TISHCHENKO, G.N.; ZORKIY, P.M.; PORAY-KOSHITS, M.A.

Electron diffraction study of the crystal structure of nickel and copper inner complex compounds of salicylaldimine and its derivatives. Zhur.strukt.khim. 2 no.4:434-444 Jl-Ag '61. (MIRA 14:9)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(Nickel compounds) (Copper compounds)
(Salicylaldehide)

ZORKIY, P.M.; PORAY-KOSHITS, M.A.

Structure of molecular crystals. Part 1: Graphic determination of the maximum density distribution of figures on a plane. Kristallografiia 6 no.5:655-661 S-O '61. (MIRA 14:10)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Crystallography)

PORAY-KOSHITS, M.A.; ZORKIY, P.M.

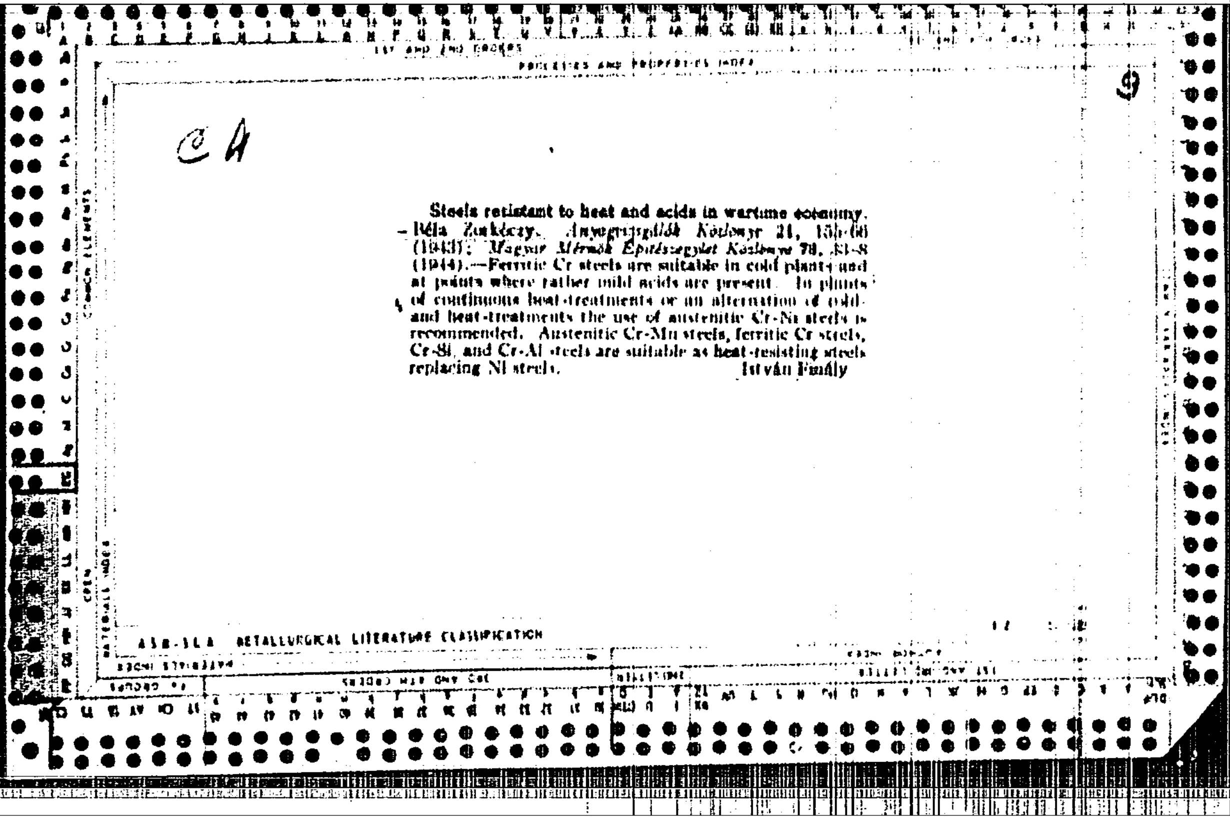
Similarity and differences in the structures of crystals of inner-complex copper and zinc compounds. Zhur. strukt. khim. 2 no. 1:20-26 Ja-F '61. (MIRA 14:3)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Copper compounds) (Zinc compounds)

ZELENTSOV, V.V.; ZORKIY, P.M.; PORAY-KOSHITS, M.A.

Comparison of the structure of crystals of inner-complex compounds of nickel and cobalt group M-O4. Zhur.strukt.khim. 4 no.3:455-458 My-Je '63. (MIRA 16:6)

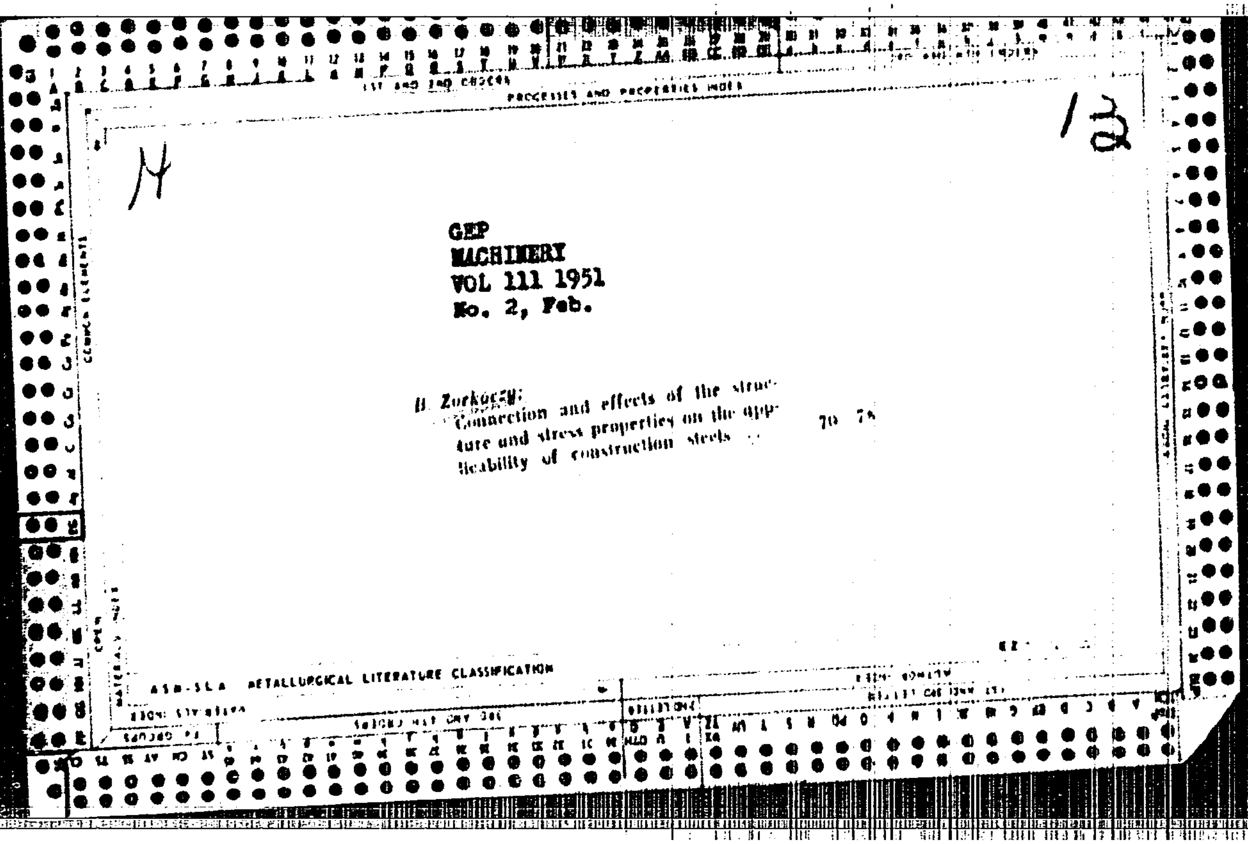
1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Nickel compounds) (Cobalt compounds)
(Crystallography)



CA

9

Steels resistant to heat and acids in wartime economy. —Béla Zsakóczy. *Anyagvizsgálók Közlönye* 21, 155-60 (1943); *Magyar Mérnök Épitészegylet Közlönye* 78, 81-8 (1944).—Ferritic Cr steels are suitable in cold plants and at points where rather mild acids are present. In plants of continuous heat-treatments or an alternation of cold- and heat-treatments the use of austenitic Cr-Ni steels is recommended. Austenitic Cr-Mn steels, ferritic Cr steels, Cr-Si, and Cr-Al steels are suitable as heat-resisting steels replacing Ni steels. István Finály



1ST AND 2ND CHOICES

PROCESSES AND PROPERTIES INDEX

H

12

GEP
MACHINERY
VOL 111 1951
No. 2, Feb.

H. Zorkoczy:
Connection and effects of the structure and stress properties on the applicability of construction steels 70 78

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

ZORKOCZY, B.; KELANDER, A. - Zvaranie - Vol. 4, no. 2, Feb. 1955.

Repairing cast-iron parts by welding. p. 37.

SO: Monthly list of East European Accessions, (EEAL), LC, Vol. 4, No. 9, Sept. 1955
Uncl.

[illegible], S.

Welding ledeburite chromium steel. Tr. from the Hungarian. p. 230. HUTNICKY SBORNIK. (Slovenska akademia vied) Bratislava. Vol.4, no. 2, 1955.

SOURCE: East European Accessions List, Vol. 5, no. 9, September 1956

Distr: 4E2c

5

Development of a weldable manganese-titanium-aluminum alloyed steel of the St 52 type in Hungary. G. Kristóf, E. Szűcs, J. A. Veró, and B. Zorkóczy. *Neue Hütte* 3, 425-32 (1958).—Confronted with the need to formulate St 52 steel (tensile strength, 52; yield point, 36 kg./sq. mm.) by using alloying materials available in Hungary, the authors investigated the properties of steel contg. Mn, Si, Al, and Ti. They found that Ti steels (0.02-0.17% Ti) show up favorably in tests (notched-bar shock resistance at −50° to +30°, tensile strength, Jominy hardness), comparing their mech. properties with those of other St 52 steels. Loss of tensile strength on cooling to −40°, on aging, and in the brittlest portion of the welding zone is less for steel contg. Ti than for Ti-free St 52. This compensating effect of Ti is the more marked the higher the content. The fine-grained state of Ti steel is more stable than that of Al steels or of other fine-grained steels. Charts and photomicrographs illustrate these points. J. G. S.

ZORKOCZY, Bela, dr., inz.

Experience with using high-strength weldable steel in the Hungarian industry. Zvar sbor 10 no.1:41-50 '61.

1. Vyskumny ustav zeleza, Budapest.

ZORKOCZY, Bela, Dr.

Modern welding methods in the manufacturing of machinery for the food industry. Elelm ipar 15 no.5:136-143 My '61.

1. Miskolci Muszaki Egyetem.

CZECHOSLOVAKIA

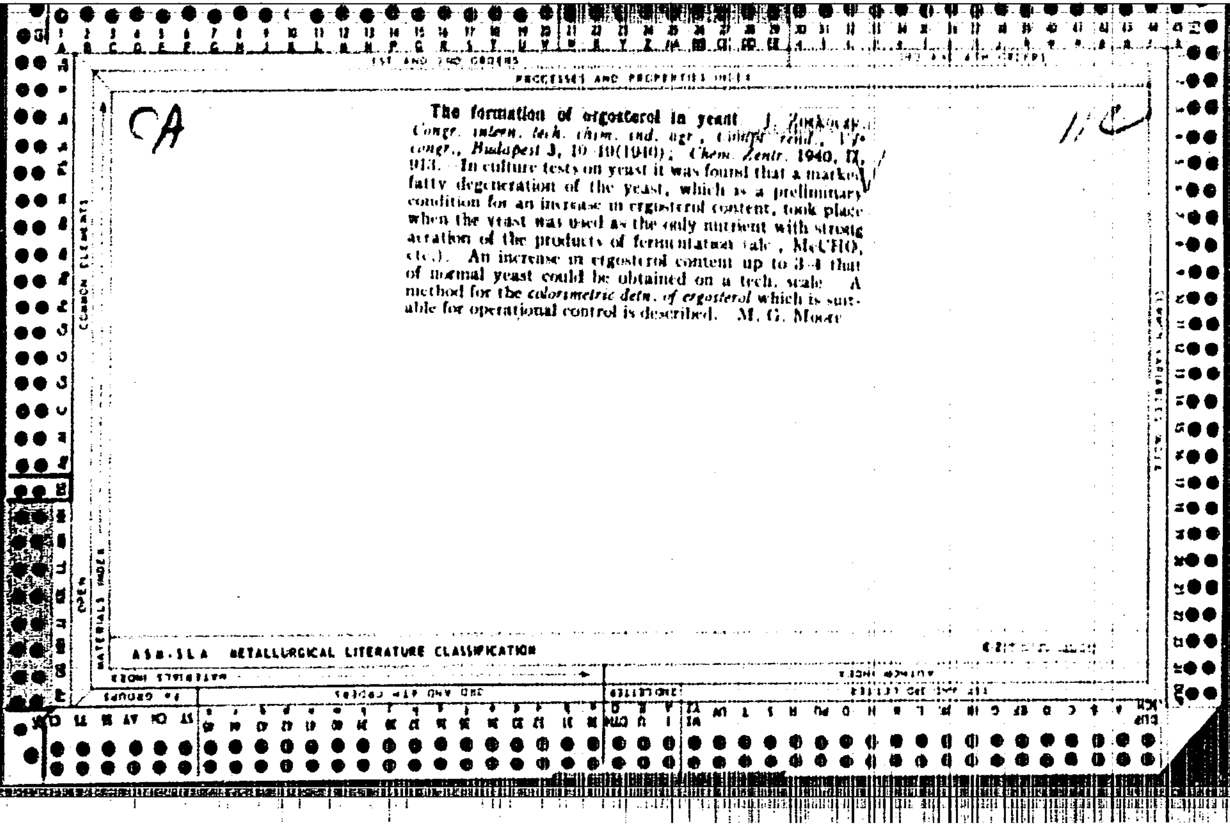
BANIKOVA, H.; ANTAL, J.; HALABRINOVA, V.; ZORKOCY, D.; Department of Physiology, Medical College, Comenius University (Fysiologicky ustav LFUK), Bratislava.

"Effect of Muscular Effort on Renal Function in Dogs."

Prague, Ceskoslovenska Fysiologie, Vol 14, No 5, Oct 1965; p 338.

Abstract: A decrease of renal function during 30 minutes running by 8 dogs in 25 experiments was found in all of the 7 parameters measured, including 53% decrease in diuresis. This was found to be due to reduced glomerular filtration rate. Changes reverted to normal within 30 minutes after exercise. 4 Western references. Paper presented at the 15th Physiology Days, Olomouc, 27 May 65.

1/1



1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

The formation of ergosterol in yeast J. Zsokonay. *Congr. intern. tech. chim. ind. agr., Compt. rend. 6e congr., Budapest* 3, 10-10(1940); *Chem. Zentr.* 1940, II, 913. In culture tests on yeast it was found that a marke fatty degeneration of the yeast, which is a preliminary condition for an increase in ergosterol content, took place when the yeast was used as the only nutrient with strong aeration of the products of fermentation (alc., MeCHO, etc.). An increase in ergosterol content up to 3-4 that of normal yeast could be obtained on a tech. scale. A method for the *colorimetric detn. of ergosterol* which is suitable for operational control is described. M. G. Moore

1/C

COMMON ELEMENTS

MATERIALS INDEX

OPEN

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

SOV/137-58-12-24426

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 12, p 68 (USSR)

AUTHOR: Zorkov, A. F.

TITLE: Making Balls on Rolling Mills (Izgotovleniye sharov na prokatnykh stanakh)

PERIODICAL: Prom.-ekon. byul. Sov. nar. kh-va Sverdl. ekon. adm. r-na, 1958, Nr 4, pp 43-44

ABSTRACT: Special automatic rolling mills are used at the Novo-Kramatorskiy Machinery Plant to make steel balls 30 to 125 mm in diameter. The "billets" are hot-rolled steel rounds 2-6 m in length and 2-4 mm less in diameter than the resulting balls. Below-standard steel may be used. The production of the mills in making balls of 30-40, 40-80, and 80-125 mm diam is, respectively, 120, 60-120, and 40-60 pieces per min.

V. D.

Card 1/1

ZORKOV, Ye. I.

Ф. Е. Кешутенис[2]

Переходный процесс в полупроводниковом диоде при протекании через него в прямом направлении импульсов тока малой длительности.

Л. С. Беркин

Приближенный метод расчета переходных процессов в полупроводниковых триодах при больших сигналах.

Л. Д. Зорин

Исследование работы плоскостного полупроводникового триода в схеме генератора синусоидальных колебаний при большом уровне сигнала.

М. А. Берг

Отрицательные сопротивления в двухэлектродных полупроводниковых приборах.

С. А. Гаряинов

Полупроводниковые приборы с отрицательным сопротивлением и их применение в радиотехнических схемах.

10 июня

(с 10 до 16 часов)

Совместное заседание с секцией электронно-вычислительной техники.

В. Н. Георгиев

Динамический триггер на полупроводниковых приборах.

А. Ю. Гордонов,
Е. Б. Гольдштейн,
Е. И. Зорков,
Т. В. Кетманов,
В. А. Калинин

Специальные элементы цифровых вычислительных машин на полупроводниковых приборах.

Л. Н. Петровский,
Т. М. Агаханян,
Н. С. Васнев,
В. А. Гребенкин,
В. Н. Козлов,
В. И. Лейкин,
А. Г. Филиппов,
Ю. П. Фет

Комплекс полупроводниковых элементов и узлов цифровой вычислительной машины.

В. И. Хомов

Форма выходных импульсов в транзисторном блоке с общим эмиттером с учетом нелинейной емкости коллектора.

Report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNORiE), Moscow, 8-12 June. 1959

ZORKOV YE I.

11 июня
(с 18 до 22 часов)

Л. Я. Василевский,
Р. Р. Арвайд

Методика испытания магнитофонов и магнитных головок.

А. А. Врублевский,
Н. М. Медникова

О направлении намагничивающего поля при записи перпендикулярными головками.

А. А. Врублевский

Об измерении уровня при магнитной записи звука

В. А. Гаранин

К теории магнитных сигналограмм.

12 июня
(с 10 до 16 часов)

М. В. Лауфер,
О. В. Порицкий

Вопросы теории и применения [illegible] магнитных головок.

62

Н. Г. Арутюнов

Ферриграфическое устройство для визуального наблюдения за несколькими одновременно протекающими процессами.

14. СЕКЦИЯ ЭЛЕКТРОННО-ВЫЧИСЛИТЕЛЬНОЙ ТЕХНИКИ

Руководитель Л. И. Гутенмахер

10 июня
(с 10 до 14 часов)

Совместное заседание с секцией полупроводниковых приборов

В. Н. Глазунов

Динамический триггер на полупроводниковых триодах.

А. Ю. Гордонов,
Е. В. Гольдштейн,
Е. И. Зорков,
В. А. Калмыков,
Г. В. Кочанов

Специальные элементы цифровых вычислительных машин на полупроводниковых приборах.

Л. Н. Петропавлов,
Т. М. Агаханян,
Н. С. Бадаев,

63

report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNORIE), Moscow, 8-12 June. 1959

SHOYKHET, M.I.; ZOROV, V.P.

Determining the content of alcohol and of extract in alcohol containing juices. Spirt.prom. 25 no.8:26-27 '59.
(MIRA 13:3)

(Fruit juices) (Alcohol)

ZORKOSVSKY, BELO

Chemical Abst.
Vol. 48 No. 3
Feb. 10, 1954
Mineralogical and Geological Chemistry

The origin of bauxites. [illegible] (Tech. Hochschule, [illegible] (Cf. Sbornik 3, 213-31(1952)(German summary).—A review with 40 references.
Michael Fleischer

E M'
August 16, 1954

ZORKOVSKY, Belo

2

Feb. 10, 1954
Mineralogical and Geological Chemistry

(2)

Slovakian bauxite and its genesis. Belo Zorkovsky (Tech. Hochschule, Bratislava, Czechoslovakia). [illegible] 80-102 (1952)(German summary). — [illegible] bauxite occurs in karst and pools near [illegible] and near Markušov. Chem. analyses and [illegible] are given. Al_2O_3 is present [illegible] gibbsite and much [illegible].
Michael Fleischer

ZORKOVSKY, B.

ZORKOVSKY, B. A few notes on the question of finds of magnesite near Pliesovce. p.134.

No. 3, 1955, GEOLOGICKE PRACE; ZPRAVY, BRATISLAVA, CZECHOSLOVAKIA.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 10, Oct. 1956.

ZORKOVSKY, B.

New classification of the deposits of mineral raw materals.
p. 148.

Slovenska akademia vied. GEORLOLOCKY SBORNIK. CZECHOSLOVAKIA

Vol. 6, No. 1/2. 1955.

SOURCE: East European Accessions List (EEAL) Library
of Congress. Vol. 5, No, 1, January, 1956.

ZORKOVSKY, B.

Problem of the origin of magnesite. p. 131.

Slovenska akademia vied. GEORLOLOCKY SBORNIK. CZECHOSLOVAKIA

Vol. 6, No. 1/2, 1955.

SOURCE: East European Accessions List (EEAL) Library
of Congress. Vol. 5, No. 1, January, 1956.

ZAKOVSKY, K

ZORKOVSKY, B.

Short outline of the geologic structure of Slovakia and the occurrence of useful minerals. p. 109.
RUDY, Praha, Vol. 3, no. 4, Apr. 1955.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, no. 10, Oct. 1955,
Uncl.

BELO, ZORKOVSKY

CZECHOSLOVAKIA/Cosmochemistry - Geochemistry. Hydrochemistry. D.

Abs Jour : Ref Zhur - Khimiya, No 9, 1957, 30382

Author : Zorkovsky Belo

Inst :

Title : Chemical Nature of Garnet from Garnetized Andesite North-West of the Village Vel'ky Saris (Eastern Slovakia)

Orig Pub : Geol. sbor. SAV, 1956, 7, No 3-4, 321-331

Abst : A study of andesite with large porphyric xenoblasts of amphiboles, pyroxenes, plagioclases of andesine-labradorite series and garnet phenocrysts (of almandine): proncipal body consists of microcrystals of more acidic plagioclases, ore minerals, chlorite and calcite. Chemical composition of andesite (in %): SiO_2 58.71, TiO_2 0.61, Al_2O_3 16.82, Fe_2O_3 3.02, FeO 3.13, MnO 0.15, MgO 2.59, CaO 6.78, Na_2O 3.15, K_2O 1.81, P_2O_5 0.13, H_2O^- 0.62, other extraneous admixtures 2.23, total 99.75. Chemical composition of almandine (in %):

Card 1/2

CZECHOSLOVAKIA/Cosmochemistry - Geochemistry. Hydrochemistry. D.

Abs Jour : Ref Zhur - Khimiya, No 9, 1957, 30382

SiO_2 38.20, TiO_2 0.15, Al_2O_3 21.63, Fe_2O_3 3.32, FeO 23.51, MnO 2.15, CaO 4.62, MgO 3.90, other extraneous admixtures 1.72, total 99.20. Formation of garnet is due to processes of autometamorphism.

Card 2/2

ZORKOVSKY, Belo

SURNAME, Given Names

①

Country: Czechoslovakia

Academic Degrees: Dr, Professor

Affiliation: Chair of Geology and Moneralogy, Faculty of Mining, Institute of Technology (Katedra geologie a mineralogie Banskej fakulty Vysokej skoly technickej), Kosice

Source: Bratislava, Nasa Veda, Vol VIII, No 8, 1961, pp 488-492.

Data: "East Slovakian Mineral and Healing Springs."

Zorkovskiy, B.

16(1); 18(3), (6);
22(2); 11(2); 14(5) PHASE I BOOK EXPLOITATION CZECH/2579

Sborník vedeckých prac vysokej školy technickej v Košiciach, II, 1957 (Collection of Scientific Works of the Higher Technical School in Košice, II, 1957) Bratislava, SVTL, 1957. 198 p. 1,300 copies printed.

Resp. Ed.: Igor Žačko; Tech. Ed.: F.N. Blaško; Chief Ed.: Pavol Holéczy, Engineer.

PURPOSE: This collection of articles is intended for scientists and engineers interested in the subjects discussed.

COVERAGE: This collection of 13 articles written by members of the faculty of the Košice Higher Technical School covers a variety of subjects, including mathematics, metallurgy, mining engineering, etc. Each article is accompanied by a resumé in Slovak, Russian, and German. References are listed at the end of each article; the majority of listings are Slovak, German, and Soviet.

Collection of Scientific Works (Cont.) CZECH/2579

Schenk, Turaj, Professor, Engineer, Doctor (Department of Ore and Coal Beneficiation) Use of Radioactive Isotopes in Ore and Coal Beneficiation

1. Use of radioactive isotopes for research on technological processes in beneficiation of useful minerals 153
2. Use of radioactive isotopes for the separation of useful minerals 160
3. Use of radioactive isotopes for the control and analysis of technological processes in a beneficiation plant 161

Resumé 175
References 175

Zorkovsky, B. Docent, Doctor of Natural Sciences. Brief Survey of Geological Conditions and Mineral Deposits in the Rumanian People's Republic

Resume 197
References 198

AVAILABLE: Library of Congress

Card 8/8

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ZORKOVSKY, B.

TECHNOLOGY

periodicals: SBORNIK VEDECHYCH PRAC Vol. 2, 1957

ZORKOVSKY, B. A short survey of geologic conditions and mineral resources of the Rumanian People's Republic. p.179.

Monthly List of East European Accession (EEAI) LC Vol. 8, no.5
May 1959, Unclass.

ZORKOVSKY, B.

EE

2

Petrographic-chemical character of the melaphyre rocks of "Paska," north of Šalkova. Belo Zorkovský (Tech. Hochschule, Košice, Czech.). Geol. Práce, Zprávy 13, 61-73(1958)(German summary).--Petrographic data and chem. analyses of 8 rocks are given. Prehnite from amygdules contained SiO_2 41.76, Al_2O_3 19.93, Fe_2O_3 7.17, MgO 0.60, CaO 25.75, H_2O + 5.01, H_2O − 0.20, sum 100.42%; sp. gr. 2.78. Michael Fleischer

3

SE

ZORKOVSKY, B.

A brief survey of the geologic conditions and the occurrence of ore deposits in the Rumanian People's Republic. p.183.
(Rudy, Vol. 5, No. 5, May 1957, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 9, Sept. 1957. Uncl.

ZORKOVSKY, B.

GEOGRAPHY & GEOLOGY

Periodicals: GEOLOGICKE PRACE; ZPRAVY. No. 14, 1958

ZORKOVSKY, B. Report on petrographic-chemical studies of the melaphyre rocks rising southeast of the village of Modrova in the Inovec massif of the Vah River area. p. 17.

Monthly List of East European Accessions (EEAI) LC, VOL. 8, No. 5, May 1959, Unclass.

ZCRKOVSKY, Bohumil, prof., dr. (Kosice)

Saxon Erzgebirge, the ore base of the German Democratic Republic. Rudy 10 no.2:37-43 F '62.

CA

Chemical character of the garnets of garnetiferous endoskites from near Tisovec and Slatoroš. Vojtech Zorkovský (Slovenskej vysoký školy tech., Bratislava). Geol. Sborník (Bratislava) 1, 225-31(1950)(Russian and French summaries).—Analyses are given. These show almandine 53.2, 66.2, grossularite 37.4, 28.5, spessartite 5.2, 2.8, pyrope 5.2, 2.5%, resp. Michael Fleischer

CZECH/3-59-16-21/28

AUTHOR: Žornik, D.; Lušnik, K.; Pjasecká, G.; Stasevič, P; and Storčienko, P.

TITLE: The Parachutist's Physical Training (taken from a book by the above listed authors: "Theory and Practice of Parachutist Training)

PERIODICAL: Křídla Vlasti, 1959, Nr 16, pp 24-25 (CSR)

ABSTRACT: This is the concluding part of a serial article containing physical training instructions for parachutists. There are 14 drawings.

Card 1/1

4

SOV/62-59-9-10/40

5(3)

AUTHORS: Arbuzov, B. A., Zoroastrova, V. M., Saykina, N. K.

TITLE: Thermographic Studies of the Isomerization Reaction of the Glycol Phosphorous Acid Esters, Containing a Six-membered Ring, Under the Action of Alkyl Halides

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 9, pp 1579-1584 (USSR)

ABSTRACT: The authors had carried out previous investigations similar to those mentioned in the title, in which they proved that the isomerization reaction proceeds in two phases. They also succeeded in finding information on the influence of the radical structure exerted on the capacity of the esters to isomerize (Arbuzov and Razumova, Ref 2). In the present paper the investigations are continued with the reaction of the esters of trimethylene glycol- (I) and α-methyl trimethylene phosphorous acid (II) with alkyl halides. The methods of investigation were similar to those of reference 1. A pyrometer of the PK-52-type was used and butylphthalate was taken as standard. Table 1 contains the physical constants of the compounds investigated. Only one phase could be observed on the thermograms of the methyl-

Card 1/3

SOV/62-59-9-10/40

Thermographic Studies of the Isomerization Reaction of the Glycol Phosphorous Acid Esters, Containing a Six-membered Ring, Under the Action of Alkyl Halides

ethyl- and n-propyl esters of compounds (II) and the methyl- and benzyl esters of (I). The experimental data are shown on table 2 and figures 1-7. Herefrom the following could be concluded: the isomerization process of alkyl glycol esters with six-membered rings occurs under participation of the alkyl radical without destruction of the ring according to the scheme already earlier assumed by Arbuzov; a simultaneous formation of the esters of alkyl phosphinic acid takes place. The isomerization of the phenyl ester of (I) occurred unexpectedly also in one phase only, a ring opening was, however, observed in the analysis of the reaction products. A mixture of phenyl-γ-iodine propyl ester of methyl phosphinic acid forms when methyl iodide acts upon the phenyl ester of 1. In the isomerization reaction of the ethyl ester of pyrocatechol phosphorous acid with ethylbromide again only an exothermic effect was observed. A cyclic pyrocatechol ester of ethylphosphinic acid was formed, which is in accordance with the results of Arbuzov and Valitova (Ref 9). The ester radicals were therefore found to exert an influence on isomerization. There are 7 figures,

Card 2/3

SOV/62-59-9-10/40

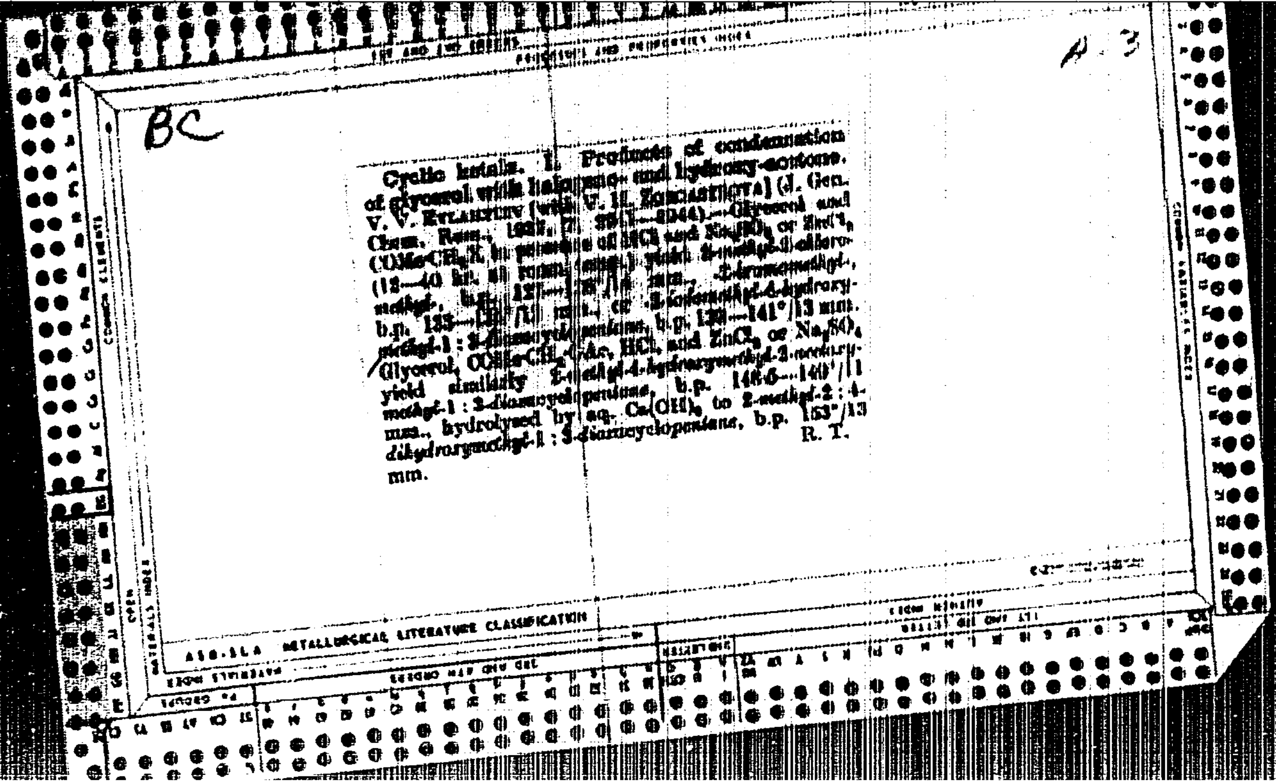
Thermographic Studies of the Isomerization Reaction of the Glycol Phosphorous Acid Esters, Containing a Six-membered Ring, Under the Action of Alkyl Halides

3 tables, and 9 references, 7 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy institut khimii im. A. M. Butlerova Kazanskogo Gosudarstvennogo universiteta im. V. I. Ul'yanova-Lenina (Scientific Research Institute of Chemistry imeni A. M. Butlerov of the Kazan' State University imeni V. I. Ul'yanov-Lenin)

SUBMITTED: January 9, 1958

Card 3/3

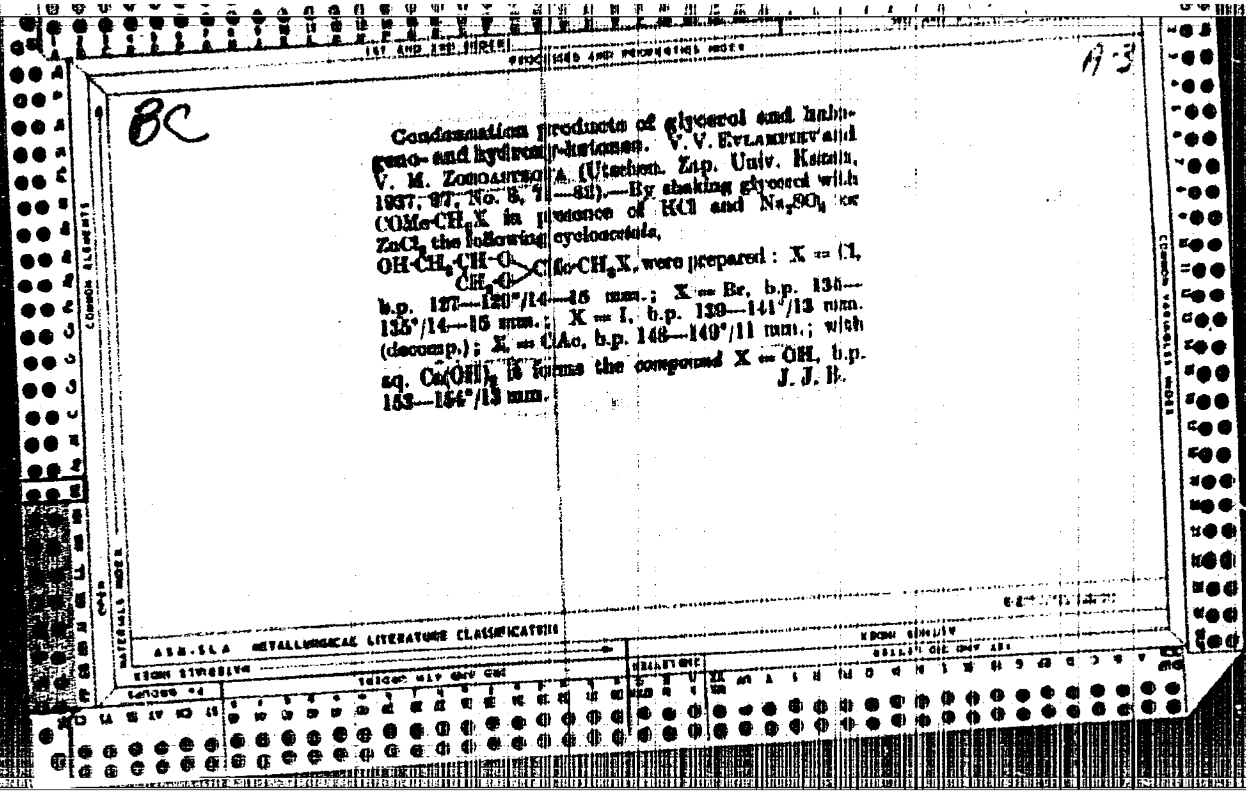


BC

A-3

Cyclic ketals. II. Products of condensation of glycerol with halogeno- and hydroxy-acetone. V. V. Evlampiev (with V. H. Zoschenkova) (J. Gen. Chem. Russ., 1937, 7, [illegible]—2044).—Glycerol and COMe·CH$_2$X in presence of HCl and Na$_2$SO$_4$ or ZnCl$_2$ (12—40 hr. at room temp.) yield 2-methyl-[illegible]-chloro-methyl-, b.p. [illegible]/[illegible] mm., 2-bromomethyl-, b.p. 133—[illegible]/11 mm., or 2-iodomethyl-4-hydroxy-methyl-1 : 3-dioxacyclopentane, b.p. 139—141°/13 mm. Glycerol, COMe·CH$_2$·OAc, HCl, and ZnCl$_2$ or Na$_2$SO$_4$ yield similarly 2-methyl-4-hydroxymethyl-2-acetoxy-methyl-1 : 3-dioxacyclopentane, b.p. 146.5—149°/11 mm., hydrolysed by aq. Ca(OH)$_2$ to 2-methyl-2 : 4-dihydroxymethyl-1 : 3-dioxacyclopentane, b.p. 153°/13 mm.

R. T.



BC

A-3

Condensation products of glycerol and halogeno- and hydroxy-ketones. V. V. Evlampiev and V. M. Zoroastrova (Uchen. Zap. Univ. Kazan, 1937, 97, No. 8, 71—81).—By shaking glycerol with $COMe{\cdot}CH_2X$ in presence of HCl and Na_2SO_4 or $ZnCl_2$ the following cycloacetals, $OH{\cdot}CH_2{\cdot}CH{-}O{>}CMe{\cdot}CH_2X$ ($CH_2{-}O$), were prepared: X = Cl, b.p. 127—129°/14—15 mm.; X = Br, b.p. 135—135°/14—15 mm.; X = I, b.p. 139—141°/13 mm. (decomp.); X = OAc, b.p. 148—149°/11 mm.; with aq. $Ca(OH)_2$ it forms the compound X = OH, b.p. 153—154°/13 mm.

J. J. B.

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

ca

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Some alkyl esters of aryl- and diarylarsenious acids. Gil'm Kamai and V. M. Zoroastrova. *J. Gen. Chem.* (U. S. S. R.) 10, 921-8(1940).—If arsenious acid exists in 2 tautomeric forms, $As(OH)_3$ and $HAsO(OH)_2$, the alkyl esters of aryl- and diarylarsenious acids should show properties analogous to those of phosphorous acid esters. $PhAs(OMe)_2$, b_{14} 119-20°, d_0^0 1.5041, d_4^{20} 1.5417, n_D^{20} 1.5855, yield 60.4%; $PhAs(OEt)_2$, b_{12} 117-18°, d_0^0 1.3854, d_4^{20} 1.3621, n_D^{20} 1.5537, yield 61.3%; $PhAs(OPr)_2$, b_{12} 139-40°, b_7 128-9°, d_0^0 1.2524, n_D^{20} 1.5100, yield 57.2%; $(iso\text{-}PrO)_2AsPh$, b_{12} 118-19°, d_0^0 1.3451, d_4^{20} 1.3120, n_D^{20} 1.5100; $PhAs(OBu)_2$, b_{12} 147-8°, d_0^0 1.2428, d_4^{20} 1.2268, n_D^{20} 1.5511, yield 50.0%; $(iso\text{-}BuO)_2AsPh$, b_{12} 144-4.5°, d_0^0 1.3297, n_D^{20} 1.5105; $(iso\text{-}AmO)_2AsPh$, b_{12} 163-4.5°, d_0^0 1.2009, d_4^{20} 1.2825, n_D^{20} 1.5402, yield 53.1%; Ph_2AsOEt (I), b_{12} 160.5-7°, d_0^0 1.2704, d_4^{20} 1.2505, n_D^{20} 1.5925, yield 54.3%; Ph_2AsOPr (II), b_{12} 174-6°, d_0^0 1.2131, d_4^{20} 1.2248, n_D^{20} 1.7025; $Ph(p\text{-}C_7H_7)AsOEt$, b_9 178-80°, d_0^0 1.2921, d_4^{20} 1.2090, n_D^{20} 1.6120, yield 65.3%; $Ph(p\text{-}C_7H_7)AsOPr$, b_{12} 188-9°, d_0^0 1.2121, d_4^{20} 1.2000, n_D^{20} 1.5805, have been prepd. from $PhAsCl_2$, Ph_2AsCl and $Ph(p\text{-}C_7H_7)AsCl$, resp., and the corresponding Na alcoholate. The above compds. could not be isomerized by heating with alkyl iodide. I.CuI, m. 100-2° (decompn.). II.CuI, m. 140-2°. The b. ps. of some of the above compds. are compared with those of analogous derivs. of phosphorous acid and the results, given in a table, show that the derivs. of As do not have always a higher b. p. than the corresponding derivs. of P.

Gertrude Hertzel

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Ca

10

Asymmetrical analogs of cacodyl oxide. Gil'm Kamai and V. M. Zoroastrova. J. Gen. Chem. (U. S. S. R.) 10, 1569-72(1940).—A yield of 11.5 g. bis(methylethylarsine) oxide (I) was obtained from 27 g. MeEtAsI, b₁₄ 70-74° (Wigren, b₁₄ 67-8°, C. A. 24, 4259). I (10.5 g.) in 8.5 cc. of 10 N NaOH was agitated 30 hrs. with a soln. of 7.4 g. ClCH$_2$CO$_2$H neutralized with NaOH. HCl was added to the mixt. until acid to Congo red. The solvent was evapd. on a water bath, NaCl was filtered off and the filtrate put in a desiccator over H$_2$SO$_4$. After reduction of the aq. soln. of methylethylarsinylacetic acid with H$_2$S a noncrystallizable oily liquid with a very unpleasant odor was obtained. To a mixture of 57.5 cc. 10 N NaOH soln. and 65 cc. 96% alc. 60 g. EtAsI$_2$ was added with cooling. The resulting clear soln. was treated with 33.5 g. iso-PrBr in small portions. The mixt. was heated 5 hrs. on a water bath, after which the alc. was driven off. The product was acidified with HCl and H$_2$S was passed through the mixt. A dark brown oil sepd. It was washed with H$_2$O and dried over CaCl$_2$. Vacuum distn. (13-14 mm.) gave the following fractions: 87-90°, 0.6 g.; 90-125°, 1.0 g.; 125-7°, 16.4 g. Upon redistn. the 1st fraction b. 87-8°, d$_0^{20}$ 1.8155, d$_4^{20}$ 1.7985, n$_D^{20}$ 1.590. Ethylisopropyliodoarsine (I) is a yellow mobile liquid, sol. in ether, alc., C$_6$H$_6$, insol. in H$_2$O. It is a lachrymator. The 3rd fraction was ethyldiiodoarsine. I (5 g.) was mixed with 5 cc. 10 N NaOH and cooled. A yield of 76% theory (2.2 g.) of bis(ethylisopropylarsine) oxide, b$_{14}$ 130-3°, was obtained. It is a colorless oily liquid of unpleasant odor. Bis(methylphenylarsine) oxide (80-90% yield), d$_0^{20}$ 1.4026, d$_4^{20}$ 1.4410, n$_D^{20}$ 1.6240; bis(ethylphenylarsine) oxide (90% yield), d$_0^{20}$ 1.6661, d$_4^{20}$ 1.3650, n$_D^{20}$ 1.6102; ethylphenyliodoarsine, b$_{14}$ 160-70°, d$_4^{20}$ 1.2011; bis(ethylbenzylarsine) oxide (78% yield), b$_{14}$ 174-8°, d$_4^{20}$ 1.2918, n$_D^{20}$ 1.5960; and bis(phenyl-p-tolylarsine) oxide, m. 78-9° (Blicke, m. 75-7°, C. A. 24, 83), b$_{14}$ 281-3°, were analogously prepd. David Acheson

Lab. Org. Chem., Sci.-Res. Inst. im. Butlerov, Kazan'

ASM-SLA METALLURGICAL LITERATURE

PROCESSES AND PROPERTIES INDEX

BC

A-2

Diene compounds. I. Simultaneous action of chlorine and ethylene oxide on isoprene. B. A. Arbuzov and V. M. [illegible] (*Bull. Acad. Sci. U.R.S.S., Cl. Sci. Chim.*, 1944, 113—119).—Contrary to Petrov's conclusion that hypochlorous acids and their esters add to CH_2:CMe·CH:CH_2 only in the 1:2-positions, addition of Cl·[CH_2]$_2$·OCl occurs also in the 1:4-positions.

Cl_2 and $(CH_2)_2O$ are passed simultaneously into [illegible] (180 g.) [illegible] at −10° to −12°, until the wt. of reaction mixture increases to 108 g., after 6 hr. at 5—8°. The products isolated are: CH_2Cl·CMe[illegible]·CH:CH_2 [illegible], CH_2Cl·CMe:CH·CH_2Cl [illegible], *chloro-β-β'-chloroethoxy-[illegible]-ene* (I) (89·7 g.), b.p. 72—74°/6 mm., *α-chloro-δ-β'-chloroethoxy-[illegible]-ene* (II) (54·6 g.), b.p. 108°/11 mm., a fraction (14·4 g.), b.p. 125—130°/6 mm., not yet fully investigated, but thought to be (Cl·[CH_2]$_2$·O·[illegible])$_2$, and a residue (16·4 g.). The above structures are inferred from the conversion of (I), by KOH in EtOH, into β-β'-chloroethoxy-[illegible], b.p. 67—68°/12 mm., which polymerises when kept and is hydrolysed by dil. H_2SO_4 to [illegible], and from the hydrolysis of (II), by KOH in EtOH, to α-ethoxy-δ-β'-chloroethoxy-[illegible]-ene, b.p. 111—113·5°/11 mm., which with Br in $CHCl_3$ forms a dibromide, b.p. 103—104·5°/11 mm.

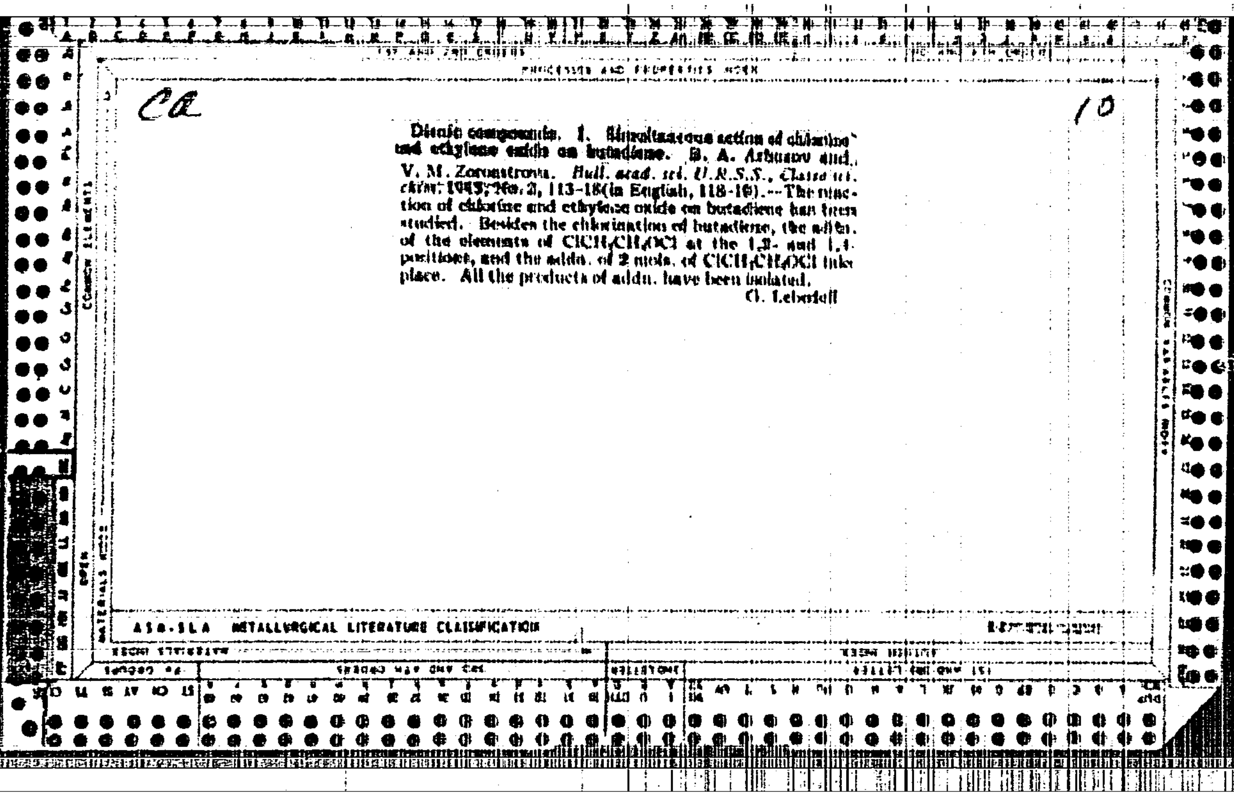
G. W.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

Preparation of the dinitrile of adipic acid. V. M. Zorastrova, S. R. Rafikov, and B. A. Arbuzov (Inst. Org. Chem., Acad. Sci., U.S.S.R.). *Bull. acad. sci. U.R.S.S., Classe sci. chim.* 1945, 120-6 (in English, 127).—The process of prepn. of adiponitrile from adipic acid, or its pure diamide, by distn. in a stream of dry NH$_3$ and in the presence or absence of catalysts has been studied. The use of NH$_3$ reduces the carbonization. About 0.5-1 mol. of adipic acid (m. 150-1°) in a Würtz flask was heated to 150-5°; dry NH$_3$ was passed through the flask (temp. rise to 170-80° accompanied the absorption of NH$_3$); at the end of the reaction, the temp. went up to 200-10°. Then the catalyst was introduced, the temp. was raised by heating, and the dinitrile distd. off at 270-310°. The oily layer of the distillate (dinitrile, b$_{14}$ 160-4°) was sepd. off and washed several times with a weak aq. solution of NH$_3$. The aq. layer of the distillate and the washings were placed in the Würtz flask and the water distd. off. Then the residue (nitrile amide of adipic acid, m. 63-4°) was distd. again in a stream of dry NH$_3$ with 0.5-0.2 g. of added catalyst. This operation was repeated about 3 times. The following catalysts were used: 5% H$_3$PO$_4$, 3% HPO$_3$, 5% K$_3$PO$_4$, 5% K$_2$HPO$_4$, 5% NH$_4$ molybdate, 3% molybdic anhydride, 3% NH$_4$ vanadate, 5% phosphotungstic acid, 10% B$_2$O$_3$. The best yield (80-4%) of adiponitrile was obtained in the presence of 2-3% H$_3$PO$_4$. The effect of the metal of which the app. was made on the yield of adiponitrile was studied. It was found that in an Fe flask adipic acid decompd.; in an Al flask the yield of adiponitrile with 3% H$_3$PO$_4$ was 78.1% and with 6% H$_3$PO$_4$ it was 83%; in a Cu flask the yield of adiponitrile without catalyst was 60.3% and with 3% H$_3$PO$_4$ it was 80.6%. The method of prepn. of adiponitrile in the presence of H$_3$PO$_4$ gave analogous results for sebacic acid; in glass app. with 3% H$_3$PO$_4$ the yield of sebaconitrile, b$_{14}$ 200-4°, was 78.8%. Phthalonitrile could not be prepd. by this method; phthalimide is formed. G. Lebedeff

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



PROCESSES AND PROPERTIES INDEX

Ca

10

Dienic compounds. I. Simultaneous action of chlorine and ethylene oxide on butadiene. B. A. Arbuzov and V. M. Zoroastrova. *Bull. acad. sci. U.R.S.S., Classe sci. chim.* 1945, No. 2, 113-18 (in English, 118-19).—The reaction of chlorine and ethylene oxide on butadiene has been studied. Besides the chlorination of butadiene, the addn. of the elements of $ClCH_2CH_2OCl$ at the 1,2- and 1,4-positions, and the addn. of 2 mols. of $ClCH_2CH_2OCl$ take place. All the products of addn. have been isolated.

C. Lebedeff

ASA-SLA METALLURGICAL LITERATURE CLASSIFICATION

15

The simultaneous action of chlorine and sodium alcoholate (as well as chlorine and acetic anhydride) on butadiene. B. A. Arbuzov and V. M. Zoroastrova. *Compt. rend. acad. sci. U.R.S.S.* 53, 11-4(1946); cf. *C.A.* 30, 4818.—A detailed study of the addn. of Et hypohalite and mixed anhydrides of acetic and chloric acids to bivinyl in order to investigate the general phenomena of 1,2- and 1,4-addn. is reported. The following compds. were obtained by repeated fractionation of the products from an alc. soln. of Na satd. with Cl and bivinyl until the resulting soln. was distinctly alk.: 1-chloro-2-ethoxy-3-butene (I), b. 130-9°, n_D^{20} 1.4310, d_4^{20} 0.9781, MR_D 35.80 (theoretical 35.90); 1-chloro-4-ethoxy-2-butene (II), b_{16} 61-4°, n_D^{20} 1.4480, d_4^{20} 1.0070, MR_D 34.76; and (III) a product corresponding by analysis to a compd. formed by the addn. of 2 mols. of EtOCl and 1 of bivinyl, b_{8} 90-1°, n_D^{20} 1.4530, d_4^{20} 1.1300, MR_D 51.30 (theoretical, 51.27). For identification, I was transformed by alc. alkali into ethyloxyprene, CH_2:C(OEt)CH:CH_2 (IV), b. 94-6°, n_D^{20} 1.4400, d_4^{20} 0.8100, and by the formation of MeCOCH:CH_2 after the hydrolysis of IV. For identification II was converted by the action of alc. KOH into 1,4-diethoxy-2-butene (V), b_{17} 81°, d_4^{20} 0.9001, n_D^{20} 1.4258, MR_D 41.90 (theoretical 42.15). III is receiving further study to locate the positions of the EtO groups and the Cl atoms. It is certain from the above results, that the entering groups of EtOCl are added to both the 1,2- and 1,4-positions of butadiene. The simultaneous action of Cl and Ac_2O, in the presence of anhyd. NaOAc, on butadiene is likewise reported. Repeated fractions produced the following products: 1-chloro-2-acetoxy-3-butene (VI), b_{8} 56-6°, b_{760} 164.5-6.5°, n_D^{20} 1.4530, d_4^{20} 1.1300, MR_D 35.09 (theoretical, 35.90); 1-chloro-4-acetoxy-2-butene (VII), b_{8} 82-4.5°, n_D^{20} 1.4700, d_4^{20} 1.1310, MR_D 36.00; a product (VIII) resulting from the addn. of 2 Cl atoms to VI or VII, b_{8} 114-16°, n_D^{20} 1.4700, d_4^{20} 1.3010, MR_D 45.63 (theoretical 46.10); and a product (IX), m. 117.8°, resulting from the addition of 2 mols. AcOCl to bivinyl. VI was converted by solid KOH into 1,2-oxybivinyl (X), b. 65-7°, n_D^{20} 1.4230, d_4^{20} 0.8690. VII was not isolated in the pure state but was converted to 2-butene-1,4-diol (XI) and then by NaOAc into the diacetate, AcOCH$_2$CH:CHCH$_2$OAc (XII), m. 14-16°, b_{8} 116°, d_4^{20} 1.0842, n_D^{20} 1.4470, MR_D 43.4 (theoretical, 41.98). VIII appears to be derived predominantly from VI. The structure of IX is likewise indefinite but appears to result from the simultaneous addn. of a mol. of AcOCl at the 1,2- and 1,4-positions.

The Cl content of II, III, VI, VII, VIII, and IX confirms the former conclusions. R. E. Dunbar

ASO-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

Ca

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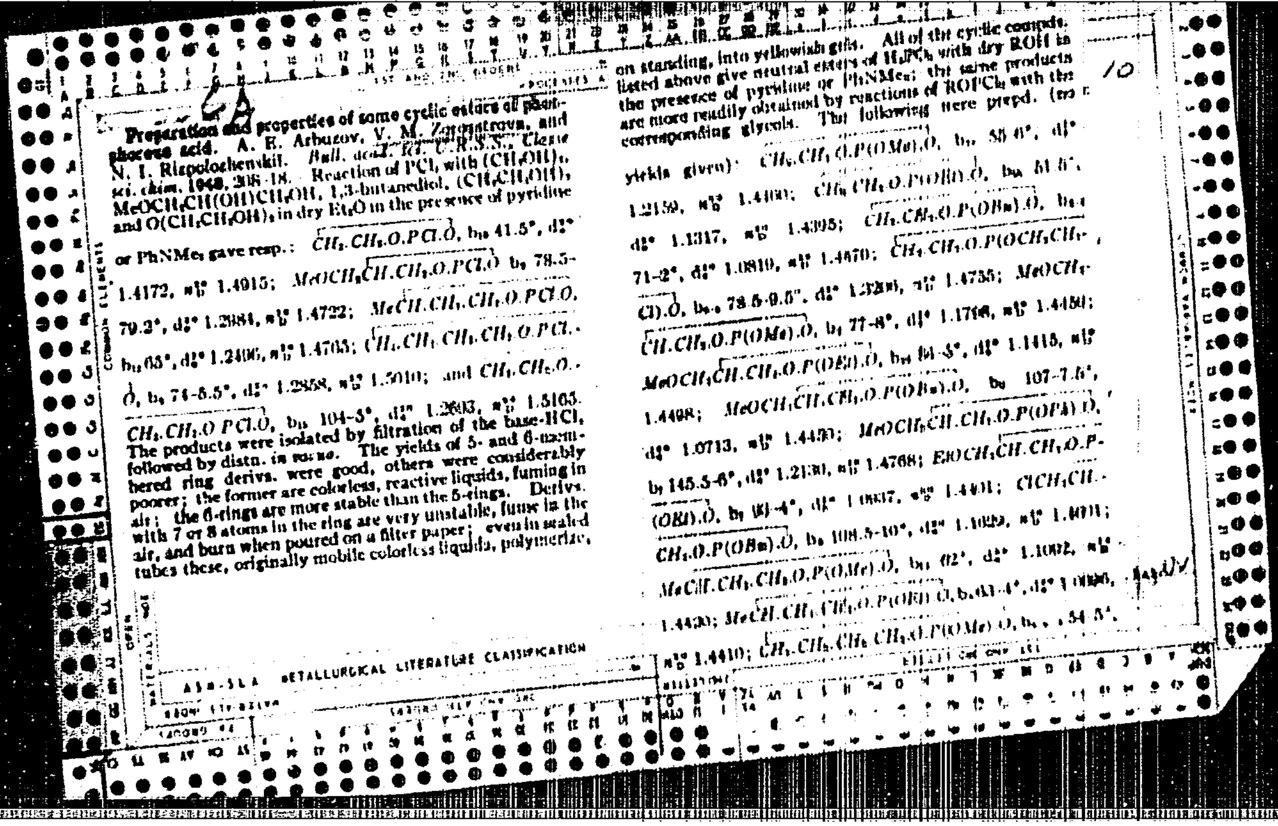
The reaction of *N,N*-dichlorobenzenesulfonamide and butadiene in ethanol. B. A. Arbuzov and V. M. Zoroastrova. *Compt. rend. acad. sci. U.R.S.S.* 53, 225-7(1946) (in French).—Contrary to Petrov (*C.A.* 33, 5800), alkyl hypochlorites add to the 1,4- as well as to the 1,2-positions of butadiene (I). The Ingold-Lapworth mechanism for addn. to double bonds is favored with the exception that complete ionization of the entering mole, prior to addn., is not essential. To 150 ml. I in abs. EtOH cooled to −12° was gradually added 150 g. $PhSO_2NCl_2$ (II) so that the temp. was maintained at −6 to −4°. A cryst. ppt. (3 g.) of excess II, m. 58°, was filtered off. After removal of excess I and EtOH by distn., $NaHCO_3$ was added and the reaction product was steam-distd. After ether extn. of the distillate and several refractionations, there were obtained 33 g. *1-chloro-2-ethoxy-3-butene*, b. 133-7°, d_4^{20} 0.9677, n_D^{20} 1.4308; 4 g. *1-chloro-4-ethoxy-2-butene* (III), b_{15} 60-2°, d_4^{20} 1.0037, n_D^{20} 1.4430; 0.9 g. of the addn. product of 2 moles EtOCl to I, b_3 90-1.5°, n_D^{20} 1.4580. Treatment of III with alc. alkali gave *1,4-diethoxy-2-butene*, b_{20} 78.5-9°. Arthur Dolnick

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Preparation and properties of some cyclic esters of phosphorous acid. A. E. Arbuzov, V. M. Zoroastrova, and N. I. Rizpolozhenskii. *Bull. acad. sci. U.R.S.S., Classe sci. chim.* 1948, 208-18. Reaction of PCl_3 with $(CH_2OH)_2$, $MeOCH_2CH(OH)CH_2OH$, 1,3-butanediol, $(CH_2CH_2OH)_2$, and $O(CH_2CH_2OH)_2$ in dry Et_2O in the presence of pyridine or $PhNMe_2$ gave resp.: $\overline{CH_2.CH_2.O.PCl.O}$, b_{16} 41.5°, d_4^{20} 1.4172, n_D^{20} 1.4915; $MeOCH_2\overline{CH.CH_2.O.PCl.O}$ b_9 78.5-79.2°, d_4^{20} 1.2884, n_D^{20} 1.4722; $\overline{MeCH.CH_2.CH_2.O.PCl.O}$, b_{14} 65°, d_4^{20} 1.2406, n_D^{20} 1.4703; $\overline{CH_2.CH_2.CH_2.CH_2.O.PCl.O}$, b_9 74-5.5°, d_4^{20} 1.2858, n_D^{20} 1.5010; and $\overline{CH_2.CH_2.O.CH_2.CH_2.O.PCl.O}$, b_{15} 104-5°, d_4^{20} 1.2603, n_D^{20} 1.5103. The products were isolated by filtration of the base-HCl, followed by distn. in vacuo. The yields of 5- and 6-membered ring derivs. were good, others were considerably poorer; the former are colorless, reactive liquids, fuming in air; the 6-rings are more stable than the 5-rings. Derivs. with 7 or 8 atoms in the ring are very unstable, fume in the air, and burn when poured on a filter paper; even in sealed tubes these, originally mobile colorless liquids, polymerize, on standing, into yellowish gels. All of the cyclic compds. listed above give neutral esters of H_3PO_3 with dry ROH in the presence of pyridine or $PhNMe_2$; the same products are more readily obtained by reactions of $ROPCl_2$ with the corresponding glycols. The following were prepd. (no yields given): $\overline{CH_2.CH_2.O.P(OMe).O}$, b_{11} 50.6°, d_4^{20} 1.2159, n_D^{20} 1.4400; $\overline{CH_2.CH_2.O.P(OEt).O}$, b_{14} 61.6°, d_4^{20} 1.1317, n_D^{20} 1.4395; $\overline{CH_2.CH_2.O.P(OBu).O}$, b_{14} 71-2°, d_4^{20} 1.0810, n_D^{20} 1.4370; $\overline{CH_2.CH_2.O.P(OCH_2CH_2Cl).O}$, b_{14} 78.5-9.5°, d_4^{20} 1.3200, n_D^{20} 1.4735; $MeOCH_2\overline{CH.CH_2.O.P(OMe).O}$, b_7 77-8°, d_4^{20} 1.1716, n_D^{20} 1.4450; $MeOCH_2\overline{CH.CH_2.O.P(OEt).O}$, b_{14} 94-5°, d_4^{20} 1.1415, n_D^{20} 1.4408; $MeOCH_2\overline{CH.CH_2.O.P(OBu).O}$, b_9 107-7.5°, d_4^{20} 1.0713, n_D^{20} 1.4450; $MeOCH_2\overline{CH.CH_2.O.P(OPh).O}$, b_7 145.5-6°, d_4^{20} 1.2130, n_D^{20} 1.4768; $EtOCH_2\overline{CH.CH_2.O.P(OEt).O}$, b_7 93-4°, d_4^{20} 1.0687, n_D^{20} 1.4401; $ClCH_2\overline{CH.CH_2.O.P(OBu).O}$, b_6 108.5-10°, d_4^{20} 1.1029, n_D^{20} 1.4011; $\overline{MeCH.CH_2.CH_2.O.P(OMe).O}$, b_{11} 62°, d_4^{20} 1.1002, n_D^{20} ; $\overline{MeCH.CH_2.CH_2.O.P(OEt).O}$, b_9 63-4°, d_4^{20} 1.0686, 1.4430; $\overline{CH_2.CH_2.CH_2.CH_2.O.P(OMe).O}$, b_{14} 54.5°, n_D^{20} 1.4410;

10

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Action of halo-substituted derivatives of ethylene on butadiene and anthracene. V. M. Zoroastrova and B. A. Arbuzov. *Doklady Akad. Nauk S.S.S.R.* 60, 59-61 (1948).—Anthracene reacts with haloethylenes to give diene adducts, which are apparently bicyclic in nature, with the bridge across the 9,10-positions of anthracene. Anthracene (5 g.) and 20 ml. $(ClCH:)_2$ heated in a sealed tube 10 hrs. at 150-60° and 8 hrs. at 200-20°, filtered from 1.25 g. unreacted anthracene, and concd. yielded 1.5 g. of an *adduct*, $C_{16}H_{12}Cl_2$, m. 203-4° (from ClCH:CHCl). Anthracene (4 g.) and 15 ml. $ClCH:CCl_2$ after 24 hrs. at 200-20° similarly gave 2.2 g. *adduct*, m. 140° (from $CHCl:CCl_2$). Anthracene (5 g.) and 15 ml. $(Cl_2C:)_2$ heated 62 hrs. at 200-30° gave much HCl, which indicated loss of HCl from the original adduct, and an *adduct*, $C_{16}H_9Cl_3$, m. 179-80° [from $(ClCH_2)_2$], which has active double bonds, as shown by the action of *maleic anhydride*, which gave a product m. 255° (from benzene-petr. ether). Heating 2 g. anthracene and an equiv. amt. of $AcOCH_2CH:CHCH_2OAc$ 28 hrs. at 200-20° gave 1.1 g. of an *adduct*, $C_{22}H_{22}O_4$, m. 108-9° (from EtOH). Butadiene (15 g.) and 40 g. $(ClCH:)_2$ heated 5 hrs. at 160-75° and 7 hrs. at 200-10° in the presence of hydroquinone gave 1.5 g. adduct, $C_6H_8Cl_2$, m. 43° (from EtOH), b. about 135-6°, which is probably *1,2-dichloro-4-cyclohexene*.

G. M. Kosolapoff

Allyl esters of ethylene-, trimethylene-, and 1-methyltrimethyleneglycol phosphorous acid and their transformations. A. E. Arbuzov and V. M. Zoroastrova (A. M. Butlerov Inst., Kazan State Univ.). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1950, 357-69; cf. *C.A.* 42, 1032g. $(CH_2O)_2PCl$ (43.8 g.) was added, with ice cooling, to 20.1 g. allyl alc., 27.4 g. dry pyridine, and 200 ml. Et_2O; after filtration, there was obtained 58.6% $(CH_2O)_2POCH_2CH:CH_2$, b_{10} 69.5-70.0°, d_4^{20} 1.1553, n_D^{20} 1.4635, which yields a *CuBr adduct*, m. 107-8° (from C_6H_6), and evolved much heat on contact with H_2O. Addn. of S causes spontaneous reaction and yields $(CH_2O)_2P(S)OCH_2CH:CH_2$ (40% pure), b_1 130-2°, n_D^{20} 1.5025, d_4^{20} 1.2619. Heating the phosphite (10.5 g.) and 4.9 g. $CH_2:CHCH_2Cl$ 12 hrs. to 135-40° in a sealed tube gave 30% $ClCH_2CH_2OP(O)(CH_2CH:CH_2)OCH_2CH:CH_2$, $b_{1.5}$ 132-3°, n_D^{20} 1.4708, d_4^{20} 1.1725. Similarly $PhCH_2Cl$ (4 hrs. at 155-60°) gave a moderate yield of liquid, $b_{0.5}$ 172-7°, which on standing deposited crystals, m. 122-3° (from C_6H_6), appearing by analysis to be $(CH_2O)_2P(O)CH_2Ph$; the liquid portion on further distn. gave an unstated yield of $PhCH_2P(O)(OCH_2CH_2Cl)OCH_2CH:CH_2$, b_1 175-7°, d_4^{20} 1.2001, n_D^{20} 1.5210. Reaction with *AcBr*, run in Et_2O to moderate the action, yielded a *liquid*, $b_{0.5}$ 125-9.5°, n_D^{20} 1.4740, d_4^{20} 1.4318, which could not be obtained in pure state, as much polymer was formed during distn.; the product was $(CH_2O)_2PBr$, although Br analyses were quite low; a similar reaction with $AcCl$ gave largely a *polymer* on distn. and only a small amt. of distillable $(CH_2O)_2PCl$ (very crude), b_4 139-42°, d_4^{20} 1.2531, n_D^{20} 1.4640. Addn. of 0.6 g. cold H_2O to 6.2 g. phosphite caused a vigorous reaction, yielding 0.8 g. allyl alc. and a small amt. of liquid, b_4 132-44°. Addn. of 28.1 g. $CH_2(CH_2O)_2PCl$ to 11.6 g. allyl alc., 15.8 g. pyridine, and 180 ml. Et_2O with ice cooling gave 52.7% $CH_2(CH_2O)_2POCH_2CH:CH_2$, b_{12} 82.5°, d_4^{20} 1.1214, n_D^{20} 1.4625, which reacts vigorously with *CuI*; the adduct, m. about 70°, decomp. rapidly in air. Heating the product with allyl chloride 1 hr. to 100° in a sealed tube, followed by distn. of the allyl iodide, gave 74.3% $CH_2(CH_2O)_2P(O)CH_2CH:CH_2$, m. 78° (from C_6H_6); similarly, $PhCH_2Cl$ (5.5 hrs. at 140-50°) gave $CH_2(CH_2O)_2P(O)CH_2Ph$, m. 138-9°, which on hydrolysis with HCl gave $PhCH_2P(O)(OH)_2$, m. 170-1°; Ph_3CBr in boiling C_6H_6 (10 min.) gave $CH_2(CH_2O)_2P(O)CPh_3$, m. 228-9° (from C_6H_6-ligroin). Addn. of 22.5 g. allyl alc. to 60 g. $\overline{CHMe.CH_2.CH_2.O.PCl.O}$, 31 g. pyridine, and 250 ml. Et_2O with cooling gave 62.5% $\overline{MeCH.CH_2.CH_2.O.P(O(CH_2CH:CH_2).O}$ (I), b_{10} 82-3°, n_D^{20} 1.4580, d_4^{20} 1.0777. I (0.4 g.) heated with 9 g.

allyl iodide 2 hrs. at 50° after 15 hrs. at room temp., gave 74.4% $MeCH.CH_2.CH_2.O.P(O)(CH_2CH:CH_2).O$, b_4 130-1°, d_4^{20} 1.1540, n_D^{20} 1.4880). $PhCH_2Cl$ (7 hrs. at 140-50°) gave 13.5% crude $MeCH.CH_2.CH_2.O.P(O)(CH_2Ph).O$, b_4 190-3°, n_D^{20} 1.5210, d_4^{20} 1.1828; on standing the product deposited crystals of the pure product, m. 120° (from C_6H_6). Addn. of 3.35 g. AcBr in Et_2O to 4.8 g. I in Et_2O with ice cooling gave 51% *product*, $b_{1.5-2}$ 112-3°, n_D^{20} 1.4500, d_4^{20} 1.2544, which appeared to be $MeCH.CH_2.CH_2.O.P(O)(Ac).O$, contaminated with some Br deriv. Addn. of 1 mole S to I gave a spontaneous reaction and yielded 43% $MeCH.CH_2.CH_2.O.P(S)(OCH_2CH:CH_2).O$, $b_{1.5}$ 158-60°, n_D^{20} 1.5025, d_4^{20} 1.2111. Heating I with EtO_2CCl to 50° 2 hrs. gave a dark, undistillable, halogen-free oil. Addn. of 0.51 g. H_2O to 5 g. I gave a spontaneous reaction and distn. yielded $MeCH.CH_2.CH_2.O.P(OH).O$, $b_{1.5}$ 136-7°, m. 48-50°, a very hygroscopic solid. G. M. Kosolapoff

ZOROASTROVA, V. M.

USSR/Chemistry - Organo-Phosphorus Compounds May/Jun 52

"The Chloride of 1,2-dithiolethanephosphorous Acid and Its Derivatives," A. Ye. Arbuzov, V. M. Zoroastrova, Sci Res Inst of Chem imeni A. M. Butlerov, Kazan State U imeni V. I. Ulyanov-Lenin

"Iz Ak Nauk, Otdel Khim Nauk" No 3, pp 453-458

The cyclic chloride of dithiolethanephosphorous acid was synthesized by the action of PCl_3 on 1,2-dithioethane. Esters of this acid were synthesized both by the action of alc on the acid chloride in presence of pyridine, and by the action of Menshutkin's acid chloride on dithiolethane. The esters react with alkyl halides (methyl iodide, triphenylbromoethane). The structure of these reaction products was not established.

220T9

220T9

ARBUZOV, B.A.; SAYKINA, M.K.; ZOROASTROVA, V.M.

Thermographic studies of the interaction between esters of ethyleneglycolphosphorous acid and alkyl halides. Izv. AN SSSR. Otd. khim. nauk no.9:1046-1052 S '57. (MIRA 10:12)

1. Nauchno-issledovatel'skiy khimicheskiy institut im. A.M. Butlerova pri Kazanskom gosudarstvennom universitete im. V.I. Ul'yanova-Lenina.

(Esters) (Phosphorous acid) (Halides)

1. ARBUZOV, A. Ye.; ZORASTROVA, V. M.

2. USSR (600)

4. Esters

7. Substituted amides of cyclic esters of phosphorous acid, Izv. AN SSSR. Otd. khim. nauk, No. 5, 1952.

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

ZOROASTROVA, V. M.

Chemical Abst.
Vol. 48 No. 8
Apr. 25, 1954
Organic Chemistry

(2) Chem

Substituted amides of cyclic esters of phosphorous acid. A. E. Arbuzov and V. M. Zoroastrova. *Bull. acad. sci. U.S.S.R., Classe sci. chim.* 1952, 719-21 (Engl. translation). See *C.A.* 47, 10401c.

R. L. H.

11-11-54

ARBUZOV, B. A.; ZOROASTROVA, V. M.; SAGITOVA, R. Kh.

Esters of phosphoric and phosphorothioic acids containing heterocyclic radicals. Report No. 6: Interaction of phosphoryl and thiophosphoryl chlorides with benzimidazole and morpholine. Izv AN SSSR Ser Khim no. 4:661-669 Ap '64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy khimicheskiy institut im. A. M. Butlerova Kazanskogo gosudarstvennogo universiteta.

ARBUZOV, B. A.; ZOROASTROVA, V. M.; IBRAGIMOVA, N. D.

Esters of phosphoric acid containing a cyano group. Izv. AN SSSR Ser Khim no. 4:656-661 Ap '64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy khimicheskiy institut im. A. M. Butlerova Kazanskogo gosudarstvennogo universiteta.

1. ARBUZOV, A. YE., ZORASTROVA, V. M.

2. USSR (600)

4. Phosphorous Acid

7. Esters of gylcol phosphorous acids. Part 1. Compounds with 5-, 7-, and 8-membered rings. Izv. AN SSSR. Otd. khim. nauk, No. 5, 1952

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

ARBUZOV, A.Ye.; ZOROASTROVA, V.M.

Esters of glycol-phosphorous acids. II. Compounds with 6-member ring. Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk '52, 779-88. (MLRA 5:11) (CA 47 no.19:9901 '53)

ARBUZOV, A.Ye.; ZOROASTROVA, V.M.

Complex compounds of esters of phosphorus acid. II. Complex compounds with salts of bivalent platinum. Izvest. Akad. Nauk S.S.S.R., Otdel Khim. Nauk '52, 818-25. (MLRA 5:11)
(CA 47 no.19:9899 '53)

ARBUZOV, A.Ye.; ZOROASTROVA, V.M.

Complex compounds of esters of phosphorus acid. III. Complex compounds with mercury salts. Izvest. Akad. Nauk S.S.S.R., Otdel Khim. Nauk '52, 826-30. (MLRA 5:11)
(CA 47 no.19:9900 '53)

ZOROASTROV, V. M.

USSR/Chemistry - Organophosphorus Compounds 21 May 52

"Some Complex Compounds of Complete Phosphorous Acid Esters With Copper, Silver and Gold Salts," Acad A. Ye. Arbuzov, V. M. Zoroastrova, Sci Res Chem Inst imeni A. M. Butlerov, Kazan State U imeni V. I. Lenin

"Dok Ak Nauk SSSR" Vol LXXXIV, No 3, pp 503-506

A. Ye. Arbuzov indicated that the reaction of complete esters of phosphorous acid with cuprous salts resulted in complex compds like CuX-P(OR)$_3$ and CuX-2P(OR)$_3$. These same esters also reacted with

225T1

silver halide, producing complex compds like AgX-P(OR)$_3$. CuX-P(OR)$_3$ and similar complex compds were found to have a triple mol wt. On the other hand, the mol wts of compds like CuX-2P(OR)$_3$ were not detd. The complex compds, however, resulting from the reaction of phosphorous acid esters with silver halide also produced a triple mol. Finally, the action of triphenylphosphite on AuCl-PCl$_3$ brought forth the complex compd, (C$_6$H$_5$O)$_3$P-AuCl.

225T1

ZOROASTROVA, V.M.

ARBUZOV, B.A.; ZOROASTROVA, V.M.

Synthesis of phosphinic acid esters containing heterocyclic radicals Report no.5. Phosphinic acid esters with a dihydrocoumarin radical. Izv.AN SSSR,Otd.khim.nauk no.4:681-688 Jl-Ag '55. (MLRA 9:1)

1.Khimicheskiy nauchno-issledovatel'skiy institut imeni A.M.Butlerova Kazanskogo universiteta imeni Ul'yanova-Lenina.
(Phosphinic acid) (Hydrocoumarin)

Translation in /M

L 31359-66 EWP(j)/EWT(l)/EWT(m) RM/RO

ACC NR: AP6021099 SOURCE CODE: UR/0062/66/000/002/0254/0257

40

B

AUTHOR: Arbuzov, B. A.; Zoroastrova, V. M.

ORG: Scientific Research Chemical Institute im. A. M. Butlerov, Kazan' State University im. V. I. Ul'yanov-Lenin (Nauchno-issledovatel'skiy khimicheskiy institut Kazanskogo gosudarstvennogo universiteta)

TITLE: Synthesis of esters of phosphinic acids 1 containing heterocyclic radicals. Report 8. 2-methyl-3-(omega-phosphonemethyl)-quinoxaline esters with an alkyl group

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 2, 1966, 254-257

TOPIC TAGS: chemical synthesis, esterification, phosphinic acid, alkyl radical, fungicide, heterocyclic base compound

ABSTRACT: A description is given of phosphinic esters of 2-methyl-3-(ω-phosphonemethyl)quinoxaline. The compounds were prepared by the Arbuzov reaction of 2-methyl-3-(omega-chloromethyl)quinoxaline) with trialkylphosphites. The authors did not succeed in obtaining the dimethyl ester of 2-methyl-3-(omega-phosponemethyl)quinoxaline, nor the 2-methyl-3-(omega-phosphonemethyl) oxide of quinoxaline, despite frequent attempts. According to preliminary data, the compounds containing quinoxaline radicals described in the report show activity toward certain species of fungi. At present the fungicidal 6 properties of esters of 2-methyl-3-(omega-phosphonemethyl)quinoxaline are under study. [JPRS]

SUB CODE: 07, 06 / SUBM DATE: 05Aug63 / ORIG REF: 001 / OTH REF: 002

Cord 1/1 CC UDC: 542.91 + 661.718.1 + 547.7

L 01816-67 EWT(m)/EWP(j) RM

ACC NR: AP6035640 SOURCE CODE: UR/0062/66/000/001/0104/0107

AUTHOR: Arbuzov, B. A.; Zoroastrova, V. M.

39
B

ORG: Scientific Research Chemical Institute im A.M. Butlerov, Kazan' State University im. B.; I. Ul'yanov-Lenin (Khimicheskiy institut Kazan'skogo gosudarstvennogo universiteta)

TITLE: Esters of phosphoric and thiophosphoric acids containing heterocyclic radicals. Report 7. Reaction of phosphoric and thiophosphoric acid chlorides with carbazol

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 1, 1966, 104-107

TOPIC TAGS: organic phosphorus compound, heterocyclic base compound, ester, organic synthetic process

ABSTRACT: In an effort to synthesize esters of N-phospone-carbazol, the authors used the potassium salt of carbazol and acetonitrile as a solvent. To a suspension of carbazol in anhydrous acetonitrile the dialkylphosphoric acid chloride was added. After separation of potassium chloride from the filtrate, the solvent was distilled under vacuum. The residue was purified by recrystallization from petroleum ether (b. p. 40-60°). The authors noted that the results depend to a great extent on the method used to prepare the carbazol salt. The

Card 1/2

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ACC NR: AP6035640

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potassium salt of carbazol obtained by the Sok method evidently contained excess alkali, and reactions carried out with this salt did not give positive results. On the other hand, the potassium salt of carbazol prepared by fusing equimolar amounts of carbazol and potassium hydroxide did not contain excess alkali. The compounds synthesized were: N-diethylphosphonecarbazol (m. p. 76°) and N-diisopropylphosphonecarbazol (m. p. 69-71°). The action of picric acid in alcoholic solution was used to obtain the corresponding nitrates of these compounds. The picrate of the former compound had a m. p. of 88-90° and the picrate of the latter -- m. p. 121-122.5°.

/JPRS: 37,177/

SUB CODE: 07 / SUBM DATE: 05 Aug 63 / ORIG REF: 003 / OTH REF: 001

Card 2/2 fv

ARBUZOV, B.A.; ZOROASTROVA, V.M.

Phosphoric and thiophosphoric acid esters containing heterocyclic radicals. Report No.7: Reaction of phosphoryl and thiophosphoryl chlorides with carbazole. Izv.AN SSSR. Ser.khim. no.1:104-107 '66. (MIRA 19:1)

1. Nauchno-issledovatel'skiy khimicheskiy institut im. A.M. Butlerova Kazanskogo gosudarstvennogo universiteta im. V.I. Ul'yanova-Lenina. Submitted August 5, 1963.

ZOROASTROVA, V.M., MYSOYEDOVA, T.N.

Alkylphosphorus esters of tartaric acids.

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.

ARBUZOV, B.A.; ZOROASTROVA, V.M.; OSIPOVA, M.P.

Esters of phosphoric and thiophosphoric acids containing heterocyclic radicals. Report No.4: Reaction of phosphoric and thiophosphoric acid chlorides with α-aminopyridine. Izv. AN SSSR Otd.khim.nauk no.12:2163-2168 D '61. (MIRA 14:11)

1. Khimicheskiy institut im. A.M.Butlerova Kazanskogo gosudarstvennogo universiteta im. V.I.Ul'yanova-Lenina.
(Phosphoric acid) (Phosphorothioic acid) (Pyridine)

ARBUZOV, B.A.; ZOROASTROVA, V.M.; ANTOKHINA, L.A.

Synthesis of phosphinic acid esters containing heterocyclic radicals. Report 7: Phosphinic acid esters with mono and di-oxidoquinoxaline radicals. Izv.AN SSSR.Otd.khim.nauk no.6: 1016-1022 Je '61. (MIRA 14:6)

1. Khimicheskiy institut im. A.M.Butlerova Kazanskogo gosudarstvennogo universiteta.

(Phosphinic acid) (Quinoxaline)

ARBUZOV, A.Ye.; ZOROASTROVA, V.M.; MYASOYEDOVA, T.N.

Mixed esters of phosphorous acid with ethyl d-tartrate. Izv. AN SSSR.Otd. khim. nauk no.12:2127-2134 D '60. (MIRA 13:12)

1. Nauchno-issledovatel'skiy institut khimii im.A.M.Butlerova Kazanskogo gosudarstvennogo universiteta i Kazanskiy khimiko-tekhnologicheskiy institut im.S.M.Kirova.

(Tartaric acid) (Phosphorous acid)

S/062/60/000/006/017/025/XX
B020/B060

AUTHORS: Arbuzov, B. A. and Zoroastrova, V. M.

TITLE: Synthesis of Phosphinic Acid Esters Containing Heterocyclic Radicals. Communication 6. Interaction of Phosphorous Acid Esters With Furfurole, Pyromucic Acid, and Furyl Acrylic Acid

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 6, pp. 1030-1034

TEXT: Papers by G. Kamay and V. A. Kukhtin (Ref. 1) have shown that neutral esters of phosphorous acid are added to α,β-unsaturated aldehydes, giving rise to phosphinic acid esters. Conjugate systems with a larger number of double bonds were expected to be likewise capable of a similar addition. Similar systems are found in aldehydes and acids of the furan series. By the addition of trialkyl phosphites thereto, one obtains esters of phosphinic acids with substituted furan or dihydro furan radical. On heating triethyl phosphite and triisopropyl phosphite with furfurole at

Card 1/3

Synthesis of Phosphinic Acid Esters
Containing Heterocyclic Radicals.
Communication 6. Interaction of Phosphorous
Acid Esters With Furfurole, Pyromucic Acid,
and Furyl Acrylic Acid

S/062/60/000/006/017/025/XX
B020/B060

160° the phosphite was oxidized to phosphate, namely by the oxygen of the aldehyde group. Small amounts of difuryl ethane were separated from the reaction products for a melting point of 100 - 101°. Trialkyl phosphite thus behaves as an oxygen acceptor and takes this oxygen from the aldehyde group. The interaction of triethyl phosphite with benzaldehyde under more rigorous conditions was experimentally observed. Also in this case, apart from the addition product of triethyl phosphate to the aldehyde group, the reaction described by V. S. Abramov (Ref. 2) yielded trialkyl phosphate and small amounts of stilbene for a melting point of 124 - 125°. The oxygen removal by means of phosphite, described in the article under consideration, has an analogy in the removal of sulfur from mercaptans and disulfides (Refs. 3, 4). On heating triethyl phosphite or triisopropyl phosphite with pyromucic acid at 130 - 160°, ethyl- or isopropyl esters of pyromucic acid were separated from the reaction products. The course of the reaction between triethyl phosphite and furyl

Card 2/3

ARBUZOV, B.A.; ZOROASTROVA, V.M.

Synthesis of esters of phosphonic acids containing heterocyclic radicals. Report No.6: Reactions of esters of phosphorous acid with furfurole and pyromucic and furylacrylic acids. Izv.AN SSSR.Otd.khim.nauk no.6:1030-1034 Jl '60. (MIRA 13:7)

1. Nauchno-issledovatel'skiy khimicheskiy institut imeni A.M.Butlerova Kazanskogo universiteta.
(Furaldehyde) (Furoic acid) (Furanacrylic acid)
(Phosphorous acid)

5 (3)

AUTHORS: Arbuzov, B. A., Zoroastrova, V. M. SOV/62-59-6-14/36

TITLE: The Esters of the Phosphoric- and Thiophosphoric Acid, Which Contain Heterocyclic Radicals (Efiry fosfornoy i tiofosfornoy kislot , soderzhashchiye geterotsiklicheskiye radikaly). Communication 2. Alkylation of Some Heterocyclic Compounds by Means of the Derivatives of the Phosphoric- and Phosphorous Acid (Soobshcheniye 2. Alkilirovaniye nekotorykh geterotsiklicheskikh soyedineniy proizvodnymi fosfornoy i fosforistoy kislot)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 6, pp 1037 - 1040 (USSR)

ABSTRACT: In a previous paper (Ref 1) the authors described a series of esters of phosphoric and thiophosphoric acid with pyrimidine and imidomethyluracil radicals. The compounds obtained proved to be biologically highly active. The present paper is a continuation of the first one. The authors wanted to obtain esters of the phosphoric acids with heterocyclic radicals (thiacine, benzoxazole, and benzothiazole), and to investigate their properties. Besides the substances expected by the influence of dialkylphosphoric acid chloride upon the potassium

Card 1/3

The Esters of the Phosphoric- and Thiophosphoric Acid, SOV/62-59-6-14/36
Which Contain Heterocyclic Radicals. Communication 2.
Alkylation of Some Heterocyclic Compounds by Means of the Derivatives of
the Phosphoric- and Phosphorous Acid

salts of 4,6,6-trimethyl-6H-1,3-thiazine-2-thiol (I), 2-mercaptobenzoxazole (II) and 2-mercaptobenzothiazole (III), also alkylation products were produced of thiol. In the experimental part the following reactions are described: 1) K-salts of (I) with acid chloride of diethyl phosphoric acid; 2) K-salts of (I) with acid chloride of the di-isobutyl phosphoric acid; 3) K-salts of (II) with acid chloride of the diethylphosphoric acid; 6) K-salts of (III) with acid chloride of the diethyl phosphoric acid. Alkylation products of thiol were in good yield obtained by reaction of trialkylphosphites on the disulphides of the above mentioned heterocyclic compounds; 4) Disulphide of benzoxazole with triethylphosphite; 5) 2-benzoxazole sulphenylchloride with triethylphosphite; 7) disulphide of benzo thiazole with triethylphosphite; 8) disulphide of benzo thiazole with the ethylester of the ethyleneglycol phosphoric acid. There are 5 references, 3 of which are Soviet.

Card 2/3

The Esters of the Phosphoric- and Thiophosphoric Acid, SOV/62-59-6-14/36
Which Contain Heterocyclic Radicals. Communication 2.
Alkylation of Some Heterocyclic Compounds by Means of the Derivatives of
the Phosphoric- and Phosphorous Acid

ASSOCIATION: Khimicheskiy institut im. A. M. Butlerova Kazanskogo gosudarstvennogo universiteta im. V. I. Ul'yanova-Lenina (Chemical Institute imeni A. M. Butlerov of the Kazan' State University imeni V. I. Ul'yanov-Lenin)

SUBMITTED: August 15, 1957

Card 3/3

ARBUZOV, B.A.; ZOROASTROVA, V.M.

Esters of phosphoric and thiophosphoric acids containing heterocyclic radicals. Report No.1: Compounds containing pyrimidine and imidomethyluracil radicals. Izv. AN SSSR. Otd. khim.nauk no.11:1331-1339 N '58. (MIRA 11:12)

1.Khimicheskiy institut imeni A.M. Butlerova Kazanskogo gosudarstvennogo universiteta imeni V.I. Ul'yanova-Lenina.
(Primidine) (Uracil) (Phosphoric acid)

5(3)

AUTHORS: Arbuzov, B. A., Zoroastrova, V. M. SOV/62-58-11-9/26

TITLE: Esters of Phosphoric and Thiophosphoric Acids Containing Heterocyclic Radicals (Efiry fosfornoy i tiofosfornoy kislot, soderzhashchiye geterotsiklicheskiye radikaly) Communication I. Compounds Containing Pyrimidine and Imidomethyl Uracil Radicals (Soobshcheniye 1. Soyedineniya s pirimidinovym i imidometiluratsilovym radikalami)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1958, Nr 11, pp 1331-1339 (USSR)

ABSTRACT: In the present paper the authors synthesized a number of esters of the phosphoric and thiophosphoric acids with pyrimidine and imidouracil radicals. The physical properties of the obtained products are given (Table 1). Compounds Nr 1 and 2 are high-boiling, viscous, oily liquids easily soluble in the ordinary organic solvents and difficultly soluble in water. Compound Nr 2 was described by Shvetsova-Shilovskaya, Mel'nikov, and Grapov (Ref 2). Compound Nr 4 was obtained in liquid as well as also in crystalline state. The other compounds containing the pyrimidine radical, are low-melting solids. Products Nr 3, 4, 5 were obtained in good yields from

Card 1/3

Esters of Phosphoric and Thiophosphoric Acids Containing Heterocyclic Radicals. Communication I. Compounds Containing Pyrimidine and Imidomethyl Uracil Radicals

SOV/62-58-11-9/26

the Na-salt of 2-phenyl-4-methyl-6-oxypyrimidine. Under the selected conditions no compound with the imidouracil radical could be obtained from Na-salt. They were produced by the interaction of Ag-salt and the acid chloride of dialkyl phosphoric acid in dry toluene or xylol in a yield of from 51.6 to 57.8 %. These compounds are low-melting crystalline solids. They are easily soluble in organic solvents, less easily soluble in water. It is a characteristic feature of all compounds that in compounds with an ethyl radical solubility in water is better than in compounds with normal and isobutyl radicals. The authors tried to obtain n-butyl ester (Nr 7) according to the method described (Ref 2). On this occasion, however, a product was separated which according to its analysis corresponded to the acid imidomethyl uracil butyl ester. Individual synthesized esters were saponified. In the course of saponification with hydrochloric acid (1:1) usually initial pyrimidines or imidomethyl uracil could be separated. Some of the synthesized compounds were examined by M. A.

Card 2/3

Esters of Phosphoric and Thiophosphoric Acids Containing Heterocyclic Radicals. Communication I. Compounds Containing Pyrimidine and Imidomethyl Uracil Radicals

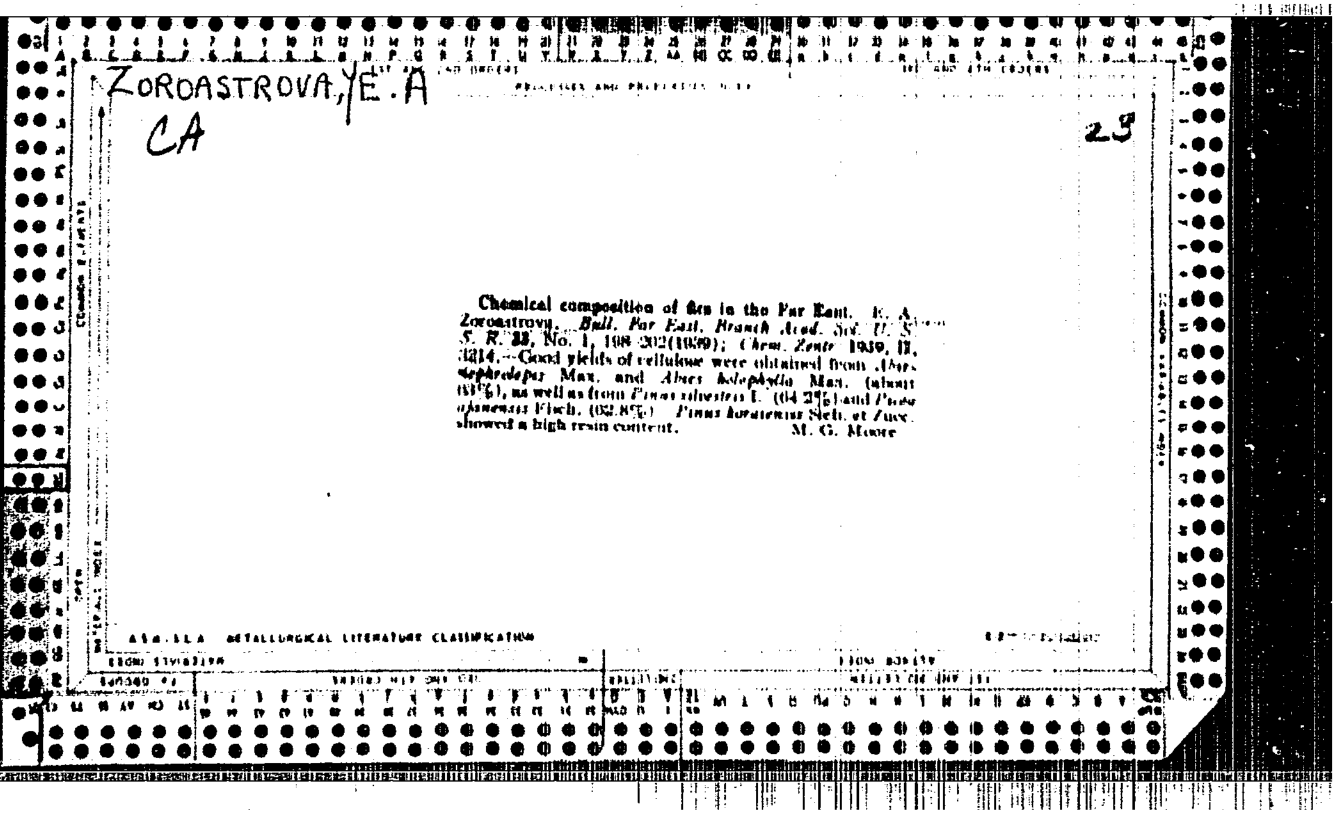
SOV/62-58-11-9/26

Kudrina at the Kazanskiy filial Akademii nauk SSSR (Kazan' Branch of the Academy of Sciences USSR) with respect to their insecticide properties on Calandra granaria L. and to toxic properties on mice. The results are shown (Table 2). There are 2 tables and 4 references, 1 of which is Soviet.

ASSOCIATION: Khimicheskiy institut im. A. M. Butlerova Kazanskogo gosudarstvennogo universiteta im. V. I. Ul'yanova-Lenina (Chemical Institute imeni A. M. Butlerov , Kazan' State University imeni V. I. Ul'yanov-Lenin)

SUBMITTED: March 21, 1957

Card 3/3



ZOROASTROVA, YE. A

CA

23

PROCESSES AND PROPERTIES INDEX

Chemical composition of firs in the Far East. E. A. Zoroastrova. *Bull. Far East. Branch Acad. Sci. U. S. S. R.* 33, No. 1, 198-202(1939); *Chem. Zentr.* 1939, II, 3214.—Good yields of cellulose were obtained from *Abies nephrolepis* Max. and *Abies holophylla* Max. (about 61%), as well as from *Pinus silvestris* L. (64.2%) and *Picea ajanensis* Fisch. (62.8%). *Pinus koraiensis* Sieb. et Zucc. showed a high resin content. M. G. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

GROMAKOV, S.D.; ZOROATSKAYA, I.V.; LATYPOV, Z.M.; CHVALA, M.A.; EYDEL'MAN, Ye.A.; BADYGINA, L.I.; ZARIPOVA, L.G.

Method of studying the phase diagrams of semiconductor systems. Zhur. neorg. khim. 9 no.10:2485-2487 O '64.

(MIRA 17:12)

5(2,4)

AUTHORS: Berg, L. G., Gromakov, S. D., Zoroatskaya, I. V. SOV/20-125-1-19/67

TITLE: Accelerated Method for the Investigation of Phase Diagrams According to the Thermographic Method (Uskorennyy metod izucheniya diagramm sostoyaniya metodom termografii)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 1, pp 75-78 (USSR)

ABSTRACT: The authors suggest a simultaneous recording of thermographic data for 2, in some cases even 3 substances investigated. The thermal effects which take place in 2 samples were recorded clearly and separately on the differential curve even if they take place at almost the same temperatures. Thus, the investigation can be carried out twice as rapidly as in the normal case. This method, however, also has certain deficiencies: the main deficiency may be eliminated by the calibration of the differential thermocouple. This deficiency is due to the fact that heating in both samples takes place at a small temperature difference as far as the thermal properties of these samples are different. The suggested method was checked on the binary system $KCl-SrCl_2$ (Ref 2).

Card 1/3

Accelerated Method for the Investigation of Phase Diagrams According to the Thermographic Method SOV/20-125-1-19/67

Its phase diagram is relatively complicated and therefore well suited for testing the utility of the new method (Fig 1). Some conclusions on the mechanism of the chemical interaction between the substances can be drawn from a comparison of the two heating curves. The authors here use only a few examples from the results obtained. They discuss the shape of the differential curves (Figs 2,3). The complicated shape of the curve (d, e, f) indicates that the effect concerned (575°) takes place in both samples. Actually, it should take place only in sample 2, then it would be expressed by a simple "endothermal line" which passes through point d' and f. If this effect is observed as an exothermic phenomenon also in sample 1 a complicated shape of the cooling curves results due to the combination. The mentioned example of an indefinite interpretation of the thermographic data is no fundamental difficulty in the accelerated method of the thermographic investigations suggested by the authors. The easiest method of removing these deficiencies is a repeated investigation of individual compounds

Card 2/3

which are combined with a sample of another composition or by recording only one sample. There are 3 figures and 2 Soviet references.

ASSOCIATION: Kazanskiy gosudarstvennyy universitet im. V. I. Ul'yanova-Lenina (Kazan' State University imeni V. I. Ul'yanov-Lenin)

PRESENTED: October 25, 1958, by I. I. Chernyayev, Academician

SUBMITTED: March 10, 1958

BERG, L.G.; GROMAKOV, S.D.; ZOROATSKAYA, I.V.; AVERKO-ANTONOVICH, I.N.

[Methods for selecting coefficients in chemical equations] Sposoby podbora koeffitsientov v khimicheskikh uravneniiakh. Kazan', Izd-vo Kazanskogo univ., 1959. 147 p. (MIRA 14:10)
(Chemical equations)

BERG, L.G.; GROMAKOV, S.D.; ZOROATSKAYA, I.V.

Faster thermographic method for investigating structural diagrams. Dokl.AN SSSR 125 no.1:75-78 Mr-Ap '59.
(MIRA 12:4)

1. Kazanskiy gosudarstvennyy universitet imeni V.I.Ul'yanova-Lenina. Predstavleno akademikom I.I.Chernyayevym.
(Phase rule and equilibrium) (Thermochemistry)