (MIRA 15:3)

1. Leninogorskaya gorodskaya bol'nitsa (glavnyy vrach - N.Sh. Kasanov) Tatarskoy ASSR.

(AMINOPYRINE--TOXICOLOGY)
(SULFATHIAZOLE--TOXICOLOGY)
(PENACETIN--TOXICOLOGY)

VEVYURKO, I.A., kand.tekhn.nauk; RAZUMOVSKIY, Yu.V., inzh.; SELIVAKHIN,
A.I., inzh.

D.C. motor without slide contacts. Vest. elektroprom. 33 no.3:
34-35 Mr '62. (MIRA 15:3)
(Electric motors--Direct current)

RAZUMOWSKI

**POL.**

~~9560~~ Study of the Production of (Secondary) Cobalt and Tungsten-Carbide Powders. H. Butkowski, B. Razumowski, and I. Glińska. *Henry Brutcher Translation No. 3487*, 10 p. (From *Prace Glownego Instytutu Metalurgii*, v. 4, no. 4, 1952, p. 153-160.) Henry Brutcher, Altadena, Calif.

Cemented carbides were prepared from Co powder obtained electrolytically, by reduction of Co formate, and from tungsten carbide recovered from scrap. Data on density and hardness. Tables, graphs, micrographs. 9 ref.

RAZUMOWSKI, B

2

1220* (Iron Powder for Mass Products Obtained From Mill Scale Reduced by Hydrogen and Carbon.) Proszek żelaza do wyrobów masowych ze zgorzeliny hutniczej redukowanej wodorem i weglem. B. Razumowski. *Prace Instytutów Ministerstwa Hutnictwa*, v. [illegible] 1954, p. 188-199. Use of H resulted in powder of 99% purity; purity was 97 to 98% when the scale was reduced by coal. Tables, micrographs, diagrams, graphs.

RAZUMOWSKI, B.

4444 546.431 : 541.48 ; 621.3.013

Kozlowski L., Ziolowski Z., Razumowski B. **Production of Barium Ferrite - Structure and Magnetic Properties.** 21

„Wytwarzanie ferrytu barowego, jego struktura i własności magnetyczne". Przegląd Elektrotechniczny, No. 10—11, 1955, pp. 610—614, 6 figs., 2 tabs.

Data concerning the effect of structure on the magnetic properties of ferrites. A method of producing barium ferrite — a material suitable for permanent magnets. The crystalline structure of barium ferrite has been investigated by X-rays as also has the phase-composition of samples with different contents of barium oxide (BaO) depending on the temperature and time of annealing. Methods in use for magnetic measurements are given, and results collected concerning the magnetic properties of the material obtained.

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Non-Ferrous Metallurgy

RAZUMOWSLI, B

5

④

Production of tungsten carbide and cobalt powder. W. Rutkowski, B. Razumowski, and I. Glinska (*Prace Inst. Metal.*, 1952, 4, 153—160).—WC regenerated by fusion of scrap sintered carbides with Zn is found unsuitable for production of high-quality sintered carbides. Sintered WC prepared with addition of Co powder obtained from reduction of formate is of better quality than are those prepared with electrolytic Co. S. K. LACHOWICZ.

Razumov, A.S.

Drachev, S. M., Razumov, A. S., and Bruevich, S. V.: Metody khimicheskogo i bakteriologicheskogo analiza vody (Methods of Chemical and Bacteriological Water Analysis). Moscow: Medgiz. 1953. 279 pp.

L 10069-66

ACC NR: AT6001392 SOURCE CODE: UR/3180/64/009/000/0109/0114

AUTHOR: Kirsanov, V. P.; Zhil'tsov, V. P.; Marshak, I. S.; Razumtsev, V. F.; Slutskin, Ye. Kh.; Shchukin, L. I.

31
B+1

ORG: none

TITLE: New flash lamps with a high flash repetition frequency

SOURCE: AN SSSR. Komissiya po nauchnoy fotografii i kinematografii. Uspekhi nauchnoy fotografii, v. 9, 1964. Vysokoskorostnaya fotografiya i kinematografiya (High-speed photography and cinematography), 109-114 and inserts facing pages 112 and 113

TOPIC TAGS: flash lamp, gas discharge, hydrogen, xenon, nitrogen

ABSTRACT: The paper describes the design and performance characteristics of high-repetition-frequency sealed flash lamps for use in high speed photography. Two sources of frequently repeating flashes were considered: (1) a source for Toepler schlieren photographs with a maximum space stabilized luminous volume in the shape of a short filamentary segment; (2) a source for photographing objects in reflected light with maximum power and frequency of flashes. The first problem was solved most satisfactorily with a short capillary lamp. The second problem was solved with lamps having a large spherical bulb and a short discharge gap between the electrodes located inside the bulb. In addition, a rapidly deionizing multichamber hydrogen dis-

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L 11069-66

ACC NR: AT6001392

charger was constructed in order to provide for the commutation of the repeating high current discharges at the maximum frequencies at which the gas gaps of both types of flash lamps are unable to deionize and cannot themselves serve as the commutating element. Orig. art. has: 10 figures, 1 table.

SUB CODE: 13,20 SUBM DATE: 00/ ORIG REF: 004/ OTH REF: 001

Card 2/2

MARSHAK, I.S., kand.tekhn.nauk; KIRSANOV, V.P., inzh.; RAZUMTSEV, V.F.,
inzh.; SHCHUKIN, L.I., inzh.

Light emission and flash duration of bulb-type discharge lamps.
Svetotekhnika 9 no.1:12-18 Ja '63. (MIRA 16:1)

1. Moskovskiy elektrolampovyy zavod.
(Electric lamps) (Fluorescent lamps)

ROVINSKIY, R.Ye.; RAZUMTSEVA, G.P.

Degree of transparoncy of a dishcarge in xenon at ultrahigh pressures. Opt. i spektr. 7 no. 6:725-728 D '59. (MIRA 14:2)
(Xenon—Spectra) (Electric discharges through gases)

9.3150

67150

SOV/51-7-6-2/38

**AUTHORS:** Rovinskiy, R. Ye. and Razumtseva, G.P.

**TITLE:** On the Degree of Transparency of a Discharge in Xenon at Very High Pressures

**PERIODICAL:** Optika i spektroskopiya, 1959, Vol 7, No 6, pp 725-728 (USSR)

**ABSTRACT:** A high-pressure discharge column in xenon may be regarded as a grey body whose properties can be represented by a mean value of its absorption coefficient $\bar{\varkappa}$. The value of this coefficient and its dependence on the discharge power are of great theoretical interest and are important in construction of xenon lamps. The present paper reports a determination of the mean absorption coefficient $\bar{\varkappa}$ in the visible region of a xenon discharge at very high pressures. The authors found directly the degree of transparency of the discharge, $\alpha$, given by:

$$\alpha = e^{-\bar{\varkappa} l} \qquad (1)$$

where $l$ is the geometrical depth of the discharge. The above equation gives the optical depth of discharge $\tau = \bar{\varkappa} l$, and if the value of $l$ is

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known, the absorption coefficient $\bar{\varkappa}$ can be deduced. The method used to determine transparency of the discharge was the same as that used earlier by Fabrikant and Pul'ver (Ref 5) to determine transparency of a discharge in mercury. The apparatus used is shown schematically in Fig 1. The discharge gap of a spherical xenon lamp $P_1$ was projected by means of a lens $\text{Л}_1$ on to a screen $\text{Д}_1$ with an aperture at its centre. The radiation which passed through the aperture was projected by means of a second lens $\text{Л}_2$ on to the discharge plane of a second xenon lamp $P_2$. The image of the aperture in $\text{Д}_1$ in the discharge plane of the $P_2$ lamp had a diameter of 0.3 mm. The lamp $P_2$ could be moved both vertically and horizontally at right angles to the optical axis of the apparatus. The image of the discharge plane of $P_2$, magnified 2.5 times, was projected on to a screen $\text{Д}_2$ with an aperture behind which a piece of matt glass and a selenium photocell ФЭ was placed. The authors first measured the total luminance $B'_{12}$ due to the lamp $P_1$ and due to the region of $P_2$ which was traversed by the beam from $P_1$. Then an opaque screen 3 was placed between $P_1$ and $P_2$ and the luminance $B'_2$ due to the portion of the discharge in $P_2$, which was earlier traversed by a beam from $P_1$, was recorded. Finally the lamp $P_2$ was switched off and the luminance $B'_1$ of the beam from $P_1$ which passed through the walls of the lamp $P_2$ was measured. These measurements yielded the value of the degree of transparency α, since

$$\alpha = (B'_{12} - B'_2)/B'_1 . \qquad (5)$$

All the measurements of transparency were made on spherical d.c. xenon lamps of DKsSh-3000 type using powers of 600-3000 W. For the sake of comparison similar measurements were carried out on Osram lamps of KhVO(HVO)-1001 and KhVO(HVO)-2001 type using powers of 570-1500 W. The working pressure in all these lamps was 20-25 atm. The results of measurements are shown in Fig 2 in the form of dependence of the degree of absorption a = 1 - α (in %) on the discharge power calculated per unit length of the discharge column (in kW/cm); the discharge power was taken to be the total power minus the electrode losses. Fig 2 shows that absorption rises fairly rapidly at low powers. Above 2.5 kW/cm this rise slows down due to enlargement of the discharge channel. Fig 3 shows dependence of the degree of absorption a at the cathode spot on the power per unit length of the discharge channel. The energy density at the cathode spot is considerably higher than in the main channel of the discharge and consequently at the same discharge powers much higher degrees of absorption are observed at the cathode spot than in the channel itself. Broadening of the cathode spot with increase of power is not

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SOV/51-7-6-2/38

On the Degree of Transparency of a Discharge in Xenon at Very High Pressures

great and consequently the degree of absorption is a linear function of the discharge power. At wavelengths of 483, 530 and 608 mμ the decreases of absorption at the centre of the discharge column (power of 4.1 kW/cm) were found to be the same and equal to 18%. The absorption coefficient $\bar{\chi}$ was determined from the degree of absorption, a, and the geometrical depth of the discharge channel. The latter was taken to be the diametrical distance between points on the discharge cross-section at which the luminance fell to 1/4 of its maximum value. Fig 4 shows the dependence of the absorption coefficient $\bar{\chi}$, in the discharge channel, on the discharge power per unit length. Fig 5 shows a similar dependence for the cathode spot. The curves of Figs 4 and 5 are similar to those showing the dependence of the degree of absorption on the discharge power (Figs 2, 3). Two points in Fig 5 which lie far outside the straight line represent the values of $\bar{\chi}$ at the cathode spot of a lamp of KhVO(HVO)-1001 type; the construction of the cathode in this type of lamp is such that the cathode-spot temperature is high even at low discharge powers. Acknowledgments are made to V.A. Fabrikant for suggesting this work and for his advice on it. There are 5 figures and 5 references, 1 of which is Soviet, 1 English and 3 German.

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SUBMITTED: May 13, 1959

RAZUVANOV, A.; RUTKOVSKIY, V.

Continuous line for repairing connecting rods. Avt. transp. 42 no.7:34-36 Jl '64. (MIRA 17:11)

RAZUVANOV, A., tekhnik

Stripping device for dismounting conical bearings. Avt. transp. 37 no.10:53 O '59. (MIRA 13:2)
(Automobiles--Maintenance and repair)

RAZUNOV, Ippolit Mikhailovich.

Technical standardization in the nonferrous metals industry.

1. Nonferrous metal industries - Russia.

RAZUS, M.

Case of periarteritis nodosa treated with antibiotics and cortisone.
Bratisl. lek. listy 35 no.10:622-629 1955.

1. Z I. internej kliniky LFUK v Bratislave, predn. akademik
L. Dorer.

(CORTISONE, therapeutic use,
 periarteritis nodosa in pregn., with penicillin &
 streptomycin.)
(PERIARTERITIS NODOSA, in pregnancy,
 ther., cortisone with penicillin & streptomycin)
(PREGNANCY, complications,
 periarteritis nodosa, ther., cortisone with penicillin
 & streptomycin.)
(PENICILLIN, therapeutic use,
 periarteritis nodosa in pregn., with cortisone &
 streptomycin.)
(STREPTOMYCIN, therapeutic use,
 periarteritis nodosa in pregn., with cortisone &
 penicillin.)

RAZUS, M.

EXCERPTA MEDICA Sec.6 Vol.10/9 Internal Medicine Sept56

5808. RAZUS M. and KRAJČOVIČOVA Š. I. intern. Klin., Lekársk. Fak., Univ. Komenského., Bratislava. *Diabetická neuritída a jej liečenie. Diabetic neuritis and its treatment LEK.OBZOR 1955, 4/9 (513-523) Tables 3

Report on 16 cases treated with diet, insulin and vit. $B_1$ or $B_{12}$. It is claimed that vit. $B_{12}$ had an excellent effect.

Stransky - Manila

ZAJACOVA, E.; RAZUS, M.

Effect of diabetes on intrauterine fetal death. Cesk.gynek. 28 no.8:552-555 O '63.

1. I. gyn.-por. klin. Lek. fak. UK v Bratislave (prednosta prof. dr. S. Stefan[illegible]) a Int. klin. Lek. fak. UK v Bratislave (prednosta prof. dr. M. Ondrejicka).

RAZUS, M.

HEGYI, E.; RAZUS, M.

Food allergy. Bratisl. lek. listy. 30 no.8-10:649-658 Aug-Oct 50 (CLML 20:4)

1. Of the Skin Clinic and the First Internal Clinic of Slovak University, Bratislava.

[illegible], Ya. A.

RAZUVALOV, Ya.A., chlen Komunistichnoi partii Radyans'kogo Soyuzu, agrolisomeliorator.

In the flame of the Civil War. Mekh. sil'. hosp. [8] no.12:10-11 D '57. (MIRA 10:12)

1. Studenikivs'ka mashinno-traktorna stantsiya, Kiivskoi oblasti.
(Ukraine--Revolution, 1917-1921)

L 19590-65 EWT(m)/EPF(c)/EWP(j)/T Pr-4 ASD(m)-3/AFETR RM

ACCESSION NR: AP4045102 S/0020/64/158/001/0170/0172

AUTHOR: Razuvanyev, G. A. (Corresponding member AN SSSR); Minsker, K. S.; Sangalov, Yu. A.

TITLE: Initiation of vinyl chloride polymerization by the reactions of triethylaluminum with halogen-containing organic compounds

SOURCE: AN SSSR. Doklady*, v. 158, no. 1, 1964, 170-172

TOPIC TAGS: vinyl chloride, polymerization, polymerization initiation, triethylaluminum catalyst system, titanium trichloride catalyst system, chloroorganic catalyst system, polyvinyl chloride, catalyst

ABSTRACT: The initiation of the vinyl chloride polymerization reaction by the interaction of triethylaluminum (TEA) with certain haloorganic compounds was studied. Vinyl chloride did not polymerize in the presence of TEA-$TiCl_3$ and non-polar hydrocarbons. Polymerization with yields of 4-5% to 80-85% was obtained in TEA-$TiCl_3$-RCl systems (RCl= alkyl or aryl chlorides and di- and polychloro derivatives of saturated and unsaturated hydrocarbons). The compounds

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ACCESSION NR: AP4045102

containing chemically inert chlorine atoms did not initiate polymerization; the activity of the chlorine increased in the following series:
$C_2H_5Cl < iso\text{-}C_3H_7Cl < iso\text{-}C_4H_9Cl < iso\text{-}C_4H_9Cl < CH_2Cl\text{-}CH_2Cl < CH_2Cl_2 < CHCl_3 < CCl_4$
The very low polymerization in the presence of compounds such as t-butyl chloride, benzylchloride and allyl chloride was believed due to their rapid reaction with TEA. It was concluded that the act of polymerization initiation is associated with the reaction between the TEA and RCl, and $TiCl_3$ accelerated this reaction and monomer polymerization. The catalyst system comprising aluminumalkyl and titanium halide did not cause vinyl chloride polymerization. Changing the component ratio in the catalyst system or changing the reactivity of the aluminumalkyl affected the polymerization. The TEA-RCl-$TiCl_3$ catalyst system was effective in the -50 to +50 C temperature range, with the yield lowered at the lower temperature. The PVC produced by this catalyst system was of relatively low molecular weight, had uniform globules of ~0.1 micron diameter, and other properties corresponding to those of PVC produced by free radical polymerization. Orig. art. has: 3 figures and 1 table

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ACCESSION NR: AP4045102

ASSOCIATION: None

O

SUBMITTED: 15Apr64 ENCL: 00

SUB CODE: GC, OC NO REF SOV: 000 OTHER: 002

Card 3/3

RAKHVAYEV, A.

O vospitanii kolkhoznkh kadrov /The training of collective farm specialists/.
Moskva, Moskovskii rabochii, /1954?/ 61 p.

SO: Monthly List of Russian Accessions, Vol. 7, No. 3, June 1954.

[illegible]

Catalytic systems for the polymerization of [illegible] etc. Neftekhimiia 4 no.4:572-575 Jl-Ag '64. (MIRA 17:10)

ETLIS, V.S.; TROFIMOV, N.M.; RAZUVAYEV, G.A.

Chlorination of olefin oxides. Zhur. ob. khim. 34 no.8:2784-2787 Ag '64. (MIRA 17:9)

L 19615-65 EWT(m)/EPF(c)/EWP(j)/T/EWP(b)/EWP(t) Pc-4/Pr-4 IJP(c)/SSD/AEDC(b)/
AFWL/RAEM(c)/ASD(a)-5/SSD(c)/RAEM(j)/RAEM(i)/ESD(gs)/ESD(t) RM/JD

ACCESSION NR: AP5003220 S/0062/64/000/007/1312/1313

AUTHOR: Yegorochkin, A. N.; Khidekel', M. L.; Razuvayev, G. A.; Mironov, V. F.; Kravchenko, A. L.

TITLE: Proton magnetic resonance spectra of certain elemento-organic compounds B of silicon and germanium

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 7, 1964, 1312-1313

TOPIC TAGS: proton, organosilicon compound, germanium compound, spectroscopy, magnetic resonance

ABSTRACT: Comparison of proton magnetic resonance spectra of several saturated and unsaturated organic compounds of silicon and germanium revealed that for unsaturated compounds, the effects of $d_{\pi} - p_{\pi}$ - conjugation play an appreciable role. The spectra were recorded on the JMN-3 spectrometer using cyclohexane as the internal standard. To determine chemical shifts in saturated compounds, cyclohexane was combined with the sample in 1:1 volume ratio. Chemical shifts of proton signals in unsaturated compounds were determined by subsequent dilution with cyclohexane and extrapolation of the data to infinite dilution. It was found that chemical shifts of the $CH_3$- and $CH_2$-protons in compounds not containing multiple bonds correspond to

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ACCESSION NR: AP5003220 3

greater electroconductivity of germanium compared with silicon and the qualitative notions of the inductive effect of substituents. Thus, in view of the greater electron-donor capacity of the $-CH_2-M(CH_3)_3$ group, where M = Si, Ge, compared with that of the methyl, resonance frequencies of methylprotons in the compounds $(CH_3)_3M-(CH_2)_n-M(CH_3)_3$ are shifted toward larger values of $\tau$ with respect to the same frequencies in the $(CH_3)_4M$ compounds. Orig. art. has: 1 graph and 1 table.

ASSOCIATION: Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennon universitete (Scientific Research Institute of Chemistry at Gor'kiy State University); Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences, SSSR); Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR ( Institute of Organic Chemistry, Academy of Sciences, SSSR)

SUBMITTED: 25Nov63 ENCL: 00 SUB CODE: OC, OP

NO REF SOV: 001 OTHER: 005 JPRS

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L 21866-65 EWT(m)/EPF(c)/EPR/EWP(j)/T Pc-4/Pr-4/Ps-4 RPL WW/RM
ACCESSION NR: AR4049264 S/0081/64/000/016/S027/S027

B

SOURCE: Ref. zh. Khimiya, Abs. 16S142

AUTHOR: Razuvayev, G. A.; Lapshin, N. M.; Khidekel', M. L.; Mory*ganov, B. N.; Ryabov, A. V.

TITLE: Nitrogen containing peroxide compounds as initiators of vinyl monomer polymerization. II. Polymerization of methylmethacrylate initiated by the system aminoperoxide-dimethyl aniline

CITED SOURCE: Sb. Vy* sokomolekul. soyedineniya. Karbotsepn. vy*sokomolekul. soyedineniya. M., AN SSSR, 1963

TOPIC TAGS: bulk polymerization, methylmethacrylate polymerization, vinyl monomer polymerization, nitrogen containing peroxide initiator, aminoperoxide dimethylaniline initiator, polymerization initiator

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ACCESSION NR: AR4049264

TRANSLATION: The study concerns bulk polymerization of methylmethacrylate initiated by the system cumenyl-N-phenylperoxycarbamate (I) - dimethyl aniline (II) - at 40C. It was found that the admixture of II substantially accelerates the polymerization process, peak acceleration occurring at a II:I ratio of 0.5. Data on molecular weight of polymethylmethacrylate coincide well with kinetic results. A solution containing various ratios of I and II in $C_6H_6$ was treated with 2, 4, 6-tri-tert-butylphenol. After reaction with the radicals, the latter provides 2, 4, 6-tri-tert-butylphenoxyl radicals which are stable under these conditions and can be fixed by means of the EPR technique. The concentration of stable radicals fixable in this manner was highest at a II:I ratio of 0.5. The decomposition of equimolecular mixtures of I and II in a $C_6H_6$ solution was studied at 40C. Analysis of decomposition products disclosed $CO_2$, aniline, dimethylaniline, dimethylphenyl carbinol, acetophenone, azobenzene and tarry residues. Admixture of II had negligible effects on polymerization at 60C with four aminoperoxides containing the $>NCH_2OO-$ group. Asymmetrical aminoperoxides are more susceptible to this effect than are their

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symmetrical counterparts. Activity of the initiator is determined by the structure of a peroxide and the stabilization of the >$NCH_2OO$- group. For Part I, see RZhKhim, 1962, 10R38. Authors' abstract

SUB CODE: OC, MT ENCL: 00

Card 3/3

RAZUV'YEV, A. A.

Bast

Further improvements in quality and assortment of production: 1. In bast fiber industry, Tekst. prom., No. 1, 1952.

9. Monthly List of Russian Accessions, Library of Congress, March 1953, Uncl.
2

RAZUVAYEV, A.A., redaktor; KOPELEVICH, Ye.I., redaktor; EL'KINA, E.M., tekhnicheskiy redaktor

[Manual on the primary processing of flax] Spravochnik po zavodskoi pervichnoi obrabotke l'na. Pod red. A.A.Razuvaeva. Moskva, Gos. nauchno-tekhn. izd-vo Ministerstva promyshlennykh tovarov shirokogo potrebleniia SSSR, 1954. 494 p. (MLRA 8:7)

1. Moscow. Tsentral'nyy nauchno-issledovatel'skiy institut lubyanykh volokon.
(Flax)

RAZUVAYEV, A.A.

Results of socialist competition of organizations of the All-Union Scientific Society of Textile Engineers. Tekst.prom. 14 no.11:51-52 N '54. (MLRA 8:1)

1. Predsedatel' zhyuri po itogam sorevnovaniya.
(Testile research)

RAZUVAYEV, Aleksandr Aleksandrovich; SAPUKHIN, Aleksandr Aleksandrovich; GREBTSOV, P.P., redaktor; SOKOLOVA, N.N., tekhnicheskiy redaktor

[The power of an example] Sila primera. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1956. 110 p. (MLRA 10:3)

1. Sekretar' Ramenskogo gorkoma Kommunisticheskoy partii Sovetskogo Soyuza (for Razuvayev). 2. Sekretar' Kiyevo-Svyatoshinskogo Raykoma Kommunisticheskoy partii Ukrainy (for Sapukhin)
(Collective farms)

MARKOV, Valentin Vasil'yevich; RAZUVAYEV, A.A., retsenzent ; ARNO, A.A., retsenzent; SOKOL'SKIY, I.F., redaktor; MEDVEDEV, L.Ya., tekhnicheskiy redaktor

[Primary processing of bast crops] Pervichnaia obrabotka lubianykh kul'tur. Moskva, Gos. nauchno-tekhn. izd-vo Ministerstva legkoi promyshl. SSSR, 1956. 291 p. (MIRA 10:2)
(Bast)

RAZUVAYEV, A.A., kand.tekhn.nauk

For further technical progress in the initial industrial processing of bast fibers. Tekst. prom. 18 no.6:9-10 Je '58. (MIRA 11:7)

(Bast)

DMITRIYEVA, A.I.; SHUSHKIN, A.A.; MIRONOV, K.M.; DERBENEV, S.I.; GRANICHNOVA, Z.P.; OKUN', M.M.; MIKHAYLOVA, N.N.; ANDREYEV, V.V.; MAKEYEV, V.S.; OSIPOVA, V.M.; L'VOVYY, V.S.; SMIRNOV, G.N., nauchnyy sotr.; ZAIKIN, I.N.; TAL'NISHNIKH, G.N.; MORKOVIN, V.A.; GALAGAN, V.A.; RAZ~~UVAYEV, A.A~~., red.; SOKOLOVA, V.Ye., red.; TRISHINA, L.A., tekhn. red.

[Manual on the industrial primary processing of flax] Spravochnik po zavodskoi pervichnoi obrabotke l'na. Izd.2., perer. i dop. Moskva, Rostekhizdat, 1962. 755 p. (MIRA 15:12)

1. TSentral'nyy nauchno-issledovatel'skiy institut lubyanykh volokon (for Dmitriyeva, Shushkin, Mironov, Derbenev, Granichnova, Okun', Mikhaylova, Andreyev, Makeyev, Osipova). 2. Vsesoyuznyy nauchno-issledovatel'skiy institut okhrany truda (for Smirnov). 3. Upravleniye zagotovk i pervichnoy obrabotki l'na Kalininskogo sovnarkhoza (for Zaikin, Tal'nishnikh, Morkovin, Galagan, L'vovyy).

(Flax) (Flax processing machinery)

RUTKOVSKIY, V., inzh.; RAZUVANOV, A., inzh.; LUDCHENKO, A.; KAMENSHCHIKOV, V., inzh.; GERMAS, M., inzh.; GETSOV, G.; GAYETSKIY, A., inzh.; GEL'FER, S., inzh.; ZHURAKHOVSKIY, P., inzh.; BRUZH, R.; SEMENOV, A., inzh.

Exchange of experience. Avt. transp. 42 no. 5:51-54 My '64.
(MIRA 17:5)

1. Glavnyy inzh. Tarashchanskogo avtoparka (for Ludchenko).
2. Kaluzhskiy avtoremontnyy zavod (for Semenov).

RAZUVAYEV, A., polkovnik

Coordinating a division; a method of carrying out a complex exercise. Voen. vest. 44 no.6:73-76 Je '64. (MIRA 17:6)

KORONKEVICH, V.P.; GUSTYR', L.Ya.; RAZUVAYEV, A.N.

Interference method for measuring thread elements. Izm.tekh. no.2:8-14 F '63. (MIRA 16:2)
(Interferometry)

S/115/63/000/002/001/008
E194/E155

AUTHORS: Koronkevich, V.P., Gustyr', L.Ya., and Razuvayev, A.N.

TITLE: An interference method of measuring thread parts

PERIODICAL: Izmeritel'naya tekhnika, no.2, 1963, 8-14

TEXT: Since the shadow boundaries observed in the microscope do not coincide with the actual profile of the object, special measuring blades are used to reduce errors when making measurements. If the part is curved in the optical axis, and the measuring microscope has a small aperture of illumination parallel to the part outlined, interference bands are observed which can be used in measuring the part sizes by taking the first interference band as a reference line and calculating the distance from this first band to the shadow outline. However, difficulties arise in using interference bands in this way mainly because the distance to the first interference band depends on the focus of the microscope and on the aperture of the light beam. The present article assesses the influence of these factors. A solution has already been published for transparent objects and large apertures (D.S. Rozhdestvenskiy, Trudy GOI, v.14, 1941, 112-120).

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Calculations are first made of the positions of interference bands at the edges of a cylinder, assuming a parallel light beam in the optical axis. The following formulas are derived:

$$\delta = \sqrt{\left(r \cos \frac{u}{2} + y\right)^2 + \left(r + x - r \sin \frac{u}{2}\right)^2} \times (1 + \cos u), \qquad (2a)$$

$$x = - r \cos \frac{u}{2} \tan u - r + r \sin \frac{u}{2} - y \tan u \qquad (3)$$

where: δ - difference between the distances travelled by the direct and reflected (interfering) beams beyond the point of reflection; u - the half-angle of reflection; x - the abscissus of the interference pattern; y - its ordinate. The position of the first interference band is found by putting δ = one half-wavelength and y = 0. Then a table can be drawn up relating the distance to the first interference band in microns to the cylinder diameter in millimetres. Various errors are then analyzed. Quite a small error in focussing the microscope has a considerable influence on the result and the development of a simple and convenient method of focussing is a prerequisite to the application of interference bands in the measurement of parts. A small angle between the incident beam and the optical axis is shown to be relatively unimportant. The formulas assume a point source, but in fact the microscope always has an appreciable aperture. Up to a certain point increasing the microscope aperture only affects the outer bands; however, above a certain critical aperture, given by the expression

$$d = \frac{f\lambda \cos u}{2 r \cos\frac{u}{2} + y \sin u} \qquad (11)$$

the interference bands near the object lose their contrast. For example in examining an object of 100 mm diameter, the critical diaphragm of a microscope type УИМ-21 (UIM-21) is 4 mm, and with an aperture of 8 mm no interference bands are observed. The radius of curvature of a screw surface R is given by

$$R = \frac{d_{cp}}{2 \sin\frac{\alpha}{2}} \qquad (12)$$

where: $d_{cp}$ - mean diameter; α - thread profile angle. Tables may then be drawn up for the correction in microns to be applied for threads of various mean diameters and profile angles. In an experimental check of the theory, to obtain precise focus, a cylindrical gauge of known diameter was measured by the recommended procedure and it was taken that if there was no error the focus was correct. Standard threads of various mean diameters and profile angles were then checked by measurements with blades or by the three-wire method using the same microscope; divergences did not exceed 2 microns. It is concluded that, provided precautions are taken to ensure accurate focussing, the interference method of measuring screw threads has advantages over the usual blade or wire contact methods.
There are 5 figures and 3 tables.

ZHURAVEL', A.I., kand. ekonom. nauk; KAZAKOVTSEV, N.M.; SIDOROVICH, Ye.A., inzh.; KOZHEVNIKOV, Ye.N., inzh.; RAZUVAYEV, A.S., inzh.

Improvement of the economic work in stations. Zhel. dor. transp. 47 no.3:69-72 Mr '65. (MIRA 18:5)

1. Nachal'nik proizvodstvenno-tekhnicheskogo otdela stantsii Novosibirsk-Glavnyy (for Kazakovtsev).

RAZUVAYEV, A.S., inzh.

Dependability of the basic allocation expenditures of railroad services on the volume of operations. Trudy NIIZHT no.33:161-177 '63. (MIRA 17:3)

[illegible]

[illegible] quality of switches. Put' i put.khoz. [illegible] no.8:32-33 '56.
MIRA (8:8)

[illegible] ya Moscow, Gor'kovskoy dorogi.

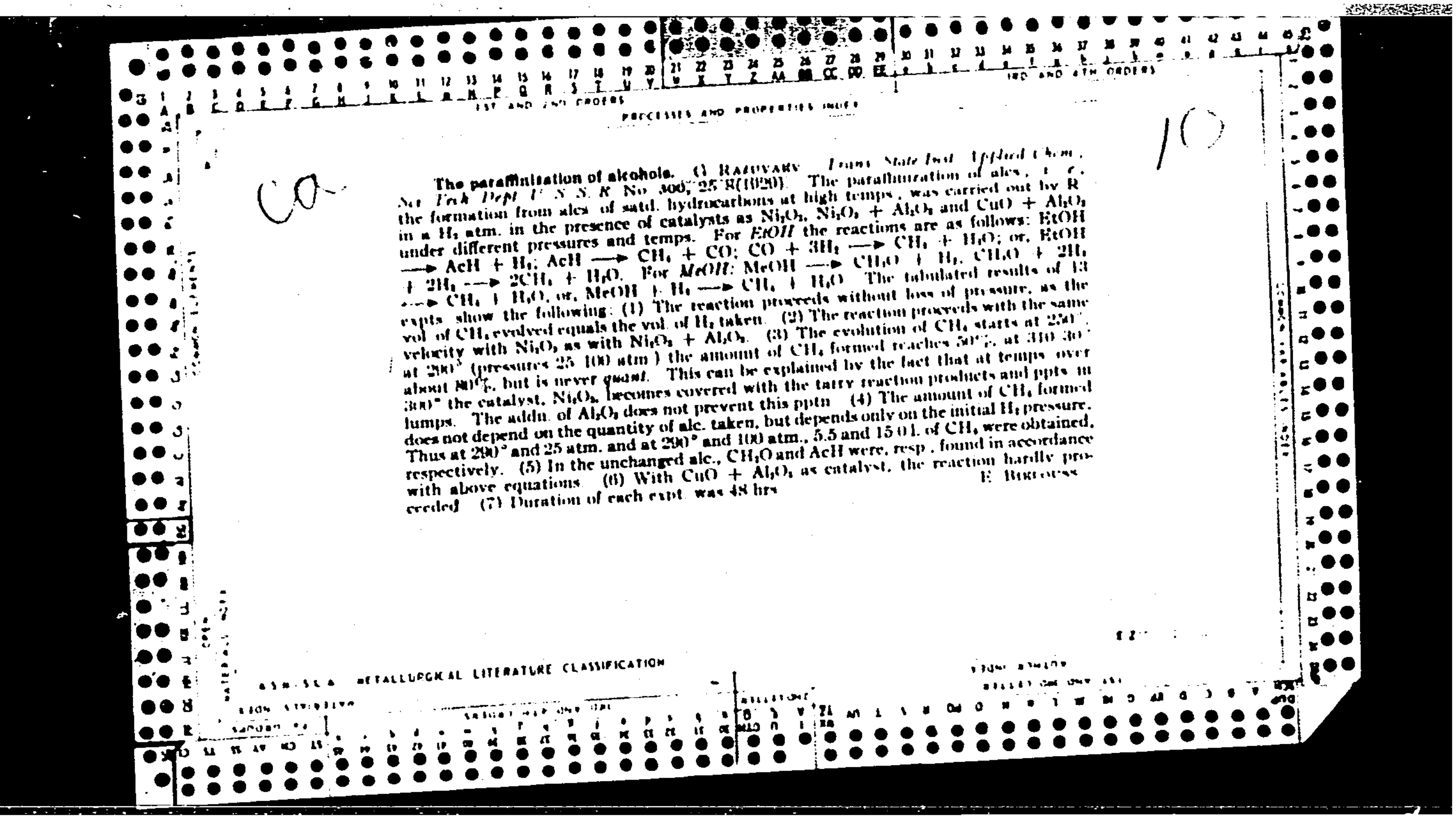
**RAZUVAYEV, F.A.,** inzhener (st. Nikolayevka)

How the snow melter works. Put' i put. khoz. no.3:4-5 Mr '57.
(Railroads--Snow protection and removal) (MLRA 10:5)

RAZUVAYEV, F.A., inzhener.

How we economize on materials for track superstructure. Put.i put.khoz. no.4:28-30 Ap '57. (MLRA 10:5)

(Railroads--Track)

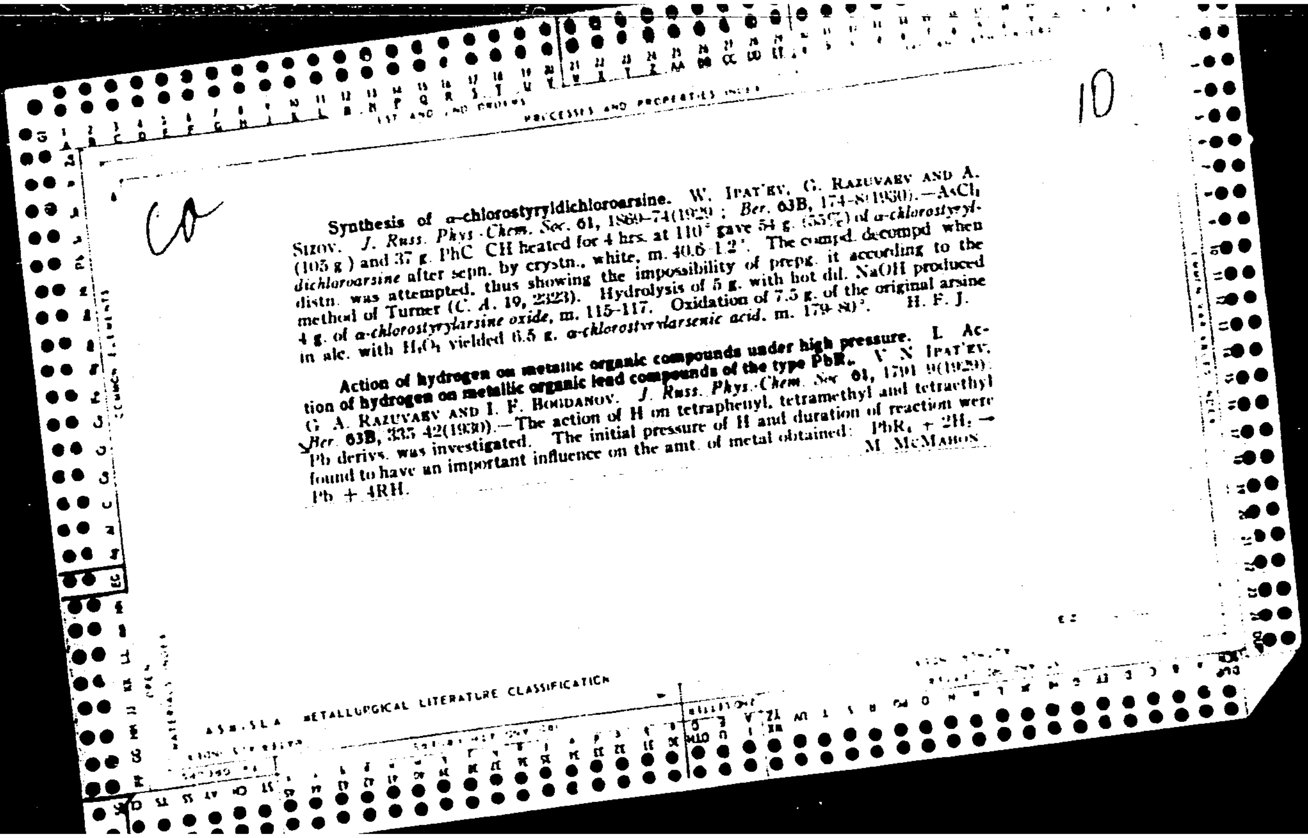


Co

10

**The paraffinization of alcohols.** G. Razuvaev. *Trans. State Inst. Applied Chem., Sci. Tech. Dept. U. S. S. R.* No. 300, 25-8(1929). The paraffinization of alcs., i. e., the formation from alcs. of satd. hydrocarbons at high temps., was carried out by R in a $H_2$ atm. in the presence of catalysts as $Ni_2O_3$, $Ni_2O_3 + Al_2O_3$ and $CuO + Al_2O_3$ under different pressures and temps. For *EtOH* the reactions are as follows: $EtOH \longrightarrow AcH + H_2$; $AcH \longrightarrow CH_4 + CO$; $CO + 3H_2 \longrightarrow CH_4 + H_2O$; or, $EtOH + 2H_2 \longrightarrow 2CH_4 + H_2O$. For *MeOH:* $MeOH \longrightarrow CH_2O + H_2$, $CH_2O + 2H_2 \longrightarrow CH_4 + H_2O$, or, $MeOH + H_2 \longrightarrow CH_4 + H_2O$. The tabulated results of 13 expts. show the following: (1) The reaction proceeds without loss of pressure, as the vol. of $CH_4$ evolved equals the vol. of $H_2$ taken. (2) The reaction proceeds with the same velocity with $Ni_2O_3$ as with $Ni_2O_3 + Al_2O_3$. (3) The evolution of $CH_4$ starts at 250°; at 280° (pressures 25-100 atm.) the amount of $CH_4$ formed reaches 50%, at 310-30° about 80%, but is never *quant.* This can be explained by the fact that at temps. over 300° the catalyst, $Ni_2O_3$, becomes covered with the tarry reaction products and ppts. in lumps. The addn. of $Al_2O_3$ does not prevent this pptn. (4) The amount of $CH_4$ formed does not depend on the quantity of alc. taken, but depends only on the initial $H_2$ pressure. Thus at 280° and 25 atm. and at 280° and 100 atm., 5.5 and 15.0 l. of $CH_4$ were obtained, respectively. (5) In the unchanged alc., $CH_2O$ and AcH were, resp., found in accordance with above equations. (6) With $CuO + Al_2O_3$ as catalyst, the reaction hardly proceeded. (7) Duration of each expt. was 48 hrs.

E. Burgess



PROCESSES AND PROPERTIES INDEX

10

Co

**Synthesis of α-chlorostyryldichloroarsine.** W. Ipat'ev, G. Razuvaev and A. Sizov. *J. Russ. Phys.-Chem. Soc.* 61, 1869-74(1929); *Ber.* 63B, 174-8(1930).—AsCl (105 g.) and 37 g. PhC CH heated for 4 hrs. at 110° gave 54 g. (55%) of *α-chlorostyryldichloroarsine* after sepn. by crystn., white, m. 40.6-1.2°. The compd. decompd. when distn. was attempted, thus showing the impossibility of prepg. it according to the method of Turner (*C. A.* 19, 2323). Hydrolysis of 5 g. with hot dil. NaOH produced 4 g. of *α-chlorostyrylarsine oxide*, m. 115-117. Oxidation of 7.5 g. of the original arsine in alc. with $H_2O_2$ yielded 6.5 g. *α-chlorostyrylarsenic acid*, m. 179-80°. H. F. J.

**Action of hydrogen on metallic organic compounds under high pressure. I. Action of hydrogen on metallic organic lead compounds of the type $PbR_4$.** V. N. Ipat'ev, G. A. Razuvaev and I. F. Bogdanov. *J. Russ. Phys.-Chem. Soc.* 61, 1791-9(1929); *Ber.* 63B, 335-42(1930).—The action of H on tetraphenyl, tetramethyl and tetraethyl Pb derivs. was investigated. The initial pressure of H and duration of reaction were found to have an important influence on the amt. of metal obtained: $PbR_4 + 2H_2 \rightarrow Pb + 4RH$. M. McMahon

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

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**Separation of metallic mercury from its organic derivatives.** G. A. Razuvaev and M. M. Koton. *J. Gen. Chem.* (U. S. S. R.) 1, 864–74(1931).—The decompn. of metallo-org. compds. with sepn. of metal and formation of the corresponding hydrocarbons was carried out with Ph derivs. of the metals of the 5th group by Ipatiev and R. (*C. A.* 24, 3937) and of Pb by Ipatiev, R. and Bogdanov (*C. A.* 24, 2660) and is here investigated in the sepn. of Hg from the Hg-org. compds. of the types of $R_2Hg$ (R = Ph and $PhCH_2$) and RHgCl (R = Ph and $MeC_6H_4$), and also from $HgCl_2$ by heating 24 hrs. at 50 atm. of H pressure in $C_6H_6$ and EtOH, the Hg being deposited on gold-sheet spiral. The sepn. of Hg from $HgCl_2$ and RHgCl depends on the nature of solvent; thus the reaction with $HgCl_2$, $MeC_6H_4HgCl$ and PhHgCl in $C_6H_6$ begins at 325–50°, while in EtOH 75% of Hg is deposited from $HgCl_2$ and 95% from $MeC_6H_4HgCl$ at 200°. The sepn. of Hg from $HgCl_2$ in water is even greater than in EtOH. Similar reaction in the absence of H showed no pptn. of Hg. The decompn. of $Ph_2Hg$ and $(PhCH_2)_2Hg$ depends on the temp. and is practically independent of the nature of the solvent. $(PhCH_2)_2Hg$ is decompd. into Hg and $(PhCH_2)_2$ with and without the presence of H showing that the reaction is purely pyrogenetic. $Ph_2Hg$ in $C_6H_6$ in the absence of H shows no sepn. of Hg after heating 24 hrs. at 275°, and only 9% after heating 36 hrs. at 300°, while with H the sepn. of Hg reaches 90% on heating 24 hrs at 275°, the reaction proceeding thus: $Ph_2Hg + H_2 = 2 C_6H_6 + Hg$. The formation of $C_6H_6$ was demonstrated by working with $Ph_2Hg$ in ligroin and sepg. $C_6H_6$ as $PhNO_2$ by nitration, while no traces of $Ph_2$ could be detected. Similar reaction takes place without the use of a solvent. It is assumed that with the increased temp. the bond between Ph and Hg becomes weakened and partially dissocd. with formation of free radicals which react with H $Ph_2Hg \rightleftharpoons 2 Ph- + Hg$; $Ph- + H_2 \longrightarrow C_6H_6 + H$. $Ph_2Hg + 2 H \longrightarrow 2 C_6H_6 + Hg$ (Hilpert and Grüttner, *C. A.* 7, 2750, Gilman, *C. A.* 25, 2987, Paneth, *C. A.* 23, 5159; and Taylor and Jones, *C. A.* 24, 1841). Such dissocn. of the bond between Ph and

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

$_3$Hg is shown by decompn. of Ph$_2$Hg into Hg and C$_6$H$_6$ on heating it with or without H
in EtOH or any other medium which readily gives off its H, and no reaction at all in
the absence of such media. More closely was studied the reaction of Ph$_2$Hg in EtOH
at 150°, 175° and 200°. The amt. of C$_6$H$_6$ formed corresponded to the amt. of Hg pptd.,
while the amt. of the aldehyde in EtOH after the reaction was less than calcd. according
to the following scheme: $Ph_2Hg \rightleftharpoons Hg + 2\,Ph$; $2\,Ph- + MeCH_2OH \longrightarrow 2\,C_6H_6 +$
AcH. However, the process is more complicated, and it was found that a decrease in
the concn. of Ph$_2$Hg in EtOH had no effect on the % of pptd. Hg; thus the speed of
the reaction is independent of concn. An addn. of metallic Hg had also no influence
on the reaction; the addn. of an aldehyde accelerates the reaction from 21 to 92%
of pptd. Hg in heating 24 hrs. at 175°, a part of the aldehyde being oxidized to an acid,
while the addn. of C$_6$H$_6$ retards the reaction from 21 to 5% pptd. Hg in heating 24 hrs
at 175°. Methylcyclohexane had the same effect. The investigation is continued.
Chas. Blanc
Also in *Ber.* 65B, 613 (1932)

PROCESSES AND PROPERTIES INDEX

**Rupture of the rings of heterocyclic arsenic derivatives.** G. A. Razuvaev and M. M. Koton. *J. Gen. Chem.* (U. S. S. R.) **2**, 529–33(1932); cf. *C. A.* **25**, 1831; **26**, 1934.—The stability of the rings of dihydrophenarsazine, phenoxarsine and diphenylenearsine combined with chloroarsines and arsinic acids was investigated. By analogy with 10-chloro-9,10-dihydrophenarsazine (I) (Zeide and Gorskil, *C. A.* **24**, 122) chlorophenoxarsine (II) and diphenylenechloroarsine (III) (also the non-cyclic compds., such as Ph$_2$AsCl (IV)) are decompd. on heating with HCl with liberation of AsCl$_3$ by reversing the reaction of synthesis. R(C$_6$H$_4$)$_2$AsCl + 2HCl $\rightleftharpoons$ Ph$_2$R + AsCl$_3$. Ph$_2$AsCl + 2HCl $\rightleftharpoons$ AsCl$_3$ + 2C$_6$H$_6$. (*a*) R = NH (Lewis, Lowry and Bergeim *C. A.* **15**, 1720); (*b*) R = O (Blicke, Weinkauff and Hargreaves, *C. A.* **24**, 1628); (*c*) R = single bond; (*d*) reaction of synthesis (Wieland, *C. A.* **17**, 1783) AsCl$_3$ + 3C$_6$H$_6$ $\longrightarrow$ Ph$_3$As + 3HCl. The decompn. proceeds at 125–200° in the following order: phenarsazine derivs.: I, 10-chloro-2,7-dimethyl-9,10-dihydrophenarsazine (V), 10-chloro-9,10-dihydro-1,2-benzophenarsazine (VI) and 10-chloro-9,10-dihydro-3,4-benzophenarsazine (VII), then phenoxchloroarsine and diphenylenechloroarsine. For the synthesis of *b*, *c* and *d* was used AsCl$_3$, which with equal force catalyzes the reversed reaction of decompn. Arsinic acids are decompd. on heating with H$_2$O into Ph$_2$R and AsO(OH)$_3$. The reaction proceeds more easily in acid solns., while the salts of the acids are considerably more stable, and the addn. of alk. salts retards the decompn. The results in the decompn. of various cyclic acids showed that the stability of the rings changed, phenoxarsinic acid (VIII) being most stable followed by diphenylenearsinic (IX) and then phenarsazinic acids (X). The cyclic arsinic acids are less stable than the non-cyclic acids. A mixt. of 0.002 mol. of a chloroarsine and 20 cc. CCl$_4$ (contg. 0.004 mol. of HCl) was heated 24 hrs. in a sealed glass tube, the mass was then shaken with Na$_2$CO$_3$ to hydrolyze AsCl$_3$ and titrated with I. Optimum decompns.: I without catalyst 57.5% at 200°, with AlCl$_3$ 85 at 175° (resinification); VI 69.5 at 175° and 88 at 150°; VII 67.5 at 200° and 97 at 175°; V 16.2 and 40.5 at 175°; II 48 and 69.5 at 200°; III 24 and 49 at 200°. A mixt. of 9 g. IV and 65 cc. of CCl$_4$ satd. with HCl was heated 48 hrs. at 250°, producing C$_6$H$_6$, AsCl$_3$ and resin. Arsinic acids ($^1/_{50}$ mol.) were heated with 100 cc. H$_2$O or aq. alkalies in a Ag tube under pressure, the mass was washed with alkalies, water and Et$_2$O, the alk. soln. was extd. with Et$_2$O, made acid, the arsinic acid filtered off, dried and weighed. AsO(OH)$_3$ and As(OH)$_3$ were detd. The ether ext. of X gave Ph$_2$NH, m. 53°; of IX, Ph$_2$, m. 70°; and of VIII, Ph$_2$O, which, treated with Br in CS$_2$ and recrystd. from alc., m. 53–4°.

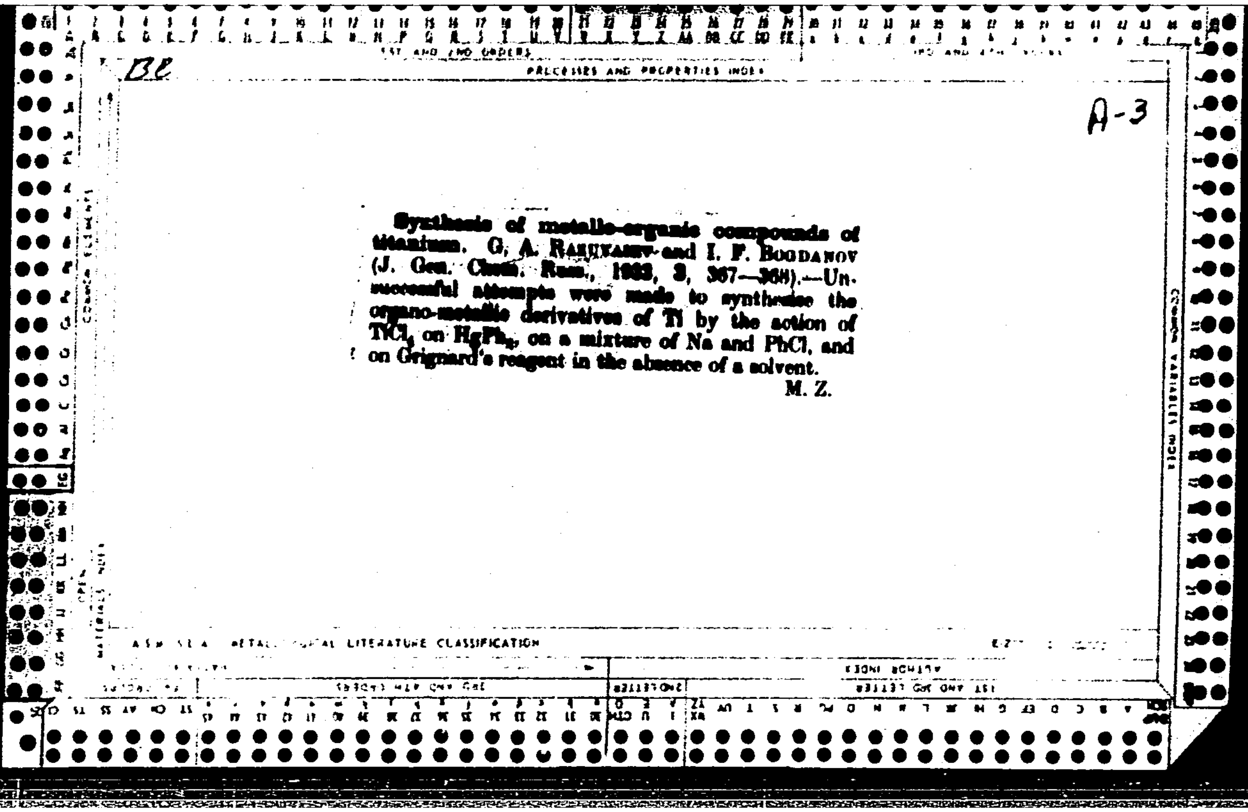
Chas. Blanc

**Nitration and bromination of heterocyclic arsenic derivatives.** G. A. RAZUVAEV AND M. M. KOTON. *J. Gen. Chem.* (U. S. S. R.) **2**, 880-92(1932); cf. *C. A.* **27**, 981.—Chlorophenoxarsine (I) and diphenylenechloroarsine (II) subjected to mild nitration produced the nitrates of phenoxarsenic acid, $[O(C_6H_4)_2As(OH)_2]NO_3$ and diphenylenearsenic acid, $[(C_6H_4)_2As(OH)_2]NO_3$, resp. A more energetic nitration of the chloroarsines and the corresponding acids resulted in the formation of *m*-dinitro acids with the probable formulas $O(C_6H_3NO_2)_2As(:O)OH$ and $(C_6H_3NO_2)_2As(:O)OH$. By analogy with non-cyclic chloroarsines I and II add $Br_2$, the resulting halo derivs. being easily hydrolyzed to the corresponding acids: $O(C_6H_4)_2AsBr_2Cl + H_2O = O(C_6H_4)_2As(:O)OH$. Unlike other chloroarsines 10-chloro-9,10-dihydrophenarsazine (III) is not oxidized by $HNO_3$ to an arsinic acid but forms mono- and dinitro derivs. of chloroarsine, while the action of Br causes the rupture of the heterocyclic nucleus with formation of $(C_6H_4Br)_2NH$. These reactions led to the proposal for III of the following structural formula

which served as explanation of its coloring (Kappelmeier, *C. A.* **24**, 2438; Gibson, Johnson and Vining, *C. A.* **25**, 107). The specific reactions of III may be characteristic of the general properties of the phenarsazine nucleus and other derivs. of dihydrophenarsazine (except the tertiary arsines) might react similarly regardless of their coloring. The colorless 10-acetyl-9,10-dihydrophenarsazine (IV) reacts analogously to III; *i. e.*, the nitration of IV in AcOH produced a ppt. of mono- and dinitro derivs. of IV and a soln. of dinitrophenarsazinic acid, while bromination resulted in the rupture of the phenarsazine ring.

CHAS. BLANC

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

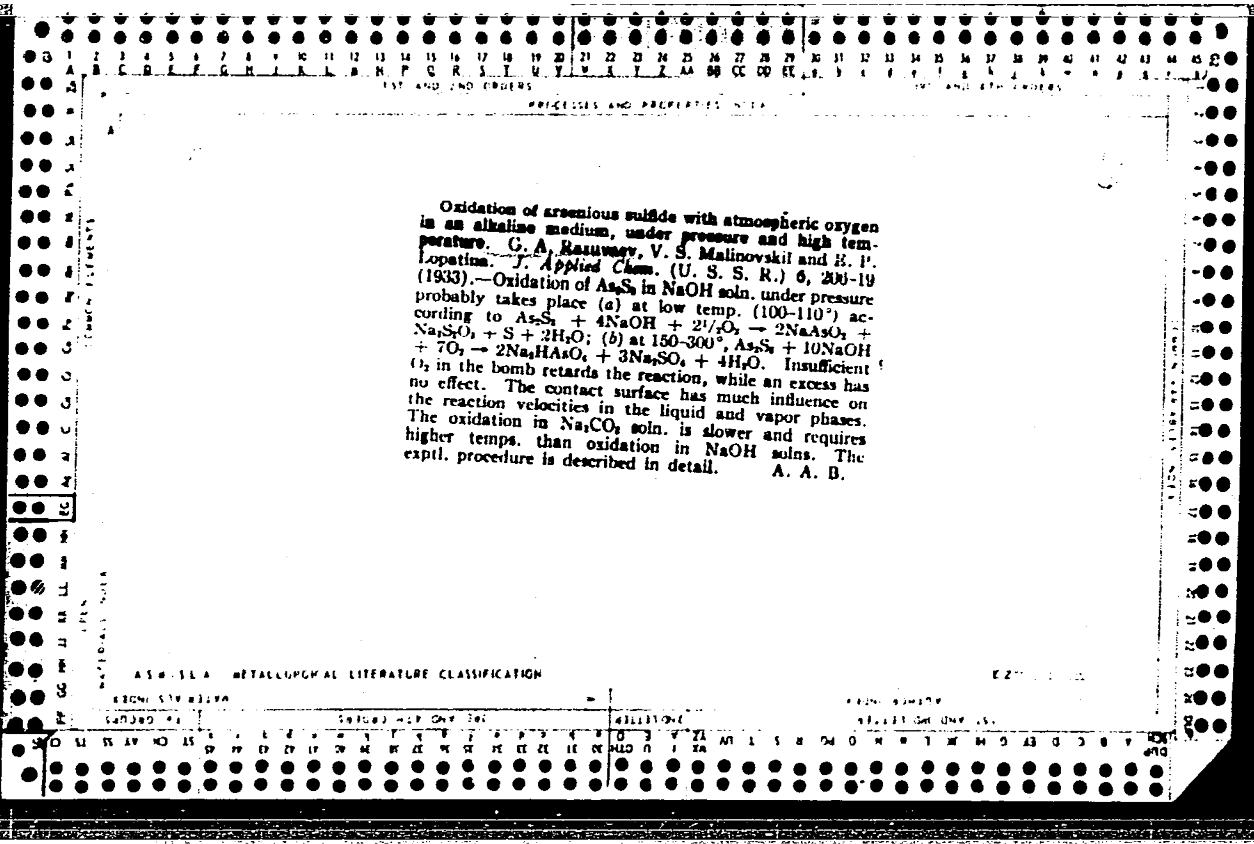
Bl

A-3

**Synthesis of metallo-organic compounds of titanium.** G. A. Razuvaev and I. F. Bogdanov (J. Gen. Chem. Russ., 1933, 3, 367—368).—Unsuccessful attempts were made to synthesise the organo-metallic derivatives of Ti by the action of $TiCl_4$ on $HgPh_2$, on a mixture of Na and PbCl, and on Grignard's reagent in the absence of a solvent.

M. Z.

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION



**Oxidation of arsenious sulfide with atmospheric oxygen**
**in an alkaline medium, under pressure and high tem-**
**perature.** G. A. Razuvaev, V. S. Malinovskii and E. P.
Lopatina. *J. Applied Chem.* (U. S. S. R.) 6, 200-19
(1933).—Oxidation of $As_2S_3$ in NaOH soln. under pressure
probably takes place (*a*) at low temp. (100-110°) ac-
cording to $As_2S_3 + 4NaOH + 2^1/_2O_2 \rightarrow 2NaAsO_2 +$
$Na_2S_2O_3 + S + 2H_2O$; (*b*) at 150-300°, $As_2S_3 + 10NaOH$
$+ 7O_2 \rightarrow 2Na_2HAsO_4 + 3Na_2SO_4 + 4H_2O$. Insufficient
$O_2$ in the bomb retards the reaction, while an excess has
no effect. The contact surface has much influence on
the reaction velocities in the liquid and vapor phases.
The oxidation in $Na_2CO_3$ soln. is slower and requires
higher temps. than oxidation in NaOH solns. The
exptl. procedure is described in detail. A. A. B.

PROCESSES AND PROPERTIES INDEX

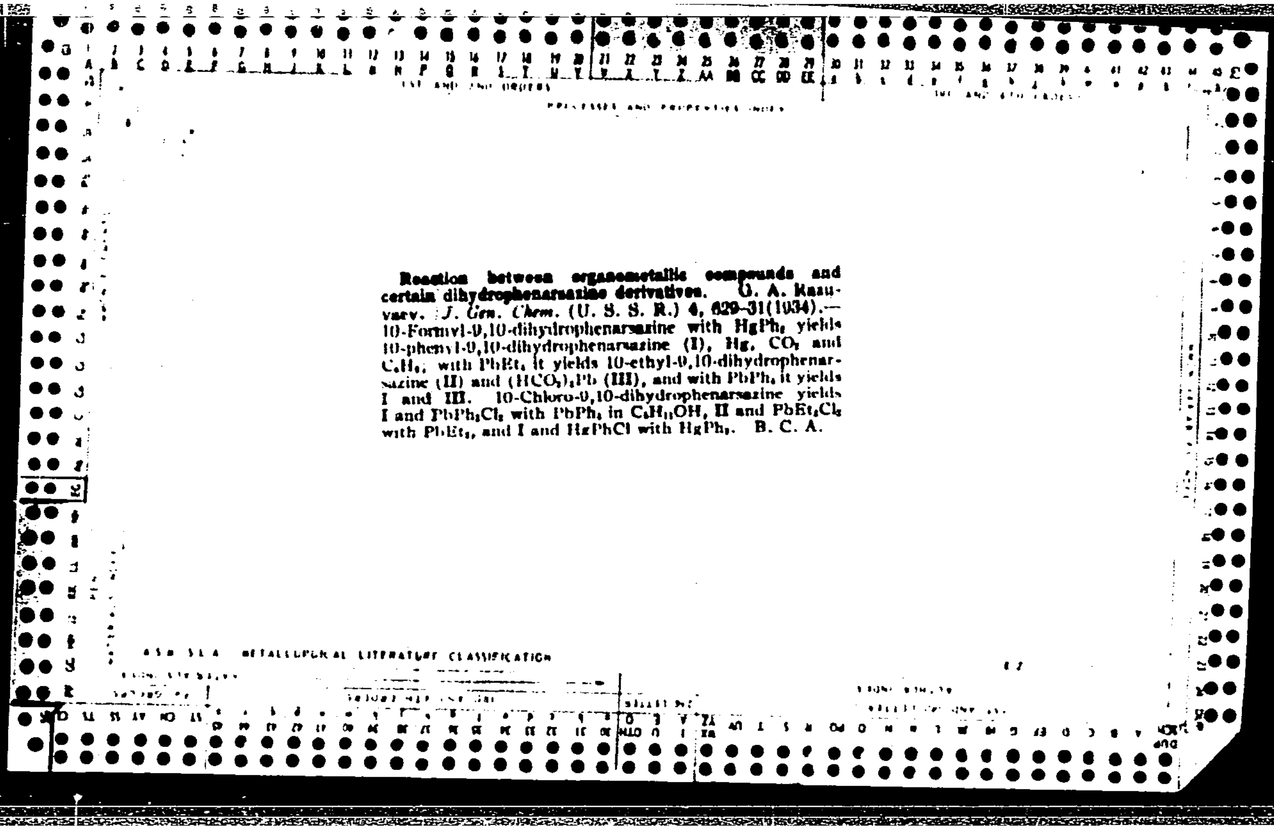
BC

A-3

**Hydroxy-derivatives of 10-alkyl(aryl)-9 : 10-dihydrophenarsazine.** G. A. RAZUVAIEV and V. S. MALINOVSKI (J. Appl. Chem. Russ., 1933, 6, 669—676).—The following compounds have been prepared from the dihydroxides (I) of 10-alkyl- and from the oxide (II) of 10-phenyl-9 : 10-dihydrophenarsazine: *tribromo*-, m.p. 271—272°, and *2-nitro-10-methyl*-, m.p. 154—155° (decomp.); *tetrabromo*-, m.p. 219—221°, and *nitro-10-phenyl*-, m.p. 139—141° (decomp.); *nitro-10-ethyl*-, m.p. 134—136° (decomp.), -*10-propyl*-, m.p. 147° (decomp.), and -*10-isoamyl-9 : 10-dihydrophenarsazine*, m.p. 146—147°. The above $NO_2$-derivatives regenerate (I) or (II) on reduction with $Fe(OH)_2$, Fe and $FeCl_2$, or $NaHSO_3$, and on treatment with alkalis. (I) and (II), on reduction with $SO_2$, yield the corresponding 10-alkyl(phenyl)-9 : 10-dihydrophenarsazines, together with $NHPh_2$ and the appropriate alkyl- or phenyl-arsine oxides.

R. T.

A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION



**Reaction between organometallic compounds and certain dihydrophenarsazine derivatives.** G. A. Razuvaev. *J. Gen. Chem.* (U. S. S. R.) 4, 629-31(1934).—10-Formyl-9,10-dihydrophenarsazine with $HgPh_2$ yields 10-phenyl-9,10-dihydrophenarsazine (I), Hg, CO, and $C_6H_6$; with $PbEt_4$ it yields 10-ethyl-9,10-dihydrophenarsazine (II) and $(HCO_2)_2Pb$ (III), and with $PbPh_4$ it yields I and III. 10-Chloro-9,10-dihydrophenarsazine yields I and $PbPh_2Cl_2$ with $PbPh_4$ in $C_5H_{11}OH$, II and $PbEt_2Cl_2$ with $PbEt_4$, and I and HgPhCl with $HgPh_2$. B. C. A.

PROCESSES AND PROPERTIES INDEX

**Catalytic decomposition of metallo-organic compounds. II.** G. A. Razuvaev and M. M. Koton. *J. Gen. Chem.* (U. S. S. R.) 4, 647-52(1934); cf. *C. A.* 27, 5313-14.—Pd accelerates decompn. of *p*-substituted $Ph_2Hg$ in the following increasing order: α-$C_{10}H_7$, $MeC_6H_4$, $BrC_6H_4$, $EtOC_6H_4$, $MeOC_6H_4$, Ph, $PhCH_2$. The compds. are first decomposed into metals and radicals, the latter uniting at the surface of the catalyst to $Ph_2$ compds. The relative speed of decompn. of (α-$C_{10}H_7$)$_2$Hg is also given by the above series; $C_{10}H_8$ is formed at the expense of some $C_{10}H_7$ groups which are dehydrated to C. The relative effects of catalysts in alc. are, in decreasing order: Pd, Ni, Au, Ag, Cu; in tetralin Pd, Au, Ag, Ni, Cu. In alc. (α-$C_{10}H_7$)$_2$Hg gives RH compds.; all other compds. treated give RR; in tetralin hydration alone is observed. 16 tables give the results of expts. **III. Compounds of lead and tin.** M. M. Koton. *Ibid.* 653-7.—$Ph_4Pb$ (I) and $Ph_4Sn$ (II) undergo decompn. at 150° under the catalytic action of metal filings. In the absence of H the relative decreasing effects on the decompn. of I are represented by the series Pd, Au, Ag, Ni and under pressure of H by Pd, Ni, Au, Ag, Cu. Decompn. of II in presence of H is not observed at 150°, but is complete at 200° regardless of the nature of the catalyst. In the absence of H the decompn. is slight at 200°. The relative decreasing effects of catalysts in the case of II, in the absence of H, are Pd, Ag, Au, Ni; in the presence of H, Pd, Ni, Ag, Au and Cu. $C_6H_6$ results from both I and II in the presence of Ni, while with Pd $Ph_2$ is formed; Au stimulates both reactions. In the absence of H $Ph_2$ is formed in all cases. J. G. Tolpin

ASM-SLA METALLURGICAL

7

**Potentiometric titration of small quantities of vanadium in steels with high contents of chromium.** I. Razuvaeva. *Zavodskaya Lab.* **4**, 494-9(1935).—A crit. discussion of the method of Thanheiser and Dickens (*C. A.* **25**, 5860) with suggestions for refinements of the procedure. Chas. Blanc

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

ca

10

**Migration of phenyl radicals in metallo-organic compounds.** G. A. Razuvaev and M. M. Koton. *J. Gen. Chem.* (U. S. S. R.) **5**, 361-5(1935); cf. *C. A.* **26**, 2710; **29**, 3661$^{1}$.—Further exptl. evidence is furnished to the effect that the decompn. of the Ph derivs. of Hg, Pb and Sn of the type $Ph_2Hg$ is accompanied by an intermediate formation of free Ph radicals, which then react with various compds., while that of the type $(PhCH_2)_2Hg$ is a pure pyrogenetic reaction. $Ph_2Hg$ with $(PhNH)_2$ in ligroin, when heated at 150° for 12-48 hrs., reacted 100% according to the formula: $Ph_2Hg + PhNHNHPh \rightarrow 3C_6H_6 + Hg + PhN{:}NPh$. $Ph_2Hg$, heated with bivinyl and isoprene at 250-300° for 24 hrs., sepd. 70-90% Hg and gave some insol. solid decompn. products and no $C_6H_6$ and $Ph_2$. Similar results were obtained with pyrrole at 125-250°. Evidently in these cases the free Ph radicals react with the unsatd. compds. with the formation of polymerization products and not the addn. compds. $Ph_2Hg$ with 2-butene at 300° sepd. Hg and formed a yellow insol. compd., probably $p$-$C_6H_4Hg$ (cf. Michaelis, *Ber.* **28**, 588(1895)). PhHgOH with $H_2O$, heated at 175° for 48 hrs. at 50 H atm., was smoothly decomposed according to the reaction: $PhHgOH + H_2 \rightarrow C_6H_6 + Hg + H_2O$. A mixt. of $Ph_4Pb$ with S heated at 150° for 24 hrs. and that of $Ph_4Sn$ with S at 225° produced $(PhS)_2$ and PbS and $SnS_2$, resp. $(PhCH_2)_2Hg$ with S, heated at 100° for 24 hrs. and at 150° for 1 hr., gave $(PhCH_2)_2$, PbS and S.

Chas. Blanc

METALLURGICAL LITERATURE CLASSIFICATION

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1ST AND 2ND ORDERS

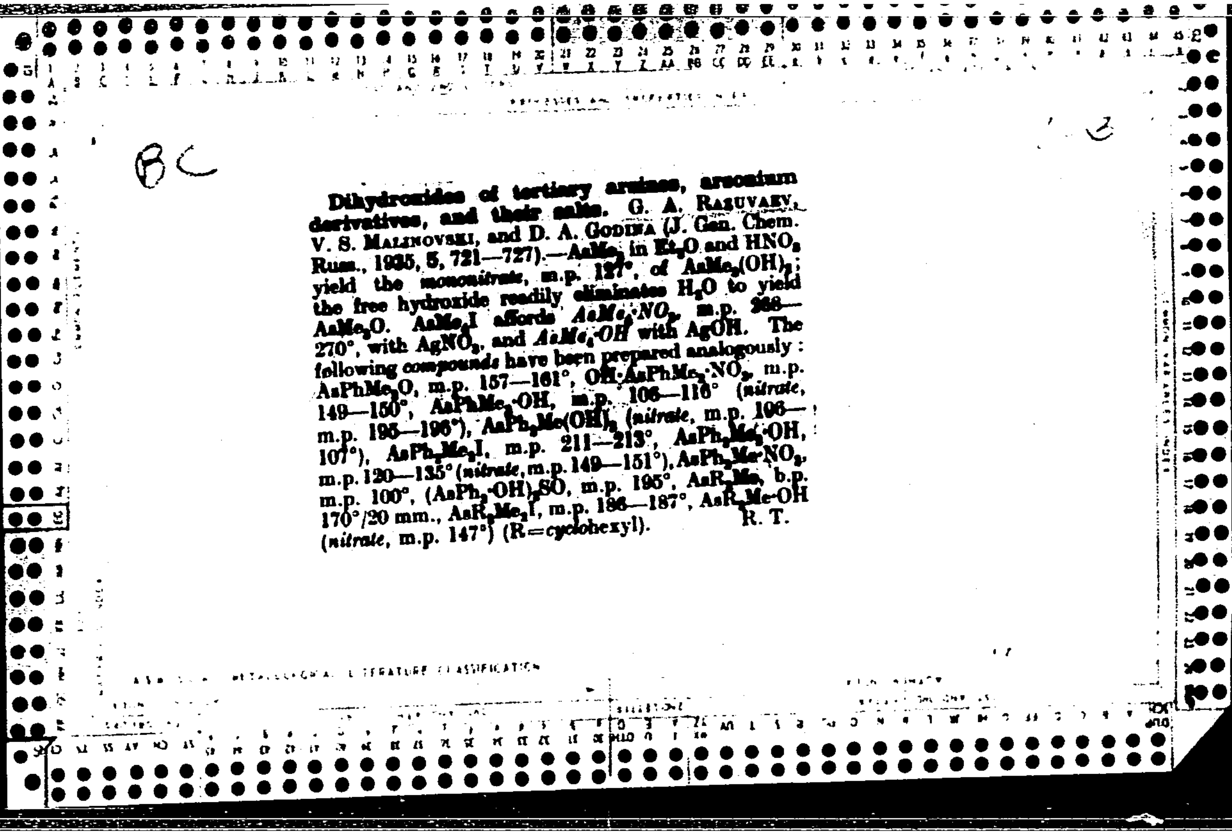
PROCESSES AND PROPERTIES INDEX

A-3

**Hydroxy-derivatives of 5-alkyl(aryl)-5 : 10-dihydrophenarsazine. II. Synthesis and properties of monohydroxy-5-R-5-R′-5 : 10-dihydrophenarsazine. III. Synthesis of derivatives of the betaine type.** G. A. Razuvaev and V. S. Malinovski (J. Gen. Chem. Russ., 1935, 5, 570—574, 575—579).—II [with A. F. Shigatsch and Z. I. Azarch]. The methiodides of 5-alkyl(aryl)-dihydrophenarsazines yield the following hydroxides and nitrates with AgOH and $AgNO_3$, respectively: *monohydroxide* of 5 : 5-*dimethyl*-, m.p. 242° [*nitrate* (I), m.p. 258°; $NO_2$-derivative (II)], of 5-*phenyl*-5-*methyl*-, m.p. 202—204° [*nitrate*, m.p. 210°; $NO_2$-derivative (III), m.p. 120—124°], and of 5-*methyl*-5-*isoamyl*-5 : 10-*dihydrophenarsazine*, m.p. not given (*nitrate*, m.p. 191—193°). Attempts to reduce the $NO_2$ of (II) and (III) resulted in its elimination.

III (with S. E. Arkina). 5-Methyl-5 : 10-dihydrophenarsazine and $CH_2Cl\cdot CO_2H$ in $C_6H_6$ at 90° yield 5-*chloro*-5-*methyl*-5 : 10-*dihydrophenarsazinoacetic acid* (IV), m.p. 237—238° [*Et ester* (V), m.p. 198°; *nitrate*, m.p. 179°; *platinichloride*, m.p. 138—140°; *picrate*, m.p. 199°]; the analogous 5-*Et* derivative, m.p. 201—204° (*nitrate*, m.p. 170°), is obtained similarly. (IV) or (V) afford an *anhydride* (VI), m.p. 199—203°, of the betaine type, when heated with aq. NaOH. The *dinitro*-derivative of (VI), m.p. 163—165° obtained from (IV) and $HNO_3$, yields (VI) when reduced with $Fe(OH)_2$ in aq. NaOH. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



BC

**Dihydroxides of tertiary arsines, arsonium derivatives, and their salts.** G. A. Razuvaev, V. S. Malinovski, and D. A. Godina (J. Gen. Chem. Russ., 1935, 5, 721—727).—$AsMe_3$ in $Et_2O$ and $HNO_3$ yield the *mononitrate*, m.p. 127°, of $AsMe_3(OH)_2$; the free hydroxide readily eliminates $H_2O$ to yield $AsMe_3O$. $AsMe_4I$ affords *$AsMe_4{\cdot}NO_3$*, m.p. 268—270°, with $AgNO_3$, and *$AsMe_4{\cdot}OH$* with AgOH. The following *compounds* have been prepared analogously: $AsPhMe_2O$, m.p. 157—161°, $OH{\cdot}AsPhMe_2{\cdot}NO_3$, m.p. 149—150°, $AsPhMe_3{\cdot}OH$, m.p. 106—110° (*nitrate*, m.p. 195—196°), $AsPh_2Me(OH)_2$ (*nitrate*, m.p. 106—107°), $AsPh_2Me_2I$, m.p. 211—213°, $AsPh_2Me_2{\cdot}OH$, m.p. 120—135° (*nitrate*, m.p. 149—151°), $AsPh_2Me{\cdot}NO_3$, m.p. 100°, $(AsPh_2{\cdot}OH)_2SO_4$, m.p. 195°, $AsR_2Me$, b.p. 170°/20 mm., $AsR_2Me_2I$, m.p. 186—187°, $AsR_2Me{\cdot}OH$ (*nitrate*, m.p. 147°) (R=cyclohexyl).

R. T.

RAZUVAYEV, G. A. (Co-author)

See: OL'DEKOP, Yu.

Razuvayev, G. A. and Ol'dekop, Yu. - "The photoreaction of diphenyl mercury in solution", (Report), Soobshch. o nauch. rabotakh chlenov Vsesoyuz. Khim. o-va im. Mendeleyeva, 1949, Issue 1, p. 9-10.

SO: U-4630, 16 Sept. 53, (Letopis 'Zhurnal 'nykh Statey, No. 23, 1949).

PROCESSES AND PROPERTIES INDEX

C4

**Photochemical reactions of metal organic compounds of mercury in solution. I. Reactions of diphenylmercury.** G. A. Razuvaev and Yu. A. Ol'dekop. *Zhur. Obshchei Khim.* (J. Gen. Chem.) 19, 736-9(1949); cf. C. A. 43, 1570e. In MeOH soln., $Ph_2Hg$ reacts according to $Ph_2Hg + MeOH \rightarrow 2C_6H_6 + Hg + HCHO$; in 35 hrs.' irradiation with a Hg quartz lamp, 2.5 g. $Ph_2Hg$ and 25 ml. MeOH gave 1.2 g. Hg. In soln. in $CCl_4$ the products were PhHgCl, PhCl, and $C_2Cl_6$, in conformity with the scheme $Ph_2Hg + h\nu \rightarrow PhHg\cdot + Ph\cdot$; $PhHg\cdot + CCl_4 \rightarrow PhHgCl + CCl_3\cdot$; $Ph\cdot + CCl_4 \rightarrow PhCl + CCl_3\cdot$, $2CCl_3\cdot \rightarrow C_2Cl_6$. The reaction between $Ph\cdot$ and $CCl_4$ is in keeping with the corresponding step involved in the reaction between $Bz_2O_2$ and $CCl_4$. The same analogy applies to, on the one hand, the reaction between $Bz_2O_2$ and $CHCl_3$, and, on the other hand, between $Ph_2Hg$ and $CHCl_3$, giving PhHgCl, $C_6H_6$, and $C_2Cl_6$, and representable by the scheme $Ph_2Hg + h\nu \rightarrow PhHg\cdot + Ph\cdot$, $PhHg\cdot + CHCl_3 \rightarrow PhHgCl + CHCl_2\cdot$; $Ph\cdot + CHCl_3 \rightarrow C_6H_6 + CCl_3\cdot$, $2CCl_3\cdot \rightarrow C_2Cl_6$. The fate of the radical $CHCl_2\cdot$ is not established. The reaction between $Ph_2Hg$ and $C_2H_4Cl_2$ or $C_2H_2Cl_4$ proceeds as with $CHCl_3$; the $Ph\cdot$ radical always reacts with the H atom of the solvent, not with the Cl atom. With all 3 solvents contg. both Cl and H, there is a very slight side reaction producing metallic Hg. Irradiation of $Ph_2Hg$ with $C_2Cl_6$ in $C_6H_6$ soln. produces PhHgCl. N. Thon

Gorkiy State U.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

**Photochemical reactions of organomercury compounds**
**in solutions. II. Reactions of diphenylmercury.** G. A.
Razuvaev and Yu. A. Ol'dekop. *Zhur. Obshchei Khim.*
(*J. Gen. Chem.*) 19, 1483-6(1949); cf. *C.A.* 43, 8895a.—
Irradiation of $Ph_2Hg$ (2 g.) in 15 ml. $CHBr_3$ with ultra-
violet light 12 hrs. gave 1.95 g. PhHgBr, m. 278°, as well
as $C_6H_6$ [identified as m-$C_6H_4(NO_2)_2$]. In 6 hrs. $Ph_2Hg$
in $CCl_2$:CHCl similarly gave 95% PhHgCl, m. 257°,
and $C_6H_6$. *tert*-BuCl, however, even after 200 hrs.
gave but 15.5% PhHgCl and 6% Hg. Only a trace of Hg
formed after 3 weeks' reaction of $Ph_2Hg$ in $Me_3CCH_2$-
$CHMe_2$. In 100 hrs., $Ph_2Hg$ in PhMe gave 20% un-

changed $Ph_2Hg$ and a tarry unseparable mass. In 240
hrs. 3 g. $Ph_2Hg$ in iso-PrOH gave 82.3% Hg, $C_6H_6$,
and $Me_2CO$, with 16% $Ph_2Hg$ recovery. In 40 hrs.
$Ph_2Hg$ in $Et_2O$ gave 90% Hg, $C_6H_6$, and AcH; in 25 hrs.
in $EtOCH_2CH_2OH$ it gave 79% Hg, $C_6H_6$, and AcH,
while in 25 hrs. in $Me_2CO$ it gave 72% Hg, 57% $C_6H_6$,
and an unidentified yellow mass. After 20-hrs.' reaction
with $EtO_3CH$ there was liberation of Hg, complete in 100
hrs., along with $C_6H_6$ and a small amt. of $Ph_2$. III.
**Photoreactions of dibenzylmercury.** *Ibid.* 1487-9.—
$(PhCH_2)_2Hg$ (I) irradiated in MeOH with a Hg lamp 50
hrs. gave 98% Hg and 80% bibenzyl, m. 53°. A 40-hr.
reaction in $CHCl_3$ gave 100% HgCl and bibenzyl, as well
as a yellow undistillable oil. $PhHgCH_2Ph$ (by heating
$PhCH_2HgCl$ with $Ph_3SnCl_2$ in EtOH contg. 20% NaOH)
similarly in 25 hrs. in MeOH gave 57% Hg and 70%
$Ph_2Hg$, some $C_6H_6$, and 68% bibenzyl, while 25 hrs. in
$CHCl_3$ gave 69% Hg, 58% PhHgCl, $C_6H_6$, and 58%
bibenzyl, apparently by symmetrization, followed by
reaction of the sym. derivs. individually. G. M. K.

RAZUVAYEV, G. A. PA 26/49T7

USSR/Chemistry - Organic Compounds, of Mercury Jan 49
Chemistry - Light, Effect of

"Photoreaction of Organic Mercury Compounds in Solutions," G. A. Razuvayev, Yu. A. Ol'dekop, Gor'kiy State U, 4 pp

"Dok Ak Nauk SSSR" Vol LXIV, No 1

Investigated photoreaction of several organic mercury compounds, diphenylmercury, o-ditolylmercury, a-dinaphthylmercury and dibenzylmercury. Submitted 20 Sep 48.

[redacted] 26/49T7

RAZUVEAYEV, G. A.

PA 66/49T25

USSR/Chemistry - Mercury Compounds Aug 49
Succinimide

"Reaction of Bromosuccinimide With Several Mercury Organic Compounds," G. A. Razuvayev, N. S. Vasileyskaya, Gor'kiy State U, 3¼ pp

"Dok Ak Nauk SSSR" Vol LXVII, No 5

Gives general formulas for the reaction of bromosuccinimide with symmetrical and non-symmetrical organic mercury compounds, and lists the "new" compounds: n-$NO_2$-$C_6H_4HgNC_4H_4O_2$,

66/49T25

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USSR/Chemistry - Mercury Compounds Aug 49
(Contd)

$C_6H_5CH_2HgNC_4H_4O_2$, n-Br--$C_6H_4HgNC_4H_4O_2$, $C_2H_5HgNC_4H_4O_2$, n-$CH_3O$--$C_6H_4HgNC_4H_4O_2$, n-$(CH_3)_2NC_6H_4HgNC_4H_4O_2$, and $C_6H_5HgNC_4H_4O_2$. Submitted 3 Jun 49.

66/49T25

RAZUVAYEV, G. A.

PA 1/50T16

USSR/Chemistry - Photochemistry Aug 49
Iodides

"Photoreactions of Iodoorganic Compounds," G. A. Razuvayev, M. A. Shubenko, Gor'kiy State U, 4 pp

"Dok Ak Nauk SSSR" Vol LXVII, No 6

Tabular outlines of the patterns of the reactions of (1) $C_6H_5$ with mercury-containing hydrocarbons $(C_6H_5)_2Hg$, n-$(C_6H_4CH_3)_2Hg$, o-$(C_6H_4CH_3)_2Hg$, and $(C_6H_5CH_2)_2Hg$ in $C_6H_6$, $CH_3OH$, $C_2H_5OH$, and $CH_3$ -CHOH -$CH_3$, (2) $C_6H_5I$ with $(C_6H_5)_2Sb$ in $CH_3OH$, $C_6H_6$, and $CHCl_3$,

[redacted] 1/50T16

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USSR/Chemistry - Photochemistry (Contd) Aug 49

(3) $C_6H_5CH_2I$ with $(C_6H_5)_2Hg$ in $CH_3OH$, and $C_6H_6$, and with o-$(C_6H_4CH_3)_2Hg$ in $CH_3OH$, and (4) $CH_3I$ with $(C_6H_5CH_2)_2Hg$, $(C_6H_5)_3Sb$, and $(C_6H_5)_2Hg$ in $CH_3OH$ and $C_6H_6$. Submitted by Acad A. N. Nesmeyanov 3 Jun 49.

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**Photoreactions of metalloörganic compounds of mercury in solutions. IV. Photoreactions of di-o-tolylmercury.** G. A. Razuvaev and Yu. A. Ol'dekop (State Univ., Gorki). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 20, 181-4 (1950); cf. C.A. **44**, 3451*b*. $(o\text{-}MeC_6H_4)_2Hg$ (I) (2 g.) in 10 ml. MeOH irradiated 30 hrs. gave 1.03 g. Hg and PhMe (isolated as the 2,4-dinitro deriv.), as well as $CH_2O$. I (1 g.) in 15 ml. $EtOCH_2CH_2OH$ after 18 hrs. irradiation gave 0.52 g. Hg, 0.5 ml. PhMe, and AcH; similarly I in $EtO_2CH$ after 18 hrs. gave Hg, PhMe, and an aldehyde, while $ClCH_2CH_2Cl$ as solvent gave in 12 hrs. 69% Hg, PhMe, and 31% $o\text{-}MeC_6H_4HgCl$; $CHCl_3$ as solvent similarly gave 50% Hg, some unreacted I, 17% $o\text{-}MeC_6H_4HgCl$, and PhMe, as well as $(CCl_3)_2$. Reaction in $CCl_4$ for 10 hrs. gave 79% $o\text{-}MeC_6H_4HgCl$, $C_2Cl_6$, 17% I, and a liquid which with $KMnO_4$ gave $o\text{-}ClC_6H_4CO_2H$. Apparently the reactions begin by a dissocn. of I into MePh and $MeC_6H_4Hg$ radicals. G. M. K.

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**Reaction of benzoyl peroxide with 1,2-dichloroethane and 1,1,2,2-tetrachloroethane.** G. A. Razuvaev, Yu. A. Ol'dekop, and I. F. Bagaev (Gorki State Univ.). *Doklady Akad. Nauk S.S.S.R.* **74**, 73-6(1950).—The radical-type reactions in systems contg. Bz$_2$O$_2$ with halogenated ethanes were studied. Heating (water bath) 125 g. Bz$_2$O$_2$ and 750 ml. (CH$_2$Cl)$_2$ some 20 hrs., until the KI test for Bz$_2$O$_2$ was neg., gave 61 g. BzOH, 1.5 g. *p*-PhC$_6$H$_4$CO$_2$H, 0.05 g. Ph$_2$, and 40% C$_6$H$_6$ (isolated as the *m*-(NO$_2$)$_2$ deriv. by nitration); the nonaromatic constituents were: 13 g. (16%) trichlorobutene, b$_{10}$ 95-105°, $n_D^{20}$ 1.507, $d_{20}^{20}$ 1.4040, 4.9 g. mixed trichlorobutene and tetrachlorobutane, b$_{10}$ 105-10°, and 1.2 g. pure *1,2,3,4-tetrachlorobutane*, m. 73-4° (total yield of halogen derivs., 25%). Some tar also formed. Bz$_2$O$_2$ 75 g. with 400 ml. (CHCl$_2$)$_2$ similarly gave 24 g. BzOH, 0.5 g. *p*-PhC$_6$H$_4$CO$_2$H, C$_6$H$_6$ (isolated as the *m*-dinitro deriv., 3.5 g.), and 21.4 g. (23%) heptachlorobutene, *CCl$_2$:CCl-CCl$_2$CHCl$_2$* (by loss of HCl from the octachloride), m. 79-80° (from EtOH). G. M. Kosolapoff

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**Reactions of diphenyl- and diethylmercury with bromo amides, hypobromites, and with perbenzoic acid.** G. A. Razuvaev and N. S. Vasileiskaya (State Univ., Gor'kii). *Doklady Akad. Nauk S.S.S.R.* **74**, 279-82(1950). A brief résumé of exptl. results on the nature of the reactions of $Ph_2Hg$ and $Et_2Hg$. Bromosuccinimide on heating reacts by the ionic route, with cationoid Br being attached to the radical of the $R_2Hg$ compd. used. However, when ultraviolet activation is used, Br attaches to the Hg atom and not to the R. Bromo amides of AcOH, BzOH, and $O_2NC_6H_4CO_2H$ (isomer unstated) react with $R_2Hg$ like alkalies, cleaving HBr, although the BzOH deriv. also gave a pos. Br reaction, and Br joined the radical R of $R_2Hg$ in a side-reaction. Bromination of suspensions of Ag salts of iso-$PrCO_2H$ and BzOH in $CCl_4$ gave the resp. hypobromites of these acids, which reacted with $R_2Hg$ as typical pos. Br reagents (Br is bound to R after the reaction). Reaction of $Ph_2Hg$ with $BzO_2H$ in $CHCl_3$ was complex, going through radical formation, which reacted with the solvent and yielded PhHgCl, PhHgOBz, $C_6H_6$, BzOH, and phthalic acid (probably by hydrolysis of $Cl_3CC_6H_4CO_2H$). G. M. Kosolapoff

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**Photoreactions of phenylmercury hydroxide** G. A. Razuvaev and G. G. Petukhov (State Univ., Gorki). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 21, 646-50(1951).—*Photochem.* reactions of *PhHgOH* with $CHCl_3$, $CCl_4$, MeOH, $EtOCH_2CH_2OH$, $C_6H_6$, and MePh proceed through *dissocn* of the Hg compd. into *radicals*, with subsequent action of the OH radical taking H from the solvent to form $H_2O$. Reaction with MeOH in 20 hrs. gave $CH_2O$, $Ph_2$, $C_6H_6$, and Hg; $EtOCH_2CH_2OH$ gave Hg, $Ph_2$, $C_6H_6$. The use of $CHCl_3$ gave PhHgCl, HgCl, $HgCl_2$, Hg, $C_6H_6$, $H_2O$, and $C_2Cl_6$; $CCl_4$ yielded PhHgCl, $H_2O$, $C_2Cl_6$, and an unidentified org. Hg compd. Reaction with $C_6H_6$ in 90 hrs. gave 57% $H_2O$, 55% Hg and 21% $Ph_2$; reaction with MePh in 60 hrs. gave 82% $H_2O$, 80% Hg, 4% $C_6H_6$, and a mixt. of isomeric methylbiphenyls. The reaction of PhHgOAc with $EtOCH_2CH_2OH$ in 30 hrs. gave 98% Hg, 82% $C_6H_6$, some AcOH, a trace of $Ph_2$, and AcH. G. M. Kosolapoff

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**Photoreactions of metallo-organic compounds of mercury in solutions. VI. Reactions of dimesitylmercury.** G. A. Razuvaev, Yu. A. Ol'dekop, and M. N. Koroleva (State Univ., Gorki). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 21, 650-5(1951); cf. *C.A.* 45, 3260e.—*Dimesitylmercury* differs in photoreactions from $Ph_2Hg$ by the ease of cleavage of the org. radicals from Hg. Refluxing 116.5 g. 3% Na-Hg, 23.3 g. bromomesitylene, 28 ml. dry MePh, and 1.8 ml. EtOAc 14 hrs. at 130°, decanting from the Hg and Na-Hg, filtering hot, and extg. the ppt. with hot $C_6H_6$, gave 81.3% *dimesitylmercury* (I), m. 235°. Irradiation of I 60 hrs. with $EtOCH_2CH_2OH$ gave 97% Hg, some AcH, and 71% mesitylene (II); I and iso-PrOH after 440 hrs. gave 83.3% Hg, 5% unreacted $R_2Hg$, some $Me_2CO$, and 77% II. I and $CHCl_3$ in 130 hrs. gave 84% $HgCl_2$, some HgCl, 4.4% Hg, some II, and $C_2Cl_6$; similar reaction with $CCl_4$ gave HgCl (96%), $C_2Cl_6$, and chloromesitylene. Heating 3 g. I with 1.1 g. succinimide 8 hrs. at 170° gave 78% II, 3% Hg, and 31.6% *2,4,6-$Me_3C_6H_2HgN(COCH_2)_2$* (III), m. 205-6° (from aq. EtOH); the concurrently formed *disuccinimidomercury* was detected (80%) in the residual aq. soln. by treatment with $H_2S$, yielding HgS. III with concd. HCl in hot aq. EtOH readily gave $HgCl_2$. If the heating of the original mixt. is run for 40 min., 83% III may be obtained. Heating 1 g. I with 2 g. freshly prepd. powd. Ag 3 hrs. at 300° gave 58% II, tars, and Ag-Hg amalgam. In the decompn. reactions of I, the formation of the dimer appears to be prevented by the steric factor. G. M. Kosolapoff