SHEVCHENKO, V.I.

Subdivision of Lower Famennian deposits of the Khoper-Buzuluk
interfluve. Dokl. AN SSSR 146 no.1:193-194 S '62. (MIRA 15:9)

1. Nauchno-issledovatel'skiy institut neftyanoy i gazovoy
promyshlennosti. Predstavleno akademikom D.V. Nalivkinym.
     (Khoper Valley—Geology, Stratigraphic)
          (Buzuluk Valley—Geology, Stratigraphic)

SKLOVSKIY, A.M.; VOLOKH, A.G.; KARPOV, P.A.; KONDRAT'YEVA, M.G.; LYASHENKO,
A.I.; FEDOROVA, T.I.; SHEVCHENKO, V.I.

Devonian sediments of the western part of the northern Caspian
oil- and gas-bearing basin. [Trudy] NILneftegaza no.10:127-
181 '63.   (MIRA 18:3)

1. Nauchno-issledovatel'skava laboratoriya geologicheskikh kriteriyev
otsenki perspektiv neftegazonosnosti; Vsesoyuznyy nauchno-issledovatel-
skiy geologorazvedochnyy neftyanoy institut; Nizhnevolzhskiy nauchno-
issledovatel'skiy institut geologii i geofiziki i Volgogradskiy
nauchno-issledovatel'skiy institut neftyanoy i gazovoy promshlennosti.

PANOV, D.I.; SHEVCHENKO, V.I.

Stratigraphy of Lower and Middle Jurassic sediments in the southern
slope of the Greater Caucasus in the Mount Kazbek region. Dokl.
AN SSSR 155 no.1:92-95 Mr '64.   (MIRA 17:4)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
Predstavleno akademikom N.M.Strakhovym.

SHEVCHENKO, V.I.; KARPOV, P.A.; NECHAYEVA, M.A.; NAZARENKO, A.M.

Upper Famennian sediments in the southeastern part of the Russian Platform. Dokl. AN SSSR 160 no.4:927-930 F '65.

(MIRA 18:2)

1. Nauchno-issledovatel'skiy institut neftyanoy i gazovoy promyshlennosti, Volgograd. Submitted May 21, 1964.

TARANENKO, V.P.; SHEVCHENKO, V.I.

Effect of fluctuations of an electron beam in the transit channel of a
traveling-wave tube on its power and efficiency. Radiotekh. i elektron.
10 no.7:1269-1281 Jl '65.   (MIRA 18:7)

ALFEROVA, N.S.; SHEVCHENKO, V.I.

Effect of alloying on the deformability and recrystallization of
α-titanium alloys. Izv. vys. ucheb. zav.; tsvet. met. 8 no.5:
122-127 '65.   (MIRA 18:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy trubnyy institut.

SHEVCHENKO, V.I., inzhener-khimik-kolorist

    Carefully train colorists and finishers. Tekst. prom. 25 no.8:81-82
    Ag '65.
                                                        (MIRA 18:9)

L 3806-66   EWT(1)/EWA(h)   JM
ACCESSION NR: AP5017663

UR/0109/65/010/007/1269/1281
621.385.632.01

AUTHOR: Taranenko, V. P.; Shevchenko, V. I.

TITLE: Effect of ripples of the electron beam in the drift channel of a TW tube upon its power and efficiency

SOURCE: Radiotekhnika i elektronika, v. 10, no. 7, 1965, 1269-1281

TOPIC TAGS: TW tube, electron beam

ABSTRACT: Based on J. R. Pierce's relation for the beam ripples and L. A. Vaynshteyn's nonlinear equations for the TW tube (Rad. i elektronika, 1957, 2, 7, 883), new nonlinear equations and initial conditions are developed which permit estimating the effect of the electron-beam outline on the power and efficiency of a TW tube. The new equations were numerically solved on a digital computer for a set of parameters typical of operation of a TW tube. It is found that: (1) The beam-radius ripples reduce the maximum output and maximum efficiency of the

Card 1/2

L 3806-66
ACCESSION NR: AP5017663

TW tube; this reduction is higher for higher ripples; (2) Reduction of the saturation power is higher in the case of a thin (ha = 0.5) beam than in the case of a wide (ha = 1.5) beam, for the same ripple factor; (3) In the case of a wide rippled beam, the rise of r-f electric field along the tube is higher for higher α which is due to a higher efficiency of interaction between the electrons and the r-f wave in the beam loops; (4) The repulsion forces increasing in the nodes of the rippled beam affect the electron bunching; the maximum value of the first current harmonic decreases which, in turn, affects the TW-tube efficiency. Orig. art. has: 7 figures and 32 formulas.

ASSOCIATION: none

SUBMITTED: 20Apr64   ENCL: 00   NCL: 00   SUB CODE: EC

NO REF SOV: 006   OTHER: 001

Card 2/2

L 2841-66   EWT(1)/ETC/EPF(n)-2/EWG(m)/EPA(w)-2,   LJP(c)   AT

AUTHOR: Shapiro, V. D.; Shevchenko, V. I.

TITLE: Induced scattering of Langmuir oscillations in a plasma within a strong magnetic field

TOPIC TAGS: plasma oscillation, magnetic field plasma effect, plasma electron oscillation, electron scattering

ABSTRACT: The present paper studies the nonlinear scattering of Langmuir oscillations on electrons of a plasma in a strong magnetic field. The linear damping of the oscillations is assumed negligibly small. After solving the kinetic equation by means of successive approximations over the oscillation amplitudes, the authors formulate an increment expression for the quantities defining the rate of change in spectral density of oscillations as a consequence of the scattering process. They show also that in contradistinction to the uni-dimensional spectrum case the change in the total energy of plasma oscillations in the strong magnetic field occurs in the lowest order in $k^2 \lambda_{De}^2$ ($k \lambda_{De} \ll 1$ for Langmuir oscillations.) Oscillation amplitudes for which the nonlinear energy dissipation becomes substan-

Card 1/2

L 2841-66

ACCESSION NR: AP5024126

tial are also found. "The authors thank Ya. B. Faynberg for valuable remarks."
Orig. art. has: 23 formulas.

ASSOCIATION: Fizyko-tekhnichnyy instytut AN URSR, Khar'kov (Physics-Engineering
Institute, AN Ukr SSR)

SUBMITTED: 22Sep64   ENCL: 00   SUB CODE: ME, NP

NO REF SOV: 008   OTHER: 000

Card 2/2

PTUSHKIN, I.V.; SHEVCHENKO, V.I.

Whooping cough vaccine from bouillon culture. Vak. i syv. no.1:166-
169 '63.   (MIRA 18:8)

1. Leningradskiy institut vaktsin i syvorotok.

SHEVCHENKO, V.I.; TKACH, V.P.; KIRSANOV, A.V.

Isomerization of trialkoxyphosphazo sulfonylaryls. Zhur. ob.
khim. 35 no.7:1224-1227 Jl '65.   (MIRA 18:8)

1. Institut organicheskoy khimii AN UkrSSR.

L 07404-67   EWT(l)   IJP(c)   GD/AT
ACC NR: AT6020579   (N)   SOURCE CODE: UR/0000/65/000/000/0156/0164

                                                               47
AUTHOR: Shapiro, V. D.; Shevchenko, V. I.   B+/

ORG: none

TITLE: On the induced dispersion of Langmuir oscillations of a plasma in strong mag-
netic field

SOURCE: AN UkrSSR. Vysokochastotnyye svoystva plazmy (High frequency properties of
plasma). Kiev, Naukovo dumka, 1965, 156-164

TOPIC TAGS: plasma oscillation, plasma resonance, plasma magnetic field

ABSTRACT: Nonlinear interaction of wave harmonics in the long wavelength range of the
spectrum is investigated for the conditions of a strongly magnetized plasma. The line-
ar damping of the waves is considered small due to the small number of resonance par-
ticles and all oscillations are along the field lines. The mathematical description of
the system employs a set of equations for the electron and ion distribution functions
and for the electric field. The system is analyzed in the second and third approxima-
tion starting with linear solutions. The initial one-dimensional spectrum remains
nearly uniform under the action of dispersive effects and is seen to correspond within
a cosine factor to the one-dimensional model. The interaction between waves leads to
pumping of energy from the higher frequency part of the spectrum to the lower. The

Card 1/2

L 07404-67

ACC NR: AT6020579

dissipation of wave energy by plasma particles is considerably smaller than loss of energy to lower frequency waves. Orig. art. has: 18 formulas.

SUB CODE: 20/.   SUBM DATE: 19Nov65/   ORIG REF: 006/   OTH REF: 001

Card 2/2

SHEVCHENKO, VI

Shevchenko, V. I. -- "Amides of Sulfuric Acid. Esters of Arysulfonan idoposporic Acids."
Cand Chem Sci, Dnepropetrovsk Matallurgical Inst, Dnepropetrovsk 1953. (REFERATIVNYY
ZHURNAL--KHIMIYA, No 1, Jan 54.)

Source: SUM 168, 22 July 1954

USSR

/Esters of arylsulfonimidophosphoric acids. A. V. Kir-
sanov and V. I. Shevchenko (I. V. Stalin Met. Inst. Dne-
propetrovsk). _____ Khim. 24, 474-8 (1954).
cf. C.A. 46. 11135f. 49. 1868b janczak, C.A. 24.
2861. —To a soln. of 0.7 g. Na in 15 ml. dry MeOH
was added with ice cooling 0.1 mole ArSO₂N:PCl₃ in dry
dil. benzene; filtration and evapn. of the filtrate gave a
viscous oil, which was shaken with 50 ml. H₂O to dissolve
the Na salts of partial esters and to ppt. the cryst. Ar-
SO₂N salts of partial esters and to ppt. the cryst. Ar-
SO₂N:P(OMe)₃ for purification these are taken up in
5% N P(OMe)₃, the soln. is washed with H₂O and crystal. after
acid. and the soln. is washed with H₂O and crystal. after
acidification with HCl.
coll. 15-20% ArSO₂NH₃ and Me₃ from the intermediate
ArSO₂N:NaP(OMe)₃, the yields of the neutral esters are
70-80%. The trialkyl esters are insol. in H₂O, sol. in the
usual org. solvents, and can be distd. in vacuo, b it not at
atm. pressure; they are stable in H₂O, even after heating,
and to dil. mineral acids in the cold, but are slowly hy-
drolyzed on heating (in 1 hr. refluxing with 0.2N HCl
only 5% of a typical ester was hydrolyzed). In aq. EtOH
the hydrolysis is much more rapid because of better soly.
The hydrolysis yields ArSO₂NHPO(OR)₂, followed by
formation of ArSO₂NH₂, and the mono alkyl esters could not
be isolated. The hydrolysis in alk. mediums is slower than in
acids and yields the Na salts of the dialkyl esters shown
above, and no further reaction takes place. The following
ArSO₂N:P(OMe)₃ were obtained (Ar, % yield, and m.p.
shown): Ph, 75.9, 38-40°; o-MeC₆H₄, 76, 74-5°; p-analog,
80.5, 44-5°; 1-C₁₀H₇, 71.7, 84-5°; 2-C₁₀H₇, 71.6, 93-4°.
The following ArSO₂NHP(OMe)₃ were obtained: Ph,
15, 108-9°; o-MeC₆H₄, 20.4, 145-6°; p-analog, 8.95,
110-11°; 1-C₁₀H₇, 25, 164-5°; 2-C₁₀H₇, 12.3, 144-5°.
The prepn. of the ArSO₂N:P(OEt)₃ was run similarly, but
the isolation was changed since the colloidal NaCl could not
be filtered off; the reaction mixts. were concd. and treated
with a little H₂O to dissolve the NaCl, after which the

KIRSANOV, A. V.

products were isolated as above, with BuONa in BuOH a similar series of Bu esters was obtained. The following compds. (Ar, R, m.p., and % yield shown) were prepd. $ArSO_4N{:}P(OR)_3$: Ph, Et, liquid, 81.5; o-MeC$_6$H$_4$, Et, 35-7°, 82.1; p-MeC$_6$H$_4$, Et, liquid, 78.7; 1-C$_{10}$H$_7$, Et, 91-5°, 86.4; 2-C$_{10}$H$_7$, Et, 51-2°, 75.4. $ArSO_2NHPO$-(OR)$_2$: Ph, Et, 111-12°, 6.82; o-MeC$_6$H$_4$, Et, 97-8°, 9.76; p-MeC$_6$H$_4$, Et, 105-6°, 7.48; 1-C$_{10}$H$_7$, Et, 154-5°, 8.16; 2-C$_{10}$H$_7$, Et, 161-2°, 96.4. $ArSO_2N{:}P(OR)_3$ Ph, Bu, liquid, 85.1; o-MeC$_6$H$_4$, Bu, liquid, 88.7 (d$_{20}$ 1.111, n$_{D}^{20}$ 1.491); 1-C$_{10}$H$_7$, Bu, liquid, 80.9 (d$_{20}$ 1.141, n$_{D}^{20}$ 1.530); 2-C$_{10}$H$_7$, Bu, liquid, 90.9 (d$_{20}$ 1.135, n$_{D}^{20}$ 1.512). Hydrolysis of the $ArSO_2N{:}P(OR)_3$ in N alc. NaOH 1 hr. at reflux gave the following $ArSO_2NHPO(OR)_2$ (Ar, R, % yield, and m.p. shown): Ph, Me, 93, 108-9°; 1-C$_{10}$H$_7$, Me, 95, 164-5°; 2-C$_{10}$H$_7$, Me, 93, 144-5°; o-MeC$_6$H$_4$, Et, 96.7, 97-8°; 1-C$_{10}$H$_7$, Et, 96.1, 154-5°; 2-C$_{10}$H$_7$, Et, 96.1, 161-2°; 1-C$_{10}$H$_7$, Bu, 92.5, 75-7°. To 1.04 g. Na dissolved in 30 ml. dry ROH was added with stirring at 40-50° 0.01 mole $ArSO_2N{:}PCl_3$ in C$_6$H$_6$, the solvent removed in vacuo, the residue taken up in 20 ml. H$_2$O, and the soln. acidified, yielding 74-92% $ArSO_2NHPO(OR)_2$. Heating 31.03 g. 1-C$_{10}$H$_7$SO$_2$NH$_2$ with 31.7 g. pure PCl$_5$ in 35 ml. CCl$_4$ on a steam bath 1 hr. gave, after diln. with 45 ml. hot CCl$_4$ and cooling, 93.5% 1-C$_{10}$H$_7$SO$_2$N{:}PCl$_3$, m. 110-12° to a murky liquid, clear at 117°. In a 3-3.5 hr. reaction was similarly prepd. 90.1% 2-C$_{10}$H$_7$SO$_2$N{:}PCl$_3$, m. 130-2° (from CCl$_4$). Both react rather slowly with H$_2$O, yielding the sulfonamides; the reaction is more rapid in alkali; the 1st step of hydrolysis, yielding ArSO$_2$NHPOCl$_2$, is some 7 times as fast as the 2nd step, in which the amide is formed.

G. M. Kosolapoff

SHEVCHENKO, V. I.

USSR/Chemistry

Card 1/1

Authors   : Kirsanov, A. V.; and Shevchenko, V. I.

Title   : Dialkyl ethers of arylsulfonamidephosphoric acids

Periodical : Zhur. Ob. Khim. 24, Ed. 5, 882 - 887, May 1954

Abstract   : Described is a new method for the derivation of dialkyl ethers of
             arylsulfonamidephosphoric acids from chloranhydrides of these acids and
             sodium alcoholates. The authors obtained dimethyl, diethyl and di-n-
             butyl ethers of arylsulfonamide acids and sodium salts of di-n-butyl
             ethers and described their chemical properties. The dialkyl ethers of
             arylsulfonamidephosphoric acids obtained from dichloroanhydrides differ
             in no way from the dialkyl ethers through other methods. Two USSR
             references. Tables

Institution: The I. V. Stalin-Order of the Red Banner-Metallurgical Institute

Submitted : December 13, 1953

SIRSANOV, V. L.

M. A. 40072
2 copies
2

Reactions of trichlorophosphazosulfonaryls with phenols and the aromatic esters of arylsulfonamidophosphoric acids. A. V. Sirsanov and V. I. Shevchenko. J. Gen. Chem. U.S.S.R. 24, 1949-58(1954)(Engl. translation).—See C.A. 49, 13927c.   B. M. R.

SHEVCHENKO, V. F.

Reaction of (trichlorophosphazosulfonaryls with phenols and the aromatic esters of arylamidoamidophosphoric acids. A. V. Kirsanov and V. I. Shevchenko (I. V. Stalin Met. Inst., Dnepropetrovsk). Zhur. Obshchei Khim. 24, 1030–3(1954); cf. C.A. 49, 6104e.

Shevchenko, V. I.

CHEVCHENKO, V.I

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61602

Author: Kirsanov, A. V., Shevchenko, V. I.

Institution: None

Title: Acid Chlorides of Aromatic Acid Esters of Arylsulfonimido-
phosphoric Acids

Original
Periodical: Zh. obshch. khimii, 1956, 26, No 1, 250-254

Abstract: There is described the reaction of the sodium salt of the chlor-
amide of benzene sulfonic acid with acid chlorides and di-acid
chlorides of the esters of phosphorous acid as a result of which
are formed, with good yields, the following acid chlorides (or
di-acid chlorides) of aromatic esters of phenyl sulfonimidophos-
phoric acid (I) (listing the yield in %): $C_6H_5SO_2N = PCl_2(OC_6H_5)$
(II) (oil; 92.9); $C_6H_5SO_2N = PCl(OC_6H_5)_2$ (III) (MP 66-69°; 90.1);
$C_6H_5SO_2N = PCl(O-o-C_6H_4CH_3)_2$ (IV) (oil; 94.3); $C_6H_5SO_2N =$
$PCl(O-m-C_6H_4CH_3)_2$ (V) (oil; 96.5); $C_6H_5SO_2N = PCl(OC_6H_4CH_3-p)_2$ (VI)

Card 1/2

Shovchenko, V.I.

SHEVCHEN...,

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 960

Author: Kirsanov, A. V., and Shevchenko, V. I.

Institution: None

Title: Reaction of Trichlorophosphazosulfonearyls with Alcohols

Original
Periodical: Zh. obshch. khimii, 1956, Vol 26, No 2, 504-510

Abstract: The reaction of $ArSO_2N = PCl_3$ (I) with alcohols follows a number of
different mechanisms and depends on the nature of the aryl radical and
on the conditions of the reaction. The first chlorine atom in I re-
acts faster with the alcohol than the remaining chlorine atoms;
initially, an unstable molecular compound with HCl is formed which,
after 60-90 minutes at 5-9°, evolves 0.8 gms-equiv HCl to form
$ArSO_2N = PCl_2(OR)$ (II); the reaction rate corresponds to the first
When the reaction is carried out without evolution
of CHl, the following mechanism is observed: II (R = CH₃) + HCl →
$CH_3Cl + ArSO_2N = PCl_2(OH)$. A large excess of

Card 1/3

Reaction of trichlorophosphazosulfonaryls with alcohols.
A. V. Kirsanov and V. I. Shevchenko. *J. Gen. Chem.*
U.S.S.R. 25, 533-8(1956)(Engl. translation).—See C. A.
50, 13785g   B. M. R.

KRETOV, A.Ye.; SHEVCHENKO, V.I.

Acylation of N,N-dichlorarylsulfamides and arylsulfamides by
anhydrides of aromatic acids. Ukr.khim.zhur. 23 no.4:493-495
'57.   (MIRA 10:10)

1.Dnepropetrovskiy khimiko-tekhnologicheskiy institut.
            (Acylation) (Sulfamide) (Anhydrides)

79-28-4-52/60

AUTHORS: Shevchenko, V. I. , Derkach, G. I.

TITLE: Dimethyl Esters From Aryl Sulfon-N-Methyl-Amidophosphoric
Acids (Dimetilovyye efiry arilsul'fon-N-metilamidofosfornykh
kislot)

ABSTRACT: In recent times a great number of diesters of aryl sulfonami-
dophosphoric acids were produced (Ref 1). It is, however,
probably not proved that they have amido-like structure
(formula I). However, it is not excluded either that the
compounds of type (I) are in equilibrium with a phosphor-
azo form (formula II).

$$ArSO_2NH-PO(OR)_2 \rightleftharpoons ArSO_2N=P(OR)_2(OH)$$
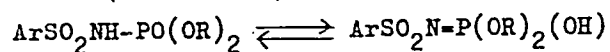
(I)   (II)

The structure of these diesters can hardly be explained by
chemical methods. Also for the explanation by physical meth-
ods compounds of structures (I) and (II) as samples are ne-
cessary in any case. A great number of compounds of structure

Card 1/4

Dimethyl Esters From Aryl Sulfon-N-Methyl-Amidophosphoric Acids

(II are known (Refs 1, 2), while compounds of the structure
(I) are unknown. Therefore, it was of interest to alkylate
the silver and sodium salts of the diesters of aryl sulfon-
amidophosphoric acids. It could be expected in this case that
either phosphorazo compounds or esters of the N-alkylated
aryl sulfonamidophosphoric acids would form because some
cases were known in which alkylation of silver and sodium
salts took place in one case with nitrogen and in the other
with oxygen.
The authors investigated methylation of silver and sodium
salts of aryl sulfonamidophosphoric acid and dimethyl esters.
Methylation of sodium salts was unsuccessful. The sodium
salts remained unchanged after long heating with methyl
iodide on a boiling water bath, while they were converted
into ill-smelling compounds with dimethyl sulfate. On the
other hand, silver salts easily react with methyl iodide under
formation of dimethyl esters of the aryl-sulfon-N-methylamido-
phosphoric acids:

$$ArSO_2NAg\text{-}PO(OCH_3)_2 + CH_3J \longrightarrow AgJ + ArSO_2N(CH_3)\text{-}PO(OCH_3)_2$$

Card 2/4   (III)
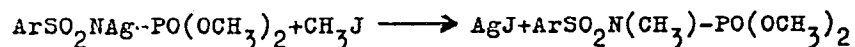
Dimethyl Esters From Aryl Sulfon-N-Methyl-Amidophosphoric Acids

By this method compounds of the formula III were produced for Ar= o-toluyl, α-naphthyl and β-naphthyl. These compounds react neutrally and are insoluble in alkalies. If boilt for a long time in aqueous alcoholic hydrochloric acid the compounds of formula III are hydrolized under formation of the corresponding N-methyl-aryl-sulfonamides which proves their structure,

$$ArSO_2N(CH_3)-PO(OCH_3)_2 + H_2O \xrightarrow{H^+} ArSO_2NHCH_3$$
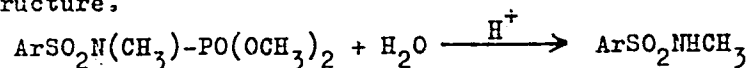
The N-methyl derivatives easily solve in methyl iodide, acetone, benzene, and boiling alcohol while they are difficultly soluble in petroleum ether, and insoluble in water. The compounds of formula III with Ar = α- and β-naphthyl are crystallized compounds with melting points at 91° and 82°, respectively. The melting points of the isomeric trimethyl esters are at $84 - 85^o$ and $93 - 94^o$, respectively (Ref 1). The compound (III) with Ar = o-toluyl could not be obtained in pure form. The reaction product formed a thick, oily liquid which cannot be distilled without decomposition.

Card 3/4   The mentioned reactions as well as the crystalline form and

Dimethyl Esters From Aryl Sulfon-N-Methyl-Amidophosphoric Acids   79-28-4-52/60

solubility of the formed compounds are described in detail
in an experimental part. There are 5 references, 4 of which
are Soviet.

ASSOCIATION: Dnepropetrovskiy metallurgicheskiy institut
(Dnepropetrovsk Metallurgical Institute)

SUBMITTED: March 18, 1957

Card 4/4

5 (3)

AUTHORS: Shevchenko, V. I., Merkulova, Zh. V.   SOV/79-29-3-54/61

TITLE: Phenyl-dichloro-phosphazo-sulfonaryls (Fenildikhlorfosfazo-
                sul'fonarily)

ABSTRACT: Kirsanov, A. V. (Ref 1) succeeded in synthesizing phosphazo-
                acyls according to the scheme $AcNH_2 + PCl_5 \rightarrow 2HCl + AcN=PCl_3$ (I).

                He and his assistants made use of the reaction (I) (Ref 2) and
                obtained a series of new phosphoric acid derivatives of various
                kind. This reaction was, however, not exploited for the synthe-
                sis of organophosphorous compounds in which the phosphorus
                atom is linked with the carbon atom. The assumption that the
                phosphazo reaction is bound to proceed not only with PCl_5, but

                as well with tetrachloro-alkyl- and tetrachloro-aryl-phosphorus
                compounds, trichloro-dialkyl- and trichloro-diaryl-phosphorus
                compounds and dichloro-trialkyl- and dichloro-triaryl-phosphorus
                compounds was confirmed experimentally. The authors succeeded
                in obtaining the phenyl-dichloro-phosphazo-sulfonaryls ac-
                cording to the scheme

Card 1/3

SOV/79-29-3-54/61

Phenyl-dichloro-phosphazo-sulfonaryls

$ArSO_2NH_2 + C_6H_5PCl_4 \longrightarrow 2HCl + ArSO_2N{=}P(C_6H_5)Cl_2$ (II) in the case of the reaction of the phenyl-phosphorus-tetrachlorides with the sulfo acid amides of the aromatic series. The obtained compounds are either crystalline or dense viscous liquids which decompose also during the vacuum distillation. They react easily with amines, alcohols, phenolates, and hydrolyze with water to aryl-sulfonamido-phenyl-phosphinic acids according to the scheme (III). The phenyl-dichloro-phosphazo-sulfonaryls may be synthesized as well according to the second phosphazo reaction (IV) (Refs 3,4). With and without solvent not quite pure, crystalline products (by-products) are obtained. The phenyl-dichloro-phosphazo-sulfonphenyl could be obtained according to scheme (IV) (yield 75%) and identified. The phenyl-dichloro-phosphazo-sulfonaryls of the type $ArSO_2N{=}P(C_6H_5)Cl_2$ which were obtained according to scheme (I) are given in the table. There are 1 table and 4 references, 3 of which are Soviet.

Card 2/3

SOV/79-29-3-54/61

Phenyl-dichloro-phosphazo-sulfonaryls

ASSOCIATION: Dnepropetrovskiy metallurgicheskiy institut (Dnepropetrovsk
                Metallurgical Institute)

SUBMITTED: January 29, 1958

Card 3/3

S/079/60/030/05/32/074
B005/B016

AUTHORS: Shevchenko, V. I., Stratiyenko, V. T.

TITLE: Esters of Aryl-sulfonimido-phenyl-phosphinic Acids

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 5, pp. 1561-1565

TEXT: The authors of the present paper investigated the reactions of phenyl-dichloro-phosphazo-sulfonaryls (I) with sodium alcoholates and sodium phenolates. In the reaction of compounds (I) with sodium alcoholates, either dialkyl esters of aryl-sulfonimido-phenyl-phosphinic acids (II) or sodium salts of the monoalkyl esters of aryl-sulfonamido-phenyl-phosphinic acids (III) are formed in dependence on the quantitative ratio of the initial substances. The reaction scheme is given. Under certain reaction conditions which are indicated the compounds (II) can be obtained easily and in good yield. In Table 1, 14 compounds of type (II) ($ArSO_2N$=$=P(C_6H_5)(OAlk)_2$) are listed. They are neutral substances which do not react with water. In alcoholic solutions they are readily hydrolyzed by aqueous acids or bases. On alkaline hydrolysis the compounds (III) result.

Card 1/3

Esters of Aryl-sulfonimido-phenyl-phosphinic   S/079/60/030/05/32/074
Acids   B005/B016

In Table 2, 5 compounds of type (III) $(ArSO_2NHPO(C_6H_5)(OAlk))$ are given
which were obtained by hydrolysis of the corresponding compounds (II).
These monoalkyl esters (III) may be prepared with advantage directly from
compounds (I). The reaction conditions, under which the compounds (III)
are obtained as principal products of the reaction of (I) with sodium
alcoholates, are indicated. Table 3 presents 19 compounds of type (III)
which were obtained immediately from compounds (I). The monoethyl esters
of o-, m-, and p-nitro-phenyl-sulfonamido-phenyl-phosphinic acids could
not be obtained in this way due to resinification. The monoalkyl esters
(III) behave like monobasic acids, and can be titrated with sodium
hydroxide using phenolphthalein as indicator. The authors further
synthesized a number of phenyl-diphenoxy-phosphazo-sulfonaryls (IV)
$(ArSO_2N=P(C_6H_5)(OC_6H_5)_2)$ by reaction of compounds (I) with the corresponding
sodium arylates. Table 4 summarizes 7 compounds of type (IV). These
esters are stable to water. In acid media they are hydrolyzed similarly to
compounds (II) to give aryl sulfonamides while they are more stable to
aqueous bases than the compounds (II). Under certain conditions which are
indicated it is, however, possible to obtain the monophenyl esters of

Card 2/3

Esters of Aryl-sulfonimido-phenyl-phosphinic   S/079/60/030/05/32/074
Acids   B005/B016

aryl-sulfonamido-phenyl-phosphinic acids (V)(ArSO$_2$NHPO(C$_6$H$_5$)(OC$_6$H$_5$)) by
alkaline saponification of the compounds (IV). Table 5 shows 6 compounds
of this type. In an experimental part all conversions accomplished are
described in detail. The 5 tables mentioned give yields, melting points,
and empirical formulas of each compound. Table 1 further contains the
percentage contents of alkoxy groups for the compounds (II), Table 4 the
nitrogen contents of the compounds (IV), and the Tables 2, 3, and 5 the
results of titration with sodium hydroxide for each of the compounds. For
the compounds (II), (III), (IV), and (V), appearance and solubility in
the common organic solvents are also given, A. V. Kirsanov (Ref. 4) is
mentioned in the present paper. There are 5 tables and 4 Soviet references.

ASSOCIATION: Dnepropetrovskiy metallurgicheskiy institut (Dnepropetrovsk
            Institute of Metallurgy)

SUBMITTED: March 21, 1959

Card 3/3

Diphenyl-chloro-phosphazo-sulfone Aryls

aryl-sulfonamido-diphenyl-phosphinic acids (II) are formed according to a given scheme. Table 2 summarizes the 9 compounds of type (II) which were obtained by hydrolysis of the compounds (I) contained in Table 1. Both tables present yield, melting point, empirical formula, and the result of titration with lye for each compound. The compounds (II) are colorless crystalline substances which are very stable to hydrolysis. They may occur in 3 tautomeric forms:

$ArSO(OH)=N-PO(C_6H_5)_2$ $ArSO_2NH-PO(C_6H_5)_2$ $ArSO_2N=P(C_6H_5)_2(OH)$

(A)   (B)   (C)
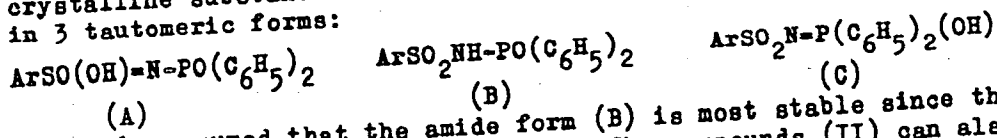
It may be assumed that the amide form (B) is most stable since the N-H bond is less polarizable than the O-H bond. The compounds (II) can also be synthesized from N-diphenyl-phosphine-aryl sulfonamides by oxidation with hydrogen peroxide, or by bromination and subsequent hydrolysis. The corresponding reaction schemes are given. In an experimental part all conversions carried out are described in detail. A. V. Kirsanov (Refs. 1,2) is mentioned in the present paper. There are 2 tables and 2 Soviet references.

Card 2/3

S/079/60/030/006/024/033/XX
B001/B055

AUTHORS: Shevchenko, V. I. and Stratiyenko, V. T.

TITLE: Diphenyl-alkoxy- and Diphenyl-aroxy-phosphazo-sulfonaryl
                Compounds

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 6,
                pp. 1958 - 1960

TEXT: Diphenyl-chloro-phosphazo-sulfonaryl compounds, as the acid
chlorides of aryl-sulfonimido-diphenyl phosphinic acids, react readily
with water, alcohols, amines, and other compounds containing an active
hydrogen atom. They react still more easily with sodium alcoholates and
phenolates forming diphenyl-alkoxy-phosphazo-sulfonaryls (esters of
aryl-sulfonimido-diphenyl phosphinic acids) (I, R = alkyl) and diphenyl-
aroxy-phosphazo-sulfonaryls (II, R = Ar), respectively:

$$(C_6H_5)_2ClP = NSO_2Ar \xrightarrow[- NaCl]{+ RONa} (C_6H_5)_2(RO)P = NSO_2Ar.$$
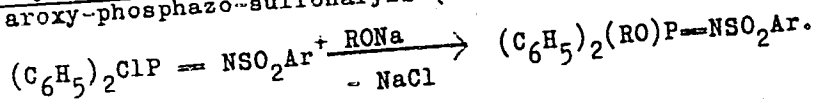
Card 1/2

18.9100

35823
S/137/62/000/004/128/201
A060/A101

AUTHORS: Shevchenko, V. I., Alpatov, Ye. P.

TITLE: Electrolytic etching of metallographic sections with direct obser-
             vation of the exposed microstructure

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 4, 1962, 82, abstract 4I496
             (V sb. "Proiz-vo trub" no. 5, Khar'kov, Metallurgizdat, 1961, 150-
             154)

TEXT: For exposing the microstructure of chemically stable high-alloy and
heat-resisting alloys of particular effectiveness is the method of electrolytic
etching based upon the nonuniform anodic dissolution of various structural
constituents of the metal and its cumulative dissolution along the grain bound-
aries. The authors have designed an adapter for the metal microscope, which
allows one to carry out electrolytic etching on the whole investigated surface
of the section with direct observation of the exposed microstructure. The
direct observation of the electrolytic etching process eliminates underetching
and overetching of sections and guarantees a high-quality exposure of the micro-
structure. A diagram of the designed set-up and the description of its principle

Card 1/2

Electrolytic etching of metallographic ...

of operation are given. The set-up is designed for electrolytic etching of
sections in nonagressive media.. The exposed microstructure may be investigated
and photographed with enlargements up to 450 x, without taking it out of the
electrolyte. Photographs of microstructure obtained in the process of electro-
lytic etching are appended. Besides its use in high-quality exposure of micro-
structure, the proposed method may be useful in investigating various structural
constituents of complicated alloys. The study of microstructure without extract-
ing the section from the electrolyte is particularly expedient to carry out in.
cases when the contact of the etched surface with air, and the rinsing intro-
duce alterations in the exposed microstructure.

G. Tolmacheva

[Abstracter's note: Complete translation]

Card 2/2

26389
S/032/61/027/008/012/020
Method of cathodic visualization...   B103/B203

of ground sections of high-alloy steels. Cathodic etching was conducted
in a 400 cm^3 bath so that the polished section (cathode) lay horizontally
in the electrolyte at a distance of 10 - 20 mm above the anode (polished
stainless-steel plate) lying on the bottom. A BCA-6M(VSA-6M) rectifier
was used as a d-c source. The ground sections were previously polished
electrolytically. For distinct visualization of the structure, a current
density of 150 - 200 a/dm^2 had to be applied to the cathode for 1 - 2 min;
current densities below 100 a/dm^2 within 1 min were insufficient (steel
grades: 1X18H9T(1Kh18N9T) and X25T(Kh25T) of the austenite and ferrite
class). The structure visualized in this way was not inferior to the
anodic treatment with respect to distinctness. The authors also studied the
structure of the following high-alloy steels: ЭИ211(EI211) = X20H14C2
(Kh20N14S2), ЭИ847(EI847) = X16H15M3Б(Kh16N15M3B), ЭИ853(EI853) = X16C2MБ2
(Kh16S2MB2), ЭИ888(EI888) = X13H14ГC4Б(Kh13N14GS4B), and others. Hitherto,
a chemical and an electrolytic treatment in various electrolytes had been
recommended for etching these steels, which, however, had not always
guaranteed satisfactory visualization of the structure. Besides, the

Card 2/4

Method of cathodic visualization...

26389
S/032/61/027/008/012/020
B103/B203

variety of procedures disturbed the metallographic studies. Anodic etching rendered visible the microstructure of bimetal specimens of high-alloy steels only with difficulty since these steels have different electric resistances. Thus, only the structure of one of these steels became visible while the structure of the other one had to be chemically visualized, in addition. The authors' method visualizes the microstructure of bimetal specimens of steels of different classes (e. g., EI847 - EI853) which hitherto had not been possible with other etching methods. The structure visualized in the manner described may be studied with a light or electron microscope. In the latter case (with the use of titanium replicas), the replicas can be more easily separated from ground sections treated by the cathodic method than from those treated by the anodic method. The relief of the section surface in the former case has no deep boundary grooves such as are formed in anodic etching. The titanium replicas were separated in the reagent by N. M. Popova (Zavodskaya laboratoriya, XI, 10, 887 (1945)). There are 4 figures and 7 references: 5 Soviet-bloc and 2 non-Soviet-bloc.

Card 3/4

Method of cathodic visualization...

26389
S/032/61/027/008/012/020
B103/B203

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy trubnyy institut
(Ukrainian Scientific Research Institute of Pipes)

Card 4/4

SHEVCHENKO, V.I.; SHTEPANEK, A.S.; KIRSANOV, A.V.

Isocyanatephenylphosphinyl chloride. Zhur.ob.khim. 31
no.9:3062-3066 S '61.   (MIRA 14:9)

1. Institut organicheskoy khimii AN Ukrainskoy SSR.
                    (Phosphinic chloride)

28288

I 1900 also 1087, 1160

S/076/61/035/010/006/015
B101/B110

AUTHORS: Shevchenko, V. I., and Alpatov, Ye. N. (Dnepropetrovsk)

TITLE: Structural etching in electrolytic polishing

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 10, 1961, 2280-2284

TEXT: The authors studied the structural etching in electrolytic polishing of stainless steel 1Х18Н9Т (1Kh18N9T) of the austenite class, and Х25Т (Kh25T) of the ferrite class. Their principal aim was the inhibition of structural etching. The surface of steel samples was directly examined under 450-fold magnification during electropolishing. Pictures were taken by a Зенит-C (Zenit-S) photocamera. Electropolishing took place with an anodic current density D_a = 55-65 a/dm^2 (V = 2.5-3.0 v). No gas was formed. The following results were recorded at D_a = 50 a/dm^2: Etching appeared after current was turned on. Anode surface was dark. A yellowish passivated film formed, grinding traces were smoothed, anode structure became visible, relief edges of crystallites became prominent. This current density was not sufficient to effect dissolution of relief edges. The structural relief vanished at D_a = 60 a/dm^2. If

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28288
S/076/61/035/010/006/015

Structural etching in ...   B101/B110

D_a = 55-60 a/dm^2 was used from the beginning, the anode structure did not become visible. If polishing is briefly (2-3 sec) interrupted by turning off the current, it will continue without structural changes on the anode surface once the current is turned on again. Thus, anode passivation is not eliminated by a brief interruption of the polishing process. Structural etching was not observed until current was turned off for an appreciable length of time. Kh25T ferrite steel was electropolished with D_a = 60-65 a/dm^2. The same results were obtained as with austenite steel.

The conclusions reached by S. I. Krichmar, V. P. Galushko (Zh. fiz. khimii, 30, 578, 1956) to the effect that structural etching was inhibited in the limit current region during electrolytic polishing were thus confirmed. There are 3 figures and 7 references: 5 Soviet and 2 non-Soviet.

SUBMITTED.   February 19, 1960

Card 2/2

SHEVCHENKO, V.I., STRATIYENKO, V.T.

Reaction of arylphosphorus chlorides with acid amides.

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

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

KIRSANOV, A.V. [Kirsanov, O.V.], akademik; SHTEPANEK, A.S.;
     SHEVCHENKO, V.I.

     Reaction of diphenyl phosphorus trichloride and diphenyl
     phosphorus dichloride with urethan. Dop. AN URSR no.1:63-
     65 '62.   (MIRA 15:2)

     1. Institut organicheskoy khimii AN USSR. 2. AN USSR (for
     Kirsanov.
                    (Phosphorus organic compounds)
                    (Carbamic acid)

SHEVCHENKO, V.I.; SHTEPANEK, A.S.; KIRSANOV, A.V.

      3-Arylcarbamidophenylphosphinic acids and their chlorides. Zhur.
      ob khim. 32 no.1:150-153 Ja '62.   (MIRA 15:2)

    1. Institut organicheskoy khimii AN Ukrainskoy SSR.
               (Phosphinic chloride)

SHEVCHENKO, V.I.; SHTEPANEK, A.S.; KIRSANOV, A.V.

Esters of diphenylchloro- and triphenylphosphazo carbonic acid.
Zhur.ob.khim. 32 no.8:2595-2600 Ag '62.   (MIRA 15:9)

1. Institut organicheskoy khimii AN Ukrainskoy SSR.
     (Phosphazo compounds) (Carbonic acid) (Esters)

SHEVCHENKO, V.I.; BODNARCHUK, N.D.; KIRSANOV, A.V.

    Phosphorylation of malonic acid esters. Zhur.ob.khim. 32
no.9:2994-3001 S '62.   (MIRA 15:9)

    1. Institut organicheskoy khimii AN UkrSSR.
          (Malonic acid)   (Phosphorylation)

SHEVCHENKO, V.I.; TKACH, V.P.; KIRSANOV, A.V.

Diallyl esters of arylsulfonylamidophosphoric acids. Zhur.ob.
khim. 33 no.2:562-564 F '63.   (MIRA 16:2)

1. Institut organicheskoy khimii AN UkrSSR.
                        (Phosphoramidic acid)

SHEVCHENKO, V.I.; BONDARCHUK, N.D.; KIRSANOV, A.V.

Trichlorophosphazoperchlorovinyl and trichlorophosphazoperchloro-
ethyl. Zhur.ob.khim. 33 no.4:1342-1345 Ap '63.   (MIRA 16:5)

1. Institut organicheskiy khimii AN UkrSSR.
                        (Phosphazo compounds)

L 2021-65   EWT(d)/EWT(1)/EEC(b)-2/EWA(h)   Pn-4/Pac-4/Peb/P1-4/Pj-4   AFWL/
ES(a)-5

ACCESSION NR: AP4047248   S/0142/64/007/004/0517/0523

AUTHOR: Murav'yev, V. V.; Shevchenko, V. I.

TITLE: Two-stage collector potential depression in O-type TW and BW tubes

SOURCE: IVUZ. Radiotekhnika, v. 7, no. 4, 1964, 517-523

TOPIC TAGS: O type tube, TW tube, BW tube, O type tube efficiency

ABSTRACT: Based on recent (1953-62) American findings, a calculation method
of the maximum possible efficiencies of O-type tubes with a 2-stage collector
depression is offered. The load efficiency of the tube is given by:

$$\eta = \frac{\eta_e}{1 - \chi_1 \alpha_{1m}(1 - \rho_{1m}) - \chi_2(\alpha_{2m} - \alpha_{1m})(1 - \rho_{2m})},$$

where η_e is the electronic efficiency; χ_1 and χ_2 are the collector coefficients;
α_1 and α_2 are the normalized collector currents; ρ_{1m} and ρ_{2m} are the

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L 13791-65
ACCESSION NR: AP4047248

normalized electron kinetic-energy losses. On the strength of the above
formula, curves of the maximum possible efficiencies for single- and 2-stage
collector depression are plotted, and the realizability of high-efficiency tubes is
discussed. Orig. art. has: 7 figures and 10 formulas.

ASSOCIATION: none

SUBMITTED: 22May63   ENCL: 00

SUB CODE: EC   NO REF SOV: 007   OTHER: 011

Card 2/2

SHEVCHENKO, V.I.; TKACH, V.P.; KIRSANOV, A.V.

2,2',3,3'-Tetrabromodipropyl and 2,2'-dibromodiallyl esters of aryl-sulfonylamidophosphoric acids. Zhur.ob.khim. 34 no.2:624-627 F '64.

1. Institut organicheskoy khimii AN UkrSSR.

L 52794-65   EWT(m)/EPF(c)/EWP(j)/T/   Pc-4/Pr-4   RM

ACCESSION NR: AP5016190   UR/0079/64/034/012/3954/3955

AUTHOR: Shevchenko, V. I.; Stratiyenko, V. T.; Pinchuk, A.M.

TITLE: Triphenylphosphazosulfonylaryls /

SOURCE: Zhurnal obshchey khimii, v. 34, no. 12, 1964, 3954-3955

TOPIC TAGS: organic phosphorus compound, organic sulfur compound, chloride, organic
amide

Abstract: A Kirsanov reaction takes place under the action of triphenyl-
phosphorus dichloride on arenesulfamides to form triphenylphosphazosul-
fonylaryls in 89-94% yield. The reaction rates of diphenylphosphorus
trichloride and triphenylphosphorus dichloride with arenesulfamides are
approximately the same. Orig. art. has 1 formula and 1 table.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk Ukrainskoy SSR (Institute
of Organic Chemistry Academy of Sciences, Ukrainian SSR)

SUBMITTED: 30Sep63   ENCL: 00   SUB CODE: OC, GC

NO REF SOV: 003   OTHER: 001   JPRS

Card 1/1

L 52797-65   EWT(m)/EPF(c)/EWP(j)   Pc-4/Pr-4   RM

ACCESSION NR: AP5016191   UR/0079/64/034/012/3955/3958

AUTHOR: Shevchenko, V. I.; Pinchuk, A. M.; Kozlova, N. Ya.

TITLE: Mixed diarylchlorophosphines

SOURCE: Zhurnal obshchey khimii, v. 34, no. 12, 1964, 3955-3958

TOPIC TAGS: phosphinic acid, chloride, organic phosphorus compound, chlorinated
organic compound

Abstract: Mixed diarylchlorophosphines were prepared on the basis of
the comparatively readily available mixed diarylphosphinic acids or
their chlorides. In the reaction of diarylphosphinic acids or their
chlorides with phosphorus pentachloride, diaryldichlorophosphonium
hexachlorophosphorates, $[Ar_2PCl_2]PCl_6$, are formed in almost quantitative
yield, upon heating with diarylphosphinic acid chlorides, they give
diaryltrichlorophosphorus. The diaryltrichlorophosphorus compounds and
diaryldichlorophosphonium hexachlorophosphorates are not reduced by methyl
dialkylphosphite. The reaction results in the formation of diarylphosphi-
nic acid chlorides, methyl chloride, and phosphorus trichloride. Reduction
of the diaryldichlorophosphonium hexachlorophosphorates with red phosphorus

Card   1/2

L 52797-65
ACCESSION NR: AP5016191

produces mixed diarylchlorophosphines. Nitro-substituted diarylchloro-
phosphines cannot be prepared by this method (only the chlorides of the
corresponding arylnitroarylphosphinic acids are isolated from the reaction
mixture in approximately 50% yield). Orig. art. has 10 formulas and 2 tables.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk Ukrainskoy SSR (Institute
of Organic Chemistry, Academy of Sciences, Ukrainian SSR)

SUBMITTED: 30Sep63   ENCL: 00   SUB CODE: OC, GC

NO REF SOV: 001   OTHER: 003   JPRS

Card 2/2

L 55953-66   EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(k)/EWP(b)/EWP(z)/EWA(c)   Pf-4

ACCESSION NR: AP5013116

UR/0370/65/000/002/0134/0140
539.4.015/019

AUTHOR: Alferova, N. S. (Dnepropetrovsk); Shevchenko, V. I. (Dnepropetrovsk)

TITLE: Deformation and recrystallization of α-titanium alloys

SOURCE: AN SSSR. Izvestiya. Metally, no. 2, 1965, 134-140

TOPIC TAGS: titanium alloy, stainless steel, metal deformation, metal recrystallization, metal mechanical property

ABSTRACT: The authors aim was to determine the relative favorability towards cold rolling of the α-Ti alloys; commercial purity Ti, TiAl2.5, TiAl5 and α alloys with neutral elements, TiAl22Zr2.5 and TiAl2.5Sn3. A parallel investigation was carried out for comparison with Kh18N10T stainless steel. Rolling in multiple passes extended to reductions of 90 per cent for the pure Ti and stainless steel and for the others 50, 40, 55 and 30 percent respectively. The reduction in metallographically observed (from the surface) twins coincided with the lessening in reduction limit. The pure Ti strain-hardened more quickly than the stainless and the α-alloys even more rapidly. No difference in reduction limit was noted between the alloys re-

Card 1/2

L 55853-65
ACCESSION NR: AP5013116

duced 20 per cent and annealed to give an equiaxed grain structure and the hot roll-
ed alloys. Alloying with aluminum increases both the onset temperature and the
range of recrystallization, in the vicinity of 75 and 100°C respectively for the
alloys studied, Sn and Zr do not exhibit a noticeable effect on recrystallization
behavior. Hot hardness measurements showed that weakening with increased tempera-
ture corresponded to the recrystallization range. Orig. art. has: 4 figures, 2
tables.

ASSOCIATION: none

SUBMITTED: 10Dec63   ENCL: 00   SUB CODE: MM

NO REF SOV: 004   OTHER: 000

Card 2/2

L 58362-65   ENT(m)/EWA(d)/T/EWP(t)/ShP(z)/EWP(b)/EWA(c)   IJP(c)   MJW/JD
ACCESSION NR: AP5013157   UR/0129/65/C00/005/0038/0043
                                                        669.295:620.186.5

AUTHOR: Alferova, N. S.; Shevchenko, V. I.

TITLE: Recrystallization of alpha-Ti alloys

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 5, 1965, 38-43

TOPIC TAGS: titanium, recrystallization, nonferrous metal alloy, metallography

ABSTRACT: The recrystallization properties of α-alloys of Ti were studied. The
alloys used had varying Al, Zr, and Sn contents. These were cold reduced by
varying amounts after appropriate treatment, and annealed at temperatures below the
respective polymorphic transformation temperatures. The progress of recrystalliza-
tion was followed by x-ray and metallographic analysis. Data are given showing the
effect of deformation and alloying on the annealing temperature. Grain size was
also considered, and the average grain diameter was plotted against % reduction.
Maxima were observed for low deformations. Microstructural and x-ray data are com-
pared. Three dimensional graphs are given for all of the alloys. Grain size, %
deformation and annealing temperature were plotted for alloys in the hot-worked,
cold-reduced and annealed states. All curves are similar in appearance with maxima

Card 1/2

L 58362-65
ACCESSION NR: AP5013157

for critical degrees of cold working, after which the grain size gradually de-
creases. At higher annealing temperatures, grain growth was generally observed.
In alloyed materials, this increase was insignificant when compared to unalloyed
The hardness vs. annealing temperature was also plotted for all of the metals.
Softening was followed graphically, and the effects of alloying were most apparent.
VTi had a much lower recrystallization temperature and also had a much lower final
hardness when compared with the other materials (HV-160 vs. HV- from 230 to 280 for
alloyed metals). Orig. art. has: 6 figures, 1 table.

ASSOCIATION: none

SUBMITTED: 00   ENCL: 00   SUB CODE: MM

NO REF SOV: 000   OTHER: 000

Card 2/2

DERKACH, Grigoriy Ilarionovich; ZHMUROVA, Irina Nikolayevna;
   KIRSANOV, Aleksandr Vasil'yevich; SHEVCHENKO, Veniamin
   Isaakovich; SHTEPANEK, Alla Stanislavovna POKROVSKAYA,
   Z.S., red.

[Phosphazo compounds] Fosfazosoedineniia. Kiev, Naukova
dumka, 1965. 283 p.   (MIRA 18:8)

BODNARCHUK, N.D.; SHEVCHENKO, V.I.; KIRSANOV, A.V.

Reaction of phosphorus pentachloride with the diphenyl ester of
malonic acid. Zhur. ob. khim. 35 no.4:713-715 Ap '65.

(MIRA 18:5)

1. Institut organicheskoy khimii AN UkrSSR.

... AP5012051

AUTHOR: Lominadze, D.G.; Shevchenko, V.I.

TITLE: On the nonlinear theory of low-frequency oscillations excited in a plasma by an ion beam

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 5, 1965, 865-874

TOPIC TAGS: plasma beam interaction, nonlinear system, plasma heating, plasma instability, plasma wave, ion temperature, ion beam, plasma

ABSTRACT: V.D.Shapiró and K.N.Stepanov, separately and in collaboration with one of the other of the present authors, have discussed the excitation of oscillations in plasma by charged particle beams (ZhETF, 42, 1515, 1962; 44, 613, 1963; ZhTF, ... The present paper represents a continuation of this earlier work. ... the excitation of long-wavelength low-frequency oscillations in ... by an ion beam in the presence of a magnetic field, and also the excitation ... oscillations at harmonics of the ion Larmor frequency. The initial ... developing instability, in which the ion beam remains essentially ... is treated in a hydrodynamic approximation in which the system is

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ACCESSION NR: AP5012051

described by the moments of the distribution functions. The later stages, in
which a considerable velocity dispersion develops in the ion beam, are treated in
approximation. The exposition rests heavily on the earlier work.
The energy loss of the ion beam is calculated, and it is found that a considerable
fraction of the energy lost by the beam can appear as thermal energy of the plasma
express their gratitude to Ya.B.Faynberg and V.D.Shapiro for
and for assistance with the work." Orig. art. has: 49

ASSOCIATION: none

SUBMITTED: 16Jul64   ENCL: 00   SUB CODE: ME,NP

                                        OTHER: 001   ATD PRESS: 3257

2/2

SHEVCHENKO, V.I.; TKACH, V.P.; KIRSANOV, A.V.

Phenyldiallocyphosphazo sulfonyl aryls. Zhur. ob. khim. 35
no.6:992-996 Je '65.   (MIRA 18:6)

1. Institut organicheskoy khimii AN UkrSSR.

SHTEPANEK, A.S.; SHEVCHENKO, V.I.; KIRSANOV, A.V.

N-carbalkoxyamidophenylph--- -- - acids. Zhur. ob. khim. 35
no.6:1023-1025 Je '65.   (MIRA 18:6)

1. Institut organicheskoy khimii AN Ukrainskoy SSR.

L 5377-66   EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c)   IJP(e)
UR/0149/65/000/005/0122/0127
ACC NR: AP5027099   MJW/JD/HW   621.77

AUTHOR: Alferova, N. S.; Shevchenko, V. I.

TITLE: Effect of alloying on the deformability and recrystallization of α-titanium

SOURCE: IVUZ. Tsvetnaya metallurgiya, no. 5, 1965, 122-127

TOPIC TAGS: titanium base alloy, aluminum containing alloy, deformability, metal recrystallization, grain structure

ABSTRACT: The results of an investigation of the relative deformability of α-Ti alloys in cold state during longitudinal strip rolling are presented. The alloys investigated were: the binary alloys TiAl2,5 and TiAl5 and the ternary alloys TiAl2Zr2,5 and TiAl5Sn3. In addition, commercial-purity Ti was investigated for comparison. The alloys were prepared in industrial vacuum arc furnaces and subjected to hot forging and rolling at 1150-900°C. The temperatures of the polymorphic transformation of the alloys, determined by means of a Linseis strain gauge on vacuum heating at the rate of 10 deg/min, were found to be 890, 925, 960, 910, and 965°C for commercial-purity Ti and for the alloys TiAl2,5, TiAl5, TiAl2Zr2,5, and TiAl5Sn3, respectively, which is in satisfactory agreement with the theory that Al is an α-stabilizer with respect to its effect on Ti varieties, while Zr and Sn in relatively small quantities exert virtually no effect on the position of the point

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ACC NR: AP5027099

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of polymorphic transformation. Strips of the investigated alloys were subjected to single and multiple reduction by cold rolling in a four-high mill at the fixed rate of 0.96 m/sec, with deformation resistance being determined during the rolling. Commercial Ti was found to display the highest plasticity: its single reduction reached 75% and multiple reduction, 90%, whereas the maximum reduction of α-alloys of Ti was much lower, amounting to 55, 50, 40, and 30%, respectively for the alloys TiAl2Zr2,5, TiAl2,5, TiAl5, and TiAl5Sn3. As the Al content increases, deformability during cold rolling decreases markedly. Tin also somewhat reduces the deformability (for TiAl5Sn3 alloy, as compared with TiAl5 alloy). Zirconium, on the other hand, has no effect on deformability. As for recrystallization in the investigated alloy, it was determined for strips with equiaxial grain structure of the α-phase, by means of radiometallographic and microstructural examinations. It was found that alloying Ti with Al leads to a rise in the recrystallization temperature of the alloys and in the temperature range of primary recrystallization, displaces the critical point of deformation in the direction of higher values of reduction by rolling, and retards cumulative recrystallization. Alloying Ti with extra amounts of Zr and Sn does not appreciably affect these features of the recrystallization process. Orig. art. has: 2 figures, 1 table.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy trubnyy institut (All-Union

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L 5377-66

ACC NR: AP5027099

Scientific Research Tubing Institute)

SUBMITTED: 22Jun64   ENCL: 00   SUB CODE: MM, SS

NO REF SOV: 002   OTHER: 000

Card   3/3

L 21859-66   EWP(j)/EWT(m)   RM

ACC NR: AP6012652   SOURCE CODE: UR/0079/65/035/002/0363/0364

AUTHOR: Shevchenko, V. I.; Stratiyenko, V. T.; Pinchuk, A. M.   27
                                                                                  B

ORG: Institute of Organic chemistry, AN UkrSSR (Institut organicheskoy khimii AN
UkrSSR)

TITLE: Phenyl-p-tolylchlorophosphazosulfonylaryls

SOURCE: Zhurnal obshchey khimii, v. 35, no. 2, 1965, 363-364

TOPIC TAGS: amine, alcohol, hydrolysis, chemical reaction, organic sulfur compound,
organic phosphorous compound, chlorinated organic compound

ABSTRACT: Phenyl-p-tolylchlorophosphazosulfonylaryls react readily with
amines, alcohols, and other compounds containing an active hydrogen atom.
Cold water and moist air slowly hydrolyze these aryls with the formation
of arenesulfonylamides of phenyl-p-tolylphosphonic acid. The reaction
temperature is 125°, and the reaction time is 0.15 hours. Orig. art. has: 2 tables.
[JPRS]

SUB CODE: 07 / SUBM DATE: 13Dec63 / ORIG REF: 001 / OTH REF: 001

Card 1/1   nst

L 25785-66   EWP(j)/EWT(m)/T   IJP(c)   RM

ACC NR: AP6015921   SOURCE CODE: UR/0286/65/000/015/0031/0031

47

INVENTOR: Kirsanov, A. V.; Shevchenko, V. I.; Tkach, V. P.

ORG: none

TITLE: Method for obtaining triallyloxyphosphazosulfonylaryls--Certificate No.
173227, Class C 07f

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 15, 1965, 31

TOPIC TAGS: polymer, organic phosphorus compound, organic sulfur compound, organic
nitrogen compound

ABSTRACT: The method for obtaining triallyloxyphosphazosulfonylaryls distinguished
by the fact that trichlorophosphazosulfonylaryls are treated with sodium allylate or
allyl alcohol in the presence of tertiary bases or by reaction of arenesulfonic acid
sodiumchloramide with triallyl phosphite. The use of triallyloxyphosphazosulfonylaryls
for the preparation of polymers. [JPRS]

SUB CODE: 07 / SUBM DATE: 27Dec61

UDC: 547.419.1: 07

Card 1/1   CC
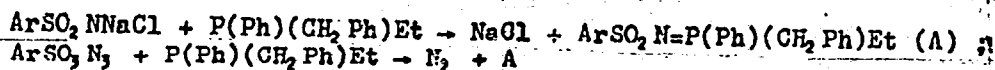
L 29286-66 - EWP(j)/EWT(m)   RM

ACC NR: AP6019326   SOURCE CODE: UR/0079/65/035/008/1487/1488

AUTHOR: Shevchenko, V. I.; Stratiyenko, V. T.; Pinchuk, A. M.

ORG: Institute of Organic Chemistry, AN UkrSSR (Institut organicheskoy khimii AN UkrSSR)

TITLE: Phenylbenzylethylphosphazosulfonylaryls

SOURCE: Zhurnal obshchey khimii, v. 35, no. 8, 1965, 1487-1488

TOPIC TAGS: sulfonic acid, organic azo compound, chlorinated organic compound, organic synthetic process, cyclic group

ABSTRACT: Phenylbenzylethylphosphazosulfonylaryls (A) can be prepared by oxidative introduction of an $ArSO_2N=$ group into phenylbenzylethylphosphine by means of Na salts of sulfonic acid chloramides or by means of sulfonic acid azides:

$$ArSO_2NNaCl + P(Ph)(CH_2Ph)Et \rightarrow NaCl + ArSO_2N=P(Ph)(CH_2Ph)Et \text{ (A)}$$
$$ArSO_3N_3 + P(Ph)(CH_2Ph)Et \rightarrow N_2 + A$$

By using these reactions, compounds A with Ar = Ph, $p-MeC_6H_4$, $o-MeC_6H_4$, and $d-C_{10}H_7$ were prepared. They were crystalline substances melting at 107-8°, 102-3°, 125-6°, and 105-6°, resp. Orig. art. has: 1 formula and 1 table. /JPRS/

SUB CODE: 07 / SUBM DATE: 08Jun64 / ORIG REF: 001 / OTH REF: 002

Card 1/1   UDC: 546.185

L 29287-66   EWP(j)/EWT(m)/T   RM

ACC NR: AP6019327   SOURCE CODE: UR/0079/65/035/008/1488/1491

AUTHOR: Shevchenko, V. I.; Pinchuk, A. M.; Kirsanov, A. V.

ORG: Institute of Organic Chemistry, AN UkrSSR (Institut organicheskoy khimii AN UkrSSR)

TITLE: Mixed triarylphosphazosulfonylaryls

SOURCE: Zhurnal obshchey khimii, v. 35, no. 8, 1965, 1488-1491

TOPIC TAGS: organic synthetic process, chromatography, chlorinated organic compound, organic sulfur compound, organic azo compound, organic phosphorus compound

ABSTRACT: Mixed triarylphosphazosulfonylaryls $ArSO_2N=PAr'Ar''Ar'''$ (I) were prepared by the following five reactions:

$ArSO_2NCl_2 + Cl_2PAr'Ar''Ar''' \quad 2Cl_2 + I$;

$ArSO_2NH_2 + Cl_2PAr'Ar''Ar''' \quad 2HCl + I$;

$ArSO_2NCl_2 + PAr'Ar''Ar''' \quad Cl_2 + I$;

$ArSO_2NNaCl + PAr'Ar''Ar''' \quad NaCl + I$;

$ArSO_2N_3 + PAr'Ar''Ar''' \quad N_2 + I$
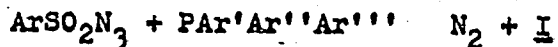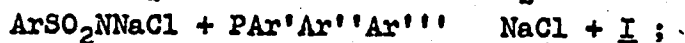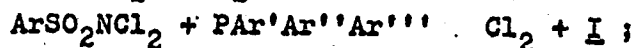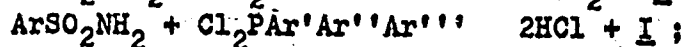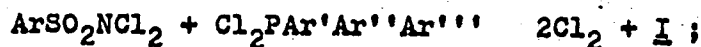
Card 1/3   UDC: 547.558.1

L 29287-66 -

ACC NR: AP6019327

Compounds prepared by reactions of different types were identical. The following compounds were synthesized by the reactions indicated: I (Ar = Ar' = Ar'' = Ph, Ar''' = p-MeC$_6$H$_4$); I (Ar = Ph, Ar'= Ar''= p-MeC$_6$H$_4$, Ar''' = Ph); I (R = Ph, Ar' = Ar'' = p-MeOC$_6$H$_4$, Ar''' = Ph); I (Ar = p-ClC$_6$H$_4$, Ar' = Ar'' = Ph, Ar''' = p-MeC$_6$H$_4$); I (Ar = p-ClC$_6$H$_4$, Ar' = Ar'' = p-MeC$_6$H$_4$, Ar''' = Ph); I (Ar = p-ClC$_6$H$_4$, Ar' = Ar'' = p-MeOC$_6$H$_4$, Ar''' - Ph); I (Ar - p-O$_2$NC$_6$H$_4$, Ar' = Ar'' = Ph, Ar''' = p-MeC$_6$H$_4$); I (Ar - p-O$_2$NC$_6$H$_4$, Ar' = Ar'' = p-MeOC$_6$H$_4$, Ar''' = Ph); I (R = p-MeC$_6$H$_4$, Ar' = Ar'' = Ph, Ar''' = p-MeC$_6$H$_4$); I (Ar - Ar' - Ar'' - p-MeC$_6$H$_4$, Ar''' = Ph); I (Ar = p-MeC$_6$H$_4$, Ar' = Ar'' = MeOC$_6$H$_4$, Ar''' = Ph); I (Ar = β-C$_{10}$H$_7$, Ar' - Ar'' = Ph, Ar''' = p-MeC$_6$H$_4$); I (Ar - β-C$_{10}$H$_7$, Ar' = Ar''= p-MeC$_6$H$_4$, Ar''' - Ph); I (Ar = β-C$_{10}$H$_7$, Ar' - Ar'' - p-MeOC$_6$H$_4$, Ar''' = Ph). Furthermore, eight compounds I (Ar' = Ph, Ar'' = p-BrC$_6$H$_4$) were synthesized with Ar = Ph, Ar''' = p-MeC$_6$H$_4$; Ar = Ph, Ar''' = p-MeOC$_6$H$_4$; Ar = p-ClC$_6$H$_4$, Ar''' = p-MeC$_6$H$_4$;

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$Ar = p\text{-}ClC_6H_4$, $Ar''' = p\text{-}MeOC_6H_4$; $Ar = p\text{-}O_2NC_6H_4$, $Ar''' = p\text{-}MeOC_6H_4$; $Ar = p\text{-}O_2NC_6H_4$, $Ar''' = p\text{-}MeOC_6H_4$; $Ar = Ar''' = p\text{-}MeC_6H_4$; $Ar = p\text{-}MeC_6H_4$, $Ar''' = p\text{-}MeOC_6H_4$. Compounds I were crystalline substances with sharp melting points, except for I ($Ar = \beta\text{-}C_{10}H_7$, $Ar' = Ar'' = Ph$, $Ar''' = p\text{-}MeC_6H_4$) and I ($Ar = p\text{-}MeC_6H_4$, $Ar' = Ph$, $Ar'' = p\text{-}BrC_6H_4$, $Ar''' = p\text{-}MeOC_6H_4$), which were vitreous solids. None of the compounds synthesized could be separated into isomers either by fractional crystallization or by chromatography. Orig. art. has: 6 formulas and 1 table. /JPRS/

SUB CODE: 07 / SUBM DATE: 09Jul64 / ORIG REF: 004 / OTH REF: 002

Card 3/3 CC

L 29285-66   EWT(m)/EWP(j)/T   RM

ACC NR: AP6019328   SOURCE CODE: UR/0079/65/035/008/1492/1496

AUTHOR: Shevchenko, V. I.; Pinchuk, A. M.

ORG: Institute of Organic Chemistry, AN UkrSSR (Institut organicheskoy khimii AN UkrSSR)

TITLE: Mixed diarylmethoxy- and diarylaroxyphosphazosulfonylaryls

SOURCE: Zhurnal obshchey khimii, v. 35, no. 8, 1965, 1492-1496

TOPIC TAGS: organic synthetic process, sulfonic acid, organic azo compound, organic phosphorus compound, chlorinated organic compound

ABSTRACT: Mixed diarylchlorophosphazosulfonylaryls $ArSO_2N{=}P(Ph)(Ar')Cl$ (I) were synthesized by reaction of diarylchlorophosphines with arene sulfonic acid dichloroamides or by reaction of arene sulfonic acid amides with diaryltrichlorophosphorus. The following compounds I were obtained: I (Ar = Ph, Ar' = $p\text{-}ClC_6H_4$); I (Ar = Ph, Ar' = $p\text{-}BrC_6H_4$); I (Ar = Ph, Ar' = $p\text{-}MeOC_6H_4$); I (Ar = Ar' = $p\text{-}ClC_6H_4$); I (Ar = $p\text{-}ClC_6H_4$, Ar' = $p\text{-}BrC_6H_4$); I (Ar = $p\text{-}ClC_6H_4$, Ar' = $p\text{-}MeOC_6H_4$); I (Ar = $p\text{-}ClC_6H_4$, Ar' = $p\text{-}MeC_6H_4$); I (Ar = Ar' = $p\text{-}BrC_6H_4$); I (Ar = $p\text{-}O_2NC_6H_4$, Ar' = $p\text{-}ClC_6H_4$); I (Ar = $p\text{-}O_2NC_6H_4$, Ar' = $p\text{-}BrC_6H_4$); I (Ar =

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L 29285-66

ACC NR: AP6019328

p-$O_2NC_6H_4$, Ar' = p-MeC_6H_4); I (Ar = p-$O_2NC_6H_4$, Ar' = p-$MeOC_6H_4$);
I (Ar = p-MeC_6H_4, Ar' = p-ClC_6H_4); I 9Ar = p-MeC_6H_4, Ar' =
p-BrC_6H_4); I (Ar = p-MeC_6H_4, Ar' = p-$MeOC_6H_4$); I (Ar = 1-$C_{10}H_7$,
Ar' = p-BrC_6H_4); I (Ar = 1-$C_{10}H_7$, Ar' = p-$MeOC_6H_4$); I (Ar =
1-$C_{10}H_7$, Ar' = p-MeC_6H_4). Compounds I were very viscous liquids
or brittle vitreous solids. By treating esters of mixed diaryl-
phosphinous acids with Na salts of chloramides of arene sulfonic
acids or by replacing Cl in compounds I with a methoxy group or
aryloxy groups, diarylmethoxy- and diarylaroxyphosphazosulfonyl-
aryls ArSO$_2$N=P(Ph)(Ar')OR(II) were prepared. The following com-
pounds II were prepared: II (Ar = Ph, Ar' = p-BrC_6H_4, R = Me);
II (Ar = Ph, Ar' = p-BrC_6H_4, R = Ph); II (Ar = Ph, Ar' =
p-BrC_6H_4, R = 1-$C_{10}H_7$); II (Ar = Ph, Ar' = p-MeC_6H_4, R = Ph);
II (Ar = Ph, Ar' = p-MeC_6H_5, R = 1-$C_{10}H_7$); II (Ar = p-ClC_6H_4,
Ar' = p-BrC_6H_4, R = Ph); II (Ar = p-ClC_6H_4, Ar' = p-BrC_6H_4,
R = 1-$C_{10}H_7$); II (Ar = p-ClC_6H_4, Ar' = p-MeC_6H_4, R = 1-$C_{10}H_7$);
II (Ar = p-$O_2NC_6H_4$, Ar' = p-BrC_6H_4, R = Me); II (Ar = p-$O_2NC_6H_4$,
Ar' = p-BrC_6H_4, R = Ph); II (Ar = p-$O_2NC_6H_4$, Ar' = p-BrC_6H_4,

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ACC NR: AP6019328

R = $1-C_{10}H_7$); II (Ar = $p-O_2NC_6H_4$, Ar' = $p-MeC_6H_4$, R = $1-C_{10}H_7$);
II (Ar = $1-C_{10}H_7$, Ar' = $p-BrC_6H_4$, R = Me); II (Ar = $1-C_{10}H_7$,
Ar' = $p-BrC_6H_4$, R = Ph); II (Ar = $1-C_{10}H_7$, Ar' = $p-BrC_6H_4$,
R = $1-C_{10}H_7$). Compounds II were isolated in two isomeric forms:
a crystalline form (one of the three theoretically possible race-
mic isomers) and a liquid form (eutectic mixture of racemic isomers.)
The authors thank A. V. Kirsanov for his help and advice. Orig. art. has: 7 formulas
and 2 tables. [JPRS]

SUB CODE: 07 / SUBM DATE: 06Aug64 / ORIG REF: 005

Card 3/3

L 25595-66   EWT(m)/EWP(j)   WW/RM

ACC NR: AP6016695   SOURCE CODE: UR/0079/65/035/009/1598/1602

AUTHOR: Shevchenko, V. I.; Kormuta, P. P.; Kirsanov, A. V.

ORG: Institute of Organic Chemistry, AN UkrSSR (Institut organicheskoy khimii AN UkrSSR)

TITLE: Phosphorylation of 1-cyanocarboxylic acids

SOURCE: Zhurnal obshchey khimii, v. 35, no. 9, 1965, 1598-1602

TOPIC TAGS: phosphorylation, phosphorus chloride, organic nitrile compound, chlorination, IR spectrum, chloride, organic azo compound

ABSTRACT: The reaction of phosphorus pent$_5$chloride with 1-cyanocarboxylic acids of the AlkCH(CN)COOH type was studied in an effort to expand the limits of application of the phosphorylation of nitriles. The direction of the reaction and yield of the final products depend on the quantitative ratio of the reagents and on the volume of the alkyl radical; the reaction direction is dependent to a lesser degree on the temperature. At a 1:1 molar ratio of 1-cyanocarboxylic acid and phosphorus pentachloride, the acid chloride is formed readily and rapidly. The acid chlorides formed react with phosphorus pentachloride as typical secondary nitriles, forming a mixture of phosphorylation products and the chlorides of 1-chloro-1-cyano-carboxylic acids. At a 1:2 molar ratio of the 1-cyanocarboxylic acid and

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L 25595-66

ACC NR: AP6016695

phosphorus pentachloride, the phosphorylation products obtained are tri-chlorophosphazo-1-chloro-2-chlorocarboxy-2-alkylvinyls, while at a 1:3 ratio, the phosphorylation products are trichlorophosphazo-1,1,2-trichloro-2-chloro-carboxyalkyls. As the molecular weight of the alkyl radical is increased, the yield of the phosphorylation products is sharply reduced, while the yield of the chlorination products increases (from 15% for 1-cyanopropionic acid to 62% for 1-cyanoisovaleric acid). The introduction of halogen atoms into the methyl group of isobutyronitrile sharply increases the yield of phosphory-lation products, from 40% for isobutyronitrile to 80% for 2-chloroisobutyroni-trile. The chlorocarboxy group exerts the same influence as the chloromethyl group. Trichlorophosphazo-1-chloro-2-chlorocarboxy-2-methylvinyl was the only unsaturated phosphazo compound isolated in the individual state; the other unsaturated phosphazo compounds were converted without isolation to trichloro-phosphazo-1,1,2-trichloro-2-chlorocarboxyalkyls by the action of phosphorus pentachloride. Trichlorophosphazo-1,1,2-trichloro-2-chlorocarboxyalkyls react with acetic acid, forming dichlorides of N-dichlorophosphonylmonoiminoalkyl-chloromalonic acids. The infrared spectra of the reaction products are dis-cussed. Orig. art. has: 3 tables. [JPRS]

SUB CODE: 07 / SUBM DATE: 15Aug64 / ORIG REF: 006

Card 2/2 fV

L 27767-66 -EWP(j)/EWT(m)/ETC(m)-6/T   IJP(c)   RM/WW

ACC NR: AP6018498   SOURCE CODE: UR/0079/65/035/011/1970/1973

AUTHOR: Shevchenko, V. I.; Kornuta, P. P.; Kirsanov, A. V.

ORG: Institute of Organic Chemistry, AN UkrSSR (Institut organicheskoy khimii AN UkrSSR)

TITLE: Phosphorylation of secondary nitriles

SOURCE: Zhurnal obshchey khimii, v. 35, no. 11, 1965, 1970-1973

TOPIC TAGS: phosphorylation, organic nitrile compound, phosphorus chloride, phosphoric acid, amine

ABSTRACT: Isobutyronitrile was used as a model for a detailed study of the reaction of secondary nitriles with phosphorus pentachloride. Secondary nitriles of the $CH_3(Alk)CHCN$ type react with phosphorus pentachloride at 20^0 to form a mixture of 1-chloronitriles and phosphorylation products. The reaction does not take place at $0-5^0$. In the presence of excess nitrile, only 1-chloroisobutyronitrile and trichlorophosphazo-1-chloro-2,2-dimethylvinyl are formed; in the presence of excess phosphorus pentachloride, only 1-chloroisobutyronitrile and trichlorophosphaze-1,1,2-trichloro-2-methylvinyl are formed. If the reaction is conducted at 70^0 or above, only 1-chloroisobutyronitrile is formed. Trichlorophosphazo-1,1,2-trichloroalkyls of the $CH_3(Alk)CClCl_2N=PCl_3$ type are colorless crystalline or liquid substances, readily soluble in most organic solvents; they are readily decomposed by atmospheric moisture and react vigorously with amines, alcohols, are hydrolyzed by water at 20^0 with the formation of 1-chloronitriles and phosphoric acid, and decompose at $150-200^0$ into phosphorus pentachloride and 1-chloronitriles. The thermal stability of phosphazo-compounds of this type decreases in the series of Alk: $CH_3 > CH_2Cl > CH_2Cl > C_2H_5$. Orig. art. has: 1 figure and 1 formula. /JPRS/

SUB CODE: 07 / SUBM DATE: 03Aug64 / ORIG REF: 005 / OTH REF: 003

UDC: 547.491

Card 1/1

L 31808-66   EWT(m)/EWP(j)   RM/WW

ACC NR: AP6021676   SOURCE CODE: UR/0079/66/036/003/0467/0469

AUTHOR: Shevchenko, V. I.; Kukhar', V. P.; Kirsanov, A. V.

ORG: Institute of Organic Chemistry, AN UkrSSR (Institut organicheskoy khimii
AN UkrSSR)

TITLE: Phosphorylation of 2-alkoxypropionitriles

SOURCE: Zhurnal obshchey khimii, v. 36, no. 3, 1966, 467-469

TOPIC TAGS: phosphorylation, organic nitrile compound, reaction rate, organic azo
compound, reaction mechanism, reaction temperature

ABSTRACT: 2-Alkoxypropionitriles react at 100° with phosphorus pentoxide
simultaneously at the alkoxyl and nitrile groups, or only at the nitrile group.
With increasing molecular weight of the alkyl radical, the reaction rate at
the alkoxyl group is sharply reduced, while the reaction rate at the nitrile
group remains essentially unchanged. 2-Methoxypropionitrile splits off the
methoxyl group, and trichlorophosphazo-1,1,2,2,3-pentachloropropyl is formed;
2-ethoxypropionitrile gives a mixture of trichlorophosphazo-1,1,2,2,3-
pentachloropropyl and trichlorophosphazo-1,1,2,2-tetrachloro-3-ethoxypropyl.
2-Propoxy-, 2-butoxy-, and 2-phenoxypropionitriles react only at the nitrile
group, to form trichlorophosphazo-1,1,2,2-tetrachloro-3-alkoxy- and
-3-phenoxypropyls, respectively. Trichlorophosphazo-1,1,2,2-tetrachloro-3-

Card   1/2   UDC: 547.491

Card 2/2

L 07403-67   EWT(1)   IJP(c)   GD/AT
SOURCE CODE: UR/0000/65/000/000/0164/0177

ACC NR: AT6020580   (N)

AUTHOR: Lominadze, D. G.; Shevchenko, V. I.

ORG: none

TITLE: On the nonlinear theory of low frequency oscillations excited by an ion beam in a plasma

SOURCE: AN UkrSSR. Vysokochastotnyye svoystva plazmy (High frequency properties of plasma). Kiev, Naukovo dumka, 1965, 164-177

TOPIC TAGS: plasma oscillation, plasma beam interaction

ABSTRACT: The possibility of heating the ion component of a plasma by beam instabilities is investigated in the nonlinear approximation for the case of plasma with electron temperature much higher than that of the ions. The first phase of development of the instability is traced out and most unstable branches of the oscillation are determined. Three regimes, namely, excitation of long wavelength, high frequency oscillations (hydrodynamic phase), excitation of low frequency oscillations (quasi-linear phase) and short wavelength, and low frequency waves are investigated in detail. The change in macroscopic plasma and beam parameters (thermal energy, directed velocity) are derived. It is possible to describe the development of the instability during the quasilinear phase and determine the state reached by the plasma and the beam as a result of quasilinear relaxation when a strong magnetic field is superimposed on the

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ACC NR: AT6020580

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.plasma. In general, it is found that the beam energy is shifted to transverse energy and leads to enhanced diffusion of ions across magnetic field lines. Orig. art. has: 45 formulas.

SUB CODE: 20/ SUBM DATE: 19Nov65/ ORIG REF: 003/ OTH REF: 001

Card 2/2

L 04349-67   EWP(j)/EWT(m)   RM/JW

ACC NR: AP7000242   SOURCE CODE: UR/0079/66/036/004/0730/0735

AUTHOR: Shevchenko, V. I.; Kornuta, P. P.; Bodnarchuk, N. D.; Kirsanov, A. V.

ORG: Institute of Organic Chemistry, AN UkrSSR (Institut organicheskoy khimii AN UkrSSR)

"Phosphorylation of Malonodinitrile by Phosphorus Pentachloride"

Abstract: Malonodinitrile and phosphorus pentachloride, regardless of the quantitative ratio, react at 80° and above to form acyclic trichlorophosphazo-1-chloro-, and 1,2-dichloro-2-cyanovinyls. At $20-25^\circ$, they yield cyclic 1,1,3,5-tetrachloro-, and 1,1,3,4,5-pentachloro-1,2,6-phosphadiazines, isomeric to the acyclic phosphazo-compounds. The latter are readily converted to cyclic isomers under the action of hydrogen chloride at $20-25^\circ$. The structures of the reaction products were confirmed by infrared spectra. The trichlorophosphazocyanovinyls are viscous light yellow liquids, which are readily hydrolyzed by atmospheric moisture, react vigorously with water, alcohols, and amines, undergo acidolysis, and exhibit typical properties of unsaturated compounds, such as the addition of chlorine and bromine. The phosphadiazines are colorless crystalline substances, which are slowly hydrolyzed by atmospheric moisture and react readily with water, alcohols, and organic

Card 1/2   UDC: 547.461.3

L 10260-67   EWP(j)/EWT(m)   RM

ACC NR: AP7003110

SOURCE CODE: UR/0079/66/036/007/1260/1262

AUTHOR: Shevchenko, V. I.; Kukhar', V. P.

ORG: Institute of Organic Chemistry, AN UkrSSR (Institut organicheskoy khimii AN UkrSSR)

TITLE: Omega, omega'-bistrichlorophosphazo-alpha,alpha,beta,beta,alpha',alpha',-beta',beta'-octachloroalkenes

SOURCE: Zhurnal obshchey khimii, v. 36, no. 7, 1966, 1260-1262

TOPIC TAGS: organic nitrile compound, phosphorus chloride, phosphorylation

ABSTRACT: Dinitriles of higher omega,omega'-dibasic carboxylic acids, beginning with glutaronitrile, react with phosphorus pentachloride at both nitrile groups simultaneously, forming omega,omega'-bistrichlorophosphazo-alpha,alpha,beta,beta,alpha',alpha',beta',beta'-octachloroalkenes. No cyclic phosphorylation products could be obtained, nor could the reaction be conducted on only one nitrile group. The phosphazo-compounds with an odd number of methylene groups were difficult to crystallize and melted at a temperature lower than their closest homologs with an even number of methylene groups. Bistrichlorophosphazooctachloroalkenes were readily hydrolyzed by atmospheric moisture and reacted readily with amines, alcohols, and acids. The reaction with acetic acid yielded dichlorides of N,N'-bisdichlorophosphonyl-alpha,alpha,alpha',alpha'-tetrachloro-omega,omega'-bisiminocarboxylic acids. Orig. art.
has: 2 tables. [JPRS: 38,970]

SUB CODE: 07 / SUBM DATE: 25Jun65 / ORIG REF: 004

UDC: 547.412.76

Card 1/1

ACC NR: AM5027772   Monograph   UR/

Derkach, Grigoriy Illarionovich; Zhmurova, Irina Nikolayevna; Kirsanov, Aleksandr
Vasil'yevich; Shevchenko, Veniamin Isaakovich; Shtepanek, Alla Stanislavovna

Phosphazo compounds (Fosfazosoyedineniya) Kiev, Izd-vo "Naukova dumka," 1965. 283 p.
  illus., biblio. (At head of title: Akademiya nauk Ukrainskoy SSR. Institut
  organicheskoy khimii) 2000 copies printed.

TOPIC TAGS: organic phosphorus compound, nitrogen compound, organic azo compound

PURPOSE AND COVERAGE: The introduction contains a review of recent research in the
field and a discussion of the problems connected with inconsistencies in terminology.
The nomenclature employed is that first proposed by A. Mikhaelis. The book deals
with data on the chemistry of phosphazo compounds, published in the scientific press
up to 1 January 1964, and presents lists of the phosphazo compounds that are known
at the present time. It is intended for scientists, industrial workers, teachers,
and students interested in modern progress in organic chemistry, especially those
working in the field of phosphor-organic compounds. Each chapter deals with a dif-
ferent class of compounds, for which the authors give the method of preparation, the
chemical properties, a list of compounds, and an appropriate bibliography.

TABLE OF CONTENTS [abridged]:

Card 1/2   UDC: 547.1

ACC NR: AM5027772

SUB CODE: 07/   SUBM DATE: 10Apr65/   ORIG REF: 222/   OTH REF: 319

Car, 2/2

ACC NR: AP7005106   SOURCE CODE: UR/0079/66/036/009/1645/1649

SHEVCHENKO, V. I., BODNARCHUK, N. D., Institute of Organic Chemistry, Academy
of Sciences Ukrainian SSR (Institut organichoskoy khimii AN UkrSSR)

"Phosphorylation of Acetonitrile and Chloroacetonitrile"

Abstract: The structure and mechanism of formation of the complex compounds
$C_2H_2Cl_9NP_3$ and $C_2HCl_{10}NP_2$, resulting from the reaction between aceto- and
chloroacetonitriles and phosphorus pentachloride were studied. During the
formation of these complexes one mole of nitrile reacts with three moles of
PCl_5. The complex obtained from acetonitrile has the composition $C_2HCl_{13}NP_3$
and that obtained from chloroacetonitrile, $C_2Cl_{14}NP_3$. Thus, at $20^\circ C$,
acetonitrile and chloroacetonitrile react with PCl_5 to form hexachlorophosphorates
of trichlorophosphazo-1-chlorovinyl-2-trichlorophosphonium and trichlorophosphazo-
1,2-dichlorovinyl-2-trichlorophosphonium. The latter is reduced with red
phosphorus or methyldichlorophosphite to trichlorophosphazo-1,2-dichlorovinyl-
2-dichlorophosphine. The hexachlorophosphorate of trichlorophosphazo-1,2-
dichlorovinyl-2-trichlorophosphonium reacts with sulfur dioxide to form trichloro-
phosphazo-1,2-dichlorovinyl-2-phosphonic acid chloride, which on chlorination,
changes into trichlorophosphazo-1,1,2,2-tetrachloroethyl-2-phosphonic acid
chloride. The latter is hydrolyzed by water to form dichloroacetic acid. A. V.
Kirsanov collaborated. Orig. art. has: 5 formulas. /JPRS: 38,970/

                                            UDC: 547.292'39.2
Card 1/2

ACC NR: AP7005106

TOPIC TAGS: acetonitrile, phosphorylation, phosphorus chloride

SUB CODE: 07 / SUBM DATE: 02Jul65 / ORIG REF: 003 / OTH REF: 001

Card 2/2

ACC NR: AP7000243   SOURCE CODE: UR/0079/66/036/004/0735/0738

AUTHOR: Shevchenko, V. I.; Kukhar', V. P.

ORG: Institute of Organic Chemistry, AN UkrSSR (Institut organicheskoy khimii AN UkrSSR)

TITLE: Reactions of dinitriles of succinic and fumaric acids with phosphorus pentachloride

Moscow, Zhurnal Obshchey Khimii, Vol 36, No 4, 1966, pp 735-738

Abstract: Dinitriles of succinic, fumaric, and chloromaleic acids react with phosphorus pentachloride in boiling chlorobenzene to form cyclic 2,3,4-trichloro-5-imino-N-tetrachlorophosphorus-pyrrolenine. The structure of the latter was confirmed by infrared spectra.   It is extremely stable to the action of halogens and halogen compounds of phosphorus.   It reacts readily with nucleophilic reagents water, alcohols, amines, and amides of acids.   It reacts with benzenesulfamide according to the Kirsanov scheme, to form 2,3,4-trichloro-5-iminopyrrolenyldichlorophosphazosulfonylphenyl, which is readily hydrolyzed by atmospheric moisture, forming dichloromaleimide.   Under the action of acetic acid or sulfur dioxide, the original iminopyrrolenine is readily converted to 2,3,4-trichloro-5-imino-N-dichlorophosphonylpyrrolenine.   [JPRS: 37,177]

Card 1/2   UDC: 547.461.4

ACC NR: AP7000243

TOPIC TAGS: phosphorus chloride, organic nitrile compound, fumaric acid, halogenated organic compound

SUB CODE: 07 / SUBM DATE: 13 May 65 / ORIG REF: 003 / OTH REF: 002

Card 2/2

SOV/32-25-4-26/71

18(7)
AUTHORS: Akimova, Ye. P., Shevchenko, V. I., Alpatov, Ye. N.

TITLE: Scale for the Valuation of Inclusions of the Titanium-nitride
              Type in Rolled Steel (Shkala dlya otsenki vklyucheniy tipa
              nitridov titana v stal'nom prokate)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 4, pp 444-445 (USSR)

ABSTRACT: Highly alloyed steels with small admixtures of titanium are
              much in use at present. Titanium energetically binds the nitro-
              gen dissolved in the steel, and forms nitrides which are very
              hard but poorly plastic. Evenly distributed inclusions of this
              kind do not deteriorate the quality of the steel; but in
              practice, these inclusions can often be observed as lines and
              strips which may lead to destructions in rolling. A special
              scale with five marks was developed for the valuation of these
              linear nitride inclusions (Figure). Every group of marks has
              two standard samples characterized by a certain degree of
              distribution of the inclusions. The nitride lines consist of
              individual inclusions with an average diameter between 3 and
              10μ. The standard samples were fixed after determining the
              surface of all nitride inclusions visible in a micrograph; the
              nitride inclusions were divided into 3 groups (3, 5 and 10μ).

Card 1/2

SOV/32-25-4-26/71

Scale for the Valuation of Inclusions of the Titanium-nitride Type in Rolled
Steel

The total area of the nitride inclusions of the first group
of marks was assumed with $70\mu^2$(as for large inclusions ac-
cording to the scale ChMTU 2581-54), and was increased for
each following group by a geometrical progression of 2.
There is 1 figure.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy trubnyy institut
(Ukrainian Scientific Research Institute of Tubes)

Card 2/2

SHEVCHENKO, V.I.; ALPATOV, Ye.N.

Continuous microscopic examination of surfaces in the course of
electrolytic treatment. Zav.lab. 26 no.1:77-78 '60.
(MIRA 13:5)

1. Ukrainskiy nauchno-issledovatel'skiy trubnyy institut.
(Metallography0   (Electrometallurgy)