

USSR

UDC 669.71.018.9.4

SHVETSOV, I. V., SHVETSOVA, G. B., YELAGIN, V. I., and KOLACHEV, B. A.

"Influence of Hydrogen on the Structure and Mechanical Properties of Ingots Made of AK8 Alloys"

Tr. Mosk. aviats. tekhnol. in-ta (Works of Moscow Aviation Technological Institute), 1970, vyp. 71, pp 58-66 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 G238 by authors)

Translation: The authors studied the formation of primary and secondary porosity in semicontinuously cast ingots of AK8 brand alloy. The amount of primary porosity increases linearly with an increase in hydrogen content. The tendency of the alloy to form solid solutions, supersaturated relative to hydrogen, intensifies with a lessening of oxide-scale content. A supersaturated hydrogen solution in the solid alloy decomposes with the formation of secondary pores 10-15 microns in diameter. Hydrogen embrittlement develops in AK8 brand alloy with elevated hydrogen content at low rates of deformation. Six illustrations.

1/1

USSR

UDC 669.715:669.046.54/55

YAKOVLEV, V. I., BALAKHONTSEV, G. A., BONDAREV, B. I., SHVETSOV, I. V., and
CHEREPOK, G. V.

"Effect of the Refining and Casting Technology on the Quality of Ingots and
Semifinished Goods"

Moscow, Tsvetnyye Metally, No 1, Jan 74, pp 64-67

Abstract: A comparative study of the properties of metals produced by different refining methods was carried out by processing statistical data on the results of the macrocontrol of ingot templates. It is shown that traditional refining methods provides nearly the same purity level in H content and other inclusions. The contradiction of this finding with the results of other researchers is explained. The effect of the casting technology on the purity of the metal was investigated on ingots of D1 alloy, 540 mm in diam. The results show a linear dependence of porosity on the H content. The volume of porosity in the ingots determines their disposition to stratification under deformation. To retain the fine-crystalline structure of the ingot and to eliminate stratification in stamping, the use of evacuation in the mixer has to match the modification of the melt. Five figures, one table, five bibliographic references.
1/1

- 4 -

"Standardization of Power Supply Devices for Electronic Radio Equipment"
 V sp. Opmen opytom v radioprom-sti (Experience Pooling in the Radio In-
 dustry--collection of works), Vyp. 1, Moscow, 1971, pp 10-13 (from RZh-
 Radiotekhnika, No 6, Jun 71, Abstract No 6V293)

Translation: The paper contains a brief state-of-the-art report on the
 standardization and unification work being done in industry to improve the
 technical and economic indices of power supply devices for electronic radio
 equipment. Resume.

GEVORKYAN, M. U., KOZHEVNIKOV, I. A., SHEVTSOV, K. L.

UDC: 658.5.011:621.37

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USSR

ANSYUTINA, A. Ye., SOKOLOVA, A. I., SHVETSOV, P. N., ESKIN, G. I., GUR'YEV, I. I.,
CHUKHROV, M. V., and AL'TMAN, M. B., Moscow

"The Effect of Ultrasonic Treatment on the Structure and Properties of Ingots
of a Magnesium Alloy"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 4, Jul-Aug 70, pp 76-81

Abstract: Results are presented of an investigation of the effect of ultrasonic treatment on the crystallization process of a flat ingot (550 x 140 mm) of the MA2-1 alloy of the Mg-Al-Zn-Mn system. The method of introducing ultrasonic vibrations into the hole of the ingot is described and the macrostructure and microstructure of ingots cast with and without ultrasonic treatment are shown. Ultrasonic treatment of the MA2-1 alloy ingot during crystallization under continuous casting conditions makes it possible to coarsen the structure, to decrease the H-content by a factor of 2, and to improve the mechanical properties by 10-20%. To make the ultrasonic treatment efficient, it is necessary to locate the emitter at 1/3 the depth of the hole and to maintain the relation of the sound emission surface to the molten metal surface ≈ 4 .

1/2

USSR

ANSUTINA, A. Ye., et al, Izvestiya Akademii Nauk SSSR, Metallurgiya, No 4, Jul-81, pp 76-81

The development of cavitation in the molten metal is the determinant in the crystallization mechanism of magnesium alloy ingots under the effect of ultrasound.

USSR

UDC 669.71:669.046.517

ESKIN, G. I., SHVETSOV, P. N., and IOFFE, A. I., Moscow

"On the Relationship Between Cavitation and Degassing During Ultrasonic Treatment of Aluminum and Magnesium-Containing Aluminum Alloys"

Moscow, Akademiya Nauk SSSR. Izvestiya. Metally, No 6, Nov-Dec 72, pp 69-74

Abstract: It is shown experimentally and theoretically that effective ultrasonic degassing of molten aluminum and magnesium-containing aluminum alloys requires treatment in a regime of developed cavitation. A dependence of the threshold of cavitation in molten aluminum and magnesium-containing aluminum alloys on the concentration of solid nonmetallic impurities is shown, a fact which leads to an assumption that propagation of cavitation in molten metal is realized on nonwetttable solid impurities of the Al_2O_3 type. The analysis of the results of experimental and analytical investigations shows that under the conditions of cavitation regime treatment ($P_{\text{эб}} \gg 10$ atm abs.) cavitation cavities, approximately equal in size to solid impurities, multiply rapidly (hundred- and thousand-fold) and gas pressure in them decreases to 10^{-8} atm (abs.). This leads to formation of relatively large gas blowholes due to rectified diffusion that leaves the melt or as a result of collapse lead to multiplication of cavitation nuclei in molten metal.

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1/2 010 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--REMOVAL OF UNPOLYMERIZED MONOMERS FROM LATEXES -U-
AUTHOR--(05)-KIL, T.A., ZADORSKIY, V.M., LUKYANOVA, I.P., SHVETSOV, N.V.,
VOLKOVA, N.I.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 262,382
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--26JAN70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--MONOMER, LATEX, CHEMICAL PATENT, DISTILLATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3007/0836 STEP NO--UR/0482770/000/000/0000/0000
CIRC ACCESSION NO--AA0136270
UNCLASSIFIED

2/2 010
CIRC ACCESSION NO--AA0136270 UNCLASSIFIED PROCESSING DATE--04DEC70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNPOLYMD. MONOMERS ARE REMOVED
FROM LATEXES BY DISTG. THEM WITH STEAM MIXED WITH N.

UNCLASSIFIED

USSR

UDC 669.715:66.065.51:621.9.048.6

ESKIN, G. I., DANILKIN, V. A., SHVETSOV, P. N., and BOROVIKOVA, S. I., All-Union Institute of Light Alloys

"Influence of Ultrasonic Treatment on the Crystallization Process of Aluminum and Its Alloys"

V sb. Modifikatsii siluminov (Modification of Silumins — Collection of Works), Kiev, 1970, pp 148-157 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 1742 by O. PIMENOVA)

Translation: Results are presented of experiments involving ultrasonic treatment of crystallized ingots of aluminum and alloys (Al-Mn, Al-Mg, Al-Cu-Mn-Zr, Al-Cu-Mn-Mg-Si, etc.) during continuous casting in a water-cooled crystallizer. The authors determined the shrinkage, hydrogen content, structure, chemical composition, and mechanical properties of the ingots. With ultrasonic treatment, uniform size reduction of macrograin over the entire ingot cross section can be obtained. The effectiveness of modifying additives (Ti, Zr, etc.) rises, and the hydrogen content of ingots declines 2-3 times. Apart from a 10 to 15% increase in strength and plasticity characteristics, ultrasonic treatment makes it possible to equalize properties over the cross section, which is of the greatest practical importance. Seven illustrations. One table. Bibliography of 13 titles.

1/1

5

USSR

UDC 619.611.9-022.6 + 636.1 + 636.2 + 636.4 + 636.52/.58

ONUFRIYEV, V. P.; DUDNIKOV, A. I.; MURAVYEV, V. K.; SHVETSOV, Yu. F.; CHUNAYEV, Yu. V.; KRAVCHENKO, V. M.; ZAKHAROV, V. M.; FRONIN, I. A.; NIKITIN, A. Y.

"Diatelic Immunization of Cows with Foot-and-Mouth Disease and Prospects for Obtaining Immune Milk"

Vladimir, V sb. Yashchur. T. 1 (Foot-and-Mouth Disease, Vol 1 -- Collection of Works), 1970, pp 160-172 (from RZh-58. Zhivotno-vodstvo i Veterinariya, No 4, Apr 71, Abstract No 4.58.573)

Translation: Diatelic immunization of cows with foot-and-mouth disease antibodies provides lactoserum and immunolactone with a high concentration of foot-and-mouth disease antibodies. The foot-and-mouth disease immunolactone has pronounced preventive properties in research with baby mice, guinea pigs, bull calves, and suckling pigs. Polyvalent virus-neutralizing activity with lactone has a more pronounced virus-neutralizing activity with respect to heterologous strains of foot-and-mouth disease virus

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USSR

ONUFRIYEV, V. P., et al, V sb. Yashchur. T. 1, 1970, pp 160-172

than the monovalent one. The high specific activity of the foot-and-mouth disease lactone, obtained under biological production conditions by immunization of cows with inactivated foot-and-mouth disease virus, indicates a promising use of the diatelic immunization method under industrial conditions.

2/2

USSR

UDC 542.91:547.1'118

REZNIK, V. S., SHVETSOV, YU. S., and PASHKUROV, N. G., Institute of Organic and Physical Chemistry imeni A. E. Arbuzov, Academy of Sciences USSR

"Synthesis and Properties of Pyrimidinylalkylphosphonic Acids. Communication 5. The Synthesis of β -(Oxopyrimidinyl-N)-Ethylphosphonic Acids"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 2, 1973, pp 402-406

Abstract: Several methods were investigated for the synthesis of β -(oxopyrimidinyl-N)-ethylphosphonic acids. The reaction of 3-(β -chloroethyl)-6-methyluracil with triethyl phosphite (I) at 150-155°, resulted in the formation of 2,3,4,5-tetrahydro-5-oxo-7-methyloxazolo[3,2-a]-pyrimidine and diethylphosphoric acid. 1,3-bis-[β -(diethylphosphono)-ethyl]-6-methyluracil was synthesized by the reaction of I with 1,3-bis-(β -chloroethyl)-6-methyluracil at 160-165°. β -(3,6-dimethyl-2,4-dioxo-1,2,3,4-tetrahydropyrimidinyl-N-1)-ethyl p-toluenesulfonate (II) was prepared by the addition of 5.5 g of p-toluenesulfonyl chloride to 5 g of 3,6-dimethyl-1-(β -hydroxyethyl)uracil in 12 g of triethylamine, with

1/3

USSR

REZNIK, V. S., et al., *Izvestiya Akademii Nauk SSR, Seriya Khimicheskaya*, No 2, 1973, pp 402-406

the temperature not exceeding 40°. 2.2 g of II were obtained, with a m.p. of 153.5-155.5° (from benzene). The dibutyl ester of β -(3,6-dimethyl-2,4-dioxo-1,2,3,4-tetrahydropyrimidinyl-1-N)-ethylphosphonic acid (III) was obtained in a 36% yield by the addition of II to Na dissolved in dibutyl phosphite, and boiling. III is a bright-yellow oily solution highly soluble in benzene and CCl_4 (n_D^{20} 1.4895; IR spectrum (ν , cm^{-1}): 1,675, 1703 (C=O), 1270 (P=O), 1000, 1025 (P-O-C)). The formation of III indicates that the presence of a tautomeric OH group in 3-(β -hydroxyethyl)- or 3-(β -chloroethyl)-6-methyluracil on the 2 position of the pyrimidine ring makes possible the closure of the 5-membered oxazole ring. For the formation of 4-oxypyrimidinyl-N-ethylphosphonic acids, studies were undertaken on the reaction of the tosylate of 3-(β -hydroxyethyl)-6-methyluracil (IV) and 2-amino-3-(β -hydroxyethyl)-4-oxo-6-methyl,3,4-dihydroopyrimidine (V) and with triphenyl phosphite (VI). The reaction of IV with VI proceeds at 230-240° with a 51% yield of β -(2-oxy-4-oxo-6-methyl-3,4-dihydropyrimidinyl-3)-ethylphosphonic acid (amorphous powder, insoluble in alcohol, highly soluble in water; IR spectrum (ν , cm^{-1}): 930-1250, maximum 2/3

- 44 -

USSR

REZNIK, V. S., et al., Izvestiya Akademii Nauk SSR, Seriya Khimicheskaya, No 2, 1973, pp 402-406

at 1215, 2250-3600 (diffuse, P-OH and N-H), 1660 and 1715 (C=O)). The reaction of V and VI commences at 160° and attains 230° and results in a yield of 42% of β -(2-amino-4-oxo-6-methyl-3,4-dihydro-pyrimidinyl-3)ethylphosphonic acid (amorphous substance, soluble in water but not alcohols; IR spectrum (ν , cm^{-1}): 1080, 1175, 1230, and diffuse absorption at 2300-3500), and a 36% yield of 2,3,4,5-tetrahydro-5-oxo-7-methylimidazo [3,2a]pyrimidine (VII). The formation of VII was attributed to an attack of the amino group of the pyrimidine ring on the β -carbon atom, whose electrophilic properties were enhanced by the inductive effect of the oxyphosphoryl group. VII is a crystalline substance, highly soluble in water and moderately in hot n-butanol, and insoluble in acetone. IR studies of VII showed that $\nu_{\text{N-H}}$ appeared at 3060-3125 cm^{-1} , and $\nu_{\text{C=O}}$ at 1670 cm^{-1} . The reaction of VI with 1,3-bis-(β -oxyethyl)-6-methyluracil at 160-165°, following hydrolysis, gave a 33% yield of 1,3-bis-(β -phosphonoethyl)-6-methyluracil and a 21% yield of 1,3-bis-(β -phenoxyethyl)-6-methyluracil.

3/3

USSR

UDC 542.91:661.718.1+547.854

REZNIK, V. S., and SHVETSOV, YU. S., Institute of Organic and Physical Chemistry imeni A. IS. Arbuzov, Academy of Sciences USSR

"Synthesis and Properties of Pyrimidinylalkylphosphonic Acids. 3 Communication. Reaction of Some Hydroxypyrimidines with Dibutyl-4-chlorobutylphosphonate"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71, pp 2231-2237

Abstract: Reaction of 6-methyluracyl (I) and 2-amino-4-hydroxy-6-methylpyrimidine (II) with dibutyl-4-chlorobutylphosphonate (III) were studied. To a solution of 2 g Na in 200 ml butanol, 10.9 g of dry (I) was added and refluxed for 2 hrs. The solvent was evaporated and 200 ml dimethylformamide and 24.6 g (III) were added and refluxed for 20 hrs. Then the mixture was filtered, the solvent evaporated and the residue chromatographed on a silica gel column. Elution with chloroform gave pure 1,3-bis-(4'-(dibutylphosphono)butyl)-6-methyl-uracyl (IV) — an oil, d_{40}^{20} 1.0653, n_D^{20} 1.4880. A solution of 10 g (IV) in $CHCl_3$ was heated to 55-60° and bromine was added to it dropwise until the solution became permanently colored. Then it was cooled, 1/2

USSR

REZNIK, V. S., and SHVETSOV, YU. S., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71, pp 2231-2237

treated with active charcoal and evaporated. The residue was redissolved in benzene, washed with water, treated with active charcoal, Al_2O_3 and silica gel and evaporated yielding 1,3-bis-[4'-(dibutylphosphono)butyl]-5-bromo-6-methyluracil (V), d_4^{20} 1.2447, n_D^{20} 1.4865. In a similar way reaction of (II) and (III) gave 2-amino-4-[4'-(dibutylphosphono)butyl]-hydroxy-6-methylpyrimidin (VI), d_4^{20} 1.0848, n_D^{20} 1.4884 and dibutyl-4'-(2-amino-4-keto-6-methyl-3,4-dihydropyrimidinyl-3)-butylphosphonate (VII), d_4^{20} 1.1051, n_D^{20} 1.5100. Reacting (VI) with CH_3I gave 2-amino-4-keto-1,3,6-trimethyl-3,4-dihydropyrimidinium iodide, m.p. 244-245°. (VI) and (VII) were brominated in $CHCl_3$ to give the 5-bromo derivatives: an oil and a crystalline product m.p. 105-108° respectively.

2/2

USSR

UDC 542.91:661.718.1

REZNIK, V. S., and SHVETSOV, YU. S., Institute of Organic and Physical
Chemistry imeni A. Ig. Arbuzov, Academy of Sciences USSR

"Synthesis and Properties of Pyrimidinylalkylphosphonic Acids. 2. Some
Properties of 4-Oxopyrimidinyl-3-methylphosphonic Acids"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 9, Sep 71,
pp 2006-2009

Abstract: The authors synthesized the dimethyl ester of (2-hydroxy-4-oxo-5-bromo-6-methyl-3,4-dihydropyrimidinyl-3)-methylphosphonic acid and the di-(phenyl-amide) of (2-hydroxy-4-oxo-6-methyl-3,4-dihydropyrimidinyl-3)-methylphosphonic acid by the reaction respectively of methanol and aniline with the acid chloride and studied the methylation of (2-amino-4-oxo-6-methyl-3,4-dihydropyrimidinyl-3)-methylphosphonic acid. Some properties and the IR spectra of the resultant compounds were studied.

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USSR

UDC 542.91+547.85

REZNIK, V. S., and SHVETSOV, YU. S., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Academy of Sciences, USSR

"Synthesis of Some 5-Bromo-N-(hydroxyalkyl)-pyrimidones-4"

Moscow, Izvestiya Akademii Nauk, Seriya Khimicheskaya, No 7, Jul 70, pp 1646-1647

Abstract: It was established that in synthesizing 5-bromo-N-(hydroxy-alkyl)-pyrimidone-4 type of compounds, which are insoluble in nonpolar solvents, it is best to carry out the reaction in anhydrous butyl alcohol at 60-120°C, the bromination taking place vigorously, so that the reactions are completed within 5-10 min. After cooling, crystalline products precipitate in sufficiently pure state so that for most purposes they need no further purification. Melting points of several representative compounds are reported.

1/1

USSR

UDC 632.95

GOLYSHIN, I. M., MONOVA, V. I., KLIMKINA, L. P., IVANOVA, S. N., MEL'NIKOV, N. N., KHUSNETDINOVA, F. I., SHVETSOV-SHILOVSKIY, N. I., SAMYSHKINA, M. A., and BOLOMINA, YE. I. (3)

"An Antiseptic"

USSR Author's Certificate No 355008, Div B, filed 11 Jan 71, published 13 Nov 72 (from RZh-Khimiya, No 14, 25 Jul 73, abstract No 14N616 P by T. A. Belyayeva)

Translation: It is proposed that 4,5,6-trichlorobenzoxazolinone-2 (I) be used as an antiseptic for nonmetallic materials, and at the same time is a bactericide, which considerably extends the sphere of its action. Compound I is used in a 2-2.5% concentration to control mold, wood-rotting and wood-discoloring fungi.

1/1

USSR

UDC 547.794:543.422

SHVETSOV-SHILOVSKIY, N. I., IGNATOVA, N. P., BOBKOVA, R. G., MANYUKHINA, V. YA.,
and MEL'NIKOV, N. N.

"Some Derivatives of Phosphadiazoles-1,2,3"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, pp 1939-1941

Abstract: Continuing the study of the reaction of phosphorus trichloride with hydrazones, β -Cyanoethylhydrazones of acetone, acetophenone and p-bromoacetophenone were reacted with PCl_3 , yielding derivatives of phosphadiazole-1,2,3. Benzoyl- and carbobutoxyhydrazones of acetone reacted with PCl_3 to yield 2-substituted phosphadiazoles. Adding aniline to 2-acetyl-4-methylphosphadiazole along the -P:C bond gave 1-anilino-2-acetyl-4-methylphosphadiazole-1,2,3. Analogously starting with 2-acetyl-4-methyl-1-chloro-1,5-dihydrophosphadiazole and 8-hydroxyquinoline, 2-acetyl-4-methyl-1-(8-hydroxyquinolinyl)phosphadiazole-1,2,3 was obtained.

1/1

- 45 -

USSR

UDC 543.51:547.1'118

KOSTYANOVSKIY, R. G., PLEKHANOV, V. G., IGNATOVA, N. P., BOBKOVA, R. G., and
SHVETSOV-SHTILOVSKIY, N. I., Institute of Chemical Physics, Academy of Sciences
USSR

"Mass Spectra of 1,2,3-Phosphadiazoles"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, Nov 71,
p 2611

Abstract: The authors studied the electron impact-induced decay of a new class
of compounds with a 2-coordinate phosphorus atom. Mass spectral data confirm
the aromatic character of 1,2,3-phosphadiazoles.

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USSR

MEL'NIKOV, N. N., SHVETSOV-SHILOVSKIY, N. I., LYALYAKINA, N. P., and RUDNEVA, N. I.

"Synthetic Method for β -Substituted Hydrazides of 2,3-Dihydro-6-methyl-1,4-oxathiyincarboxylic Acid"

USSR Author's Certificate No 364615, filed 20 Jul 70, published 20 Feb 73 (from RZh-Khimiya, No 19, Oct 73, Abstract No 19N540 P)

Translation: Title compounds with the general formula $R'NHN(R)COCSC_2H_2OCO(Me)$

(I), exhibiting biological activity are obtained by reacting 2,3-dihydro-6-methyl-1,4-oxathiyincarboxylic acid chloride with a hydrazine or β -acylhydrazine in presence of an HCl (gas) acceptor, for example excess of the starting hydrazine (R, R', yield of I in %, m.p. in °C being reported): H, H, 99, 184; H, Ph, 86.5 - (oil); Ph, Ac, 26.8, 138-9; Ph, iso-ProCo, 99, 108-9; Ph, EtCO, 67.2, - (oil); Ph, PhCO, 44.3, - (oil).

USSR

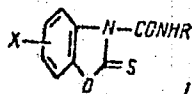
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POZNANSKAYA, N. L., GOLOSKOVA, A. V., IVANOVA, S. N., ~~SHVETSOV-SHILOVSKIY, N. I., and MEL'NIKOV, N. N.~~ ~~SHVETSOV-SHILOVSKIY, N. I., and MEL'NIKOV, N. N.~~

"Method of Producing N-Carbamoylbenzoxazolin-2-thiones"

USSR Author's Certificate No 283987, filed 12/04/69, published 5/04/71.
(Translated from Referativnyy Zhurnal Khimiya, No 4, Moscow, 1972, Abstract No 5N668P by L. V. Razbadovskaya)

Translation: Compounds with the general formula (I) (X=lower alkyl, H, halide, R=lower alkyl, alkenyl, aryl, substituted aryl) are produced by the reaction of the corresponding benzoxazolinthione with RNCO in the presence of a base in an organic solvent. Four drops of Et₃N and 10.4 g of MeNCO are added to a suspension of 18.6g 5-Cl-benzoxazolinthione in 150 ml dichloroethane, stirred for 20 hours at 20°, the solvent is distilled, producing 12 g I (X=5-Cl, R=Me) (Ia), yield 50%, mp 244-6° (Isooctane). I can be similarly produced (given are X, R,



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USSR

POZNANSKAYA, N. L., et al., USSR Author's Certificate No 283987, filed 12/04/69, published 5/04/71. (Translated from Referativnyy Zhurnal Khimiya, No 5, Moscow, 1972, Abstract No 5N668P by L. V. Razbadovskaya)

yield in %, mp in °C): H, Me (IB), 50, 97-8; 6-Cl, Me, 78.8, 216-8; 6-Cl, m-Cl C₆H₄, 84, 168-9; 5Cl, Ph (Ic), 78, 245-6; H, allyl, 60.5, 82-3; 5-Me, Me, 30, 135-6; 5 Me, m-ClC₆H₄, 74, 164. Under similar conditions but with boiling of the reaction mixture, the product is I (given are K, R, yield in %, mp in °C): H, m-ClC₆H₄, 68, 139-40; 5-Cl, m-ClC₆H₄, 70, 260-2. I has biological activity. Ia and Ic in concentrations of 0.005% are superior to phygone in their effects on *Botrytis cinerea*, *Fusarium Moniliforme*, *Venturia inaequalis*, *Aspergillus niger*. Ia and Ib are effective seed disinfectants.

2/2

- 70 -

USSR

UDC 632.95

BLINOVA, V. G., IVANOVA, S. N., KLIMKINA, L. G., SHVETSOV-SHILOVSKIY, N. I.,
and MEL'NIKOV, N. N.

"Method of Preparing 2-Oxo-3-chrysanthemoylhydroxymethylbenzoxazoline or
2-Thio-3-chrysanthemoylhydroxymethylbenzoxazoline"

USSR Authors' Certificate No 259891, filed 2 Aug 68, published 12 May 70
(from RZh-Khimiya, No 1, 10 Jan 71, Abstract No 1N597P)

Translation: Compounds of the general formula $C(=Y)OCH_3(XNCH_2OCOCHMe_2)CHCH$
 $=CMe_2$ [I; $C_6H_3(X)=$ substituted o-phenylene; $X=H$, halogen; $Y=O$ or S]
are obtained by the reaction of benzoxazolinones or benzoxazolinethiones
with acid chloride of chrysanthemumic acid (II) in the presence of an HCl
acceptor, e.g. C_5H_5N , at temperature $0-9^\circ$ in an organic solvent or without
it. Example. To a suspension of 0.01 mole 3-hydroxymethylbenzoxazoline-
thione in 10 ml anhydrous PhMe are added 0.04 mole C_5H_5N with stirring and
then, dropwise, at temperature $5-9^\circ$ a solution of 0.01 mole II in 10 ml
PhMe. The reaction mixture is stirred for 5 hr at $\sim 20^\circ$, after which
 $C_5H_5N \cdot HCl$ is filtered off. The solution is extracted consecutively with
a 5% HCl acid solution, an $NaHCO_3$ solution, an NaCl solution, and dried
over Na_2SO_4 . The solvent is distilled off in vacuum, and the residue is
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USSR

BLINOVA, V. G., et al., USSR Authors' Certificate No 259891, filed 2 Aug 68, published 12 May 70 (from RZh-Khimiya, No 1, 10 Jan 71, Abstract No IN597P) crystallized from heptane, to yield 2.9 g I (X=H, Y=S), melting point 91-2°. The following I's are synthesized (indicated here are X, Y, % yields, melting point, °C): H, 0, 90, 85-6 (heptane); 6-Cl, 0, 93, oil; 6-Br, 0, 91, 78-9 (heptane); 6-Br, 95, S, oil. Compounds possess high fungicidal activity.

2/2

- 43 -

USSR

UDC 547.794:543.422

~~SRVETSOV, SHILOVSKIY, N. I.~~, IGNATOVA, N. P., and MEL'NIKOV, H. H., All-Union Scientific Research Institute of Chemical Plant Protectants

"Reaction of Substituted Hydrazones with Phosphorus Trichloride"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70, pp 1501-1505

Abstract: The reaction of phenylhydrazones of aliphatic methyl ketones with phosphorus trichloride, resulting in the formation of 4-alkyl-2-phenyl-1,2,3-phosphadiazoles, is extended to cover other arylhydrazones and acylhydrazones. The interaction of phosphorus trichloride with acetone acetylhydrazone gave 1-chloro-4-methyl-2-acetyl-1,5-dihydro-1,2,3-phosphadiazole (I), the structure of which was confirmed by the presence of an azomethine group (1633 cm^{-1}) and carbonyl amide (1691 cm^{-1}) line in its IR spectrum. I reacted with alcohols in the presence of triethylamine to give 4-methyl-1-alkoxy-2-acetyl-1,5-dihydro-1,2,3-phosphadiazoles and with aromatic amines or nitrogen heterocycles taken in excess to give 4-methyl-1-amido-2-acetyl-1,5-dihydro-1,2,3-phosphadiazoles. The action of triethylamine on I gave 4-methyl-2-acetyl-1,2,3-phosphadiazole.

1/1

USSR

UDC 632.95

LYALYAKINA, N. P., MEL'NIKOV, N. N., SHVETSOV-SHILOVSKIY, N. I.

"Method of Obtaining 1-Alkyl-3-arylhexahydropyrimidinones-4"

USSR Author's Certificate No 250894, Cl. 12 n, 7/01, (C 07 d),
filed 22 Mar 68, published 28 Jan 70 (from RZh-Khimiya, No 19 (II),
10 Oct 70, Abstract No 19 N635) by T. A. BELYAYEVA)

Translation: Substances of the formula $RNCH_2N(R')CH(R'')CH_2CO$ (I)
(R = aryl, R', R'' = alkyl), which can be employed in the production
of herbicides and plant growth regulators, are synthesized by the
interaction of anilides of beta-N-alkylamino acids with HCHO in
the presence of KOH. To a solution of 1.5 g 3,4-dichloranilide
of beta-N-isobutylalanine in 30 ml alcohol, 6 ml 37% formalin and
0.02-0.04 g KOH are added, the mixture is boiled 4 hours and evapo-
rated, and 1.42 g I (R = 3,4-Cl₂C₆H₃, R' = iso-Bu, R'' = H,
C₁₄H₁₈C₂N₂O) is obtained, melting point 85°. Also synthesized are
the following I (shown are R, R', R'', empirical formula, yield in
%, boiling point in °C/mm or melting point in °C): 3,4-Cl₂C₆H₃,

1/2

- 111 -

USSR

LYALYAKINA, N. P., et al, USSR Author's Certificate No 250894, Cl. 12 n, 7/01, (C 07 d), filed 22 Mar 68, published 28 Jan 70 (from RZh-Khimiya, No 19 (II), 10 Oct 70, Abstract No 19 N635) by T. A. BELYAYEVA)

iso-Pr, H, $C_{13}H_{16}Cl_2N_2O$, 86, 152/1; p- $CH_3O_6H_4$, Bu, H, $C_{15}H_{22}N_2O_2$, 60, 165/0.3; m- $CH_3C_6H_4$, Bu, Me, $C_{16}H_{24}N_2O$, 94, 132/0.15, n20D 1.5292; 3,4- $Cl_2C_6H_3$, Pr, Me, $C_{14}H_{18}Cl_2N_2O$, 82, 35.

2/2

USSR

UDC 546.135:661.:630

SHVETSOV-SHILOVSKII, N. I. and PITINA, M. R.

"Synthesis of Monochloro-, Monoalkylamido-, and Monoalkoxypentaamidocyclotriphosphazines"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 5, May 1971, pp 1025-1028

Abstract: In the search for new pesticides among the cyclotriphosphazines, monochloropentaamidocyclotriphosphazine and the monoalkylamido- and monoalkoxy-pentaamido- derivatives were formed by successive substitutions on a base of hexachlorocyclotriphosphazine using amides of dissimilar alkalinity. One group of these compounds, 2-monoalkylamido-2,4,4,6-tetroxy(N-dimethylamido)-6-chlorocyclotriphosphazines, form the corresponding alkoxy derivatives when treated with various alcoholates.

1/1

USSR:

UDC 547.26'118
ITALINSKAYA, T. L., ~~SHVETSOV-SHILOVSKIY, N. I.~~, KHLUDOVA, A. I., and
MEL'NIKOV, N. N.

"1,5,2,3-Phosphathiadiazoles"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1980-1983

Abstract: Earlier research showed that the reaction of 1-chloro-4-alkyl(aryl)-2-phenyl-1,2-dihydro-1,5,2,3-phosphaoxadiazoles (I) with phosphorus trichloride yielded 1-chloro-1-thio-4-alkyl(aryl)-2-phenyl-1,2-dihydro-1,5,2,3-phosphaoxadiazoles (II). Continuous heating of these compounds with phosphorus trichloride leads to the replacement of oxygen in the ring with sulfur to form 1,5,2,3-phosphathiadiazoles (III). Addition of sulfur and triethylamine hydrochloride fails to affect the (II):(III) product ratio formed in the reaction of (I) with phosphorus trichloride. Distilling the volatile reaction products of compounds (I) with phosphorus trichloride by passing through dry nitrogen and the addition of ferrous trichloride facilitates the formation of compound (III).

1/1

USSR

UDC 669.71.018.9.4

SHVETSOV, I. V., SHVETSOVA, G. B., YELAGIN, V. I., and KOLACHEV, B. A.
"Influence of Hydrogen on the Structure and Mechanical Properties of Ingots
Made of AK8 Alloys"

Tr. Mosk. aviats. tekhnol. in-ta (Works of Moscow Aviation Technological In-
stitute), 1970, vyp. 71, pp 58-66 (from RZh-Metallurgiya, No 12, Dec 70,
Abstract No 12 G238 by authors)

Translation: The authors studied the formation of primary and secondary
porosity in semicontinuously cast ingots of AK8 brand alloy. The amount of
primary porosity increases linearly with an increase in hydrogen content.
The tendency of the alloy to form solid solutions, supersaturated relative
to hydrogen, intensifies with a lessening of oxide-scale content. A super-
saturated hydrogen solution in the solid alloy decomposes with the formation
of secondary pores 10-15 microns in diameter. Hydrogen embrittlement de-
velops in AK8 brand alloy with elevated hydrogen content at low rates of
deformation. Six illustrations.

1/1

USSR

UDC 582.288.42:633.511:632.938

BEVETSOVA, I. P. and TOLOK, P. P., Scientific Research Institute of Plant Protection, Tashkent

"Content of Free SH-Groups in Protein of Cotton Seeds Depending on Resistance to Verticillium Wilt"

Leningrad, Mikologiya i Fitopatologiya, No 4, 1971, pp 407-408

Abstract: Shifts in the content of SH-groups in cotton seeds following the use of large amounts of mineral fertilizers were studied. The protein content of seeds from healthy cotton plants (varieties 8,196 and Akala 4-42) increased in the course of maturation, but decreased sharply in seeds from wilt-infected plants after they were 50 days old. When the fertilizer rates were stepped up, the protein content of both healthy and diseased plants increased substantially. The content of SH-groups decreased as the seeds matured, but the amount was much higher in seeds from diseased plants. The increase in protein content with decrease in free SH-groups was correlated with increased resistance to wilt in the offspring. Plants grown from such seeds were more resistant to the disease. For example, in the Akala 4-42 variety with a disease rate of 68% among the mother plants, the incidence of wilt in the offspring dropped to 52.7%, as compared with 70% in the control.

1/1

Polymers and Polymerization

USSR

UDC 678.85.03

FAYZULLIN, I. N., and SHVETSOVA, L. YE.

"Diallyl Esters of Alkyl(aryl)thiophosphoric Acid"

Moscow, *Plasticheskiye Massy*, No 11, 1971, pp 29-30

Abstract: The authors synthesized diallyl esters of alkyl-, phenylthiophosphoric acid. The synthesis occurred in two stages. In the first stage alkyl(aryl)thiophosphoric acid dichlorides were obtained by the reaction of phosphorus trichloride with aliphatic alcohols, in the second stage allyl esters of this acid were synthesized by the interaction of the acid dichlorides with the alcoholate of allyl alcohol. The structure of the resultant esters was confirmed by the results of elementary analysis and IR spectroscopy, as well as Raman spectra. The esters are promising monomers for making some polymers incombustible.

1/1

USSR

UDC 576.851.31.06

2

MARAMOVICH, A. S., VEYDE, A. A., SARDAR, Ye. A., MAKANOVA, A. P., SHVETSOVA, R. I., and URBANOVICH, L. Ya., Irkutsk Antiplague Institute of Siberia and the Far East

"Determination of the Cholerogetic Properties of Vibrios in Newborn Rabbits"
Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1972,
pp 59-64

Abstract: Study of 65 vibrio strains from different sources in newborn rabbits (considered a suitable model for testing the pathogenicity of a given cholera vibrio strain for man) showed that all the cholera strains could produce the typical syndrome of cholerogeticity, whereas the nonagglutinable vibrios could not do so except for occasional strains (Heiberg's group 1) isolated from human beings in cholera foci. The main signs of cholerogeticity are marked dilatation of the lumen of the large intestine filled with a light transparent fluid and marked hyperemia of the small intestine containing a viscous yellow fluid throughout. Cholerogeticity was regularly observed after intra-intestinal infection of 9-to 12-day-old rabbits with doses ranging from 10^3 to 10^6 vibrios/100 g of weight. Smaller doses generally failed to elicit any reaction.

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U12

UNCLASSIFIED -U-

PROCESSING DATE--20NOV70

TITLE--OPERATION OF MIXED ACTION FILTERS
AUTHOR--(03)--SHVETSOVA, V.P., TISHCHENKO, N.D., BELOUSOVA, V.V.

COUNTRY OF INFO--USSR

SOURCE--ELEK. STA. 1970, 41(3), 22-4

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ION EXCHANGE RESIN, FILTRATION, CHEMICAL REACTION RATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1297

STEP NO--UR/0104/70/041/003/0022/0024

CIRC ACCESSION NO--AP0134971

UNCLASSIFIED

2/2 012
CIRC ACCESSION NO--AP0134971
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT. ION EXCHANGE FILTERS WITH REGENERATION OF ION EXCHANGER RESINS AFTER LEAVING THE FILTER ARE MORE ECONOMICAL THAN THOSE WITH INTERNAL REGENERATION. THE CONSUMPTION OF REAGENTS AND CONDENSATES IS LESS FOR THE FORMER FILTERS IN VIEW OF BETTER REGENERATION CONDITIONS WHICH IS THE CAUSE OF INCREASED EXCHANGE OPERATING CAPACITY. THE MAX. ADMISSIBLE FILTRATION RATE OF FILTERS WITH INTERNAL REGENERATION IS 50M-HR; FOR FILTERS WITH EXTERNAL REGENERATION THIS RATE MAY BE HIGHER. LOSSES IN ION EXCHANGER WITH EXTERNAL REGENERATION ARE NOT GREATER THAN THOSE WITH INTERNAL REGENERATION FILTERS.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--300170
TITLE--CORROSION PROTECTIVE PROPERTIES OF SILICONE LIQUIDS AND DIOCTYL
SEBACATE -U-
AUTHOR--(05)-SMIOTANKO, E.A., SHEKHTER, YU.N., NIKONOROV, YE.M., YEROKHIN,
G.S., SHVETSOVA, V.T.
COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (2), 14-16

DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--CORROSION PROTECTION, SILICONE, COPPER ALLOY, LUBRICANT
PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1674

STEP NO--UR/0318/70/000/002/0014/0016

CIRC ACCESSION NO--AP0118652

UNCLASSIFIED

272 029

CIRC ACCESSION NO--AP0118652
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. A RELATION HAS OBTAINED BETWEEN THE RELATIVE ELEC. RESISTANCE (R) AND THE RELATIVE POLARIZATION RESISTANCE (R SUBP) OF THIN LUBRICANT LAYERS ON METAL SURFACES AND THE ELECTROCHEM. CORROSION. DIOCTYL SEBACATE (I) OR VARIOUS COM. SILICONE OILS (POLY(METHYLSILOXANE), POLY(METHYLPHENYLSILOXANE), POLY(ETHYLSILOXANE), POLY(METHYL, GAMMA, TRIFLUOROPROPYLSILOXANE)) DO NOT PROTECT CU PLATES AGAINST A RAPID WT. LOSS IN 0.5N NACL SOLN. AND HAVE LOW R AND R SUBP VALUES (IN 0-30.0PERCENT RANGE). THE ADDN. OF 2PERCENT CORROSION INHIBITOR, SUCH AS "UREA SUCCINIMIDE", TO I INCREASED ITS R FROM 5.0 TO 98.8PERCENT, ITS R SUBP FROM 0 TO 66PERCENT, AND CONSIDERABLY REDUCED THE ELECTROCHEM. CORROSION OF CU PROTECTED WITH IT.

UNCLASSIFIED

USSR

UDC 612.53+612.58

SLONIM, A. D., and SHVETSOVA, YE. I., Department of Ecological Physiology,
Institute of Cytology and Genetics, Siberian Department, Academy of Sciences
USSR, Novosibirsk

"Chemical Thermoregulation After 'Accelerated' Adaptation to the Cold"
Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 8,
Aug 73, pp 1262-1267

Abstract: Metabolic and electromyographic reactions during chemical thermo-
regulation are compared for rats subjected to longterm, uninterrupted "slow"
cooling, or intermittent "rapid adaptation" cooling of varying intensities and
durations. One-time or two-time cooling which caused a lowering of internal
temperature to 30°C and intermittent cooling (15 periods of 2 minutes at -20°C),
which caused no decrease in internal temperature, both yielded long-term
after-effects. These included a greater internal stability to cooling,
lowered muscle electrical activity and increase in O₂ requirement. The
intermittent cooling is said to cause a more effective adaptation to cold
than long-term cooling.

1/1

USSR

PUSHINA, M. YA., SMIRONOVA, Z. N., SHVETSOVA-SHILOVSKAYA, K. D., et al.

"Quantitative Determination of the Composition of Technical Dimethyl Chlorothiophosphate"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protective Agents) Moscow, vyp 3, 1973, pp 126-127 (from RZh-Khimiya, No 20, Oct 73, Abstract No 20N471)

Translation: A TLC method has been proposed for qualitative determination of the composition of technical $(\text{MeO})_2\text{PSCl}$ (I). The analysis was carried out on plates with a fixed layer of silica gel, grade KSK in the solvent system hexane- C_6H_6 (2:1). The chromatograms were developed with bromphenol blue followed by illumination with UV light. I contains the following impurities: MeOPSCl_2 and $(\text{MeO})_3\text{PS}$.

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USSR

UDC 632.95

MIL'SHTEYN, I. M., ROGATYKH N. G., SHVETSOVA-SHILOVSKAYA, K. D., MEL'NIKOV,
N. N.

"Procedure for Obtaining O-arylsulphonylcarbamoyloximes"

USSR Author's Certificate No 316688, filed 21 Oct 68, published 14 Dec 71 (from
RZh-Khimiya, No 12, Jun 72, Abstract No 12N459)

Translation: Compounds with the general formula $RR'C = NOC(O)NHSO_2A$ (I) (R and R' = alkyl or aryl; A = aryl) with acaricid activity are obtained with interaction of the corresponding oxime with arylsulphonylisocyanate. In the presence of Et_3N , 0.015 moles of $PhSO_2NCO$ are added to a solution of 0.015 moles of methyl isopropyl ketone oxime in 50 mℓ of benzene; it is mixed for 4-5 hours at 40-50°; the solvent is distilled off and I is obtained (R = Me, R' = iso-Pr, A = Ph); the yield is 95%, the melting point is 120° (benzene). The I (R = Me, A = Ph) is obtained analogously (R' is recalculated, the yield in %, melting point in °C): Et, 74, 126; Me 97, 124-5; sec-Bu, 95, 113.

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USSR

UDC 632.95

MEL'NIKOV, N. N., SHVETSOVA-SHILOVSKAYA, K. D., SAMPCHIKOV, YU. N., and
CHERNYAKOV, I. YE.

"Dicresyl Compound"

V sb. Khim sredstva zashchity rast. (Chemical Agents for Plant Protection --
collection of works), vyp 1, Moscow, 1970, pp 56-60 (from RZh-Khimiya, No 11,
Jun 72, Abstract No 11N399)

Translation: A mixture of meta- and para-cresyl esters of n-methylcarbanic
acid, called dicresyl, is recommended for use against ticks on animals and
birds. The mixture in a ratio of 1:1 is no less effective than pure
meta-cresyl ester. Dicresyl can be synthesized by reacting a mixture of
cresols with phosgene in the presence of acid-binding agents with subsequent
methylamine treatment of the resultant chloroformate ester; by amidizing
absolute cresyl carbonate, and by reacting a mixture of cresols with MeNCO.
P. V. Popov

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- 64 -

USSR

UDC 632.95

MEL'NIKOV, N. N., SHVETSOVA-SHTILOVSKAYA, K. D., SAPOZHNIKOV, YU. M., PUSHINA, H. YA., and TITOVA, YE. B.

"Trichlorometaphos-3 Compound"

V sb. Khim sredstva zashchity rast. (Chemical Agents for Plant Protection -- collection of works), vyp 1, Moscow, 1970, pp 28-32 (from RZh-Khimiya, No 11, Jun 72, Abstract No 11K396)

Translation: Trichlorometaphos-3 of formula $(\text{MeO})(\text{EtO})\text{P}(\text{S})\text{CC}_6\text{H}_2\text{Cl}_3-2,4,5$ (I) with a boiling point of $127^\circ/0.15$, $d_4^{20} 1.4345$, $n_D^{20} 1.5520$ is synthesized by reacting $(\text{MeO})(\text{EtO})\text{P}(\text{S})\text{Cl}$ with $2,4,5\text{-Cl}_3\text{C}_6\text{H}_2\text{ONa}$. Compound I is used against the larvae of butterflies, mites and flies. In order to purify the 80% commercial product, impurities are continuously steam-distilled utilizing a glass packing column. The purified product is dried at $90\text{-}100^\circ\text{C}$ and a pressure of $20\text{-}30$ mm for 1 hour. A diagram is presented of the column for purifying I.

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USSR

UDC 632.954:547.495.1

BAKUMENKO, L. A., MATYUK, L. N., ~~SHVETSOVA-SHILOVSKAYA~~, K. D.,
STONOV, L. D., MEL'NIKOV, N. N., All-Union Scientific Research
Institute for Chemical Means of Plant Protection, Moscow, State
Committee for Chemistry USSR

"Herbicidal Activity of Some Derivatives of Carbamic Acids"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 6, Jun 70,
pp 51-52

Abstract: A series of β -dialkylaminoethyl esters of N-alkyl- (or
aryl) carbamic acids and their quaternary ammonium salts with
trimethyl (or triethyl) thiophosphate was synthesized and investi-
gated in regard to their herbicidal activity under laboratory con-
ditions. It was determined that an increase in the chain length
of the alkyl radical from 2 to 8 carbon atoms increased the herbi-
cidal activity. The chlorosubstituted arylcarbamic esters were
found to be more active than the respective nonchlorinated analogues.
The activity of β -dialkylaminoethyl esters of N-alkylcarbamic acid
was higher than the activity of the N-aryl carbamic acid esters.
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USSR

BAKUMENKO, L. A., et al, Khimiya v Sel'skom Khozaystve, Vol 8,
No 6, Jun 70, pp 51-52

Introduction of the thiophosphoric acid anion increased the herbi-
cidal activity somewhat, keeping the relationship of the chain
length to activity.

2/2

USSR

UDC 547.26'118

MEL'NIKOV, N. N., SHVETSQA-SHILOVSKAYA, K. D., and BOGATYREV, I. L.

"Displacement of Pseudohalogens in Phosphinates and Phosphine Oxides"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70, p 1662

Abstract: A previous article by the authors showed that in phosphonates alkyl groups with high electronegativity such as the trichloromethyl and 2,2,2-trichloro-1-acetoxyethyl group, which can be regarded as pseudohalogens, are displaced by alkoxyl groups under the action of alcohol in the presence of alkalis. Continuing their work in this area, the authors studied the displacement of pseudohalogen groups in phosphinates and phosphine oxides under analogous conditions. It was found that the pseudohalogen group is much more readily displaced by an alkoxyl group in phosphinates and phosphine oxides than in phosphonates. Weaker bases (e.g., trialkylamines) can be used as catalysts.

1/1

USSR

UDC 547.241:615.777/779

YAGNYUKOVA, Z. I., SHVETSOVA-SHILOVSKAYA, K. D., and MEL'NIKOV, N. N., All-Union Scientific Research Institute of Chemical Plant Protectants

"Ester-amides of Acylated Arylthiophosphoric Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 1, Jan 71, pp 84-88

Abstract: Twelve ester-amides of acylated aryl thiophosphates of the type $\text{CH}_3\text{COC}_6\text{H}_4\text{OP(S)(OR')NHR''}$, where R' is CH_3 through C_3H_7 , and R'' is either H or CH_3 , were obtained from the corresponding dichloroaryl thiophosphates by treatment with alcohol and subsequent amidation. The resulting ester-amides possess pesticidal activity comparable to the activity of the dialkyl derivatives, but are considerably more toxic warm-blooded animals.

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USSR

UDC 632.95

GUNAR, M. I., MIKHALYUTINA, Yk. B., SHVETSOVA-SHILOVSKAYA, K. D., and MEL'NIKOV, N. N.

"Method of Preparing O,O-Dialkyl-O-acylnaphthyl Phosphates or Thiophosphates"

USSR Authors' Certificate No 257501, filed 5 Nov 67, published 20 May 70
(from RZh-Khimiya, No 1, 10 Jan 71, Abstract No 1N565P)

Translation: Compounds possessing pesticidal activity of the formula $(RO)(R'O)P(X)OY$ (I) (R and R' = lower alkyl; X = O or S; Y = 1-acetylnaphthyl-2) are obtained by the reaction of $(RO)(R'O)P(X)Cl$ with acetylnaphthol (II) or naphtholate in the presence of K_2CO_3 or NaOH at 70-110° in organic solvent. For example, 0.62 g Na is added to a solution of 5 g II in 50 ml MePh at 90° and stirred 30 min; the unreacted Na is removed; at 100° 5.1 g $(EtO)_2P(S)Cl$ is added and heated 8 hr at 110°. On cooling, 50 ml water is added; the organic layer is rinsed with saturated solution of K_2CO_3 and water, and dried over $MgSO_4$; the solvent is distilled off, to yield after distillation I (R = R' = Et; X = S), yield 63%, boiling point 159-62°/0.14 mm, d_4^{20} 1.2003, n_D^{20} 1.5740. The following I's are prepared analogously with a yield of 40-45% (given here are: R = R', X, boiling point in °C/mm, 1/2

USSR

GUNAR, M. I., et al., USSR Authors' Certificate No 257501, filed 5 Nov 67, published 20 May 70 (from RZh-Khimiya, No 1, 10 Jan 71, Abstract No IN565P)

d_4^{20} , n_D^{20} : Me, S, 172-5/0.2, 1.2544, 1.6050; Me, 0.156-8/0.18, 1.3548, 1.5630; Et, 0, 155-60/0.1, 1.2177, 1.5465. A mixture of 3.72 g II in 50 ml PhMe, 3.49 g (MeO)(EtO)P(S)Cl and 2.9 g K_2CO_3 is heated 7 hr at 90° to yield I (R = Me; R' = Et; X = S), boiling point $170-3^\circ/0.2$ mm, d_4^{20} 1.2396, n_D^{20} 1.5850.

2/2

- 21 -

UDC 632.95

USSR

SHAPOVALOVA, G. K., ROMANOVA, V. V., MARCHENKO, L. F., GUNAR, M.I.
 SHUMYATSKAYA, T. N., MIKHALYUTINA, YE. B., SHVETSOVA-SHILOVSKAYA,
 K. D., and MEL'NIKOV, N. N.

"Insecticide"

USSR Authors' Certificate No 244800, filed 9 Feb 68, published 15
 Jan 70, (from RZh-Khimiya, No 20 (II), 25 Oct 70, Abstract No
 20 N547P by S. LYUBARSKAYA)

Translation: The authors suggest as insecticides compounds of the
 formula $(RO)(R'O)P(X)(OR'')$ (I; R and R' = Me, Et; R'' = acetyl-,
 halogen- or alkyl-substituted phenyl or naphthyl; X = O or S),
 which are obtained by the interaction of dialkyl chlorophosphates
 or thiophosphates with the corresponding phenols or naphthols or
 pnenolates in MeCN with K_2CO_3 at 75-800 or in an inert solvent at
 90-1100. The following are obtained: I (R = R', R'' = substituted
 phenyl; given are R, substituents in the phenyl ring, X, boiling
 point in °C/mm, d_{420}^{20} , n_{20D}^{20}): Me, 2-Ac, S, 120-6/0.14, 1.2465,
 1.5372; Et, 2-Ac, S, 110-4/0.09, 1.1911, 1.5271; Et, 3-Ac, S,
 120-4/0.1, 1.1378, 1.5260; Me, 4-Ac, O, 124-30/0.08, 1.2539, 1.5070;
 Et, 4-Ac, O, 130-3/0.1, 1.1846, 1.4970; Me, 4-Ac, S, 120-3/0.08,
 1.2648, 1.5445; Et, 4-Ac, S, 127-30/0.08, 1.1622, 1.5280; Me,

USSR

SHAPOVALOVA, G. K., et al., USSR Authors' Certificate No 244800

2-Ac-4-Cl, S, 136-43/0.15, 1.3519, 1.5510; Et, 2-Ac-4-Cl, S, 126-30/0.13, 1.2531, 1.5295; Et, 2-Ac-4-Cl, S, 125-7/0.1, 1.2542, 1.5325; Me, 2-Ac-6-Cl, 0.127-9/0.11, 1.3555, 1.5118; Me, 4-Ac-2Cl, 0.152-3/0.15, 1.3556, 1.5218; Et, 4-Ac-2-Cl, 0, 159-61/0.12, 1.2699, 1.5094; Me, 4-Ac-2-Cl, S, 135-43/0.18, 1.3463, 1.5538; Me, 2-Ac-4-Me, S, 133-8/0.15, 1.2340, 1.5405; Me, 2-Ac-5-Me, S, 132-8/0.17, 1.1864, 1.5388; Me, 4-Ac-2-Me, S, 153-6/0.18, 1.2400, 1.5465; Et, 4-Ac-3-Me, 0, 150-1/0.2, 1.1740, 1.5015; Me, 4-Ac-3-Me, S, 155-61/0.22, 1.2404, 1.5442; Et, 4-Ac-3-Me, S, 152-4/0.2, 1.1656, 1.5290; Me, 2-Ac-4-Me₂, S, 130-2/0.05, 1.1927, 1.5330; Et, 2-Ac-4, 5-Me₂, S, 135-40/0.05, 1.1312, 1.5200; Et, 2-EtCO, 0, 130-2/0.1, 1.2565, 1.4930; Me, 4-EtCO, 0, 149-52/0.08, 1.2273, 1.5070; Me, 4-EtCO, S, 142-7/0.1, 1.2264, 1.5420; I (R = Me, R' = Et, X = S; R'' = substituted phenyl; given here are substituents in the phenyl nucleus, boiling point in °C/mm, d₄²⁰, n_D²⁰): 4-Ac, 121-4/0.1, 1.2338, 1.5368; 2-Ac, 120-4/0.18, 1.2245, 1.5318; 4-Ac-2,5-Me₂, 156-8/0.05, 1.1896, 1.5375; 4-EtCO, 148-52/0.1, 1.195, 1.5321; I (R'' = 2-acetylnaphthyl; given here are R, R', X, boiling point in °C/mm, d₄²⁰, n_D²⁰): Me, Me, 0, 156-7/0.18, 1.3548, 1.5630; Et, Et, 0, 155-60/0.1, 1.2177, 1.5465; Me, Et, S, 170-3/0.2,

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USSR

SHAPOVALOVA, G. K., et al., USSR Authors' Certificate No 244800
1.2396, 1.5850; Et, Et, S, 159-62/0.14, 1.2003, 1.5740. I's are
approximately as active as chlorophos against Musca domestica,
Calandra orycae and Porthetria dispar and have low toxicity
for warm-blooded animals.

3/3

- 90 -

USSR

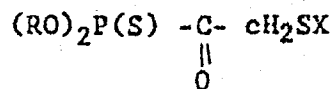
UDC 547.26'118.122.07

TYRKINA, T. S., SHVETSOVA-SHILOVSKAYA, K. D., and MEL'NIKOV, N. N.

"A Method of Synthesizing O,O-Dialkyl-S-(1-Oxo-2-Alkylmercapto)-
-Ethyldithiophosphates"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obrazttsy, Tovarnyye
Znaki, No 14, 1970, Author's Certificate No 268428, filed 17 Jul
68, p 25

Abstract: This Author's Certificate introduces a method of
synthesizing O,O-dialkyl-S-(1-oxo-2-alkylmercapto)-ethyldithio-
phosphates of the general formula



where R is an alkyl, and X is an alkyl [sic]. As a distinguishing
feature of the patent, O,O-dialkyl-S-chloracyldithiophosphates
are interacted with mercaptans in the presence of acid-binding
agents with subsequent isolation of the final product by a con-
ventional method.

1/1

USSR

UDC 621.762.01:669.295'787'784

BOGOMOLOV, G. D., and SHVEYKIN, G. P.

"Conditions for Producing Compact Specimens of Titanium Hydroxycarbide"

Tr. In-ta khimii. Ural'sk. nauch. tsentr. AN SSSR (Works of the Chemistry Institute of the Ural Scientific Center of the Academy of Sciences USSR), 1971, vyp. 23, pp 56-61 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1G264 by S. Krivososova)

Translation of Abstract: The article considers the conditions for producing compact specimens of Ti hydroxycarbide according to composition and powder grain size during sintering at 1500-1600° in vacuum, as well as during hot pressing. Porosity of sintered specimens increases with the growth of x in TiC_xO_y and particle size of the initial charge. A reliable method for obtaining nonporous specimens is hot pressing. One table. Bibliography with three titles.

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USSR

UDC [546.821'21'261]:536.631+536.66+536.75

CHERNYAYEV, V.S., SHVEYKIN, G.P. and GEL'D, P.V., Ural Polytechnic Institute

"Heat Capacity, Entropy, and Enthalpy of Titanium Oxycarbides at Reduced Temperatures"

Moscow, Izvestiya Akademii nauk SSSR, Neorganicheskiye materialy, Vol 8, No 3, Mar 72, pp 459-463

Abstract: Discussed here is the temperature dependence of the thermal capacity of Ti oxycarbides of a close composition to the quasi-binary section TiC-TiO (i.e. with $x+y \approx 1$). Use was made of a low-temperature adiabatic calorimeter to measure (at 55-300°K) the heat capacity of equiatomic Ti monoxide and monocarbide as well as their relative solid solutions of TiC_xO_{1-x} . The entropy, changes in the enthalpies, and the characteristic temperatures of Ti oxycarbides are calculated from the experimental

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USSR

CHERNYAYEV, V.S., et al, Izvestiya Akademii nauk SSSR, Neorganicheskiye materialy, Vol 8, No 3, Mar 72, pp 459-463

data. It has been possible to approximate the experimental data on the thermal capacity and entropy of Ti oxycarbides using the simplest rule of additivity. It is suggested that the linear nature of the relationships between the heat capacities and entropies is related with their tendency to ordering. It is noted that the regular drop in the characteristic temperatures of Ti oxycarbides with the increase of oxygen in them is caused basically by the increasing screening of M-M interactions. (3 illustr., 2 tables 16 biblio. ref).

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USSR

UDC 546.831'171.1-21

ZAYNULIN, YU. G., ALYAMOVSKIY, S. I., SHVEYKIN, G. P., GEL'D, P. V.

"Domain of Homogeneity of Zirconium Oxynitride With NaCl Structure, at 1,500°C"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 16, No 2, 1971, pp 315-317

Abstract: The binary systems Zr-N and Zr-O have been studied in detail; however, there is no information on the ternary system, and especially its cubical component (of NaCl type). Only a few papers have appeared dealing with certain characteristics of ZrN_xO_y with low oxygen content, and those dealing with partial ZrO_2 -ZrN systems.

Using 99.9 percent pure ZrO_2 and oxynitrides of composition $ZrN_{0.76}O_{0.12}$ and $ZrN_{0.87}O_{0.12}$, and also 99.9 percent pure Zr powder as starting materials, the authors prepared samples for X-ray analysis and determination of Zr and N content.

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- 26 -

USSR

ZAYKULIN, YU. G., et al, Zhurnal Neorganicheskoy Khimii, Vol 16,
No 2, 1971, pp 315-317

It was found that at 1,500°C and 10^{-5} mm pressure, the domain of homogeneity of zirconium oxynitride with NaCl structure is limited ($y_{\max} \approx 0.3$, while the lattice periods, within these limits, vary only very slightly (from 4.574 to 4.575 Å). For ZrN_xO_y , vacant points are a distinctive feature, both in the sublattice of the metal and in that of the nonmetal.

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USSR

UDC 546.821'21'26

BOGOMOLOV, G. D., LYUBIMOV, V. D., SHVEYKIN, G. P., and ALYAMOVSKIY, S. I. Institute of Chemistry, Ural Branch of the Academy of Sciences USSR

"Physicochemical Properties of Titanium Oxycarbides"

Moscow, Neorganicheskiye Materialy, Vol 6, No 11, Nov 70, pp 1961-1963

Abstract: A study was made of the stability of a series of $TiC_{x}O_{y}$ preparations toward acids, and alkalis, and also to air oxidation. Ti, C_{bound}, C_{free}, and N₂ levels were determined in preparations made by vacuum sintering of mixtures of starting oxide $TiO_{1.03}$ and carbide $TiC_{0.84}$ to form tablets 10 x 10 mm in size. $TiC_{x}O_{y}$ preparations were found to be stable toward concentrated and dilute HCl and H₂SO₄, both at room temperature and at elevated temperatures. The oxycarbide $TiC_{0.57}O_{0.44}$ proved to be most acid-resistant of the hot-pressed samples. The oxycarbide $TiC_{0.57}O_{0.44}$ showed the greatest resistance to air oxidation at 950, 1100, and 1250° C.

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USSR

UDC 546.821'26'21

BOFOMOLOV, G. D., ALYAKOVSKIY, S. I., SHVEYKIN, G. P., and LYUBIMOV, V. D.,
Institute of Chemistry, Ural Branch of the Academy of Sciences USSR

"Certain Structural Characteristics of Cubic Titanium Oxycarbide"

Moscow, Neorganicheskiye Materialy, Vol 6, No 8, Aug 70, pp 1405-1408

Abstract: This report presents information on the area of single-phase existence, concentration dependence of lattice periods, and degree of filling of the elementary TiC_xO_y unit cell. Seventy specimens were made by pressing carefully ground mixtures of the initial components, followed by sintering at $1500^\circ C$ and 10^{-7} mm Hg for 30-50 hr. Sixty of the specimens were found to be single-phase specimens. The specimens were subjected to X-ray and chemical analysis. A phase diagram of the $Ti-TiC_{1.3}-TiO_{1.3}$ system at $1500^\circ C$ and $p = 10^{-3}$ mm Hg is presented. Data on the full mutual solubility of cubic TiC_x and TiO_y phases accompanied by formation of the TiC_xO_y oxycarbide are confirmed. It is assumed that the concentration dependence of the lattice periods of TiC_xO_y is complex. The linearity of the function $n_g = f(x)$ is confirmed, where n_g is the number of carbon particles in a TiC_xO_y unit cell. 1/1

- 55 -

1/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--OXIDATION OF THE OXICARBIDES, CARBONITRIDES AND OXINITRIDES OF
TITANIUM -U-
AUTHOR--(02)-SHVEYKIN, G.P., SLOBODIN, B.V. S
COUNTRY OF INFO--USSR
SOURCE--POROSHKOVAIA METALLURGIIA, VOL. 10, FEB. 1970, P 63-68
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--OXIDATION, NITRIDE, TITANIUM CARBIDE, CHEMICAL REACTION
MECHANISM, THERMAL STABILITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0590 STEP NO--UR/0226/70/010/000/0063/0068
CIRC ACCESSION NO--AP0107187
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0107187

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT, STUDY OF THE OXIDATION PROCESS OF TITANIUM CARBIDES, TITANIUM CARBONITRIDES, AND TITANIUM OXYNITRIDES, USING A DERIVATOGRAPHIC METHOD. A DISCUSSION IS GIVEN OF THE CHEMICAL PROCESSES AND OXIDATION MECHANISM. IT IS FOUND THAT THE STABILITY OF TITANIUM COMPOUNDS STUDIED DECREASES IN THE FOLLOWING SEQUENCE: CARBONITRIDES, OXYNITRIDES, AND OXYCARBIDES.

UNCLASSIFIED

USSR

S
SHVEYKIN, G. P., and SLOBODIN, B. V., Institute of Chemistry, Ural Affiliate of
the Academy of Sciences USSR

"Oxidation of Titanium Oxycarbides, Carbonitrides, and Oxynitrides"

Kiev, Poroshkovaya Metallurgiya, No 2 (86), Feb 70, pp 63-68

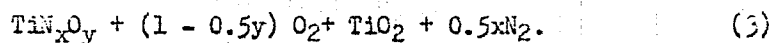
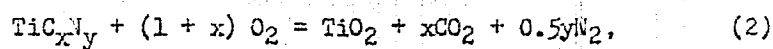
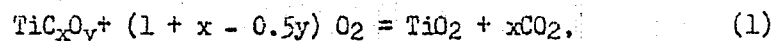
Abstract: The authors study the process of oxidation of titanium oxycarbides (TiC_xO_y), oxynitrides (TiN_xC_y) in air. The studies were done on a derivatograph with heating at a rate of $10^\circ C/min$ to a temperature of $900-950^\circ C$. Gaseous reaction products were constantly removed from the reaction space during the course of the experiments. The complex process of oxidation of the initial materials may in general be divided into low-temperature and high-temperature stages. Metallic titanium has the highest temperature for initiation of oxidation ($620-680^\circ C$) and the highest reaction rate on both stages. Titanium carbide has the lowest temperature for initiation of oxidation ($400^\circ C$). The rate of oxidation for titanium carbide in the low-temperature stage is approximately an order of magnitude greater than for metallic titanium. As the carbon concentration is increased in titanium oxycarbides, the degree and rate of oxidation in the low-temperature stage increases. Titanium dioxide is the chief product of oxidation

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USSR

SHVEYKIN, G. P., et al, Poroshkovaya Metallurgiya, No 2 (86), Feb 70, pp 63-68

of titanium oxycarbides. Titanium carbonitrides are not as readily and completely oxidized to titanium dioxide as are titanium oxycarbides. Oxidation of titanium oxynitrides is initiated at a higher temperature than is the case for oxycarbides and carbonitrides. The following equations describe oxidation of these compounds:



The stability of the compounds decreases in the series carbonitrides - oxynitrides - oxycarbides.

2/2

- 67 -

USSR

UDC 8-94

SHVEYKIN, G. P., DYUBINOV, V. D.

"Thirteenth Session of the Scientific Council of the Academy of Sciences USSR on the Problem of "Physical-Chemical Principles of Production of New Heat-Resistant Materials""

Moscow, Neorganicheskiye Materialy, Vol 8, No 11, Nov 72, pp 2,058-2,059.

Abstract: The session mentioned in the title was held in Pervoural'sk 23 through 27 May, 1972, discussing the theme "Refractories, High-Melting Materials and Coatings." Two-hundred seventy persons from 76 organizations of 31 cities from 7 union republics of the Soviet Union took part in the session. One-hundred seventy reports were read in the two plenary and two sectional sessions, covering the following topics: refractory materials; oxygen-free compounds; oxides and coatings. Subjects covered by the reports included: prediction of the production of refractories; physical-chemical principles of the use of zirconium dioxide as a refractory; new trends in the technology of densely sintered ceramics; methods of production of synthetic mullite; the properties of refractory materials based on electrically melted periclase and periclase-chromite materials; problems of production of
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USSR

UDC 8-94

SHVEIKIN, G. P., DYUBIMOV, V. D., Moscow, Neorganicheskiye Materialy, Vol 8, No 11, Nov 72, pp 2,058-2,059.

oxygen-free compounds of boron nitride and aluminum nitride; the interaction of refractories with metal slags; study of the kinetics and mechanism of solid-phase synthesis of oxide compounds; phase equilibria in oxide systems; new methods for synthesis of refractory materials based on zirconium and hafnium dioxide; the properties of individual and complex oxides. Certain shortcomings in the development of work on the problem of refractories were noted, including: insufficient utilization of modern methods of theoretical and experimental physics and solid state chemistry for determination of the general regularities of the structure, chemical bonding and properties of refractory materials; insufficient utilization of modern methods of physical and chemical investigations, methods of experimental planning and computers; slow transition from laboratory studies to practical utilization of results; insufficient prediction of properties of refractories considering developing trends in technology; and insufficient coordination of the activities of scientific research institutes and applied research organization.

2/2

- 10 -

USSR

UDC 54-162.2:546.824'26'21

ALYAMOVSKIY, S. I., ZAYNULIN, YU. G., SHVEYKIN, G. P., and GEL'D, P. V.,
Institute of Chemistry UNTs, Academy of Sciences USSR

"Concentration Relationship of the Degree of Filling the Unit Cell in Cubic
Titanium Oxycarbide"

Moscow, Neorganicheskiye Materialy, Vol 9, No 4, Apr 73, pp 596-599

Abstract: Results are reported on a study of the effect of composition on the completeness of the TiC_xO_y lattice for $x + y = 0.7$ to $x + y = 1.2$, which practically encompasses the entire region of homogeneity for titanium oxycarbide. The characteristics of 39 samples of TiC_xO_y were used (13 from this work and 26 from previous works) to determine the equations for oxycarbides with $x + y$ equal to 0.70-1.20 using the relationship $n_{Ti} = f(x)$ and components A, B, and C yielding $n_{Ti} = Ax^2 + Bx + C$. It is noted that twinning defects exist in the lattices of oxygen-containing cubic tricomponent phases of transition metal-base oxycarbides and nitrocarbides. 1 figure, 3 tables, 22 bibliographic references.

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USSR

UDC 621.375.82

BORODULIN, V. I.; MALYAVKINA, G. M., PAK, G. T., PETROV, A. I., CHERNOUSOV,
N. P., SHVEYKIN, V. I., YASHUMOV, I. V.

"Some Properties of Degradation of Heterolasers"

V sb. Kvant. elektronika (Quantum Electronics—collection of works), No 3, Mos-
cow, Soviet Radio, 1972, pp 108-110 (from RZh-Fizika, No 12, Dec 72, Abstract
No 12D977)

Translation: An experimental study was made of the catastrophic and slow degradation of heterolasers. It was demonstrated that catastrophic degradation occurs for average light energy flux densities $(2-4) \cdot 10^6$ watts/cm² and local densities of 10^7 watts/cm². Depending on the light energy flux density the service life of the heterolasers can vary from several minutes to 100 hours and more; catastrophic degradation in this case is the limiting case of slow degradation under the effect of radiation. Heterolasers with a radiation power in the pulse of > 10 watts, a frequency of 6 kilohertz, and a pulse duration of 100 nanoseconds are capable of operating more than 100 hours without a significant reduction in power.

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USSR

UDC: 621.315.592

3

ANDREYEV, V. M., BORODULIN, V. I., KONYAYEV, V. P., PAK, G. T., PETROV, A. I.,
PORTNOY, Ye. L., SHVEYKIN, V. I., Physicotechnical Institute imeni A. F.
Ioffe, Academy of Sciences of the USSR, Leningrad

"Spatial Distribution of Heterolaser Emission"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 9, Sep 72, pp 1739-
-1748

Abstract: The paper presents the results of experimental and theoretical studies of the luminous field of emission from a heterolaser in the short range and long range zones for various thicknesses of the active region and outside dimensions of the cavity. The distribution of the luminous field on the mirror face of the cavity crosswise of the active region which was observed in the experiments can be satisfactorily described within the framework of a flat triaxial waveguide model. The angular distribution of heterolaser emission in the plane perpendicular to the heterojunction plane can be treated with a fair degree of accuracy as diffraction of a waveguide wave on the open end of a flat metal waveguide filled with a dielectric. The pattern of the long-range field is symmetric relative to the normal to

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USSR

ANDREYEV, V. M., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 9, Sep 72, pp 1739-1748

the mirror. The directions to the principal maxima are determined by the angle of refraction of the partial waveguide plane waves. Modes of increasingly higher orders are stimulated in the active region as its width is increased. The pattern of the short-range field (order of the mode) does not depend on either the cavity length or the pumping. In heterolasers with wide active regions, three-dimensional modes of total internal reflection are stimulated which impair the quantum efficiency and increase the divergence of emission. These modes can be suppressed by increasing the ratio L/l , TM modes being suppressed faster.

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USSR

UDC 621.378.35

GORSELEV, V.A., PAK, G.T., PETROV, A.I., CHERNOUSOV, N.P., SHVEYKIN, V.I.,
YASHKINOV, I.V.

"Dependence Of Threshold Of Generation Of Injection Lasers On The Duration Of
The Pulses Of The Pumping Current"

Kvantovaya elektronika, Moscow, No 5, May 71, pp 97-99

Abstract: The dependence is experimentally studied of the threshold of generation of injection lasers with diffused and heterogenous junctions in the system GaAs-AlAs on the duration of the pulses of the pumping current in the interval 2--100 nsec. The magnitudes are determined of the effective lifetimes of the injected electrons for three types of laser diodes: with diffused p-n junction (~ 1 nsec), with one heterojunction (~ 2.5 nsec) and with two heterojunctions (3--6 nsec). The nanosecond pulses of the pumping current in the 2--100 nsec range with a building up front less than 1 nsec were shaped with the aid of a TG11-8/1 thyatron and dispersed delay lines. The pulse repetition frequency was regulated from 100 Hz to 10 kHz. Received by editors, 22 May 71; after revision, 6 May 71. 2 fig. 1 tab. 6 ref.

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- 90 -

USSR

UDC 621.315.592

7

ALFEROV, ZH. I., ANDREYEV, V. M., BELOUSOVA, T. YA., BORODULIN, V. I., GORBYLEV, V. A., PAK, G. T., PETROV, A. I., PORTNOY, YE. L., CHERNOUSOV, N. P., SHVEYKIN, V. I., YASHCHUNOV, I. V.

"Effective Injection Heterolasers Operating in the Wavelength Band of 7,400-9,000 Å"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 568-569

Abstract: Results are presented from a study of the characteristics of effective heterolasers radiating in the wavelength band of 7,400-9,000 Å at room temperature. The n-Al_xGa_{1-x}As-p-Al_yGa_{1-y}As-p⁺-Al_xGa_{1-x}As heterojunctions were obtained by epitaxial growth from GaAs-ALAS solutions. All the investigated diodes had a Fabry-Perot resonator. The threshold current density, the external differential quantum efficiency and the radiation power per pulse at 300°K are tabulated for various models of the lasers. Graphs are presented showing the mean values of the threshold current density and the external differential quantum efficiency as functions of the emission quantum energy and the temperature dependence of the external differential quantum efficiency. The threshold current density increases exponentially with an increase in temperature according to the known law [V. I. Lashovich, et al., FTE, No 1, 1440, 1967]. Up to 1/2

USSR

ALFEROV, ZH. I., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 568-569

a temperature of 250° K, the external differential quantum efficiency does not vary, in practice, but then it decreases with temperature. The data demonstrate the possibility of obtaining generation in the continuous mode at 300°K up to 7,700 Å.

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86

USSR

UDC 621.373.826

PAK, G. T., PETROV, A. I., PAVINBOYM, YE. G., CHERNOUSOV, N. P., SHVEYKIN, V. I.,
YASHUROV, I. V.

"Internal Parameters of Injection Lasers at 300° K"

V sb. Kvant. elektronika (Quantum Electronics-- collection of works), Moscow,
No 5, 1971, pp 99-101 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1D350)

Translation: The results of experimental studies of the basic parameters of the active zone of injection lasers based on diffusion and epitaxial p-n-transitions and heterotransitions in the GaAs-AlAs system are described. It is demonstrated that heterolasers with two-sided limitation have better characteristics: the specific amplification coefficient is 10^{-2} cm/amp, the inversion current density is 2.1 kiloamps/cm², and the losses are 26 cm⁻¹. There is 1 illustration and a 6-entry bibliography.

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USSR

UDC 535.37

KNAB, O. D., MACALYAS, V. I., PROLOV, V. D., ~~SHVEYDIN, V. I.~~, and SIMERKIN, I. A.

"Measurement of the Photoluminescence, Photoelectromotive Force and Electroluminescence of Semiconductor Materials and Structures"

Moscow, Pribery i Tekhnika Eksperimenta, No 4, Jul/Aug 71, pp 225-226

Abstract: The paper describes an installation for high-resolution measurement of the photoluminescence, photoelectromotive force and electroluminescence of semiconductor structures and materials. The device is based on the principle of normal reflection of a light beam. The exciting and receiving optical systems are combined to enable the use of short-focus objective lenses. This appreciably reduces the size of the light spot and thus increases resolution. The exciting and excited light are separated by a narrow-band interference filter. Placement of the surface of the specimen normal to the beam of incident light makes it possible to measure the photoelectromotive force and electroluminescence of diode structures.

1/1

1/2 025 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--DETERMINATION OF THE TRACTIVE FORCE IN THE SHAPING OF STEEL TUBES
IN A FUNNEL DIE -U-
AUTHOR--(04)-SHVEYKIN, V.V., GRABARNIK, L.M., PROSKURYAKOV, B.I., PICHURIN,
I.I.
COUNTRY OF INFO--USSR
SOURCE--IZVEST. V. U. Z., CHERNAYA MET., 1970, (2), 66-71
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS
TOPIC TAGS--STEEL MANUFACTURING PROCESS, ROLLING MILL, FRICTION
COEFFICIENT, DIE FORGING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/0117 STEP NO--UR/0148/70/000/002/0066/0071
CIRC ACCESSION NO--AP0123889
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123889

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MATHEMATICAL ANALYSIS OF THE FORCES INVOLVED IN THE SHAPING OF STEEL TUBES IN A SPECIAL DIE IS PRESENTED, WITH SPECIAL REF. TO THE TRACTIVE FORCES REQUIRED AND THE COMPONENTS OF WHICH THESE ARE MADE UP. THE TOTAL TRACTIVE FORCE INCLUDES THE FORCE REQUIRED TO DEFORM THE MATERIAL PASSING INTO THE DIE, THE FORCE REQUIRED TO OVERCOME FRICTION IN THE LATTER, AND THE FORCES ASSOCIATED WITH THE PASSAGE OF THE TUBE THROUGH THE PULLING ROLLS. THE ADVANTAGES OF THE 'FUNNEL' METHOD OVER CONVENTIONAL TECHNIQUES ARE CONSIDERED.

UNCLASSIFIED

USSR

UDC: 539.3:534.1

SHVEYKO, Yu. Yu., BRUSILOVSKIY, A. D.

"On the Natural Oscillations of Cylindrical Shells Reinforced by Transverse Stiffening Ribs"

V sb. Raschety na prochnost'. Vyp. 15 (Strength Calculations--collection of works. No 15), Moscow, "Mashinostroyeniye", 1971, pp 312-327 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7V201)

Translation: The paper presents some results of a study of the natural oscillations of cylindrical shells reinforced by transverse stiffening ribs. Bending, stretching and twisting of discrete ribs arranged eccentrically relative to the middle surface of the shell are taken into account as well as all components of forces of inertia of the shell and ribs. The number, rigidity and location of the stiffening ribs were varied. It is shown that applicability of the theory of structurally orthotropic shells to the given problem is limited. It is also shown how the natural frequencies of unreinforced shells are affected by the fastening of their end faces (including elastic connections). The exact solution of equations of oscillations of the shell in displacements is used in solving the problem. The frequency equation for the reinforced shell is derived by a special matrix method. Authors' abstract.

1/1

- 106 -

USSR

UDC 629.783.014.525(47)

BALAYFV, N. P., GRODZOVSKIY, G. I., DANILOV, Yu. I., ZAKHAROV, V. M.,
KRAVTSEV, N. P., KUZ'MIN, R. N., MAROV, M. Ya., MOROZOV, P. M.,
NIKITIN, V. Ye., PEROV, S. P., PETUNIN, A. N., UTKIN, V. M., and
SHVIDKOVSKIY, Ye. G.

"Scientific Data on the Flight of Automatic Ionospheric "Yantar"
Laboratories"

Uch. zap. Tsentr. Aerogidrodinam. in-ta (Scientific Notes of the
Central Aerohydrodynamic Institute) 1971, Vol 2, No 2, pp 58-65
(from Referativnyy Zhurnal, Raketostroyeniye, No 11, Nov 71,
Abstract 11.41.87 Resume)

Abstract: Launches of automatic ionospheric "Yantar" laboratories
with gaseous plasma-ionic engines up to 100-400 km altitudes were
conducted with the aid of geophysical rockets, for the purpose of
studying prospects of controlled flight, in upper layers of the
atmosphere. Performance of gaseous plasma-ionic engines under iono-
spheric conditions was studied. Parameters characterising the
ion jet-ionospheric plasma interaction, as well as parameters of
neutral atmosphere were measured. Scientific data on conducted ex-
periments is presented. 8 figures, 1 table, 11 references.

1/1

SHVIDKOVSKIY, Ye. G.

PROPOSALS FOR DESIGNING MODELS OF THE INTERNATIONAL STANDARD ATMOSPHERES

CDC 531.511.12

Article by Professor S. S. Gusev, U. D. Zhorova, R. A. Yefimova, M. Ya. Kalliborn, Candidate of Geographic Sciences Yu. P. Komol'tov, D. A. Zingula, Professor Ye. G. Shvidkovskiy, L. K. Shchegoleva, General Aerological Observatory: Moscow, ~~XXXXXXXXXXXX~~ Gidrometeorologiya, Russian, No 7, 1972, submitted 6 July 1971, pp 36-48

A study was made of the vertical profile of the mean annual temperature of the hemisphere and also models of the standard atmosphere for different latitudinal zones and possible longitudinal variations. The characteristic of the data used to construct the models of the standard atmosphere is presented.

Introduction

The present proposals with respect to expansion of the international standard atmosphere are presented in the procedure for execution of the resolutions of the meeting of the Working Group of the ISC International Standardization Organization (TK-20/RG-6 26-29 May 1969). The working group adopted the resolution to change the USA (A. E. Cole) and the USSR (Ye. G. Shvidkovskiy) with preparing the design for models of the international standard atmosphere for altitudes of 20-60 km (the mean distribution and the models reflecting the latitudinal and seasonal variations). In the resolution there is a recommendation regarding the necessity of selecting the temperature profile closest to the mean annual profile with respect to the Northern Hemisphere for the mean model. At the meeting of the working group, it was recognized as desirable to expand the standard atmosphere to 30 km, considering the data in the 60-80 km layer as a supplement to the basic profile.

The given proposals were presented by the Soviet Union for examination by the Sixth Working Group of the Twentieth Technical Commission of the International Standardization Organization (ISO/TC/NO - 6) -- Standard Atmosphere -- a meeting of which was held in France (Poitiers) in February 1970.

SPRS 55893
A May 72

- 41 -

1/2 048 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--POSSIBILITY OF STUDYING THE COMPOSITION OF THE UPPER ATMOSPHERE
WITH THE AID OF RESONANCE SCATTERING EFFECTS -U-
AUTHOR-(03)-SHVIDKOVSKIY, YE.G., KOSTKO, O.K., CHAYANOVA, E.A.
COUNTRY OF INFO--USSR
SOURCE--KOSMICHESKIE ISSLEDOVANIYA, VOL. 8, MAR.-APR. 1970, P. 310, 311
DATE PUBLISHED-----70
SUBJECT AREAS--ATMOSPHERIC SCIENCES, PHYSICS
TOPIC TAGS--UPPER ATMOSPHERE, RESONANCE SCATTERING, LASER RADIATION,
ATMOSPHERE COMPOSITION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1761 STEP NO--UR/0293/70/003/000/0310/0311
CIRC ACCESSION NO--AP0115590
UNCLASSIFIED

2/2 048

UNCLASSIFIED

PROCESSING DATE--23DCT70

CIRC ACCESSION NO--AP0115590

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONSIDERATION OF THE POSSIBILITY OF USING RESONANCE BACKSCATTERING OF LASER RADIATION PROPAGATING THROUGH THE EARTH'S ATMOSPHERE AS A MEANS OF STUDYING THE COMPOSITION OF THE UPPER ATMOSPHERE. ON THE BASIS OF AN ANALYSIS OF THE RADIATIVE TRANSITIONS CHARACTERISTIC OF CERTAIN STATES OF NITROGEN MOLECULES, IT IS SHOWN THAT THIS BACKSCATTERING EFFECT, ALTHOUGH HARMFUL FOR PURPOSES OF COMMUNICATION AND INFORMATION TRANSMISSION, IS USEFUL FOR STUDYING THE FINE STRUCTURE OF THE COMPOSITION OF THE ATMOSPHERE. AN ESTIMATE IS MADE OF THE EFFECT OF RESONANCE BACKSCATTERING DUE TO ABSORBING NITROGEN MOLECULES AND IONS IN THE EARTH'S ATMOSPHERE ON THE ENERGY ENTERING THE RECEIVER OF AN OPTICAL RADAR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED
TITLE--METEOROLOGICAL ROCKET SOUNDING -U- PROCESSING DATE--11SEP70
AUTHOR--SHVIDKOVSKIY, YE.G.
COUNTRY OF INFO--USSR
SOURCE--METEOROLOGIYA I GIDROLOGIYA, 1970, NR 4, PP 28-35
DATE PUBLISHED-----70
SUBJECT AREAS--ATMOSPHERIC SCIENCES
TOPIC TAGS--METEOROLOGIC ROCKET, SOUNDING ROCKET
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1034 STEP NO--UR/0050/70/000/004/0028/0035
CIRC ACCESSION NO--AP0104432
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104432

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. PROBLEMS OF METEOROLOGICAL ROCKET
SOUNDING AND PRINCIPLES USED AS A BASIS FOR MEASUREMENT TECHNIQUES ARE
ELUCIDATED IN THE ARTICLE.

UNCLASSIFIED

0123

USSR

UDC 669.3/6.476(088.8)

BUBYALIS, Yu. S., SHVIL'PENE, G. P., BYARNOTAS, A. K., and MATULIS, Yu. Yu.,
Institute of Chemistry and Chemical Technology, Academy of Sciences Lithu-
anian SSR

"Method for Electrodeposition of Copper-Tin Alloy"

USSR Authors' Certificate No 305206, Cl. C 23 b 5/34, filed 7 Jan 70, pub-
lished 13 Jul 71 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1G196P
by G. Svodtseva)

Translation of Abstract: In order to obtain adherent deposits of alloys, Sn
in the form of Na stannate and KNO_3 are introduced into the electrolyte in
the following ratio of components (in g/liter): Cu pyrophosphate 15-35,
Na stannate 20-35, K pyrophosphate 170-240, KNO_3 5-17. The process is carried
on at pH 10-11, $D = 0.8-5 \text{ a/dm}^2$ and temperature 40-60°. The Cu content of
the alloy is 70-95%. The composition of the alloy does not depend on current
density, but current efficiency declines approximately from 100 to 55% with
a rise in D. With a rise in pH of the electrolyte from 10 to 11 and of
temperature from 40 to 60° the Cu content of the alloy drops by ~ 15%.

1/1

1/2 034 UNCLASSIFIED PROCESSING DATE--090CT70
TITLE--ON THE KINETICS OF PHOTOINDUCED CYTOCHROME CHANGES IN
ECTOTHICRHODOSPIRA SHAPOSHNIKOVII CELLS -U-
AUTHOR--(04)-RUBIN, L.B., DUBROVIN, V.N., ADAMOVA, N.P., SHVINAK, YU.I.
COUNTRY OF INFO--USSR
SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 2, PP 264-268
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PHOTOSYNTHESIS, BACTERIA, CULTURE METHOD, LIGHT BIOLOGIC
EFFECT, RESPIRATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1983/1411 STEP NO--UR/0220/70/039/002/0264/0268
CIRC ACCESSION NO--AP0054274
UNCLASSIFIED

2/2 034

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0054274

ABSTRACT/EXTRACT--(U) GP-0- .ABSTRACT. MAXIMAL PHOTOINDUCED ABSORBANCE CHANGES OF CYTOCHROMES AT 420 NM ARE OBSERVED IN ECTOTHIORHODOSPIRA SHAPOSHNIKOVII CELLS CULTIVATED UNDER ILLUMINATION OF LOW LIGHT INTENSITIES (10 PRIME3 ERG-CM PRIME2 SEC) AND AT THE LOGARITHMIC GROWTH PHASE. IN THE AGED CELLS THE AMPLITUDE OF A SIGNAL IS LOWER AND THIS EFFECT IS ACCOMPANIED BY CHANGES IN THE KINETICS OF CYTOCHROME REACTIONS: UNDER AEROBIC CONDITIONS NO ABSORBANCE CHANGES ARE OBSERVED WHILE IN DEAIRETED SUSPENSION THE FAST PHASE OF CYTOCHROME REDUCTION IS ABSENT. THE ADMINISTRATION OF ACETATE OR SULPHIDE RESULTS IN COMPLETE RESTORATION OF BOTH ANAEROBIC AND AEROBIC PHOTOINDUCED CHANGES OF CYTOCHROMES. IT SHOWS DEEP CONNECTIONS BETWEEN PRIMARY PHOTOSYNTHETIC REACTIONS AND PHYSIOLOGICAL STATE OF THE PURPLE BACTERIA CELLS.

UNCLASSIFIED

USSR

UDC 632.95

YUKHTIN, N. N., FILATOV, L. N., SHCHERBAYKH, Yu. I., SMOL'CHENKO, A. I., and SEVINDLERMAN, G. S.

"Preparation of Technical Chloro-Isopropylphenyl Carbamate in Crystalline Form"

V sb. Khim. sredstva zashchity rast. (Chemical Protection of Plants -- collection of works), No 2, Moscow, 1972, pp 31-35 (from RZh-Khimiya, No 22, 25 Nov 73, Abstract No 22N570 by A. F. Grapov)

Translation: In running the reaction of $m\text{-ClC}_6\text{H}_4\text{NCO}$ with absolute iso-PrOH in the absence of solvents, it is easy to obtain chloro-isopropylphenyl carbamate in the form of a melt from which it can be processed quite efficiently in a drum crystallizer to obtain a crystalline product. Example. 68 ml of absolute iso-PrOH at $50\text{-}65^\circ$ is added a drop at a time to 100 ml of 99% $m\text{-ClC}_6\text{H}_4\text{NCO}$, kept for 30 min at $60\text{-}70^\circ$ and the excess iso-PrOH distilled off at $90^\circ/150\text{-}200$ mm. The melt with a melting point ≥ 45 to 50° is then placed in the crystallizer. Yield of chloroisopropylphenyl carbamate 93.2%, melting point $35.5\text{-}36.5^\circ$. The laboratory model of the crystallizer consists of a hollow cylinder (150 mm high and 50 mm in diameter) cooled by water. Rate of crystallization 10 to 11 $\text{kg}/\text{m}^2/\text{hour}$.

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UDC 632.95

USSR

GORSKAYA, T. V., SHVINDLERMAN, G. S., and BASKAROV, YU. A.

"A Method for Preparing Esters of N-Carboaryloxy-o-hydroxylamino-benzoic Acid"

USSR Author's Certificate No 248696, filed 18 Mar 68, published 26 Feb 70 (From RZh-Khimiya, No 22, 25 Nov 70, Abstract No 22 N712 P by N. K. Poznanskaya)

Translation: Compounds with the general formula $o\text{-ROOCC}_6\text{H}_4\text{N(OH)COOC}_6\text{H}_4\text{X}_n$ (I; R - lower alkyl; X - halide, alkyl, NO_2 ; $n=0-2$) are obtained from the reaction of $o\text{-ROOCC}_6\text{H}_4\text{NHOH}$ (II) with arylchloro-carbonate ester in the presence of a stoichiometric amount of NaHCO_3 in an anhydrous organic solvent at 5 to 25° . 0.84 g of anhydrous NaHCO_3 is added to a solution of 0.01 mole of II in 25 ml of Et_2O . Then 0.01 mole of arylchloro-carbonate is gradually added to the mixture as it is stirred and kept for 2 hours at about 20° . The precipitate is separated and the filtrate evaporated, producing an oily residue that crystallizes after being washed with petroleum ether. The following I (R, X, yield in %, melting point in $^\circ\text{C}$ are given) are obtained: Et, 2,4- Cl_2 , 89, 109 (petroleum ether); Et, - , 96.5, 1/2

USSR

GORSKAYA, T. V., et al., USSR Author's Certificate No 248696, filed 18 May 68, published 26 Feb 70

55-7; Et, n-Me, 100, 77-9; Et, n-NO₂, 95.5, 90 - 1; Et, n-Cl, 93.6, 74-5. I posses physiological activity.

2/2

- 28 -

1/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--USE OF O HYDROXYLAMINO BENZOIC ACID FOR PREPARING HETEROCYCLES -U-
AUTHOR--(02)--SHVINDLERMAN, G.S., BASKAKOV, YU.A.
COUNTRY OF INFO--USSR
SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (3), 427
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--HYDROXYLAMINE, BENZOIC ACID, HETEROCYCLIC NITROGEN COMPOUND,
HETEROCYCLIC OXYGEN COMPOUND, ORGANIC SYNTHESIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FAME--2000/0855 STEP NO--UR/0409/70/000/003/0427/0427
CIRC ACCESSION NO--AP0124518
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124518

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. O RNHCON(OH)C SUB6 H SUB4 CO SUB2 H (I) WITH 5-25PERCENT AP. BASE GAVE 90-5PERCENT THE FOLLOWING II (R AND M.P. GIVEN): PH, 183.5-4.5DEGREES; M CLC SUB6 H SUB4, 220DEGREES; 3,4 CL SUB2 C SUB6 H SUB3, 260DEGREES; ANF FURFURL, 220-10DEGREES; AND IN 60-75PERCENT YIELD THE FOLLOWING II (R AND M.P. GIVEN): ME, 231-2DEGREES; ET, 175.5-6.5; AND CH SUB2:CHCH SUB2, 148-9DEGREES. I IN ETOH HEATED 1-2 HR AT 40-60DEGREES WITH ET SUB3 N OR CAUSTIC SODA GIVE THE FOLLOWING III (R AND M.P. GIVEN): ME, 137-8DEGREES; ALLYL, 98.5-101DEGREES; PH, 148-51DEGREES; AND TERT BU. 97-80DEGREES. FACILITY: VSES. NAUCH. ISSLED. INST. KHIM. SREDSTV ZASHCH. RAST., MOSCOW, USSR.

UNCLASSIFIED

USSR

S UDC 547.238 + 547.239

KONSTANTINOVA, N. V., SHVINDLERMAN, G. S., VASIL'YEV, A. F., and BASKAKOV, YU. A., All-Union Scientific Research Institute for Chemical Means of Plant Protection, Moscow, State Committee for Chemistry USSR

"Herbicides Derivatives of Hydroxylamine
XXXV. Reaction of N-Alkylcarbamoyl-N-alkylhydroxylamine With Isocyanates"

Moscow, Zhurnal Organicheskoy Khimii, Vol 6, No 2, Feb 70, pp 300-306

Abstract: A series of novel N-alkylcarbamoyl-N-alkylhydroxylamines was synthesized by reacting N-alkylhydroxylamines with alkylisocyanates. An unusual reaction was noted when these products were O-carbamoylated -- one isocyanate group could apparently be replaced by another, more reactive one. It was found that at $\gg 40^\circ$ a molecule of N-alkylcarbamoyl-N-alkylhydroxylamine dissociates reversely into N-alkylhydroxylamine and alkylisocyanate. This phenomenon could be used in explaining the mechanism of transisocyanation. No biological data are reported in this paper, only melting points of the starting hydroxylamines and their reaction products.

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USSR

S UDC 547.238+632.954

SVIRSKAYA, P. I., BASKAKOV, YU. A., SHVINDLERMAN, G. S., KUSKOVA, N. B., VASIL'YEV, A. F., and TIBANOV, P. V., All-Union Scientific Research Institute for Chemical Means of Plant Protection, Moscow, State Committee for Chemistry USSR

"Herbicidal Derivatives of Hydroxylamine
XXIX. N-Arylcarbamoyl-N-alkylhydroxylamine and Their Derivatives"

Moscow, Zhurnal Organicheskoy Khimii, Vol 6, No 2, Feb 70, pp 274-280

Abstract: The N-arylcarbamoyl-N-alkylhydroxylamines were obtained by reacting arylisocyanates with N-alkylhydroxylamines or their chlorohydrates in inert organic solvents such as benzene, toluene, ethyl acetate, in which the reaction is quite energetic. The products formed are insoluble in these solvents, giving almost quantitative yields of quite pure materials. The reaction of arylisocyanates with alkylhydroxylamines hydrochlorides could be carried out in aqueous ether or aqueous ethyl acetate. Acetates were prepared by known methods but proved to be unstable in presence of acids and bases. Some of the O-acyl-N-arylcarbamoyl-N-methylhydroxylamines exhibited high and quite selective herbicidal activity.

1/1

ACC. NO:

AP0100918

ABSTRACTING SERVICE:

CHEMICAL ABST. 5-70

Ref. Code:

UK 0366

110743p Herbicide derivatives of hydroxylamine. XXV.
 Reaction of N-alkylcarbamoyl-N-alkylhydroxylamines with iso-
 cyanates. Konstantinova, I. V.; Shvindlerman, G. S.; Va-
 sil'ev, A. F.; Baskakov, Yu. A. (Vses. Nauch.-Issled. Inst.
 Khim. Serdstv Zashch. Rast., Moscow, USSR). *Zh. Org. Khim.*
 1976, 6(2), 300-6 (Russ). Condensation of RNHOH with
 R'NCO in Et₂O or benzene at 0-5° gave RN(OH)CONHR' (I)
 (R and R' given): Me, Me; Me, Et; Me, iso-Pr; Me, Bu; Me,
 iso-Bu; Me, sec-Bu; Me, tert-Bu; Et, Me; Et, Et; Et, Pr;
 Et, iso-Pr; Et, Bu; Et, iso-Bu; Et, sec-Bu; Et, tert-Bu; Et,
 3-CIC₆H₄; and iso-Pr, tert-Bu. At 20° RNHOH react with
 R'NCO to give besides I also RN(O₂CNHR')CONHR' (R, R',
 and R' given): Me, Me, Me; Et, Me, Me; Et, iso-Pr, iso-Pr;
 Me, iso-Pr, iso-Pr; Et, sec-Bu, sec-Bu; Et, tert-Bu, 3-CIC₆H₄;
 and Et, 3-CIC₆H₄, 3-CIC₆H₄. The "transisocyanation" reac-
 tion (N. V. Konstantinova *et al.*, 1969) of I with isocyanates
 gives a variety of products depending on the reaction conditions
 and the relative reactivity of the reactants: e.g. EtN(OH)-
 CONHBu-*tert* + 3-CIC₆H₄NCO → EtN(OH)CONHC₆H₄Cl-3 →
 EtN(O₂CNHBu-*tert*)CONHC₆H₄Cl-3. Also MeN(OH)CONH-
 Bu + MeNOC → MeN(O₂CHNMe)CONHMe + BuNCO.

CPJR

 REEL/FRAME
 19850436

USSR

UDC 632.95

BASKAKOV, YU. A., BANUMENKO, L. A., IED'KINOV, N. N., SVETNAYA, P. I.,
STONOV, L. D., SIMONOV, V. D., SHVINDLERMAN, G. S., SHCHERBAYTSH, YU. I.

"Meturin -- a New Herbicide for Cotton and Potatoes"

V sb. Khim. sredstva zashchity rast. (Chemical Agents for Plant Protection -- collection of works), vyp. 1, Moscow, 1970, pp 179-187 (from RZh-Khimiya, No 11, Jun 72, Abstract No 111946)

Translation: A new herbicide -- meturin (I) (N-phenyl-N-hydroxy-N'-methyluron) -- was synthesized. The compound can be produced with a high yield by reacting phenylhydroxylamine with KENCO. Treatment of vegetating plants with I is not highly effective. The best results are obtained when the herbicide is introduced into the soil before planting. As a rule, dicotyledons are more effectively suppressed by I than monocotyledons. Highly sensitive to I (70-100% inhibition of growth from a dose of 0.5 kg/hectare) are corn mayweed, sheep sorrel, wild beets, pigweed, wild rice, buckwheat, soybeans, tomatoes, cabbage, cucumbers, radishes, clover and alfalfa. Sensitive to I (70-100% death from a dose of 1.5 kg/hectare) are field pennycress, field wintercress, barley grass, beans, vetch, carrots, beets and flax. Moderately sensitive (complete control with a dose of 3 kg/hectare) are oats, wheat, corn

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USSR

BASKAKOV, YU. A., et al., V sb. Khim. sredstva zashchity rast., vyp I,
Moscow, 1970, pp 179-187

beans, seed onions, and sunflowers. Rough snakeweed is among the weeds resistant to I, while potatoes and cotton are resistant crops. The compound retains high activity throughout the entire vegetative period in the upper layer of soil (0-5 cm). The activity of the herbicide begins to decline within 2 months after introduction in the lower and middle layers of soil. In doses of 3-4.5 kg/hectare, I destroyed 70-90% of the annual weeds in cotton fields, but in some instances caused temporary chlorosis in a dose of 4.5 kg/hectare. In potato fields, the compound in doses from 2 to 3 kg/hectare destroyed annual weeds throughout the entire season, which meant that potatoes could be grown without hilling. The compound has low toxicity for human beings. It is authorized in the Soviet Union for experimental production use on potatoes.

2/2

Reaction Kinetics

USSR

UDC 533.66.063

BOKSHEYN, B. S., VOROB'YEV, Ye. M., KLINGER, L. M., FRIDMAN, Ye. M., and SHVINDLERMAN, L. S., Academy of Sciences USSR, Institute of the Solid Body Physics, Moscow, Institute of Steel and Alloys

"Osmotic Effect at the Border Diffusion"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 47, No 1, Jan 73, pp 145-149

Abstract: A model of boundary diffusion was developed with consideration of the formation of an effect analogous to the osmotic one. As a result, formation of dislocations takes place in the boundary zones which accelerates the diffusion inside the grain and with its motion carrying the atoms of the admixture. A self-adjusted system of equations was derived which describes the process under analysis.

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1/2 021
 UNCLASSIFIED
 TITLE--EFFECT OF GLYCEROL AND UREA ON THE RESTING POTENTIAL, POTASSIUM AND
 SODIUM CONTENTS, AND INULIN SPACE OF FROG MUSCLES --U--
 AUTHOR--SHVINKA, N.E.
 COUNTRY OF INFO--USSR
 SOURCE--TSITOLGGIYA 1970, 12(3), 323-9
 DATE PUBLISHED-----70
 SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
 TOPIC TAGS--MUSCLE PHYSIOLOGY, GLYCEROL, UREA, FROG, BIDPOTENTIAL
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1996/0455
 CIRC ACCESSION NO--AP011769L
 STEP NO--UR/9053/70/012/003/0323/0329
 UNCLASSIFIED