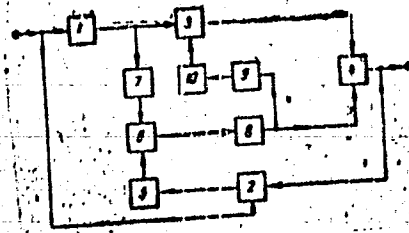


ACC NR: AP6021781

Fig. 1. 1 - narrow-band filter; 2 - phase detector;
3 - amplifier; 4 - summator; 5 - low frequency filter;
6 - balanced modulator; 7 - phase shifter; 8 - amplifier;
9 - amplitude detector; 10 - low frequency filter



Orig. art. has: 1 diagram.

SUB CODE: 09/ SUBM DATE: 22Jul65

Card 2/2

SMIRNOV, G., podpolkovnik; ZAIKIN, Ye., mayor

An air regiment retains conquered heights. Kozm. Vooruzh.
S11 4 no.11:37-45 Je '64. (MIFA 17:9)

BONDAREV, K.T., kand. tekhn. nauk; MINAKOV, V.A., inzh.; ZAIKINA, A.A., inzh.

Investigating the composition and the nature of chemical heterogeneities
in industrial glass. Stek. i ker. 22 no.8:13-15 Ag '65. (MIRA 18:9)

1. Zavod "Avtosteklo".

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Forestry Engineering Inst), 150 copies (KL, 49-59, 141)

ZAIKINA, I.N.

Methods of producing large-grained millet forms. Trudy MOIP.
Otd. biol. 5:164-172 '62. (MIRA 16:5)

1. Glavnyy botanicheskiy sad AN SSSR, Moskva.
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KLYUCHIKOV, Valentin Nikolayevich; MELEROVICH, Anna Yefimovna; ZAIKINA,
M.G., red.

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kand.tekhn.nauk, dotsent

Special features of the synthesis of multicycle relay systems
with contactless asynchronous elements. *Izv.vys.ucheb.zav.*;
elektromekh. 7 no.12:1470-1474 '64. (MIRA 18:2)

1. Gidrofizicheskiy institut AN UkrSSR (for Zaikin). 2. Kafedra
avtomatiki i telemekhaniki Novochoerkasskogo politekhnicheskogo
instituta (for Obraatsov).

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"Stat. met. 37 no. 9: 82-88 S 164.

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ZAIKINA, M. G.

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"The Problem of Efferential Functions of the Dorsal Nerves: I. Role of the

Dorsal Nerves in Sympathetic Cerebellum-Tsinskij Phenomena in Cold Blooded

Animals," *Fiziol. Zhur. SSSR*, 35, No. 4, 1949;

"....II. Effect of Dorsal Nerves on the Course of Sympathetic Cerebellum-

Tsinskij Phenomena in Warm-Blooded Animals," *ibid.*

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"The Pathogenesis of Skin Diseases in the Light of the Doctrine of
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No. 1 January-February 1954 (Number), Moscow.

38280 ZAİKINA, M. T.

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Ginetsinskogo. Sbornik trudov (Arkhang. gos. med. in-t), vyp. 9, 1949,
s. 113-23. - Bibliogr: 16 nazv

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February 4, 1964.

YELINOV, N.P.; FROLOVA, M.A.; ZAIKINA, N.A.

Characteristics of the complement fixation reaction in candidiasis
treated by antibiotics and other preparations. Eksp. i klin. issl.
po antibiot. 2:110-115 '60. (MIRA 15:5)
(COMPLEMENT FIXATION) (MONILIASIS)
(ANTIBIOTICS)

BYSTROVA, V.V.; DOBRONYSLOV, V.V.; YELINOV, N.P.; ZAIKINA, N.A.; KONDRAT'YEVA,
A.A.; MEDVEDKOVA, A.A.; SILUYANOVA, N.A.; FROLOVA, M.A.

Study of the antifungal properties and chemotherapeutic activity of
antibiotic 26/1. Eksp. i klin. issl. po antibiot. 2:289-295 '60.
(MIRA 15:5)

(ANTIBIOTICS)

YELINOV, N.P.; ZAİKINA, N.A.

Lipids of asperogenic yeastlike fungi of the genus *Candida*.
Vop. med. khim. 9 no.2:177-180 Mr-ap '63. (MIRA 37:8)

1. Leningradskiy khimiko-farmatsvticheskij institut.

L 11253-66

ENT(1)/T - JK

SOURCE CODE: UR/0397/65/000/024/0065/0065

ACC NR: AR6022387

(N)

AUTHOR: Fel'dman, I. Kh.; Frankovskiy, Ch. S.; Yemshchikov, V. P.; Mordvinova, Ye. T.; Maryukhta, Yu. B.; Zaikina, N. A.; Vitovskaya, G. A.; Arkad'yeva, G. Ye.

TITLE: Azo-derivatives of benzene as potential antibacterial compounds. I.

SOURCE: Ref. zh. Farmakologiya. Toksikologiya, Abs. 24.54.512

REF SOURCE: Tr. Leningr. khim.-farmatsevt. in-te, vyp. 18, 1965, 171-172

TOPIC TAGS: benzene, chemical compound, microorganism contamination, bacteria, plant parasite

ABSTRACT: An in vitro method of serial dilutions was used to test the activity of several synthetic azo-compounds in relation to dermatophytes, some gram positive and gram negative bacteria and two species of yeastlike molds. All the tested azo-compounds containing a carboxylic group proved inactive. The exception was 2,4-dichlor-3-carboxy-4'-oxyazobenzol. The azo-compounds displayed highest activity in relation to Cr. neoformans, weaker activity in relation to dermatophytes, and the weakest in relation to Candida albicans. Only

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certain azo-compounds displayed antibacterial and antiviral action. The highest in vitro activity was displayed by 2,4-dichlor-4'-methyl-4-oxyazobenzol and 2,4-dichlor-4'-oxyazobenzol which proved most effective in relation to yeastlike molds and dermatophytes and weakest in relation to bacteria. M. Zabolotskaya. [Translation of abstract].

SUB CODE: 06, 07

Card 2/2 MT

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Purification of waste waters in the antibiotics industry. *Trudy*
Len.khim.-farm.inst. no.15:279-284 '62. (MIRA 15:11)
(ANTIBIOTICS) (INDUSTRIAL WASTES)

ZAİKINA, N.A.

Testing the new ant(fungal antibiotic 26/1 on the *Candida* carrier
state in white mice. Exp. 1 clin. issl. po antibiot. 2:296-299
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(CANDIDA)

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ZAİKINA, N.G., kand.fiziko-matematicheskikh nauk

Expansion of even numbers of an imaginary quadratic field into
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inst. no.5:88-117 '58. (MIRAL3:10)

(Numbers, Theory of)

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Distribution of numbers of an imaginary quadratic field consisting
of small simple ideals. Uch. zap MGPI 108:261-272 '57. (MIRA 11:12)

(Numbers, Theory of)

ZAİKINA, N.O.

Distribution of nonresidues of the power n along the modulus of a simple ideal in an imaginary quadratic field. Uch. zap. MGPI 108: 273-282 '57. (MIRA 11:12)

(Numbers, Theory of)

ZAİKINA, N.G.

Data on diatomic flora from Quaternary sediments of the southern
part of the Taz Peninsula. Vest. Mosk. un. Ser. 5: Geog. 19
no.1:76-78 Ja-F '64. (MIRA 17:4)

ALESHINSKAYA, Z.V.; ZAIKINA, N.G.; ZHUZE, A.P., doktor geogr.
nauk, red.

[Guidebook for practical exercises in a course on
"Quaternary geology"; method of diatom analysis] Ruko-
vodstvo k prakticheskim zaniatiyam po kursu "Chetvertich-
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Mosk. gos. univ., 1964. 74 p. (MIRA 18:5)

ZAİKINA, N. G.

"Evaluations of Numerical Functions Connected With Some Problems in the Theory of Imaginary Quadratic Fields." Cand Phys-Math Sci, Moscow State Pedagogical Inst, Moscow, 1953. (RZhMat, Jan 55)

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SO: Sum. No. 556, 24 Jun 55

ZAIKINA, R.G. (Kiyev, ul. Saksaganskogo, d. 83, kv. 1); VOHSYATSKIY, V.A. (Kiyev, ul. Chmrdnovskogo, d. 19, kv. 12)

Distribution of ethylene-substituted phosphoramines in certain tissues and organs of animals. Vop. onk. 4 no.5:557-561 '58. (MIRA 12:1)

1. Iz ukrainskogo nauchno-issledovatel'skogo sanitarno-khimicheskogo instituta (dir. - dots. N.I. Iuganskiy).

(CYTOTOXIC DRUGS, metabolism

bis(1-aziridinyl)-phenylamine phosphine oxide, distribution in various organs in animals (Rus))

ZAİKINA, T.A.

Work capacity of hypertensive patients before and after treatment with Rauwolfia preparations in a polyclinic. Sov.med. 26
no.11:104-107 N°62 (MIRA 17:3)

1. Iz polikliniki imeni Dzerzhinskogo (glavnyy vrach - sa-
pluzhennyy vrach RSFSR I.G. Karakozov, zav. terapevticheskim ot-
deleniyem B.A.Abanesov), Moskva.

ZAİKINA, T.A.

Atherosclerotic cardiosclerosis without hypertension and with it.
Sbor.nauch.-prak.rab.Poliklin.im.F.E.Dzerzh. no.2:39-44, '61.
(MIU. 16:4)

(HEART--DISEASES)

(HYPERTENSION)

(ARTERIOSCLEROSIS)

ZAİKINA, T.A.

Treatment of hypertension by means of Rauwolfia serpentina
preparations in polyclinics. Sbor.nauch.-prak.rab.Poliklin.
im.F.E.Dzerzh. no.2:45-52 '61. (MIRA 16:4)
(HYPERTENSION) (RAUWOLFIA)

BAZHENOV, A., inzh.; ZAIKINA, V., inzh.; IPPOLITOVA, V., inzh.

Device for erecting reinforced concrete columns. Na stroi.
Mosk. 2 no.8:30 Ag '59. (MIRA 12:12)

1. Stroitel'nyy uchastok-19 tresta Mosstroy No.4.
(Columns, Concrete)

SHCHEGLOV, S.I.; ZAIKINA, V.D.

Effect of technological factors on the compaction of raw forsterite materials. Ogneupory 28 no.7:323-327 '63.(MIRA 16:9)

1. Dnepropetrovskiy metallurgicheskiy institut.

S/137/61/000/011/008/123
A060/A101AUTHOR: Zaikina, V. D.

TITLE: On the problem of slag stability of fireproof articles

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 11, 1961, 2. abstract 11B12
("Sb. nauchn. tr. Dnepropetr. metallurg. in-t", 1959, no. 38, 85-90)

TEXT: The best resistance at high temperatures and low slag additions was demonstrated by Dinas brick and dense forsterite in the study of refractory-slag equilibrium systems. At low temperatures and high slag additions the forsterite chamotte refractories have in all instances demonstrated a low durability. The greatest destruction was undergone by Dinas refractory and by porous synthetic forsterite on account of the formation of low melting-point silicates. Forsterite refractories, in contradistinction to Dinas brick ones, form with the slags an easily removed crust. Chamotte refractory is destroyed on account of the interaction of the slag with the surface of the refractory and the runoff of the reaction products from it. The greatest durability was shown by magnesitochromite refractory, dunite forsterite, and dense synthetic forsterite. The nature of their destruction is: magnesitochromite and the dunite forsterite are

Card 1/2

On the problem of slag stability ...

S/137/61/000/011/008/123
A060/A101

impregnated with slag, and the dense synthetic forsterite is destroyed as a result of corrosion, dissolution, and slag-saturation. ✓

V. Oparysheva.

[Abstracter's note: Complete translation]

Card 2/2

2177-100 10-11
ZAKO, A. A.

153746

USSR/Engineering - Power Plants, Electric Engineers, Power Sep 49

"Kiev Interoblast Department of VNIIOE (All-Union Technical Society of Power Engineers)," A. A. Zalko, Engr, 1 1/4 pp

"Elektrichestvo" No 9

On the basis of results in socialistic competition of VNIIOE departments, Kiev Interoblast Dept was awarded first prize and transferable Red Banner for 1948. Contributing factors in the Kiev success: (1) mass participation of society members in creative scientific engineering

USSR/Engineering - Power Plants, Electric (Contd) Sep 49

activities, rendering aid in organizational and scientific engineering matters for improving qualifications and expanding political viewpoints; (2) originating measures to strengthen creative teamwork of scientific and industrial workers, emphasizing importance of new techniques; (3) aiding innovators and efficiency experts of industry. The Kiev society has nearly 700 members.

153746

ZAYKO A. A.
ZAYKO, A. A.

Nov 51

USSR/Electricity - Personalities

"Professor A. V. Orlovskiy (His 50th Birthday and 25 Years of Pedagogical and Public Activity)," Prof A. D. Nesterenko, Corr Mem, Acad Sci Ukrainian SSR, Prof I. I. Graben', Dr Tech Sci, Docent V. G. Kholmskiy, Cand Tech Sci, K. V. Zubanov, Chief Engr, Klevenergo, Yu. V. Kartashevskiy, Chief Engr, Glavenergo MKKH, Ukrainian SSR, A. S. Tarasov, Dir, Kiev Heat and Power Sta, A. A. Zayko, Engr

"Elektrichestvo" No 11, p 91

Orlovskiy has been head of the Chair of Central Elec Power stations, Kiev Polytech Inst since 1937, and Dean of the Elec Engineering Faculty of the latter institute since 1944. At present, he is directing work in the Kiev Polytech Inst on the problem of generating reactive power in mercury-converter units. Orlovskiy has trained more than 1,500 elec engineers.

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ZAIKO A.A.

SHATELEN, M. A., ZALESSKIY, A. M., LEBEDEV, V. P., TELESHEV, B. A.,
ZHERBIN, S. M., ARKHANGEL'SKIY, F. K., BAUMGOL'TS, A. I.,
ZOLOTAREV, T. L., BUSHUYEV, M. N., PROSKURYAKOV, V., GURVICH, A. M.,
YES'MAN, A. I., SHVETS, F. T., KONDRAT'YEV, G. M., USOV, S. V.,
ALEKSEYEV, A. YE., BOLOTOV, V. V., TIKHOMYEYEV, I. M., GERASIMOV, Y. V.,
MELNIT'YEV, L. A., LEVIT, GO. O., ORLOVSKIY, A. V., VEDIKHOV, V. M.,
STRIKOVICH, M. A., GREYNER, L. K., NIKIFOROV, V. V., SOLODOVNIKOV, G. S.,
SMIRNOV, S. P., ZOLOTAREVA, N. A., KALEKINA, N. M., GOL'DMERSHTEYN, T. L.,
KIEBANOV, L. D., SALUYEV, N. F., ZAIKO, A. A., MARTEKS, H. F.

A. S. Rumyantsev. Obituary. Elektrichestvo, No. 2, 1952.

SO: Monthly List of Russian Accessions, Library of Congress, July 1952 ~~1952~~ Uncl.

ZAIKO, M., inzh.-pilot

Can weather be ordered? Grazhd.av. 20 no.11:22-23 K '63.
(MIRA 17:2)

BAIKONNIKOVA, I. V., RAZUMOV, A. I., and MUKHACHEVA, O. A., (S. M. Kirev Chemical
Technological Institute, Kozan, and the Kozan Medical Institute)

"Esters of Alkylphosphonic and Dialkylphosphinic Acids and Their Bio-
logical Activity," Khimiya i Primenenie Fosfororganicheskikh Soedinenii
(Chemistry and Applications of Organophosphorous Compounds) pp 205-217, 1957

SO: A-3,091, 280 full translation

AFONSKAYA, L.S.; ZAIKONNIKOVA, I.V.

Pharmacology of the paranitrophenyl ester of diethylphosphoric acid
[with summary in English]. Farm. 1 toks. 22 no.1:66-69 34-F '59.

(MIRA 12:4)

1. Kafedra farmakologii (zav. - dots. M.A. Aluf) Kazanskogo medi-
tsinskogo instituta.

(PHOSPHINIC ACID, rel. cpds.

diethylphosphinic acid p-nitrophenyl ester,
pharmacol. (Rus))

ZAICONNIKOVA, I.V.

Hibuphin, a new cholinomimetic drug. Kaz. med. zhur. no. 2:41-43
Mr-Ap '61. (MIRA 14:4)

1. Kafedra farmakologii (zav. - dotsent T.V. Raspopova) Kazanskogo
meditsinskogo instituta.
(PHOSPHINIC ACID)

KRASNOVA, V.M.; ZAIKONNIKOVA, I.V.

Nibuphin, a new antiglaucomatous drug. Kaz. med. zhur. no. 2:46-48
Mr-Apr '61. (MIRA 14:4)

1. Kafedra farmakologii (zav. - dotsent T.V. Raspopova) Kazanskogo
meditsinskogo instituta i kafedra glaznykh bolezney (zav. - prof.
A.N. Kruglov) Kazanskogo gosudarstvennogo instituta dlya usovershen-
stvovaniya vrachey imeni V.I. Lenina.
(GLAUCOMA) (PHOSPHINIC ACID)

IGNATYEVA, O.A., ZAIKONNIKOVA, I.V., AGONSKAYA, L.S.

Antibacterial properties of organic compounds of phosphorus.

Khimiya i Primeneniye Fosfororganicheskikh Soyedineniy (Chemistry and application of organophosphorus compounds) A. YE. ARBUZOV, Ed.
Publ. by Kazan Affil. Acad. Sci. USSR, Moscow 1962, 632 pp.

Collection of complete papers presented at the 1959 Kazan Conference on Chemistry of Organophosphorus Compounds.

ZAIKONNIKOVA, I. V.

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87. TOXICITY OF ORGANOPHOSPHORUS COMPOUNDS FOR ANIMALS WITH RADIATION SICKNESS. A. I. Solov'ev	515
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Collection of complete papers presented at the 1959 Kazan Conference on Chemistry of Organophosphorus Compounds.

KUDRYAVTSEVA, N.P.; ZAIKONNIKOVA, I.V.; AFONSKAYA, L.S.

Effectiveness of new phosphorus organic substances in the
treatment of diphtheria. Kaz. Med. Zhur. no.6:41-44 '62.
(MIRA 17:5)

1. Kafedra detskikh infektsiy, zav.-prof. N.P. Kudryavtseva) i
kafedra farmakologii (zav.-dotsent T.V. Raspopova) Kazanskogo
meditsinskogo instituta.

AFONSKAYA, L.S.; ZAIKONNIKOVA, I.V.; RZHEVSKAYA, G.F.; STUDENTSOVA, I.A.

Mechanism of the action of armin and nibufin. *Farm. i toks.* 26
no.2:184-189 Mr-Apr '63. (MIRA 17:8)

1. Kafedra farmakologii (zav. - dotsent T.V. Raspopova)
Kazanskogo gosudarstvennogo meditsinskogo instituta.

AFONSKAYA, L.S.; ZAIKONNIKOVA, I.V.

Search for protective and therapeutic substances in poisoning
with some organophosphorus compounds. Nauch. trudy Kaz. gos.
med. inst. 14:85-86 '64. (MIRA 18:9)

1. Kafedra farmakologii (zav. - dotsent T.V.Raspopova)
Kazanskogo meditsinskogo instituta.

DUNAYEVA, V.G.; ZAIKONNIKOVA, I.V.

Organophosphorus preparations in treating trichomoniasis in women. Nauch. trudy Kaz. gos. med. inst. 14:117-119 '64.
(MIRA 18:9)

1. Kafedra farmakologii (zav. - dotsent T.V.Raspopova) i
- 2-ya kafedra akusherstva i ginekologii (zav. - prof. Kh.Kh. Meshcherov) Kazanskogo meditsinskogo instituta.

BEREZOVSKIY, B.S.; ZAIKONNIKOVA, I.V.

Mechanism of the protective action of mibufin on the heart in acute radiation sickness in rats. Med. rad. 9 no.2:50-52 Q '64.

(MIRA 18:12)

1. Kafedra rentgenologiji i radiologiji i kafedra farmakologiji Kazanskogo meditsinskogo instituta.

ZAICONNIKOVA, I.V.; KADYROV, M.G.; YARYGINA, G.

Experimental studies of the harmless nature of epoxy compounds
as a dental filling material. Nauch. trudy Kaz. gos. med. inst.
14:173-174 '64. (MIRA 18:9)

1. Kafedra terapevticheskoy stomatologii (zav. - dotsent G.D.
Ovrutskiy) i kafedra farmakologii (zav. - dotsent T.V.Ruspopova)
Kazanskogo meditsinskogo instituta.

ZAICONNIKOVA, I.V.; RASPOPOVA, T.V.

Results of the work of the Pharmacological Department in the
study of organophosphorus compounds. Nauch. trudy Kaz. gos.
med. inst. 14:175-176 '64. (MIRA 18:9)

1. Kafedra farmakologii (zav. - dotsent T.V.Raspopova)
Kazanskogo meditsinskogo instituta.

ARBUZOV, B.A., akademik; VIZEL', A.O.; ZAIKONNIKOVA, I.V.; STUDENTSOVA, I.A.;
DUNAYEV, V.G.; ZVEREVA, M.A.; IVANOVSKAYA, K.M.

Organophosphorus compounds of low toxicity. Dokl. AN SSSR 165
no.1:91-94 N '65. (MIRA 18:10)

1. Institut organicheskoy Khimii AN SSSR, Kazan', i Kazanskiy
gosudarstvennyy meditsinskiy institut.

ZAICONNIKOVA, T.I.

Mexican species of the genus *Leutzia* Thunb. Bot.mat.Corb. 22:155-161
'63. (MIRA 17:2)

ZAICONNIKOVA, T.I.

Critical review of the species of the genus *Deutzia* Thunb. belonging to the section *Mesodeutzia* Schneid. Bot.zhur. 47 no.2:202-212 P '62.

(MIRA 15:3)

(*Deutzia*)

ZAIKOV, Aleksandr Matveevich.

ZAIKOV, Aleksandr Matveevich. Geroicheskaia Shatura, pervenets sovetskoi elektrifikatsii. Moskva, Gosizdat, 1928. 119 p.

DLC: TK1286.54873

SO: LC, Soviet Geography, Part I, 1951, Uncl.

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S/020/61/140/002/019/023
B130/B110

AUTHORS: Zaikov, G. I., Mayzus, Z. K., and Emanuel, N. M., Corresponding Member AS USSR

TITLE: Mechanism of chain ramifications during oxidation of methyl ethyl ketone in liquid phase

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 140, no. 2, 1961, 405-408 X

TEXT: The authors found that the degenerate chain ramification during oxidation of methyl ethyl ketone (I) in liquid phase proceeds through the decomposition into radicals of two intermediate compounds, keto hydroperoxide and diacetyl. (I) was oxidized with atmospheric oxygen in an autoclave at 50 atm and 100-145°C. The oxidation products (acetic acid, ethyl acetate, diacetyl, ethanol, peroxides, CO, and CO₂) were analyzed chemically or by paper chromatography. From the course of the kinetic curve for the (I) consumption (Fig. 1) it may be concluded that the oxidation is a reaction of the first order. In fact, a complicated process takes place, which is suggested by the chain reaction and the anomalously low factor before the exponential function in the equation for the constant

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Mechanism of chain ramifications ...

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of the reaction rate, $k = 5.2 \cdot 10 \exp(11,200/RT) \text{ sec}^{-1}$. The chain character of the process was proven by addition of α -naphthol (II) as inhibitor. In the presence of (II), a noticeable induction period occurs, the duration of which rises with increasing inhibitor concentration. The rate of formation of chains during oxidation of (I) was determined from the kinetics of inhibitor consumption: $\omega_0 = 1.5 \cdot 10^{-6} \text{ mole/liter} \cdot \text{sec}$ at 145°C . During the process, the rate of initiation rises as compared with ω_0 due to the formation of degenerate ramifications. The rate of initiation during the reaction was determined by measuring the consumption of inhibitor (II) freshly supplied at different time intervals. Fig. 3 shows that the oxidation of (I) proceeds like a chain reaction. The rate of initiation, however, rises to double its value only. For the rate ω of oxidation of (I), it is written down: $\omega = (k_2/\sqrt{k_5})[RCOR_1]\omega_i^{1/2}$. An increase of the reaction rate ω to double its value changes the initiation rate $\omega_i^{1/2}$ by the 1.3-fold only, which leads to a linear dependence of the reaction rate on the concentration of (I), i.e., to a reaction of the first order. The rate of chain ramification during oxidation of (I) rises in proportion with the accumulating amount of keto hydroperoxide only at the

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Mechanism of chain ramifications ...

beginning of the reaction. Later on, a higher total rate of formation of radicals is observed than corresponds to the decomposition of keto hydroperoxide into free radicals. This shows that, besides keto hydroperoxide, other intermediates participate in the chain ramification during oxidation of (I). The assumption of a cooperation of diacetyl (formed in this reaction and readily decomposable into two radicals) was confirmed by an increasing rate of chain ramification on addition of diacetyl. The dependence of the ramification rate on the total concentration of keto hydroperoxide and diacetyl is calculated:

$$\omega_1 = k_1 [D]_1 + k_2 [P]_1 = k_1 \left\{ [D]_1 + \frac{k_2}{k_1} [P]_1 \right\} \quad (1).$$

Here, ω_1 is the rate of initiation at a certain instant of the reaction; $[D]$ and $[P]$ are the concentrations of diacetyl and keto hydroperoxide. On admixture of an additional amount of diacetyl, Eq. (1) obtains the form:

$$\omega_2 = k_1 [D]_2 + k_2 [P]_1 = k_1 \left\{ [D]_2 + \frac{k_2}{k_1} [P]_1 \right\} \quad (2).$$

From (1) and (2), we obtain:

$$\omega_1/\omega_2 = \left\{ [D]_1 + (k_2/k_1) [P]_1 \right\} / \left\{ [D]_2 + (k_2/k_1) [P]_1 \right\} \cdot k_2/k_1 \text{ can easily be}$$

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Mechanism of chain ramifications ...

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calculated since the other data are experimentally determined. The authors found for k_1 at 145°C : $1.0 \cdot 10^{-5} \text{ sec}^{-1}$, for k_2 : $1.4 \cdot 10^{-4} \text{ sec}^{-1}$. X

There are 4 figures and 14 references: 11 Soviet and 3 non-Soviet. The three references to English-language publications read as follows: W. D. Emmons, G. B. Lucas, J. Am. Chem. Soc., 77, 2287 (1955); J. S. F. Pede, W. A. Waters, J. Chem. Soc., 1956, 717; W. A. Waters, J. Chem. Soc., 1946, 1151.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences USSR)

SUBMITTED: May 20, 1961

Fig. 1. Kinetic curves for the consumption of methyl ethyl ketone and the accumulation of reaction products at $T = 145^\circ\text{C}$, pressure = 50 atm, and air velocity = 20 liters/hr. (1) Consumption of methyl ethyl ketone, (1') semi-logarithmic anamorphosis of curve 1, (2) accumulation of acetic acid, (3) CO_2 , (4) CO , (5) ethyl acetate, (6) diacetyl, (7) keto hydroperoxide (right-hand scale), (8) ethanol (right-hand scale).
Legend: (a) hr, (b) mole%.

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ZAĪKOV, G.I.; MAYZUS, Z.K.; EMANUEL', N.M.

Mechanism of chain branching in the liquid phase oxidation of
methyl ethyl ketone. Dokl. AN SSSR 140 no.2:405-408 S '61.
(MIRA 14:9)

1. Institut khimicheskoy fiziki AN SSSR. 2. Chlen-korrespondent
AN SSSR (for Emanuel').

(Ketone) (Oxidation)

KOVALEVA, Z.Ya.; ZAIROV, G.K.; SAFONOVA, S.Kh.

Therapeutic effect of mazamine. Preliminary report. Trudy 1-go
MMI 34:434-439 '64. (MIRA 18:11)

1. Kafedra psikiatrii (zav. - zaslužbennyi deyatel' nauki
prof. V.M. Banskchikov) 1-go Moskovskogo ordena Lenina medi-
tsinskogo instituta imeni Sechenova.

5.4300

88359

S/195/60/001/004/004/015
B017/B055

AUTHORS: Blyumberg, E. A., Zaikov, G. Ye., Maykus, Z. K., Emanuel',
N. M.

TITLE: Oxidation of Ethyl Alcohol in the Liquid- and the Gaseous
Phase Under Comparable Conditions

PERIODICAL: Kinetika i kataliz, 1960, Vol. 1, No. 4, pp. 510-518

TEXT: The kinetics of ethyl alcohol oxidation in the liquid- and the
gaseous phase were investigated at various temperatures and pressures.
Oxidation of ethyl alcohol in the liquid phase was carried out at
145-230°C and 52-95 atm. The kinetic curves representing the ethyl
alcohol consumption and the enrichment of the reaction-product during
liquid-phase oxidation at 52 atm and 145, 200, and 230°C appear in Fig. 1.
The reaction rate increases with temperature. The activation energy of
ethyl alcohol oxidation in the liquid phase is 10.2 kcal/mole. The
reaction products of ethyl alcohol oxidation in the liquid phase at
200°C and 52 atm are tabulated. The main reaction products of oxidation
in the liquid phase are acetic acid and ethyl acetate. Fig. 2 shows the
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Oxidation of Ethyl Alcohol in the Liquid- and
the Gaseous Phase Under Comparable Conditions

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S/195/60/001/004/004/015
B017/B055

kinetic curves of ethyl alcohol consumption and enrichment of reaction products during oxidation at 230°C and 52, 70, and 95 atm. The corresponding curves for oxidation in the liquid phase at 52 atm and 145 and 200°C over cobalt acetate are shown in Fig. 3. Both the reaction kinetics and the composition of the reaction products in gaseous phase oxidation of ethyl alcohol differ from those in liquid phase oxidation. In gaseous phase oxidation, CO and acetaldehyde are the main reaction products. The kinetic curves of ethyl alcohol consumption and the enrichment of the reaction product during gaseous phase oxidation (200°C, 20 atm) at ethyl alcohol concentrations of $2.6 \cdot 10^{-3}$ and $0.54 \cdot 10^{-3}$ mole/cm³ are represented in Fig. 4. Fig. 5 shows the corresponding curves for temperatures of 200, 230, 250, and 280°C and 20 atm at alcohol concentrations of $2.6 \cdot 10^{-3}$ mole/cm³. The influence of temperature on the gaseous phase oxidation of ethyl alcohol at 200 and 280°C and 200 atm is illustrated in Fig. 5. The CO and CH₄ contents of the reaction products increase with temperature. The activation energy for the oxidation of ethyl alcohol in the gaseous phase is 18 kcal/mole. N. N. Semenov is mentioned. There are 5 figures, 1 table, and 21 references: 7 Soviet, 8 British,

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Oxidation of Ethyl Alcohol in the Liquid- and
the Gaseous Phase Under Comparable Conditions

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3 US, 1 Italian, 1 Indian, and 1 Swiss.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical
Physics of the AS USSR)

SUBMITTED: June 10, 1960

X

Card 3/3

BLYUMBERG, E.A.; ZAIKOV, G.Ye.; MAYZUS, E.K.; EMANUEL', N.M.

Differences in the oxidation mechanisms of ethyl alcohol in
the liquid and gaseous phases. Dokl.AN SSSR 133 no.1:
144-147 J1 '60. (MIRA 13:7)

1. Institut khimicheskoy fiziki Akademii nauk SSSR. 2. Chlen-
korrespondent AN SSSR (for Emanuel').
(Ethyl alcohol) (Oxidation)

81728
S/020/60/133/01/40/070
B004/B007

5.3200

AUTHORS: Blyumberg, E. A., Zaikov, G. Ye., Mayzus, Z. K., Emanuel', N. M., Corresponding Member of the AS USSR

TITLE: The Differences in the Oxidation Mechanism of Methyl Alcohol in the Liquid and in the Gaseous Phase

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 1, pp. 144 - 147

TEXT: In the preceding papers (Refs. 1, 2) some of the authors found that the oxidation of n-butane in the liquid state is more advantageous than in the gaseous state. In the liquid state, the reaction develops at lower temperature and at a high rate, it is more selective and such products of an intensive oxidation as are characteristic of the reaction in the gaseous phase lack nearly entirely. N. N. Semenov (Ref. 3) explained this difference by a change in the ratio of two competitive reactions:
 $RO_2 \rightarrow R'O^{\bullet} + R''OH$ (1) and $RO_2 + RH \rightarrow RO_2H + R^{\bullet}$ (2). Low pressure and high temperature are intended to promote the course of reaction (1), high pressure and low temperature are expected to promote that of reaction (2). ✓

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8/020/60/133/01/40/070
B004/B007

The Differences in the Oxidation Mechanism of Ethyl Alcohol in the Liquid and in the Gaseous Phase

For the purpose of checking this assumption, the authors investigated the oxidation of ethanol in the liquid phase (200°C, 50 atm) and in the same autoclave also the oxidation in the gaseous phase at reduced pressure (20 atm). The results of both reactions are compared in Fig. 1. The following characteristic features for these two reactions were observed.

1) Liquid phase: No induction period, high acetic acid- and ethyl acetate yield, low yield of CO, small quantities of acetic aldehyde, which appears only as an intermediate product. 2) Gaseous phase: Long induction period (10 h), slow course of reaction, little acetic acid and ethyl acetate, much CO, and acetic aldehyde as the main product. Formic acid and peroxide in both cases form in only small quantities, because they are not stable under the experimental conditions selected. The authors discuss these results on the basis of reaction equations. As the concentration of alcohol under the experimental conditions in transition from the liquid to the gaseous phase is reduced only to 1/5, this alone cannot be the cause of such a difference in the course of the reaction. By calculating the ratio k_2/k_1 of the rate constants of the reactions (1) and (2), they find that k_2/k_1 , in transition from the liquid to the gaseous phase, does not

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✓

The Differences in the Oxidation Mechanism of Ethyl Alcohol in the Liquid and in the Gaseous Phase

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change by the five-fold but a thousand-fold. The main factor of the difference in the course of the reaction is therefore not the greater density of the liquid phase, but a specific behavior of the liquid phase, which may be caused either by intermolecular hydrogen bonds or by the reaction of ions lacking in the gaseous phase. There are 1 figure and 4 Soviet references.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences, USSR)

SUBMITTED: March 29, 1960

4

Card 3/3

5.5600

77758

SOV/75-15-1-20/29

AUTHOR:

Zaikov, G. Ye.

TITLE:

Separation of Lower Aliphatic Alcohols by Paper Chromatography and Their Quantitative Determination

PERIODICAL:

Zhurnal analiticheskoy khimii, 1960, Vol 15, Nr 1, pp 104-108 (USSR)

ABSTRACT:

The 3,5-dinitrobenzoates of methyl, ethyl, propyl, and butyl alcohols were determined. To the mixture of alcohols were added 0.5 ml of pyridine and a saturated benzene solution of 3,5-dinitrobenzoyl chloride. The mixture was heated at 50-60° for 10-15 minutes. Absolute methyl alcohol was used as the stationary phase and hexane, heptane, or nonane, as the mobile phase. Ascending chromatography was used in the majority of cases. The solution, containing esters of 3,5-dinitrobenzoic acid, was deposited on the strip of acetylated paper (120 X 130 mm) 20 mm from the

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Separation of Lower Aliphatic Alcohols by
Paper Chromatography and Their Quantitative
Determination

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SOV/75-15-1-20/29

edge of the paper. The paper was placed in a chromatography chamber after drying. The method of the separation is described by D. P. Deigh (Nature, 169, 706 (1952)). Yanovski reagent was used as a developer. The results of the qualitative determination of alcohols are shown in Table 1. The quantitative determination of alcohols was based on the absorption of light by colored compounds formed after chromatograms were sprayed with Yanovski reagent. The optical density of alcohol derivatives is directly proportional to the concentration. The error of the method is 1.5%. The quantitative determination of alcohols is possible in the presence of water and hydrocarbon oxidation products. There are 5 figures; 3 tables; and 23 references, 7 Soviet, 7 U.K., 6 U.S., 2 Japanese, 1 Austrian. The 5 most recent U.S. references are: Holley, A. D., Holley, R. W., Analyt. Chem., 24, 216 (1952); Rice, R. G., Keller, D. J., Kirchner, J. G.,

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Separation of Lower Aliphatic Alcohols by
Paper Chromatography and Their Quantitative
Determination

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SOV/75-15-1-20-29

Table 1. (a) The value of R_f for 3,5-dinitrobenzoates of alcohols on different samples of acetylated paper; (b) Type of paper; (c) Moving phase; (d) Methyl alcohol; (e) Ethyl alcohol; (f) Propyl alcohol; (g) n-Butyl alcohol; (h) Hexane; (i) Heptane; (j) Nonane.

(a)

(b)	(c)	R_f ($t=20^\circ$, $l=250$ mm)				e	(c)	R_f ($t=20^\circ$, $l=280$ mm)			
		(d)	(e)	(f)	(g)			(d)	(e)	(f)	(g)
I	(k)	0,46	0,61	0,68	0,77	II	(j)	0,14	0,30	0,41	0,51
I	l	0,36	0,50	0,63	0,67	II	(k)	0,19	0,33	0,44	0,52
I	m	0,32	0,50	0,61	0,71	II	(l)	0,26	0,36	0,49	0,52
I	n	0,32	0,54	0,60	0,72	III	o	0,25	0,36	0,43	0,52
I	(j)	0,22	0,32	0,43	0,54	IV	(i)	0,33	0,54	0,72	0,84

Card 3/4

Separation of Lower Aliphatic Alcohols by Paper Chromatography and Their Quantitative Determination 77758
SOV/75-15-1-20/29

Analyt. Chem., 23, 194 (1951); White, J. W., Dryden, E. C., Analyt. Chem., 20, 853 (1948); Henze, P. E., Analyt. Chem., 27, 1349 (1955); Spanyer, Y. W., Phillips, Y. P., Analyt. Chem., 28, 253 (1956).

ASSOCIATION: Institute of Chemical Physics of the Academy of Sciences of the USSR, Moscow (Institut khimicheskoy fiziki AN SSSR, Moskva)

SUBMITTED: November 20, 1958

Card 4/4

BLYUMBERG, E.A.; ZAIKOV, G.Ye.; EMANUEL', N.M.

Gas- and liquid phase oxidation of n-butane. Neftekhimiya
1 no.2:235-243 Nr.-Ap '61. (MIRA 15:2)

1. Institut khimicheskoy fiziki AN SSSR.
(Butane)
(Oxidation)

BLYUMBERG, E.A.; ZAIKOV, G.Ye.; EMANUEL', N.M.

Oxidation of n-butane in the gaseous and liquid phases. Dokl.
AN SSSR 139 no.1:99-101 J1 '61. (MIRA 14:7)

1. Institut khimicheskoy fiziki AN SSSR. 2. Chlen-korrespondent
AN SSSR (for Emanuel').
(Butane) (Oxidation).

ZAIKOV, G.Ye.; MAYZUS, Z.K.

Oxidation of methyl ethyl ketone in the liquid and gas phases.

Kin.i kat. 3. no.6:846-854 N-D '62. (MIRA 15:12)

1. Institut khimicheskoy fiziki AN SSSR.
(Butanone) (Oxidation)

ZAIKOV, G.Ye.; MAYZUS, Z.K.

Reasons for the difference in the mechanism of oxidation of
organic substances in gas and liquid phases. Izv.AN SSSR.Otd.
khim.nauk no.7:1175-1184 J1 '62. (MIRA 15:7)

1. Institut khimicheskoy fiziki AN SSSR.
(Organic compounds) (Oxidation)

S/062/62/000/007/002/013
B117/B180AUTHORS: Zaikov, G. Ye., and Mayzus, Z. K.

TITLE: Reasons for the different mechanism of oxidation of organic substances in gas or liquid phases

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 7, 1962, 1175 - 1184

TEXT: Methods described in previous papers (E. A. Blyumberg, G. Ye. Zaikov, and N. M. Emanuel', Dokl. AN SSSR, 139, 99 (1961); Neftekhimiya 1, 235 (1961); E. A. Blyumberg, G. Ye. Zaikov, Z. K. Mayzus, and N. K. Emanuel', Dokl. AN SSSR 133, 144 (1960); Kinetika i kataliz 1, 510 (1960); G. Ye. Zaikov and Z. K. Mayzus, Kinetika i kataliz (1962); E. A. Blyumberg, Z. K. Mayzus, and N. M. Emanuel', sb. "Oksidatsiya uglevodorodov z zhidkoy faze" ("Oxidation of hydrocarbons in the liquid phase"), Izd. AN SSSR, M., 1959, p. 125; G. Ye. Zaikov, Zh. analit. khimii 15, 104 (1960); 15, 639 (1960); 17, 117 (1962)) were used to study the oxidation of ethyl alcohol and methyl-ethyl ketone with different amounts of benzene. Experiments with ethyl alcohol: 20000, 50 atm., alcohol : benzene ratio

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B117/B180

Reasons for the different mechanism...

= 8 : 1, 2 : 1, 1 : 1, 1 : 2, and 1 : 3. Experiments with methyl-ethyl ketone: 145°C, 50 atm., ketone : benzene ratio = 1 : 1, 1 : 2, 1 : 3. In both cases, an increase in benzene, which reduces the dielectric constant of the medium, was found to alter the composition of reaction products. With ethyl alcohol, the amount of products obtained from the bimolecular reaction of peroxide radicals was 20% at 1 : 3, and 80% in pure alcohol. With methyl-ethyl ketone, (1 : 3) the reaction products had the same composition as with oxidation in the gas phase. Differences in the oxidation mechanisms of polar organic compounds in gas and liquid phases are due to the rate of the reaction between the peroxide radical and the oxidizing substance (bimolecular reaction), the dielectric constant of the medium, and the formation of intermolecular hydrogen bonds. The bimolecular reaction between RO_2^{\cdot} and the test material, is between two dipoles and slows down as polarity decreases. Good agreement between experimental and calculated dipole moments confirms the structure assumed for the activated complexes in the case of methyl-ethyl ketone, but not for ethyl alcohol. This shows that the reaction rate of RO_2^{\cdot} and ethyl alcohol is not only dependent on the polarity of the medium but also on

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Reasons for the different mechanism...

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the formation of intermolecular hydrogen bonds. It is not the individual molecules (RH and RO_2) which react, but aggregates consisting of five or more particles linked by hydrogen bonds. There are 5 figures and 3 tables.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences USSR)

SUBMITTED: January 30, 1962

Card 3/3

ZAIKOV, G.Ye.; MAYZUS, Z.K.

Polarity of the medium as effecting the activation energy of the chain continuation reaction in the oxidation of ethyl alcohol and methyl ethyl ketone. Dokl. AN SSSR 150 no.1:116-119 My '63.
(MIRA 16:6)

N. Institut khimicheskoy fiziki AN SSSR. Predstavleno akademikom N.N.Semenovym.

(Ethyl alcohol) (Butanone) (Oxidation) (Activation energy)

ZAIKOV, G.Ye.

Effect of solvent on the liquid phase oxidation of ethyl alcohol and methyl ethyl ketone. *Neftekhimija* 3 no.3:381-389
My-Je '63 (MIRA 16:9)

1. Institut khimicheskoy fiziki AN SSSR.
(Ethyl alcohol) (Ketone) (Oxidation)

ZAIKOV, G. Ye.; MAYZUS, Z.K.; EMANUEL, N.M.

Initiation of chains in the liquid-phase oxidation of methyl
ethyl ketone and ethyl alcohol. *Neftekhimiya* 4 no.1:91-95, 64
(MIRA 17:6)

1. Institut khimicheskoy fiziki AN SSSR.

IMANUEL', Nikolay Markovich; DENISOV, Yevgeniy Timofeyevich;
KAYZUS, Zinaida Kuzhelevna. Prinizali uchastie:
ANTONOVSKIY, V.L.; BLYUMBERG, E.A.; VASIL'YEV, R.F.;
GAGARINA, A.B.; GOL'DBERG, V.M.; ZAIKOV, G.Ye.; DORIKOV,
Yu.D.; OBUKHOVA, L.K.; TSEPALOV, V.F.; SHLYAPINTOKH,
V.Ya.; SKIBIDA, I.P., red.

[Oxidation chain reactions of hydrocarbons in the liquid
phase] TBopnye reaktsii oksidatsii uglevodorodov v
zhidkoi faze. Moskva, Nauka, 1965. 374 p. (MIRA 18:8)

S/075/60/015/005/025/026/XL
B002/B056

AUTHOR: Zaikov, G. Ye.

TITLE: The Separation of the Low Aliphatic Aldehydes¹ and Ketones by Means of the Method of Paper Chromatography, and Their Quantitative Determination

PERIODICAL: Zhurnal analiticheskoy khimii, 1960, Vol. 15, No. 5, pp. 639-642

TEXT: It was the purpose of the present paper to develop a method for the qualitative and quantitative analysis of carbonyl compounds in a mixture of aliphatic aldehydes and ketones (C₁ - C₄) formed in the oxidation of n-butane. For this purpose the paper-chromatographic separation of the corresponding 2,4-dinitrophenylhydrazones was applied. The ordinary chromatographic paper of the type Ленинградская быстрая (Leningradskaya bystraya) must, for this purpose, first be made hydrophobic by acetylation with acetic acid anhydride. The R_f-values are, to a considerable extent, dependent on the manner of this pre-treatment;

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The Separation of the Low Aliphatic Aldehydes and Ketones by Means of the Method of Paper Chromatography, and Their Quantitative Determination

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B002/B056

however, the R_f -values are well reproducible on papers of one and the same lot. Good separation was obtained with quantities of 10^{-6} g/mole; as a mobile phase, hexane, heptane or nonane was used, the effect being approximately the same with all these solvents. Fig. 1 shows a schematical chromatographic pattern at 20°C, where (1) denotes formaldehyde, (2) acetaldehyde, (3) propionaldehyde, (4) butyraldehyde, (5) acetone, (6) methylethylketone, and (7) a mixture of these substances. 2,4-dinitrophenylhydrazine always has $R_f = 0$. Oxidation products such as peroxides, alcohols, acids, ether, and water do not affect the chromatographic determination in quantities such as are usually formed in the oxidation of the hydrocarbons. The spots were dyed by means of a 5% solution of KOH in methanol, cut out, and the dinitrophenyl hydrazones are extracted and colorimetrically determined. The calibration curve practically takes the same course for all substances mentioned. An analysis of an artificial mixture shows that the error in the determination of aldehydes and acetones is less than 6%, and amounts to 10% only in the case of

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The Separation of the Low Aliphatic
Aldehydes and Ketones by Means of the Method
of Paper Chromatography, and Their
Quantitative Determination

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B002/B056

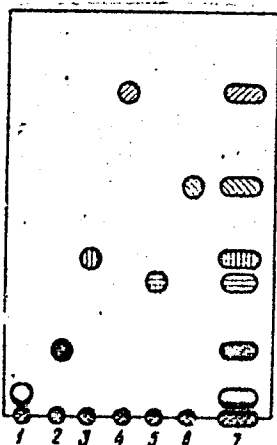
methylethylketone. The author thanks N. M. Emanuel' and Z. K. Mayzua for
discussions. There are 2 figures, 2 tables, and 18 references: 4 Soviet,
7 British, 4 US, and 3 Czech.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR, Moskva (Institute of
Chemical Physics AS USSR, Moscow)

SUBMITTED: September 22, 1959

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S/075/60/015/005/025/026/XX
B002/B056



Card 4/4

ZAIKOV, G.Ye.

Chromatographic determination of diacetyl in the products of liquid
phase oxidation of n-butane. Zhur.anal.khim. 17 no.1:117-120

Ja-F '62.

(MIRA 15:2)

(Butanedione) (Chromatographic analysis)

ZAIKOV, G.Ye.

Separation of lower aliphatic aldehydes and ketones by means of paper chromatography, and their quantitative determination. Zhur. anal. khim. 15 no.5:639-642 S-O '60. (MIRA 13:10)

1. Institute of Chemical Physics, Academy of Sciences, U.S.S.R., Moscow.

(Aldehydes)

(Ketones)

(Chromatographic analysis)

L 36029-66 T

ACC NR: AP6027349

SOURCE CODE: BU/0011/65/018/012/1095/1093

AUTHOR: Zaikov, R.

ORG: none

TITLE: Baryon classification and masses

SOURCE: Bulgarska akademiya na naukite. Doklady, v. 18, no. 12, 1965, 1095-1098

TOPIC TAGS: baryon, particle physics

ABSTRACT: The author introduces a new baryon supermultiplet classification, makes use of the Flato-Sternheimer mass formula, postulates a mass difference relationship, and establishes several empirical formulas. The system is tested by comparing its results with known mass values. Fourteen new baryons are predicted. This paper was presented by Academician H. Hristov on 21 September 1965. Orig. art. has: 10 formulas and 3 tables. [Orig. art. in Eng.] [JPRS: 36,465]

SUB CODE: 20 / SUBM DATE: 21Sep65 / OTH REF: 003

Card 1/1 MILP

L 38345-66 EWT(m)/T

ACC NR: AP6027984

SOURCE CODE: BU/0011/66/019/001/0017/0019

AUTHOR: Zaikov, R.

31
B

ORG: Instituto of Physics, BAN

TITLE: Classification and masses of mesons 19

SOURCE: Bulgarska akademiya na naukite. Doklady, v. 19, no. 1, 1966, 17-19

TOPIC TAGS: meson, elementary particle, nuclear physics

ABSTRACT: The author 1) introduces a new scheme for the labeling of elementary particles; 2) introduces new prescriptions; 3) proposes new mass formulae substituting for the Gell-Mann and Okubo expression; 4) obtains better values for the equation parameters λ , and λ' , than those from the Flato-Sternheimer formula; and 5) establishes a table of isotopic multiplets which exhibit an equality of the O and p parities for all resonance states while for basic mesons they have opposite signs. This paper was presented by Academician H. Hristov on 21 September 1965. [Orig. art. in Eng.]

[JPRS: 36,845]

SUB CODE: 20 / SUBM DATE: 21Sep65 / OTH REF: 002

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09/7 16/9

Zalkev, Rashko. Quantum mechanical characteristics and elementary particles. *V. R. Acad. Bulgare Sci.* 10 (1957), 101-103. (1 plate). (Russian summary)

The scheme for classification of elementary particles proposed by Salam and Polkinghorne (*Nuovo Cimento* (10) 2 (1955), 685-690) is extended to include leptons. The following empirical mass formulae are shown to hold

$$M \sim 3(8r_1 + r_2)m_e \text{ for bosons;}$$

$$M \sim 3(8(r_1 + \frac{1}{2}) + r_2)m_e \text{ for fermions.}$$

Here r_1 is a specific integer (11 for pions, 76 for nucleons, 90 for Λ^0 etc.) and r_2 takes the values 0, 1, 2, 3.

A. Salam (London)

ZAIKOV, R.

"A symmetrical form of the quantum mechanics of nucleons."

IZVESTIIA. SERIJA FIZICHESKA, Sofia, Bulgaria, Vol. 6, Jan./Dec. 1956
(published 1957).

Monthly List of East European Accessions Index (EEAI), The Library of
Congress, Volume 8, No. 8, August 1959.

Unclassified

Zaikov, Rrahko
BULGARIA/Theoretical Physics - Quantum Theory of Fields B-6

Abstr Jour : Ref Zhur - Fizika, No 10, 1958, No 22125

Author : ~~Zaikov Rrahko~~
Inst : Physics Institute, Bulgarian Academy of Sciences,
Title : On the Symmetrical Form of Quantum Mechanics for the Nucleon.

Orig Pub : Izv. B^hlg. AN. Otd. fiz.-matem. i tekhn. i. Ser. fiz., 1957,
6, 3-11

Abstract : To describe the nucleon, it is proposed to use a 7-dimensional space, which is a combination of the Minkowsky 4-space and the isotopic 3-space. The wave function is considered to be an 8-component spinor, of which the first four components correspond to a charged state of the nucleon, and the four last components to the neutral state of the nucleon. In accordance with the general theory of spinors, the matrices of eighth order β_1, \dots, β_7 , are derived, analogous to the Dirac matrices β_1, \dots, β_5 . The principal equation for the nucleon, which goes over in the particular case into the Dirac equation, is written in the form

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Abs Jour : Ref Zhur - Fizika, No 10, 1958, No 22125

$$\sum_{i=1}^4 (\Gamma_i D_i + A_0) w = 0, \quad (1)$$

where $w = \psi(x) \exp(i a_0 k \xi)$, a_0 and a_0 are constants, and x and ξ denote the first four in the last three coordinates. B_i is made up of partial derivatives with respect to the corresponding coordinates and of eighth-order matrices, which are linear combinations of 1 , Γ_i , Γ_j , and $\Gamma_i \Gamma_j$, $\Gamma_i \Gamma_k$, $\Gamma_i \Gamma_l$. It is assumed that the coefficients in these matrices characterize the interactions with all types of fields, including the fields of different mesons, and that in the first approximation they should be linear functions of the corresponding vector and pseudo-vector potentials and of the derivatives of the potentials with respect to the four coordinates. For the particular type of the interaction, an explicit form of Eq. (1) is given. At the end of the work the author determines, with the aid of the first four matrices Γ_i , in analogy with the Dirac equation, the vector of the current, the pseudo-vector of the spin, and the energy-momentum

ZAIKOV RASHKO

BULGARIA/Nuclear Physics - Elementary Particles

C-3

Abs Jour : Ref Zhur - Fizika, No 5, 1958, No 10142

Author : Zaikov Rashko

Inst : Not Given

Title : Quantum Mechanical Characteristics and Elementary Particles

Orig Pub : Dokl. Bolg. AN, 1957, 10, No 2, 101-103

Abstract : The author considers the classification of elementary particles in four dimensional isotopic space. All the heavy charged mesons are considered as one pseudoscalar particles. The neutral heavy mesons form an independent doublet. In the classification variant proposed it is possible to dispense with introducing the lepton charge. However, it becomes necessary to introduce a hypothetical scalar neutral meson with mass close to the mass of the experimentally observed neutral pion. The table is given for the classification of elementary particles and the types of their decay.

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BULGARIA/Nuclear Physics - Elementary Particles.

C

Abs Jour : Ref Zhur Fizika, No 10, 1959, 22005

In the version of the theory considered, strong interactions of the type $\Lambda - \Sigma - \pi$ are found to be forbidden; the wave functions of the K mesons and their anti-particles are connected by the relations $K^{*0} = K^-$, $K^{0*} = \bar{K}^0$. The ω^0 meson cannot decay rapidly into three pions. -- V.S. Barashenkov

Card 2/2

BULGARIA/Nuclear Physics - Elementary Particles.

C

Abs Jour : Ref Zhur Fizika, No 11, 1959, 24446

Author : Zaikov, Raschko

Inst : Physics Institute, Bulgarian Academy of Sciences

Title : Isotopic B1-Space Theory. II.

Orig Pub : Dokl. Bolg. AN, 1958, 11, No 4, 259-262

Abstract : Using the formalism previously developed (Referat Zhur Fizika, 1959, No 10, 22005), the author writes out the interaction Lagrangians for various types of particles, charge operators, and baryon numbers.

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Zaikov, Rashko, starshi nauchen sutrudnik.

Substance and ant substance. Mat 1 fiz Bulg 5 no.2:58-59 Mr-Apr '62

1. Fizicheski institut BAN.

ZAIKOV, R., prof. d-r; NIKLEV, S., inzh.

Linear programming. Tekhnika Bulg 11 no.10:396-397 '62.