GREKOV, A.N.

Fines for the excessive use of electric power. Energetik. 13 no.9:37-38 S '65. (MIRA 18:9)

1. Zamestitel' direktora Moskovskogo rayonnogo upravleniya energeticheskogo khozyaystva.

GREKOV, A.N.

Rates on electric power in agriculture. Energetik 14 no.1:42 Ja '66. (MIRA 19:1)

1. Zamestitel' direktora energosbyta Moskovskogo rayonnogo upravleniya energeticheskogo khozyaystva.

GREKOV, A.P

USSR

✓Steric hindrance and reactivity. I. Acetylation of amino derivatives of biphenyl. L. M. Litvinenko and A. P. Grekov (A. M. Gor'kii State Univ., Kharkov). *Ukrain. Khim. Zhur.* 20, 194-203(1954)(in Russian).—Kinetics of the reactions of $PhNH_2$, 4-amino-4'-nitrobiphenyl, and 4-amino-4'-nitro-2,2'-dimethylbiphenyl with p-$O_2NC_6H_4COCl$ were studied. It was demonstrated that the presence of 2- and 2'-methyl groups in the biphenyl molecule weakens interaction of nitro and amino groups in the 4,4'-positions. It has been hypothesized that internal rotation of the aromatic rings of the biphenyl molecule about the internuclear bond, and the noncoplanar structure of this molecule, account for the characteristic reactivity of amino derivatives of biphenyl in contrast to the analogous benzene derivatives. Clayton F. Holoway

Grekov, A.P.

Space structure and reactivity of 2,2'-derivatives of 4-amino-4'-nitrobiphenyl. L. M. Litvinenko and A. P. Grekov. Voprosy Khim. Kinetiki, Kataliza i Reaktsionnoi Sposobnosti, Akad. Nauk S.S.S.R., Otdel. Khim. Nauk 1955, 859-71.—Acylation of several aromatic amines and nitroamines showed that Me groups in 2,2'-positions greatly weaken the reactivity of nitro and amino groups with each other in *p,p'-positions*, by prevention of free rotation. The following values of rates of reaction of indicated acyl chlorides (BzCl, *p*-nitrobenzoyl chloride, AcCl, resp.) with the amines were found (k_{25}, k_{35}, E, ΔS, shown, resp.): $PhNH_2$ 0.075, —, 7350, —; 0.521, —, 5800, —; 1.16, —, —, —. p-$O_2NC_6H_4NH_2$: 0.000421, —, 11800, —; [illegible], —, 10400, —; 0.00149, —, —, —. p-$PhC_6H_4NH_2$: [illegible], 0.140, 6600, −44.5; 0.53, 1.11, 5600, −43; [illegible], [illegible], [illegible], −41.5. p-$O_2NC_6H_4C_6H_4NH_2$-p: [illegible], [illegible], [illegible], −48.7; 0.051, 0.118, 6500, −41.7; 0.112, [illegible], [illegible], −39.3. 2,4-$Me(O_2N)C_6H_3C_6H_3(NH_2)Me$-4,2: 0.036, 0.104, 8100, −40.1; 0.114, 0.39, 9300, −33.6; 0.338, 1.77, 12600, −20.4.

G. M. Kosolapoff

GREKOV, A.P

Micromethod for determination of primary aromatic
amines by potentiometric titration with sodium nitrite. CH
L. M. Litvinenko and A. P. Grekov (A. M. Gor'kii State
Univ., Kharkov). *Zhur. Anal. Khim.* 10, 164-9; *J. Anal.*
Chem. U.S.S.R. 10, 153-6(1955)(Eng. translation).—Dis-
solve 0.01-0.05 millimol. of the amine in 5-20 ml. 2-10%
HCl. If the amine is insol. in HCl dissolve it in AcOH or
CHO$_2$ and then add HCl to approx. 2-10%. Add KBr
(acts as diazotation catalyst) to make the soln. 0.3-0.4*N*
with respect to it. Titrate the soln. with 0.01*N* NaNO$_2$
delivered from a microburet. The equivalent point is at the
max. jump in potential $\Delta E/\Delta v$. The results are calcd. from
% amine = $a.T.100/b$ where a is the number of ml. of
NaNO$_2$ used, T is the titer of the NaNO$_2$ standardized
against an amine, and b is the wt. of the sample. This
procedure worked equally well in HCl concns. of 2-20%
and in the presence of 10-80% AcOH or HCOOH. The
method was applied to detn. of sulfanilic acid, aniline, *p*-
nitroaniline, *m*-nitroaniline, 4-aminobiphenyl, 4-amino-4'-
nitro-2,2'-dichlorobiphenyl, and benzidine. M. Hosch

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GREKOV, A.P.

USSR/ Chemistry - Organic Chemistry

Card 1/1 Pub. 116 - 11/25

Authors : Litvinenko, L. M., Grekov, A. P.

Title : The reaction kinetics of acylation of aromatic amines with acid chlorides

Periodical : Ukr. khim. zhur. 21/1, 66-70, 1955

Abstract : Three methods of controlling the reaction kinetics of aromatic amines with acid chlorides were tested for the purpose of selecting one suitable for the study of the kinetics of aromatic amine acylation in anhydrous solvents. The deficiencies of the A and B methods and the advantages of the C (most suitable) method are described. Some results obtained by all three methods are tabulated. Six references 3 USSR, 2 USA and 1 German (1933-1954). Tables.

Institution : The A.M.Gorkiy State University, Faculty of Org. Chemistry, Kharkov

Submitted : March 1, 1954

Grekov, A. P.

USSR/ Chemistry - Organic chemistry

Card 1/1 Pub. 116 - 11/30

Authors : Tsukerman, S. V.; Litvinenko, L. M.; and Grekov, A. P.

Title : Synthesis of methyl ethers of 4-amino- and 4-amino-4'-nitrodiphenic acid

Periodical : Ukr. khim. zhur. 21/3, 341-343, June 1955

Abstract : The synthesis of hitherto unknown methyl ether of 4-amino-4'-nitrodiphenic acid (methyl-4-amino-4'-nitrodiphenate) was accomplished through partial reduction of 4,4'-dinitrodiphenic acid with a methanol-water solution of sodium disulfide and esterification of the product obtained with methyl alcohol in presence of hydrogen chloride. It is shown that the melting point of methyl m-aminobenzoate is 53-54° which is much higher than the value known so far. Ten references: 5 German, 1 English and 4 USSR (1903-1955).

Institution : The A. M. Gorkiy State Univ., Faculty of Organ. Chem., Karkov

Submitted : November 12, 1954

LITVINENKO, L.M.; GREKOV, A.P.; TSUKERMAN, S.V.

Spatial structure and reactivity. Part 3. Restricted inner rotation
and kinetics of the acylation of 2,2'-carbomethoxyl derivatives of
4-aminobiphenyl and 4-amino-4'-nitrobiphenyl. Ukr. khim.zhur. 21
no.4:510-517 '55. (MLRA 9:2)

1.Khar'kovskiy gosudarstvennyy universitet, kafedra organicheskoy
khimii. (Acylation) (Biphenyl)

GREKOV, A.P

USSR/ Chemistry - Organic chemistry

Card 1/1 Pub. 22 - 19/51

Authors : Litvinenko, L. M.; Tsukerman, S. V.; and Grekov, A. P.

Title : Retarded internal rotation and the reactivity of amino derivatives of biphenyl

Periodical : Dok. AN SSSR 101/2, 265-268, Mar 11, 1955

Abstract : A study of the acylation reaction kinetics of biphenyl amino derivatives showed that the reaction between the NO_2 and NH_2 groups oriented in 4,4'-positions is considerably weakened if the internal rotation of the aromatic nuclei in the molecule is retarded by the introduction of 2,2'-alkyl substitutes. The steric effect of 2,2'-carbomethoxyl groups on the reactivity of 4-amino-4'nitrobiphenyl was investigated. The results obtained are described. Nine references: 3 USSR and 6 USA (1934-1954). Table.

Institution : The A. M. Gorkiy State University, Kharkov

Presented by: Academician I. N. Nazarov, November 2, 1954

Grekov, A.P.

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Synthesis of some halogen-containing amino and nitro derivatives of biphenyl. L. M. Litvinenko, A. P. Grekov, N. N. Verkhovod, and V. P. Dzyuba (State Univ., Khar'kov). *Zhur. Obshchei Khim.* 26, 2524-31(1956).—Formation of *2-chloro-4-nitroaniline* (I) by chlorination of p-$O_2NC_6H_4NH_2$ in boiling HCl does not take place (cf. Flürscheim, *C.A.* 3, 886) as the 2,6-dichloro deriv. forms instead. The desired product was only formed as follows: to 40 g. p-$O_2NC_6H_4NH_2$ is added 1.2 l. H_2O and 200 ml. concd. HCl, the mixt. heated until dissolved, chilled rapidly to room temp. and the resulting suspension chlorinated with stirring until 20-1 g. Cl is added; the ppt. is sepd. and I extd. from it with hot dil. HCl (1:2), in which the dichloro deriv. is insol. I forms in 50% yield (after cooling the ext.), m. 104°. This (48 g.) suspended at 8° in 480 ml. H_2O and 160 ml. concd. H_2SO_4 is treated with 20 g. $NaNO_2$ in 80 g. H_2O at 8°, stirred 0.5 hr., filtered and added to 100 g. KI, 50 g. iodine and 100 ml. H_2O, then heated on a steam bath, freed of iodine with $NaHSO_3$ and washed with H_2O, yielding 84% 2-chloro-4-nitroiodobenzene, m. 99-100° (from MeOH). This (25 g.) heated to 210° is treated over 40 min. with 25 g. powd. Cu (activated by iodine in Me_2CO), keeping the temp. under 220°; after heating 2 hrs. with stirring, the mass is extd. with hot MePh and the residue steam distd. The residue is steam distd. with superheated steam, yielding 43.5% *4,4'-dinitro-2,2'-dichlorobiphenyl*, m. 107° (from MeOH). This (6 g.) in 600 ml. MeOH at 40° is treated dropwise with 30 ml. *M* Na_2S_2

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Litvinenko, L.M., Grekov. A.P., Verkhovod, N.N...

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S heated with 500 ml
soln. (240 g. $Na_2S.9H_2O$ and 32 g.
H_2O and 250 ml. MeOH until dissolved, then dild. to 1 l.
with H_2O) at 40°; after 10 min. the mixt. is acidified with
HCl, the solvents are evapd., and the residue extd. with hot
1:1 HCl, yielding on cooling the ext. 69% *4-amino-4'-nitro-*
2,2'-dichlorobiphenyl-HCl (II), m. 204-6° (from aq. HCl);
heated with NH_4OH it gave the *free amine*, a glassy solid
(from aq. MeOH); the amine boiled with Na_2S_2 (excess) in
MeOH yields 2,2'-dichlorobenzidine. II (3 g.) in a hot
mixt. of 6 ml. concd. HCl and 15 ml. AcOH was chilled
to 0°, treated with 0.75 g. $NaNO_2$ in 7.5 ml. H_2O, filtered,
and added slowly to 12 g. $NaH_2PO_2.H_2O$ in 12 ml. concd.
HCl at 0°; after standing overnight the mixt. was made
alk. with 10% NaOH, the oil sepd., washed with H_2O and
extd. with MeOH (boiling), and the MeOH exts. were
treated with C and evapd. yielding 1.7 g. syrupy *4-nitro-*
2,2'-dichlorobiphenyl, which (1.7 g.) in 17 ml. warm EtOH
was treated with 1 ml. 100% $N_2H_4.H_2O$ and a little Raney
Ni (vigorous reaction); after the reaction moderated,

another ml. $N_2H_4.H_2O$ and Ni was added and the process
was repeated until gas evolution ceased completely. The
hot soln. was filtered, treated with C, evapd., dried *in*
vacuo and extd. with petr. ether, and the ext. treated with
dry HCl yielding 30% *4-amino-2,2'-dichlorobiphenyl-HCl*;
free amine, m. 73-4° (from aq. MeOH). Diazotization of
27 g. 2-bromo-4-nitroaniline in 230 ml. concd. H_2SO_4 and
430 g. H_2O at 5° with 13.6 g. $NaNO_2$ and 44 ml. H_2O...
filtration and addn. to 22 g. iodine and 44 g. KI in 44

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Litvinenko, L.M., Grekov, A.P., Verkhovod, N.N..

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ml. H_2O, yielded after usual treatment 100% *2-bromo-4-nitroiodobenzene*, m. 107° (from MeOH). This was treated with Cu, as described above, at 200–10° (the temp. is very critical), then extd. with hot MePh and the extd. steam distd. with superheated steam up to 220°, 10° fractions being collected separately; the fraction collected in any 10° interval was not homogeneous and the combined products were again steam distd., collecting at 190–200° 7 g. *4,4'-dinitro-2,2'-dibromobiphenyl*, m. 126° (from MeOH). This (3.8 g.) in 380 ml. MeOH was treated with 15.2 ml. *M* Na_2S_2 in aq. MeOH (described above), refluxed 10 min., acidified and worked up as usual, yielding 70% *4-amino-4'-nitro-2,2'-dibromobiphenyl*, a glass; *HCl salt*, m. 220–2°. The latter (0.4 g.) in 1.6 ml. AcOH with 3–5 drops of pyridine treated at 0° with 0.09 g. $NaNO_2$ in 0.6 ml. cold concd. H_2SO_4 (heated carefully to 60°, then chilled), stirred 0.5 hr. and added in 15 min. to a suspension of 0.3 g. Cu_2O in 3.5 ml. dry EtOH, refluxed 1 hr., filtered, evapd., treated with excess 10% NaOH and extd. with Et_2O, gave 0.23 g. crude syrupy *4-nitro-2,2'-dibromobiphenyl*, also obtained in poorer yield by treatment of the diazonium salt with NaH_2PO_2 in HCl-AcOH. The product was reduced with $N_2H_4.H_2O$ and Raney Ni, yielding *4-amino-2,2'-dibromobiphenyl*, m. 94–5°. G. M. Kosolapoff

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GREKOV, A.P.

Chem

Steric hindrance and reactivity. V. Hindered rotation and kinetics of acylation of 2,2'-halo derivatives of 4-aminobiphenyl and 4-amino-4'-nitrobiphenyl. L. M. Litvinenko and A. P. Grekov (State Univ., Kharkov). *Zhur. Obshchei Khim.* 26, 3391-9(1956); cf. *C.A.* 49, 10395b, 51, 5008e.—In acylation, in C_6H_6 soln., of aminobiphenyl with 2,2'-position of the halogen atoms and 4-position of the NH_2 group, it was shown that the halogens in this location cause steric hindrance to rotation of the rings and thus weaken the interaction of NO_2 and NH_2 groups in *p*-position to each other. The samples of the amine and the acyl chloride in C_6H_6 in 2:1 molar ratio were mixed in a thermostat, and after a predetd. period a 1:3 mixt. of Et_2NH-C_6H_6 was added to consume immediately the unreacted acyl chloride, methyl red in AcOH added, 1:3 HCl added to acidify the mixt., the org. solvent removed, and the aq. residue after addn. of KBr (cf. *C.A.* 49, 15640i) analyzed for the aromatic amine with HNO_2. For acylation with *p*-$O_2NC_6H_4COCl$ the following kinetic data was obtained (k_{25}, k_{50}, *E*, *PZ*, and ΔS given): 4-aminobiphenyl, 0.533, 1.11, 8690, 7.1 × 10^4, −42.8; 4-amino-4'-nitrobiphenyl, 0.0705, 0.118, 9500, 2.9 × 10^4, −44.7; 4-amino-2,2'-dichlorobiphenyl, 0.0134, 0.037, 7800, 6.7 × 10^4, −43.1; 4-amino-4'-nitro-2,2'-dichlorobiphenyl, 0.00209, 0.00693, 9300, 11.2 × 10^4, −42.1; *m*-$ClC_6H_4NH_2$, 0.0211, 0.0660, 8700, 5.3 × 10^4, −39; 4-amino-2,2'-dibromobiphenyl, 0.0181, 0.0452, 7500, 5.7 × 10^4, −43.4; 4-amino-4'-nitro-2,2'-dibromobiphenyl, 0.00207, 0.00820, 8700, 6.0 × 10^4, −43.1; *m*-$BrC_6H_4NH_2$, 0.0189, 0.0578, 8600, 3.6 × 10^4, −39.8; $PhNH_2$ 0.58, —, —, —, —. The steric effect *F*, taken as unity for biphenyl at 25° and 50°, is calcd. to be 1.65 for the 2,2'-dichloro deriv. at 25° and 1.76 at 50°; with the 2,2'-dibromo deriv. it is 1.73 and 1.80, resp. (cf. *C.A.* 50, 3333b) G. M. K.

GREKOV A P

LITVINENKO, L.M.; GREKOV, A.P.

Spatial structure and reactivity. Part 2: Retarded internal rotation and acylation kinetics of certain biphenyl amino derivatives. Uch.zap. KHGU 71:165-175 '56. (MIRA 10:8)
(Stereochemistry) (Acylation)
(Biphenylamine)

GREKOV, A.P

-USSR / Analytical Chemistry.
Analysis of Organic Substances.

E-3

Abs Jour: Ref. Zhur - Khimiya No. 2, 1958, 4358

Author : Litvinenko, L.M., Polakov, V.P., Grekov, A.P., Czernetskaya A.M.

Title : Analysis of the Chloranhydride of Acetylsalicylic Acid.

Orig Pub: Med. prom-st SSSR, 1957, No. 4, 42-43

Abstract: The method consists of the mixing of the chloranhydride of acetylsalicylic acid solution (1) in C_6H_6 with a benzene solution of $C_6H_5NH_2$; the amount of $C_6H_5NH_2$ exceeds by ~ 3 times (in a mol. ratio) that of (1). The excess of $C_6H_5NH_2$ is backtitrated potentiometrically with a solution of $NaNO_2$ using a Pt indicator electrode. The presence of the N-phenylamide of acetylsalicylic acid in the mix-

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Греков А.П.

LITVINENKO, L.M.; POLYAKOV, V.P.; GREKOV, A.P.; CHERNETSKAYA, A.M.

Analysis of aminoantipyrine in testing aminopyrine production. (MLRA 10:2)
Med.prom. 11 no.1:46-48 Ja '57.

1. Kafedra organicheskoy khimii Khar'kovskogo universiteta imeni A.M.Gor'kogo i TSentral'naya laboratoriya Khar'kovskogo khimiko-farmatsevticheskogo zavoda "Krasnaya zvezda"
(PYRAMIDONE) (ANTIPYRINE)

GREKOV, A.P.

LITVINENKO, L.M.; POLYAKOV, V.P.; GREKOV, A.P.; CHERNETSKAYA, A.M.

Analysis of acetylsalicylic acid chloride. Med.prom. 11 no.4: 42-43 Ap '57. (MLRA 10:6)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M.Gor'kogo i Khar'kovskiy khimiko-farmatsevticheskiy zavod "Krasnay zvezda".
(CHLORIDES)

GREKOV, A.P.

73-2-12/22

AUTHORS: Litvinenko, L.M., Tsukerman, S.V., Grekov, A.P. and Slobodkina, E.A.

TITLE: Space structure and reactivity. IX: Hindered internal rotation and kinetics of the acylation of 2,2'-dicarboisoproxylic derivatives of 4-aminobiphenyl and 4-amino-4'-nitrobiphenyl. (Prostranstvennoye stroyeniye i reaktsionnaya sposobnost'. IX: Zatormozhennoye vnutrenneye vrashcheniye i kinetika atsilirovaniya 2,2'-dikarboizopropoksil'nykh proizvodnykh 4-aminobifenila i 4-amino-4'-nitrobifenila).

PERIODICAL: "Ukrainskiy Khimicheskiy Zhurnal" (Ukrainian Journal of Chemistry), Vol.23, No.2, March-April, 1957, pp.223-227 (USSR).

ABSTRACT: In an earlier communication it was shown that the interaction between the NO_2 and the NH_2 groups is considerably weakened in the second molecule by introducing the 2,2'-position of the carbomethoxyl groups (1). Further investigations have now been carried out to obtain data for determining the kinetics of the acylation reaction of amino-derivatives in a benzene solution, especially of dicarboisopropoxylic derivatives. The 4-amino-4'-nitro-2,2'-dicarboisopropoxylbiphenyl and 4-amino-2,2'-dicarboiso-

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73-2-12/22

Space structure and reactivity. IX: Hindered internal rotation and kinetics of the acylation of 2,2'-dicarboisoproxylic derivatives of 4-aminobiphenyl and 4-amino-4'-nitrobiphenyl. (Cont.)

propoxybiphenyl were synthesised and the kinetics of acylation by n-nitrobenzyl chloride in a benzene solution were investigated. Table 2 gives results at 25 C and 50 C for the first compound and Table 1 values for the second compound at the same temperatures. On comparing the velocities of acylation of the 2 compounds it can be seen that the carboisopropoxyl groups possess clearly defined electro-acceptor character as the velocity constant during the transition from one compound to the second compound decreases to half its value. Table 4 gives the values of the factorsF (which was defined by the authors as the factor of space interlinking weakening. It shows the effect of weakening of the nitro-group on the amino-group by the molecular system of the biphenyl due to the spatial interaction of the 2,2'-substituents). These factors are for molecular systems of non-substituted biphenyl and its derivatives with ester-grouping in the 2,2'-position. Data given in Tables 3 and 4 show that the

Card 2/3

73-2-12/22

Space structure and reactivity.IX: Hindered internal rotation and kinetics of the acylation of 2,2'-dicarboisoproxylic derivatives of 4-aminobiphenyl and 4-amino-4'-nitrobiphenyl. (Cont.)

carboisopropoxylic derivatives are closely related to their carbomethoxy-homologues for reasons of their kinetic characteristics and also the effects of the 2,2'-substituents.

There are 4 tables and 7 references, 6 of which are Slavic.

ASSOCIATION: Kharkov State University imeni A.M.Gor'ki, Chair of Organic Chemistry (Khar'kovskiy Gosudarstvennyy Universitet imeni A.M.Gor'kogo, Kafedra Organicheskoy Khimii).

SUBMITTED: October 1, 1956.

AVAILABLE: Library of Congress

Card 3/3

GREKOV, A.P.

73-2-13/22

AUTHORS: Litvinenko, L.M. and Grekov, A.P.

TITLE: Space structure and reactivity. X: Hindered internal rotation and kinetics of the acylation of 4-amino-1,1'-binaphtyl and 4-amino-4'-nitro-1,1'-binaphtyl. (Prostranstvennoye stroyeniye i reaktsionnaya sposobnost'. X: Zatormozhennoye vnutrenneye vrashcheniye i kinetika atsilirovaniya 4-amino-1,1'-binaftila i 4-amino-4'-nitro-1,1'-binaftila).

PERIODICAL: "Ukrainskiy Khimicheskiy Zhurnal" (Ukrainian Journal of Chemistry), Vol.23, No.2, March-April, 1957, pp.228-232 (USSR).

ABSTRACT: Previously published investigations on this subject are mentioned briefly (viz. previous abstract). Analogous experiments have now been carried out on the kinetics of acylation of the 2 above compounds. The synthesis and purification of the compounds, starting materials and intermediates is described in detail. The same method for measuring the velocity of acylation was used as in the previous experiments. (Viz. previous abstract). Data are tabulated in Tables 1 and 2. Table 3 summarises previously obtained data for the kinetics of acylation. It shows that the velocity of acylation of the aromatic amino-group

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15-2-13/22

Space structure and reactivity. X:Hindered internal rotation and kinetics of the acylation of 4-amino-1,1'-binaphtyl and 4-amino-4'-nitro-1,1'-binaphtyl. (Cont.)

linked to the binaphthyl residue, is considerably smaller than in the case of analogous biphenyl derivatives. Table 4 gives the F-factors for the molecular systems 1,1'-binaphthyl, unsubstituted biphenyl and its derivatives with substituents in the 2,2'-position. (For definition of F see previous abstract). The ultraviolet absorption spectra of three isomeric binaphtyls - 2,2'-binaphtyl, 1,2'- and 1,1'-binaphtyl it was shown that the effect of spatial hindrance is almost absent in the case of 2,2'-binaphtyl and shows a maximum for 1,1'-binaphtyl. The authors point out that the value for the activation entropy increases during the transition of 4-amino-4'-nitrobiphenyl to its binaphtyl analogue.

There are 4 tables and 14 references, 7 of which are Slavic.

ASSOCIATION: Kharkov State University imeni A.M.Gor'ki, Chair of Organic Chemistry (Khar'kovskiy Gosudarstvennyy Universitet imeni A.M.Gor'kogo, Kafedra Organicheskoy Khimii).

SUBMITTED: October 1, 1956.

AVAILABLE: Library of Congress

Card 2/2

GREKOV, A.P.

483

AUTHORS: Litvinenko, L. M., and Grekov, A. P.

TITLE: Spatial Structure and Reactivity. Part 6. Kinetics of Acylation of 2-Amino fluorene and 2-Amino-7-nitrofluorene (Prostranstvennoye stroyeniye i reaktsionnaya sposobnost'. VI. Kinetika atsilirovaniya 2-aminofluorena i 2-amino-7-nitrofluorena)

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, No. 1, pp.234-239 (U.S.S.R.)

ABSTRACT: In order to establish the relation between spatial configuration and reactivity in bi-nuclear aromatic amino-nitro derivatives, comparative studies were made on the kinetics of acylation reaction for 4-aminobiphenyl and 4-amino-4'nitrobiphenyl on one hand and derivatives of these amines containing various substitutes in 2,2'-positions on the other hand. It was shown that an increase in the angle between the surfaces of benzene rings during the change from 4-amino-4-nitrobiphenyl to its 2,2'-derivatives is due to the steric hindrances between 2,2'-substituents leading to a considerable weakening of the reaction of the NO$_2$- and NH$_2$-groups oriented in 4,4'-positions of the molecules of the compounds indicated. It was found that the fluorene system being more planar

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Spatial Structure and Reactivity

than the biphenyl system is a much better transmitter of electronic effects of the substituents. Attention is called to the fact that 2-aminofluorene is similar by its kinetic parameters to its very close analogue 4-amino-2,2'-dimethylbephenyl whereas 2-amino-7 nitrofluorene differs from its analogue - 4-amino-4'-nitro-2,2'-dimethylbiphenyl by its energy and activation entropy values. The kinetic acylation data for 2-amino-7-nitrofluorene are in many respects analogous to the kinetic data of 4-amino-4'-nitrobiphenyl. Four tables. There are 16 references, of which 10 are Slavic.

ASSOCIATION: The Khar'kov State University (Khar'kovskiy Gosudarstvennyy Universitet)

PRESENTED BY:

SUBMITTED: January 14, 1956

AVAILABLE:

Card 2/2

GREKOV, A. P.

79-11-43/56

AUTHORS: Litvinenko, L. M., Grekov, A. P.
Shapoval, L. D.

TITLE: Synthesis of Some Amino- and Nitro-Derivatives of Diphenyl Which Have 2,2'-Dimetoxyl- and 3,3'-Dimethyl-Groups (Sintez nekotorykh amino- i nitroproizvodnykh bifenila, soderzhashchikh 2,2' - dimetoksil'nyye i 3,3' - dimetil'nyye gruppy).

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, Nr 11, pp. 3115-3122 (USSR)

ABSTRACT: For kinetic investigations performed in the laboratory 2,2'-dimetoxyl- and 3,3'-dimethyl-derivatives of 4-aminodiphenyl and 4-amino-4'nitrodiphenyl had to be made available. It was found that the synthesis of the metoxyl-derivatives is most expediently to be realized according to scheme 1 (see formulae). The easily accessible o-tolidine served as starting product for the synthesis of the methyl derivatives. Their synthesis is represented by scheme 2 (see formulae). The following of the intermediate and end products produced were hitherto not described in publications: 4,4'-dinitro-2,2'-dimetoxydiphenyl, 4-amino-4'-nitro-2,2'-dimetoxydiphenyl, 4-amino-2,2'-

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Synthesis of Some Amino- and Nitro-Derivatives of Diphenyl 79-11-43/56
Which Have 2,2'-Dimetoxyl- and 3,3'-Dimethyl-Groups

dimetoxydiphenyl, 4-amino -2,2-dimetoxydiphenyl, 4-nitro-3,3'-dimethyldiphenyl (and 4-amino-3,3'-dimethyldiphenyl). Thus new methods are suggested for the synthesis of a number of intermediate products which are necessary for the production of the given diphenyl derivatives and some already known methods are more precisely defined. There are 13 references, 9 of which are Slavic.

ASSOCIATION: Khar'kov State University (Khar'kovskiy gosudarstvennyy universitet).

SUBMITTED: November 9, 1956

AVAILABLE: Library of Congress

1. Diphenyl - Derivatives - Synthesis

Card 2/2

79-12-30/43

AUTHORS: Litvinenko, L. M., Grekov, A. P.

TITLE: Spacial Structure and Reactivity (Prostranstvennoye stroyeniye i reak=
tsionnaya sposobnost').
XI. Slowed Down Inner Rotation and the Acylation Kinetics of 2,2'-Di=
XI. Slowed Down Inner Rotation and the Acylation Kinetics of 4-Aminodiphenyl and 4-Ami=
thyloxyd- and 3,3'-Dimethyl Derivatives of 4-Aminodiphenyl and 4-Ami=
no-4 Nitrodiphenyl (XI. Zatormozhennoye vnutrenneye vrashcheniye i
kinetika atsilirovaniya 2,2'-dimetoksil'nykh - i 3,3' - dimetil'nykh
proizvodnykh 4 - aminobifenila i 4 - amino- 4' - nitro-bifenila).

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, Nr 12, pp. 3332-3338 (USSR).

ABSTRACT: In order to complete and further develop the conceptions put down by
the authors in earlier works the present work mentions the results
concerning the kinetics of the acylation of 2,2-dimetoxy- and 3,3-di=
methyl derivatives with p-nitrobenzoylchloride in benzene solution.
These derivates are: 4-amino-2,2-dimethoxydiphenyl, 4-amino-3,3'-di=
methyldiphenyl and 4-amino-4'-nitro-3,3' - dimethyliphenyl. At the
same time the kinetics of m- anisidine was investigated under the sa=
me conditions (see formulae). These investigations served the purpose
of explaining the dependence of the spacial structure on the reacti=
vity. The authors showed that the transfer of the electron interac=
tion of the NO_2- and NH_2 groups (in the positions 4 and 4') to the mo=

Card 1/2

Spacial Structure and Reactivity. 79-12-30/43
XI. Slowed Down Inner Rotation and the Acylation Kinetics of 2,2'-Dimethyloxyl- and 3,3'-Dimethyl Derivatives of 4-Aminodiphenyl and 4-Amino-4 Nitrodiphenyl.

lecular system of biphenyl becomes weaker with the introduction of 2,2'-dimethoxy substituents, which is caused by the spacial difficulties developing on this occasion as they cause the change of the geometric configuration of the biphenyl molecule. This is, however, not the case if in the place of the molecular system of the unsubstituted biphenyl there is that of the biphenyl with 3,3' substituents. The latter is explained by the fact that the 3,3' substituents do not cause any remarkable effect on the inner rotation of the benzene nuclei in the molecules of biphenyl and its derivatives.
There are 7 tables, and 15 references, 9 of which are Slavic.

ASSOCIATION: Khar'kov State University (Khar'kovskiy gosudarstvennyy universitet).

SUBMITTED: November 9, 1956.

AVAILABLE: Library of Congress.

1. 2,2'-Dimethyloxyl derivatives - Acylation
2. 3,3'-Dimethyl derivatives - Acylation
3. Molecular rotation - Analysis

Card 2/2

GREKOV, A. P., Cand Chem Sci -- (diss) "Effect of delayed internal revolution upon [illegible] reactive ~~capacity~~ capability in the series of amino derivatives of biphenyl." Khar'kov, 1958. 20 pp (Min of Higher Education UkSSR, Khar'kov Order of Labor Red Banner State Univ im A. M. Gor'kiy), 100 copies (KL, 16-58, 116)

AUTHOR: Grekov, A.P. 90-58-3-3/9

TITLE: On D.I. Mar'yanovskiy's Article "The Electrical Braking of Drilling Winches" (K stat'ye D.I. Mar yanovskogo "Elektricheskoye tormozheniye burovykh lebedok")

PERIODICAL: Energeticheskiy byulleten', 1958, Nr 3, pp 7-10 (USSR)

ABSTRACT: In his article, D.I. Mar'yanovskiy preferred the synchronous MST-321-8/12 braking machine, constructed by the KhEMZ plant and proposed by Kogan, and attacked the hydraulic system for its lack of fluid control and the electromagnetic method since it needs air or liquid cooling. The author reviews the characteristics of the synchronous MST-321-8/12 generator braking machine and the MT-4000 magnetic brake. The results are plotted in graph form, rev./min. versus braking moment. The magnetic brake has steady overall braking qualities and operates well at low rev., the synchronous generator brakes poorly at low rev. and is actually dangerous over 425 rpm. The author concludes that the magnetic brake is preferable by virtue of its better and more even braking qualities, less weight and simpler construction. Synchronous generator braking assemblies are not to be recommended

Card 1/2

90-58-3-3/9

On D.I. Mar'yanovskiy's Article "The Electrical Braking of Drilling Winches"

and the hydraulic method may have a certain application after improvements are carried out.
There are 2 graphs, 1 photo and 1 Soviet reference.

1. Winches--Development 2. Magnetic brakes--Applications

Card 2/2

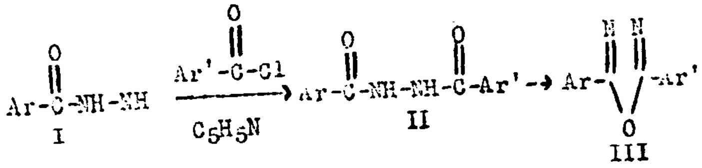
SOV/51-6-2-11/39

AUTHORS: Shimanskaya, N.P., Kilimov, A.P. and Grekov, A.P.

TITLE: Investigation of the Scintillation Properties of Certain Derivatives of 1,3,4-Oxadiazole (Issledovaniye stsintillyatsionnykh svoystv nekotorykh proizvodnykh 1,3,4-oksadiazola)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 2, pp 194-197 (USSR)

ABSTRACT: The authors synthesized a large number of monoaryl and diaryl derivatives of 1,3,4-oxadiazole and studied their scintillation and luminescent properties. They found several new scintillators including 2-(1-naphthyl)-5-(4-biphenylyl)-1,3,4-oxadiazole (LNBD) and 2-(4-methoxyphenyl)-5-phenyl-1,3,4-oxadiazole (MtPPD). The present paper reports measurements on photoluminescence and scintillation of LNBD and MtPPD, as well as of 2-phenyl-5-(4-biphenylyl)-1,3,4-oxadiazole (PED) which was first obtained by Hayes et al. (Ref 1). LNBD and MtPPD were synthesized by means of the reaction



$$\underset{\text{I}}{Ar-\overset{\overset{O}{\|}}{C}-NH-NH} \xrightarrow[C_5H_5N]{Ar'-\overset{\overset{O}{\|}}{C}-Cl} \underset{\text{II}}{Ar-\overset{\overset{O}{\|}}{C}-NH-NH-\overset{\overset{O}{\|}}{C}-Ar'} \rightarrow \text{III}$$

Card 1/3

(notation is the same as that used by Hayes et al. in Refs 1, 2). Each substance was purified by recrystallization from solution and chromatography on aluminium oxide. The authors measured the relative intensity and photoluminescence spectra and the integral scintillation yield in toluene and polystyrene solutions of various concentrations. The absorption and luminescence spectra of MtPPD, LNBD and PBD in heptane were also measured. The spectra and intensities of luminescence were measured by means of a SF-4 spectrophotometer, used as a monochromator and a photomultiplier FEU-18. A mirror galvanometer M-21 was used to record the photo-current. The integral scintillation yield was determined from the photo-current of a FEU-19 photomultiplier to whose window a radioactive Ag^{110} source (0.1 millicuries) was fixed. The absorption spectra were measured by means of a SF-4 spectrophotometer. The results are given in Figs 1-11. The concentration dependences of the intensity of photoluminescence and of the scintillation efficiency were similar for all the three substances in polystyrene (Figs 1-3). In toluene solutions MtPPD shows a stronger concentration quenching of luminescence (Fig 4) than the other two substances (Figs 5 and 6). The absorption spectra of the three substances are shown in Figs 7-9, together with

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their luminescence spectra. Figs 7-9 show that the three substances when dissolved in heptane obey the law of symmetry between the absorption and the luminescence spectra. The absorption maxima of PBD and LNBD were found to coincide with the emission maxima of polystyrene. The optimum concentrations and the scintillation efficiency at these concentrations are given for all the three substances in a table on p 197. This table contains also data on pTP (p-terphenyl) and pTP + POPOP scintillators. All the three new substances (LNBD, MtPPD, PBD) are better scintillators than pTP or pTP + POPOP. Of the former three compounds LNBD and MtPPD are better than PBD. There are 11 figures, 1 table and 5 references, 3 of which are Soviet and 2 English.

SUBMITTED: February 17, 1958

SOV/51-7-3-12/21

AUTHORS: Shimanskaya, N.P., Kilimov, A.P., Grekov, A.P., Yegupova, L.M. and Azen, R.S.

TITLE: Plastic Scintillators with Additions of Aryl Derivatives of 1,3,4-Oxadiazole.

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 3, pp 366-370 (USSR)

ABSTRACT: The authors measured the scintillation efficiency and recorded the absorption and luminescence spectra of solid solutions of eight 2,5-aryl derivatives of oxadiazole in polystyrene. These derivatives were:

2-(4-biphenylyl)-1,3,4-oxadiazole (BD);
2,5-di-(4-methoxyphenyl)-1,3,4-oxadiazole (MtPMtPD);
2-phenyl-5-(4-biphenylyl)-1,3,4-oxadiazole (PBD);
2-phenyl-5-(1-naphthyl)-1,3,4-oxadiazole (αNPD);
2-phenyl-5-(2-naphthyl)-1,3,4-oxadiazole (βNPD);
2,5-di-(4-biphenylyl)-1,3,4-oxadiazole (BBD);
2-(4-biphenylyl)-5-(2-naphthyl)-1,3,4-oxadiazole (αNBD);
2-(1-naphthyl)-5-(2-naphthyl)-1,3,4-oxadiazole (αNβND).

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The BD compound was obtained by heating of 4-biphenylylhydrazide with ethyl ester of o-formic acid (Ref 2). The other seven compounds were prepared by cyclization of the corresponding dihydrazides by heating with phosphorus oxychloride (Ref 3). All compounds were purified by re-crystallization and chromatographic treatment. The scintillators were in the form of polystyrene discs(**with the appropriate** 1,3,4-oxadiazole derivative added to them) of 20 mm diameter and 12 mm height; they were prepared by high temperature polymerization in an atmosphere of nitrogen. The absorption spectra were recorded by means of a spectrophotometer SF-4. The luminescence spectra were **obtained** by means of the same instrument used as a monochromator; they were recorded photoelectrically. The scintillation efficiency was deduced from the current of a FEU-19 photomultiplier. A sample of Ag^{110} of 0.1 μcurie intensity was used as the source of excitation. The absorption spectra of the eight oxadiazoles are shown in Figs 1 (curves 1-4) and 2 (curves 1-4). The luminescence **spectrum of** polystyrene is shown as curve 5 in both figures. The greatest amount of overlapping of the absorption spectrum with the luminescence spectrum of polystyrene was exhibited by the compounds with 1-naphthyl radical, that is the compounds αNPD, αNαND and αNBD. Figs 3 and 4 show the photoluminescence spectra (excited with 253 and 313 mμ mercury lines). Here again the oxadiazoles with 1-naphthyl radical show the greatest amount of overlap with the maximum of the FEU-19 sensitivity. The dependence of the scintillation

SOV/51-7-3-12/21

Plastic Scintillators with Additions of Aryl Derivatives of 1,3,4-Oxadiazole

efficiency on the concentration of the oxadiazoles (Fig 7) shows that the compounds αNPD, αNαND, αNBD and BBD are the most efficient. In a table on p 369 the authors list the absorption and luminescence maxima (cols 3 and 4), the concentration oxadiazole in polystyrene (col 5) and the scintillation efficiency (col 6) of the eight oxadiazole derivatives listed above and eight other 1,3,4-oxadiazole derivatives studied earlier. The authors found that the scintillation efficiency of organic compounds in plastics is determined primarily by their absorption and luminescence spectra and their luminescence yield. The scintillation efficiency may be measured in relative units by Swank and Buck's method (Ref 8), allowing for the overlapping of the luminescence spectrum of the base (polystyrene) and the absorption spectrum of the additive (oxadiazole derivative), the photoluminescence yield of the additive and the efficiency of recording of the emission by the additive. The best scintillation property among the diaryl derivatives of oxadiazole were found in the compounds with 1-naphthyl and biphenylyl radicals. Among the sixteen compounds listed in the table on p 369 the following were found to be most efficient in

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SOV/51-7-3-12/21

Plastic Scintillators with Additions of Aryl Derivatives of 1,3,4-Oxadiazole

plastic scintillators:

2,5-di-(4-biphenylyl)-1,3,4-oxadiazole (BBD);
2,5-di-(1-naphthyl)-1,3,4-oxadiazole (αNαND);
2-phenyl-5-(4-methoxyphenyl)-1,3,4-oxadiazole (MtPPD);
2-(4-biphenylyl)-5-(2-naphthyl)-1,3,4-oxadiazole (αNBD);
2-phenyl-5-(1-naphthyl)-1,3,4-oxadiazole (αNPD).

There are 7 figures, 1 table and 9 references, 3 of which are Soviet, 4 English, 1 German and 1 translation into Russian.

SUBMITTED: December 26, 1958

Card 4/4

SHVAYKA, O.P.; GREKOV, A.P.

Relation between the chemical structure and the scintillation efficiency of 1,3,4-oxadiazole derivatives. Opt. i spektr. 7 no. 6:824-826 D '59. (MIRA 14:2)
(Oxadiazole) (Scintillation (Physics))

SOV/79-29-6-49/72

5 (3)

AUTHORS: Grekov, A. P., Azen, R. S.

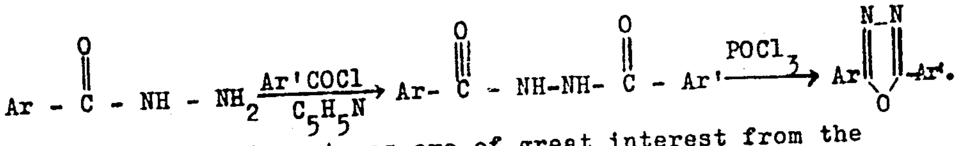
TITLE: Synthesis of the Asymmetric 2,5-Diaryl Derivatives of 1,3,4-Oxadiazole (Polucheniye asimmetrichnykh 2,5-diarilproizvodnykh 1,3,4-oksadiazola)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 6, pp 1995-1998 (USSR)

ABSTRACT: The investigation of the tendency of a great number of various organic products towards scintillation led to the discovery of new promising compounds, among them also the oxadiazoles (Refs 1-3). In order to investigate the dependence of the structure on the scintillation activity in the series of the oxadiazole derivatives and to find new compounds very active in this respect, the authors synthesized the asymmetrical 2,5-diaryl substituted 1,3,4-oxadiazoles which have not yet been described in publications. The hydrazides corresponding to them were also new. The following scheme was used for the synthesis of these compounds:

Synthesis of the Asymmetric 2,5-Diaryl Derivatives of 1,3,4-Oxadiazole

SOV/79-29-6-49/72



In this scheme, two stages are of great interest from the preparative point of view, the formation of the asymmetric diaryl hydrazide and its closing to the oxadiazole ring. In the first stage the formation of the asymmetric hydrazide in pyridine may be complicated by the fact that besides the main product sometimes also the symmetric hydrazide is obtained. In the second stage a short heating of the corresponding diaryl hydrazide with $POCl_3$ only until its complete dissolution is sufficient for the formation of the oxydiazole ring. A further heating leads to a deterioration of the product. All hydrazides synthesized are colorless crystalline compounds. The following compounds were newly synthesized: 2-phenyl-5-(1-naphthyl), 2-(4-biphenylyl-5-(1-naphthyl-, 2-phenyl-5-(2-naphthyl)-, 2-(4-biphenylyl)5-(2-naphthyl)-, and 2-(1-naphthyl)-5-(2-naphthyl)-1,3,4-oxadiazole as well as

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Synthesis of the Asymmetric 2,5-Diaryl Derivatives of 1,3,4-Oxadiazole SOV/79-29-6-49/72

their hydrazides. There are 8 references, 2 of which are Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov, Khar'kovskiy filial (Khar'kov Branch of the All-Union Scientific Research Institute of Chemical Reagents)

SUBMITTED: April 22, 1958

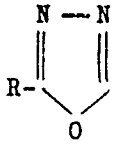
Card 3/3

.5 (3)

AUTHORS: Grekov, A. P., Shvayka, O. P., Yegupova, L. M. SOV/79-29-6-55/72

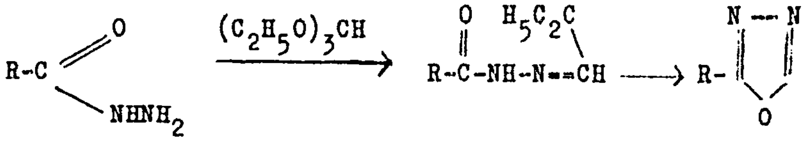
TITLE: Investigations in the Field of Organic Scintillation Substances (Issledovaniya v oblasti organicheskikh stsintillyatsionnykh materialov). II. Synthesis of the 2-Aryl Derivatives of 1,3,4-Oxa-Diazole (II. Sintez 2-arilproizvodnykh 1,3,4-oksadiazola)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 6, pp 2027 - 2032 (USSR)

ABSTRACT: For the systematic investigation of oxa-diazole derivatives a series of new 2-aryl substituted 1,3,4-oxa-diazoles of the general formula  has been synthesized, where $R=4-H_3CO-C_6H_4$, $4-H_3CC_6H_4$, $4-H_2NC_6H_4$, $4-(H_3C)_2NC_6H_4$, $4-BrC_6H_4$, $4-H_5C_2OOCC_6H_4$, $4-H_5C_6C_6H_4$, 2-furyl. Except C. Ainsworth (Ref 1) nobody has analyzed compounds of this series. The synthesis of the majority of the products which have been described here has

Card 1/3

been carried out by conversion of the corresponding hydrazide by excess ethyl ortho-formates expressed by the scheme:



The synthesis of the oxa-diazole in question took place at the boiling temperature of ester. It has been separated from the reactants after removal of the excess ortho ester by distillation in a vacuum if its melting point was low enough, or by way of crystallization. The synthesis of the 2-aryl derivatives of the 1,3,4-oxa-diazole from hydrazides and ethyl ortho-formiate is possible only if the functionally substituted groups in the initial hydrazides are inert against ortho ester. Therefore it was not possible to synthesize in this way for example compounds like 2-(4-aminophenyl)-and -2-(4-cxy-phenyl) -1,3,4-oxa-diazole. To obtain such derivatives, the corresponding

Investigations in the Field of Organic Scintillation Substances. II. Synthesis of the 2-Aryl Derivatives of 1,3,4-Oxa-Diazole SOV/79-29-6-55/72

changes of functional groups have been carried out only in the obtained oxa-diazole. In this way the 2-(4-aminophenyl)-1,3,4-oxa-diazole has been synthesized by reduction of nitro-phenyl oxa-diazole with the help of phenylhydrazine according to scheme 2 (Ref 2). The 8 newly synthesized 2-aryl derivatives of the 1,3,4-oxa-diazole are colourless, crystalline compounds insoluble in water and soluble in alcohol, benzene, and toluol. There are 12 references, 1 of which is Soviet.

ASSOCIATION: Khar'kovskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta khimicheskikh reaktivov (Khar'kov Branch of the All-Union Scientific Research Institute for Chemical Reagents)

SUBMITTED: May 24, 1958

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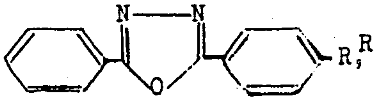
5(3) SOV/79-29-9-55/76

AUTHORS: Grekov, A. P., Kulakova, L. N., Shvayka, O. P.

TITLE: Investigations in the Field of Organic Scintillators. IV. Synthesis of Para-substituted 2,5-Diphenyl-1,3,4-oxadiazole

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 9, pp 3054-3058 (USSR)

ABSTRACT: In order to investigate systematically the relation between the scintillating properties and the structure of the oxadiazole derivatives the authors synthesized the following hitherto unknown derivatives of 2,5-diphenyl-1,3,4-oxadiazole with different functional substituents which are in the para-position of one of the phenyl cycles:



R = NO_2, NH_2, $NHCOCH_3$, OH, OCH_3, $OCOCH_3$, Cl, Br, J.

The synthesis of such compounds usually takes place according to the general scheme (I) for the compounds of this type; in the case of the oxadiazole derivatives, however, in which the

Card 1/3

SOV/79-29-9-55/76

Investigations in the Field of Organic Scintillators. IV. Synthesis of Para-substituted 2,5-Diphenyl-1,3,4-oxadiazole

functional groups (like the amino and the oxy group) may react by themselves with the reagents to be used , it cannot be employed. Therefore, in such cases, scheme (2) hitherto not applied for the synthesis of similar compounds was used. In this scheme (2) the stage of the reduction of the nitro group to the amino group and their substitution by other functional substituents is of interest. Since, as had been found earlier, the oxadiazole ring is sensitive to the action of aqueous mineral acid and alkali solution and, especially at high temperatures, decomposes first into the corresponding hydrazide and then into the hydrazine and aromatic acids, it was not possible to obtain in sufficient yield 2-phenyl-5-(4-aminophenyl)-1,3,4 oxadiazole by the reduction of the corresponding oxadiazole derivative in acid and alkaline medium. Only phenyl hydrazine used as reducing agent produced good yields. The amino group which is in para-position in the 2,5-diphenyl-1,3,4-oxadiazole is very reactive, and thus permitted the synthesis of many derivatives of 1,3,4-oxadiazole important with respect to scintillation. 9 hitherto unknown p-substituted

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SOV/79-29-9-55/76

Investigations in the Field of Organic Scintillators. IV. Synthesis of Para-substituted 2,5-Diphenyl-1,3,4-oxadiazole

2,5-diphenyl-1,3,4-oxadiazoles have been synthesized so far. There are 5 references.

ASSOCIATION: Khar'kovskiy filial Instituta reaktivov (Khar'kov Branch of the Institute of Reagents)

SUBMITTED: July 21, 1958

Card 3/3

GREKOV, A.P.; SOLOV'YEVA, M.S.

Synthesis of bi-1,3,4-oxadiazole. Zhur.ob.khim. 30 no.5:
1644-1647 My '60. (MIRA 13:5)

1. Khar'kovskiy filial Instituta reaktivov.
(Bioxadiazole)

S/079/60/030/010/012/030
B001/B066

AUTHORS: Grekov, A. P. and Nesynov, Ye. P.

7

TITLE: Synthesis of Acyl Derivatives of Pyridine and Furan Carboxylic Acid Hydrazides

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 10, pp. 3237 - 3239

TEXT: Induced by successful studies of the physiological activity of the acylated hydrazides of heterocyclic acids described in Refs. 1-3, the authors synthesized the acyl hydrazides of 2-, 3-, and 4-pyridine- and 2-furan carboxylic acids following the general formula RCONHNHCOR', which had hitherto not been described (Scheme 1). These compounds were obtained by reacting equimolecular quantities of the corresponding hydrazides with acid chlorides according to the Scheme 2

$$RCONHNH_2 + ClOCR' \xrightarrow[-HCl]{C_5H_5N} \underset{(I)}{RCONHNHCOR'} \xleftarrow[-HCl]{C_5H_5N} R'CONHNH_2 + ClOCR.$$

Card 1/3

Synthesis of Acyl Derivatives of Pyridine and Furan Carboxylic Acid Hydrazides S/079/60/030/010/012/030
B001/B066

Contrary to the acyl hydrazide derivatives of aromatic acids (Ref.3), the acyl hydrazides of heterocyclic acids are formed already at room temperature. In this synthesis, pyridine proved to be the best solvent which bound the separating HCl and, therefore, gave better yields of the acyl hydrazides of pyridine carboxylic acids, which are separated in the form of bases. Owing to the high solubility of acyl hydrazides in pyridine, their separation is rendered difficult. Usually, they were separated by pouring the reaction mixture into a 5-7 fold quantity of water. In some cases, the reaction mixture was previously diluted with ethanol or acetone, and only then treated with water. When distilling off the solvent in vacuo, considerable resinification occurred. The resultant acyl hydrazides were purified by crystallization, and chromatographically on aluminum oxide with dioxane as a solvent. Their structure was proven by counter-synthesis according to the above-mentioned Scheme; elementary analysis confirmed its results. A Table presents the 15 different acyl derivatives of pyridine and furan carboxylic acid hydrazides along with their constants. L. A. Stepanenko assisted in the experiments. There are 1 table and 7 references: 2 Soviet, 2 US, and 3 German.

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Synthesis of Acyl Derivatives of Pyridine and Furan Carboxylic Acid Hydrazides

S/079/60/030/010/012/030
B001/B066

ASSOCIATION: Khar'kovskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta khimicheskikh reaktivov (Khar'kov Branch of the All-Union Scientific Research Institute of Chemical Reagents)

SUBMITTED: July 5, 1959

Card 3/3

84875

S/079/60/030/010/013/030
B001/B066

11.1320

AUTHORS: Grekov, A. P. and Nesynov, Ye. P.

TITLE: Synthesis of Some Heterocyclic Derivatives of 1,3,4-Oxadiazole

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 10, pp. 3240 - 3243

TEXT: It was shown in Refs. 1-3 that the 2,5-diaryl derivatives of 1,3,4-oxadiazole are the best liquid scintillators described in publications. The authors of these papers also investigated the influence of some aromatic radicals upon their scintillation properties (Refs.1-3), but there are hardly any data available on the influence of heterocyclic substituents upon the scintillation of 1,3,4-oxadiazole derivatives. For this purpose, the authors synthesized a number of new heterocyclic derivatives of 1,3,4-oxadiazole having the general formulas (A) and (B):

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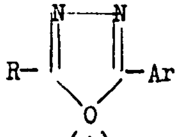
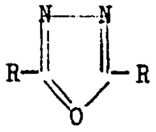
84875

Synthesis of Some Heterocyclic Derivatives of 1,3,4-Oxadiazole

S/079/60/030/010/013/030
B001/B066


(A)


(B)

(R = 2-furyl, 3- and 4-pyridyl; Ar = phenyl, 1-naphthyl, 2-naphthyl, 4-biphenylyl, 9-phenanthryl). These compounds were obtained according to the well-known Scheme 1 (Refs. 5-7), by means of ring formation of the corresponding diacyl hydrazines (I) (Ref.4). But the synthesis of these compounds is more difficult than that of compounds containing only aromatic radicals7(Refs. 5,6), since they are less stable and, therefore, more difficult to separate. This applies particularly to oxadiazole derivatives which, even if containing only one pyridyl radical, form hydrochlorides with the HCl separating in the course of reaction. In such cases, the salt was neutralized by means of aqueous ammonia or diethyl amine, and the product was obtained as a free base. Some of the above compounds were synthesized also by heating diacyl hydrazines (I) between 180-200°C in vacuo (Ref.8) (Scheme 2). The 1,3,4-oxadiazole

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84875

Synthesis of Some Heterocyclic Derivatives of 1,3,4-Oxadiazole

S/079/60/030/010/013/030
B001/B066

derivatives obtained from the same diacyl hydrazines 7 by both methods did not differ from one another. They were purified by crystallization or chromatography. They are hydrolyzed by heating them with aqueous solutions of mineral acids or alkalis. L. A. Stepanenko assisted in the experiments. There are 1 table and 8 references: 4 Soviet, 2 US, and 2 German.

ASSOCIATION: Khar'kovskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta khimicheskikh reaktivov (Khar'kov Branch cf the All-Union Scientific Research Institute of Chemical Reagents) X

SUBMITTED: July 6, 1959

Card 3/3

86510

S/079/60/030/011/019/026
B001/B055

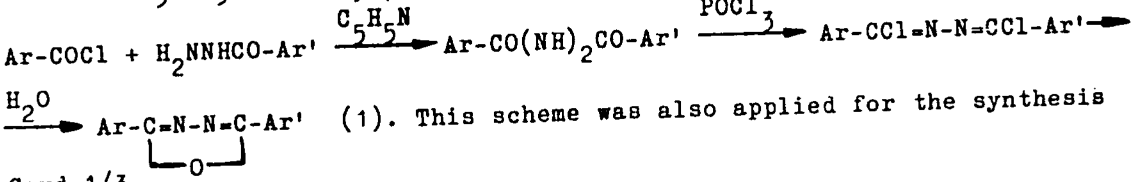
5.3610 1375, 2209, 1153

AUTHORS: Grekov, A. P. and Shvayka, O. P.

TITLE: Synthesis of Several Functional Derivatives of 2,5-Diphenyl 1,3,4-Oxadiazoles

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 11, pp. 3802-3806

TEXT: Basing on their earlier papers (Refs. 1-6) concerning the synthesis of scintillation substances, the authors in the present work describe the synthesis of new functionally substituted compounds of this type. The following scheme, described in Refs. 2 and 8, was applied for the preparation of para-substituted 2,5-diphenyl 1,3,4-oxadiazoles with the substituents F, SCH_3, CH_3, iso-OC_3H_7, $N(CH_3)_2$, COOH, and $COOC_2H_5$:



$$\text{Ar-COCl} + H_2\text{NNHCO-Ar'} \xrightarrow{C_5H_5N} \text{Ar-CO(NH)}_2\text{CO-Ar'} \xrightarrow{POCl_3} \text{Ar-CCl=N-N=CCl-Ar'} \xrightarrow{H_2O} \underbrace{\text{Ar-C=N-N=C-Ar'}}_{O}$$

(1). This scheme was also applied for the synthesis

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86510

S/079/60/030/011/019/026
B001/B055

Synthesis of Several Functional Derivatives of 2,5-Diphenyl 1,3,4-Oxadiazoles

of isomeric monofunctional 2,5-diphenyl 1,3,4-oxadiazole derivatives. In this way, the authors obtained the first representatives of ortho- and meta-substituted oxadiazoles with nitro, chlorine, methoxy, and methyl groups as substituents. The reaction conditions and yields did not differ significantly from those of the para-substituted oxadiazoles. This method is therefore generally applicable for the preparation of functional oxadiazole derivatives and the diaroyl hydrazides used as initial compounds. Contrary to published data (Ref. 8), the diaroyl hydrazides form at low temperatures also, higher temperatures causing formation of considerable quantities of by-products, i.e. symmetric diaroyl hydrazides of the types $(C_6H_5\text{-CONH})_2$ and $(X\text{-}C_6H_4\text{-CONH})_2$, especially in presence of electrophilic substituents in the phenyl ring, such as NO_2 and $COOC_2H_5$ (Refs. 8 and 9). The application of scheme (1) may be complicated by reaction of the functional group with the reactants. This can be avoided, however, by transforming the functional substituent of the oxadiazole molecule into another group, i.e. reduction to amines, Sandmeyer reaction, conversion of nitrile to amide (Ref. 10). Saponification of the ester group in 2-(p-carbethoxy

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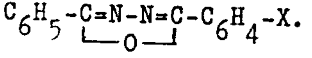
86510

Synthesis of Several Functional
Derivatives of 2,5-Diphenyl
1,3,4-Oxadiazoles

S/079/60/030/011/019/026
B001/B055

phenyl) 5-phenyl 1,3,4-oxadiazole. for the purpose of obtaining the free acid, however, was accompanied by oxadiazole ring cleavage, which led to the formation of 1-(p-carbethoxy benzoyl) 2-benzoyl hydrazine. On treatment with phosphorus oxychloride, the latter forms compound (I), which cyclizises with H_2O. Table 1 gives a list of the diaroyl hydrazines synthesized, and Table 2 one of the synthesized oxadiazoles of the type  $C_6H_5-C=N-N=C-C_6H_4-X$. There are 2 tables and 13 references: 8 Soviet, 4 US, and 1 German.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov (Khar'kovskiy filial) (All-Union Scientific Research Institute of Chemical Reagents (Khar'kov Branch))

SUBMITTED: December 26, 1959

Card 3/3

NAGORNAYA, L.L.; BEZUGLY, V.D.; GREKOV, A.P.

Photoluminescence and scintillation properties of certain derivatives of 1,3,4-oxadiazole in polystyrene. Opt. i spektr. 10 no.4:555-557 Ap '61. (MIRA 14:3)
(Oxadiazole)

32033
S/674/61/000/024/002/003
D227/D301

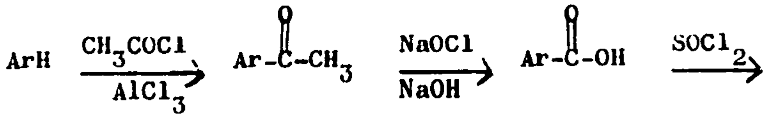
21.6000 also 2915

AUTHOR: Grekov, A.P.

TITLE: Investigating organic scintillating materials. Part 3. Synthesis of symmetrical 2,5-diaryl derivatives of 1,3,4-oxadiazoles

SOURCE: Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut Khimicheskikh reaktivov. [Trudy] no. 24. 1961. Khimicheskiye reaktivy i preparaty. 131-136

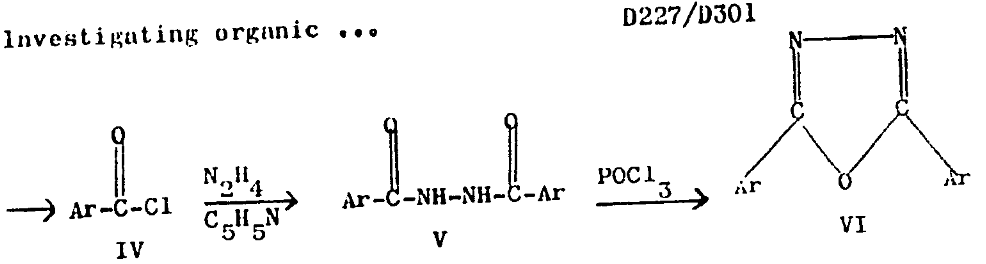
TEXT: The author presents a new method for the large scale production of 2,5 diphenyl- and 2,5-di(1-naphthyl)-1,3,4-oxadiazoles. The method comprises the following stages:



$$ArH \xrightarrow[AlCl_3]{CH_3COCl} Ar-\overset{O}{\overset{\|}{C}}-CH_3 \xrightarrow[NaOH]{NaOCl} Ar-\overset{O}{\overset{\|}{C}}-OH \xrightarrow{SOCl_2}$$

I II III

Card 1/4



where Ar=-C_6H_5, 4-C_6H_4-C_6H_5, 1-$C_{10}H_7$, 2-$C_{10}H_7$, of which the most interesting are the preparation of hydrazide and its conversion to oxadiazole. Hydrazide V is obtained by reacting an aromatic acid chloride with hydrazine hydrate in pyridine which acts as an HCl acceptor and renders the excessive use of hydrazine hydrate unnecessary. Conversion to oxadiazole VI which usually requires prolonged heating is accomplished quickly by dissolving the hydrazide in $POCl_3$ while heating. Synthesis of 2,5-diphenyl-1,3,4-oxadiazole consists of two stages: First, preparation of 1,2-diphenyl hydazide by adding benzoyl chloride to hydrazine hydrate in dry pyridine, refluxing and precipitating the product by

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D227/D301

Investigating organic ...

pouring into cold, water, and secondly, by refluxing the hydrazide with $POCl_3$ until dissolved, removing the excess of $POCl_3$ and diluting the reaction mixture with water to precipitate the product. The yield of product is 91%, m.pt. after purification 138°C. Synthesis of 2,5-di(4-diphenylyl) - 1,3,4-oxadiazole is conducted in 5 stages, starting from diphenyl which is first converted to 4-diphenylylmethyl ketone by reaction with acetyl chloride and aluminum chloride in nitrobenzene. 4-Diphenylylmethyl ketone is then converted to 4-diphenyl carboxylic acid with NaOCl. The acid obtained is then reacted with thionyl chloride to yield 4-diphenyl carboxylic acid chloride which, after purification, is reacted with hydrazine hydrate, the reactions being similar to those in the case of 2,5-diphenyl-1,3,4-oxadiazole. The yield of 2,5-di-(4-diphenylyl)-1,3,4-oxadiazole is 96% and its melting point after purification is 238°C. Synthesis of 2,5-di-(1-naphthyl)-1,3,4-oxadiazole proceeds in a similar manner, the starting material being 1-naphthoic acid. The final product is obtained in 84.5% yield and its melting point is 175-177°C. Synthesis of 2,5-di (2-naphthyl)-1,3,4-oxadiazole starts

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Investigating organic ...

from 2-naphthyl methyl ketone and proceeds as in previous cases through 2-naphthoic acid, acid chloride and hydrazide. The yield is 81% and the melting point is 187-189°C. There are 12 references 5 Soviet-bloc and 7 non-Soviet bloc. The references to the English-language publications read as follows: N. Hayes, B. Rogers and D. Ott, J. Am. Chem. Soc., 77, 1850, (1955); N. Hayes, D. Ott and V. Kerr, Nucleonics, 13, 38, (1955); H. Gull and E. Turner, J. Chem. Soc., (1929), 408.

Card 4/4

GREKOV, A.P.; MARAKHOVA, M.S.

Determination of hydrazides of aliphatic acids by means of potentiometric with sodium nitrite. Zhur.anal.khim. 16 no.5:643-644 S-O '61. (MIRA 14:9)

1. All-Union Scientific Research Institute of Monocrystals, Scintillators and Materials of Special Purity, Khar'kov.
(Hydrazides)

GREKOV, A.P.; SOLOV'YEVA, M.S.

Structure and reactivity of hydrazine derivatives. Part 1: Kinetics of the reaction between hydrazides of aromatic acids and benzoyl chloride in benzene solution. Ukr.khim.zhur. 27 no.3:384-390 '61. (MIRA 14:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov, Khar'kovskiy filial, laboratoriya organicheskogo sinteza.

(Benzoyl chloride)
(Hydrazides)

GREKOV, A.P.; NESYNOV, Ye.P.

Synthesis of acyl derivatives of hydrazides of pyridinecarboxylic and furancarboxylic acids. Zhur.ob.khim. 30 no.10:3237-3239 0 '61. (MIRA 14:4)

1. Kar'kovskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta khimicheskikh reaktivov.
(Furoic acid) (Picolinic acid)

GREKOV, A.P.; NESYNOV, Ye.P.

Synthesis of some heterocyclic derivatives of 1,3,4-oxadiazole.
Zhur.ob.khim. 30 no.10:3240-3243 0 '61. (MIRA 14:4)

1. Khar'kovskiy filial Vsesoyuznogo nauchno-issledovatel'skogo
institute khimicheskikh reaktivov.
(Oxadiazole)

89509

S/079/61/031/002/002/019
B118/B208

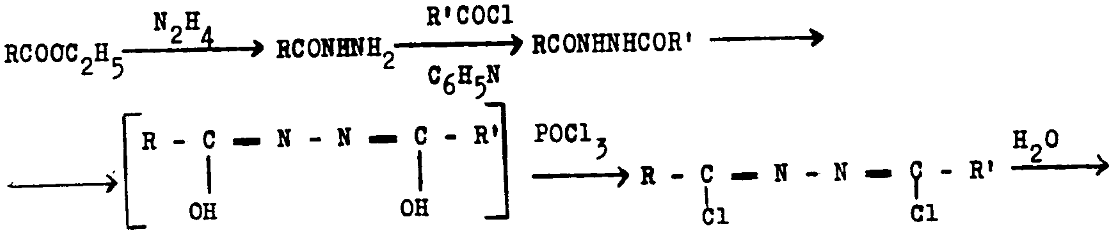
5.3610 2209, 1375, 1153

AUTHORS: Grekov, A. P. and Azen, R. S.

TITLE: Synthesis of new 1, 3, 4-oxadiazole aryl derivatives

PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 2, 1961, 407-411

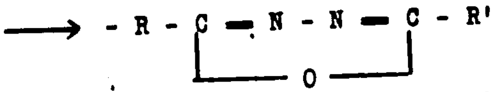
TEXT: In view of Refs. 1-6 on the scintillation properties of 1, 3, 4-oxadiazole derivatives, in particular those of aryl derivatives of 1, 3, 4-oxadiazole, the authors synthesized a number of new mixed 2, 5-diaryl derivatives of 1, 3, 4-oxadiazole:



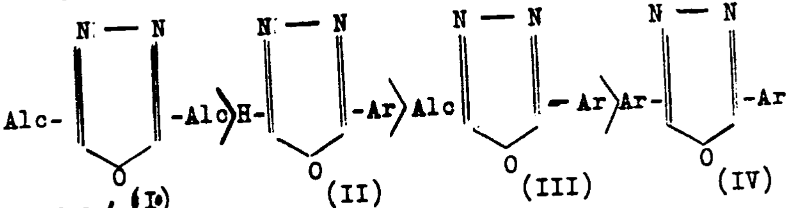
$$RCOOC_2H_5 \xrightarrow{N_2H_4} RCONHNH_2 \xrightarrow[C_6H_5N]{R'COCl} RCONHNHCOR' \longrightarrow$$

$$\longrightarrow \left[R-\underset{OH}{\underset{|}{C}}=N-N=\underset{OH}{\underset{|}{C}}-R' \right] \xrightarrow{POCl_3} R-\underset{Cl}{\underset{|}{C}}=N-N=\underset{Cl}{\underset{|}{C}}-R' \xrightarrow{H_2O}$$

Card 1/4



(R and R' = methyl, phenyl, 1-naphthyl, 2-naphthyl, 4-biphenyl, 2-fluorenyl, 9-fluorenyl, 9-phenanthryl). Although this reaction scheme is well devised, the formation stage of oxadiazole and its separation from water are of considerable interest. The various oxadiazole derivatives are known to be of different solubility in water. The fact that the heterocyclic ring of oxadiazole derivatives is cleft under the action of aqueous acid and alkaline solutions to give the corresponding diaryl hydrazide (Refs. 9-12) induced the authors to study this problem thoroughly. It was found that oxadiazole derivatives were differently hydrolyzable. This capability is reduced according to the following scheme, similarly to the solubility in water (Refs. 7, 8):



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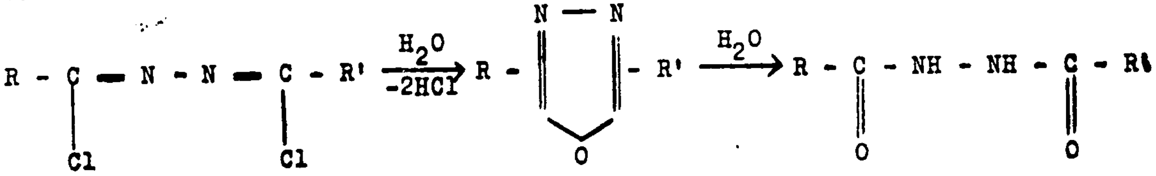
B118/B208

Synthesis of new ...

Products (I) and (II) are quickly hydrolyzed, while the oxadiazole ring of compound (IV) is cleft only prolonged heating. 2, 5-dimethyl and 2-phenyl-1, 3, 4-oxadiazoles are decomposed in dilute mineral acids even at low temperatures and give the initial hydrazides, whereas 2-phenyl-5-(9-fluorenyl)-1, 3, 4-oxadiazole is very stable; 2-methyl-5-(9-fluorenyl)-1, 3, 4-oxadiazole takes an intermediate position. Two reactions take place at last stage of oxadiazole formation according to equation



The second reaction apparently proceeds more slowly, and is determined by the solubility of the oxadiazole. 23 novel 1, 2-diaryl hydrazines and 2, 5-diaryl-1, 3, 4-oxadiazoles were synthesized. The crystalline 2, 5-diaryl derivatives of 1, 3, 4-oxadiazole are thermostable, except for fluorene derivatives. There are 2 tables and 13 references: 8 Soviet-bloc and 2 non-

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89509

S/079/61/031/002/002/019
B118/B208

Synthesis of new ...

Soviet-bloc.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov, Khar'kovskiy filial (All-Union Scientific Research Institute of Chemical Reagents, Khar'kov Branch)

SUBMITTED: March 28, 1960

X

Card 4/4

GREKOV, A.P.; NESYNOV, Ye. P.

Synthesis of new derivatives of 1, 3, 4-oxadiazole. Zhur. ob. khim. 31 no.4:1122-1124 Ap '61. (MIRA 14:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov, Khar'kovskiy filial.
(Oxadiazole)

GREKOV, A.P.; AZEN, R.S.

Nitration of 2, 5-diphenyl-1, 3, 4-oxadiazole. Zhur.ob.khim. 31 no.6:1919-1921 Je '61. (MIRA 14:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov, Khar'kovskiy filial.
(Oxadiazole) (Nitration)

GREKOV, A.P.; GRIGOR'YEVA, V.I.

Synthesis of some amino-1,3,4-oxadiazoles. Zhur.ob.khim.
31 no.12:4012-4015 D '61. (MIRA 15:2)
(Oxadiazole)

GREKOV, A. P.; MARAKHOVA, M. S.

Structure and reactivity of hydrazine derivatives. Part 3: Kinetics of the reaction between ortho-derivatives of benzohydrazide and benzoyl chloride in a benzene solution. Ukr. khim. zhur. 28 no.5:632-637 '62. (MIRA 15:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov, Khar'kovskiy filial, i Institut khimii polimerov i monomerov AN UkrSSR.

(Hydrazides) (Benzoyl chloride)

33919

S/079/62/032/002/004/011
D227/D303

11.1270

AUTHORS: Grekov, A.P. and Marakhova, M.S.

TITLE: Structure and reactivity of hydrazine derivatives. II. Kinetics of the reactions between aliphatic acid hydrazide and benzoyl chloride in benzene

PERIODICAL: Zhurnal obshchey khimii, v. 32, no. 2, 1962, 542-549

TEXT: In continuing their investigations the authors aim, in the present work, to find a relation between the structure of aliphatic acid hydrazides and their reactivity. For this purpose hydrazides of acetic, propionic, butyric, formic, phenylacetic, and phenoxyacetic acids were acylated with benzoyl chloride according to: $2RCONHNH_2 + ClCOC_6H_5 \rightarrow RCONHNHCOC_6H5 + RCONHNH_2 \cdot HCl$. The hydrazides of the above acids were prepared in the usual manner. The rates of acylation were determined by electrometric measurements of hydrazide content in the reaction mixture of the hydrazide and acylating agent after a given time interval. It was found that the velocity constants were practically independent of the

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S/079/62/032/002/004/011
D227/D303

Structure and reactivity ...

initial concentration of reactants and that the reaction proceeded at a rate similar to that of benzohydrazide and its derivatives where the rate of benzoylation was affected by the polarity of the substituents. The quantitative estimation of the inductive effect of the aliphatic radical on the reactivity of the hydrazide grouping may be given by Taft's equation $\lg \frac{k}{k_o} = \rho^* \sigma^*$ (A) where k and k_o - reaction (or equilibrium) constants for the reactants RY and R_oY respectively; σ^* - induction constant of the substituent for group R as compared with a standard group R_o (CH_3 group was used in the present work); ρ^* - constant, showing the sensitivity of the reaction series to the inductive effect of the substituents. The results have shown that substitution of H atoms in the methyl group of acetohydrozide with hydrocarbon radicals has little effect on the rate of reaction of the hydrazide group. Introduction of methoxy- or phenoxy-groups also reduces the rate of acylation as a result of strong inductive effect of the two groups on the hydrazide group through the methylene

Card 2/3

33919

Structure and reactivity ... S/079/62/032/002/004/011
D227/D303

group. Evaluation of ρ^* has shown that the reaction studied was not sensitive to the structural changes within the molecules of aliphatic acid hydrazides. There are 2 figures, 9 tables and 18 references: 11 Soviet-bloc and 7 non-Soviet-bloc. The references to the English-language publications read as follows: W. Harris and K. Stone, J. Org. Ch., 23, 2032, (1958); P. Buu-Hoi, D.Xuong, H. Nam, F. Binon and R. Royer, J. Chem. Soc., 1953, 1358; H. Jaffe, Chem. Revs., 53, 191, (1953).

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov. Khar'kovskiy filial (All-Union Scientific Research Institute of Chemical Reagents. Khar'kov Branch)

SUBMITTED: January 2, 1961

Card 3/3

DEMCHENKO, N.P.; GREKOV, A.P.

New method of synthesizing 5-monoaryl-substituted derivatives of 1.3-oxazole. Zhur.ob.khim. 32 no.4:1219-1220 Ap '62.
(MIRA 15:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov, stsintillyatsionnykh materialov i osobo chistykh veshchestv i Institut khimii polimerov i monomerov AN USSR.
(Oxazole)

OROBCHENKO, Yevgeniy Vasil'yevich; PRYANISHNIKOVA, Nadezhda Yur'yevna; GREKOV, A.P., kand. khim. nauk, retsenzent; BULGAKOVA, N.B., inzh., red.izd-va; ROZUM, T.I., tekhn. red.

[Furan resins] Furanovye smoly. Kiev, Gostekhizdat USSR, 1963. 167 p. (MIRA 17:2)

L 41219-65 EWT(m)/EPF(c)/EWP(j)/EWA(c) Pc-4/Pr-4 RM

ACCESSION NR: AR5005655 S/0058/64/000/012/D024/D024

32
B

SOURCE: Ref. zh. Fizika, Abs. 12D165

AUTHORS: Grekov, A. P.; Shvayka, O. P.

TITLE: Absorption spectra of monofunctional substituted 2,5-diphenyl-1,3,4-oxadiazole

CITED SOURCE: Sb. Stsintillyatory i stsintillyats. materialy. Vyp. 3, Khar'kov, Khar'kovsk. un-t, 1963, 5-14

TOPIC TAGS: ultraviolet spectrum, absorption spectrum, oxadiazole, diphenyl

TRANSLATION: The ultraviolet absorption spectra of substituted 2,5-diphenyl-1,3,4-oxadiazole are described and the influence of the systematic series of functional substitutes on the electronic structure of their molecules as a whole is considered.

SUB CODE: OP, OC **ENCL:** 00

Card 1/1

L 41605-65 EWT(m)/EPF(c)/EWP(j)/T/EWA(c) Pc-4/Pr-4 IJP(c) RM

ACCESSION NR: AR5005637 S/0081/64/000/022/B049/B049

26
B

SOURCE: Ref. zh. Khimiya, Abs. 22B328

AUTHOR: Shvayka, O.P.; Grekov, A.P.

TITLE: The scintillation effectiveness of 1, 3, 4-oxadiazole derivatives

CITED SOURCE: Sb. Stsintillyatory i stsintillyats. materialy. Khar'kov, Khar'kovsk. un-t, 1963, 130-132

19

TOPIC TAGS: scintillation additive, scintillation counter, gamma ray, oxadiazole derivative, electron donor group, nitrogen scavenging, photoelectric current, radioisotope

TRANSLATION: Compounds with electron donor groups are more effective as scintillation additives to toluene than their analogs with electron acceptor groups. The most effective compound is 2-(p-dimethylaminophenol)-5-phenyl-1,3, 4-oxadiazole. Isopropoxy derivatives are significantly less effective than the corresponding methoxy compounds. The effectiveness can be decreased by the development of unsaturated structural elements in the substituent groups. The p-isomers are more effective than the o- and m-isomers. No successful additives had been found among the diaryl derivatives. The scintillation effectiveness is increased by scavenging with nitrogen, and concentration

Card 1/2

L 41605-65
ACCESSION NR: AR5005637

quenching is insignificant up to 10 g/liter. The additives were compared by means of an FEU on the basis of the photoelectric current produced by gamma irradiation from Ag-110. The reagents were purified chromatographically until constancy of the absorption spectra. I. Keirim-Markus

ENCL: 00 SUB CODE: GC, OC

mcl
Card 2/2

ACCESSION NR: AT4034001 S/0000/63/000/000/0166/0169

AUTHOR: Kornev, K. A.; Grekov, A. P.; Sukhorukova, S. A.

TITLE: Investigation of the process of polymerization of lactams in organic solvents. I. Polymerization of Epsilon-caprolactam in the presence of the sodium salt of caprolactam and acetylcaprolactam

SOURCE: Geterotsepny*ye vy*sokomolekulyarny*ye soyedineniya (Heterochain macromolecular compounds); sbornik statey. Moscow, Izd-vo "Nauka," 1963, 166-169

TOPIC TAGS: polymerization, lactam, lactam polymerization, acetylcaprolactam, caprolactam, polymerization catalyst

ABSTRACT: The authors studied the effect of temperature and the concentration of the sodium salts of caprolactam and N-acetylcaprolactam as catalysts on the polymerization of caprolactam in decalin, α-methylnaphthalene, diphenyloxide, chlorobenzene, xylene, toluene, petroleum ether, ethyl ether, etc. A measured amount of the sodium salt was dissolved in 4.52 g of purified ε-caprolactam, 20 ml of a solvent was added, and the solution, in a cylindrical vessel was dipped in an oil bath whose temperature of 150 or 180C was maintained constant within ±2C in each procedure. After 10-15 min. a measured amount of the

Card 1/2

ACCESSION NR: AT4034001

acetyl derivative was added to the mixture, causing immediate precipitation of polycaproamide in the form of a powder or solid mass. Within the 5 next minutes the polymerization was completed and the polymer prepared was filtered hot, washed with benzene and petroleum ether and dried to a constant weight at 80-100C. The polymerization was found to occur in nonpolar solvents within a few minutes with a satisfactory yield. The latter increases to about 80% with an increase in temperature (190C) and a decrease in catalyst concentration down to 0.01-0.05 mol/mol caprolactam. Orig. art. has: 2 figures.

ASSOCIATION: Institut khimii polimerov i monomerov AN SSSR (Institute of Polymer and Monomer Chemistry, AN Ukr.SSR)

SUBMITTED: 25Oct62 DATE ACQ: 30Apr64 ENCL: 00

SUB CODE: OC NO REF SOV: 002 OTHER: 007

Card 2/2

KORNEV, K.A. [Korniev, K.A.]; GREKOV, A.P. [Hrekov, A.P.]; YANCHIVS'KIY, V.A. [IAnchivs'kyi, V.A.]

Production of high-purity caprolactam. Khim. prom. [Ukr.] no.1: 16-17 Ja-Mr '63 (MIRA 17:7)

1. Institut khimii polimerov i monomerov AN UkrSSR.

GREKOV, A.P. [Hrekov, A.P.], kand. khim. nauk

Production of block polycaprolactam by the alkali method
in Czechoslovakia. Khim. prom. [Ukr.] no.2:84-86 Ap-Je '63.
(MIRA 16:8)

1. Institut khimii polimerov i monomerov AN UkrSSR.

L 31838-65 EWT(m)/EPF(c)/EWP(j)/EWA(c) Pc-4/Pr-4 RM

ACCESSION NR: AR5005656 S/0058/64/000/012/D024/D024

SOURCE: Ref. zh. Fizika, Abs. 12D168

32
B
7

AUTHORS: Shvayka, O. P.; Grekov, A. P.

TITLE: Absorption spectra of functional substitutes of 2-phenyl-1,3,4-oxadiazole

CITED SOURCE: Sb. Stsintillyatory i stsintillyats. materialy. Vyp. 3. Khar'kov, Khar'kovsk. un-t, 1963, 17-20

TOPIC TAGS: ultraviolet spectrum, absorption spectrum, oxadiazole, phenyl

TRANSLATION: The ultraviolet absorption spectra of ethanol and heptane solutions of 2-phenylene-1,3,4-oxadiazoles were investigated in the 220-320 nm region. Spectral curves and tables of maxima and of the absorption coefficients are given. The influence of the substitutes in the para-position on the position of the absorption maximum is discussed. The presence of one absorption band, which does not change its structure upon introduction of a substitute, and the weak interaction with the polar solvent, which leads to an insignificant bathochromic shift,

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GREKOV, A.P. [Hrekov, A.P.], kand. khim. nauk; KORNEV, K.A. [Korniev, K.A.]; doktor khim. nauk; YAROVIY, D.N. [IArovyi, D.N.]

Alkali polymerization of caprolactam. Khim. prom. [Ukr.] no.3:48-50 Jl-S '63. (MIRA 17:8)

1. Institut khimii polimerov i monomerov AN UkrSSR.

GREKOVA, E.B.; GREKOV, A.P.

Methods for the analysis of hydrazine and its derivatives. Prom.khim.reak. i osobo chist.veshch. no.3:54-61 '63.
(MIRA 17:4)

GREKOV, A.P. [Hrekov, A.P.], kand. khim. nauk; KORNEV, K.A. [Korniev, K.A.], doktor khim. nauk; SUKHORUKOVA, S.A.

Production of powder capron by means of alkaline polymerization in organic solvents. Khim. prom. [Ukr.] no.4:25-28 O-D'63. (MIRA 17:6)

GREKOV, A.P.

2-Phenyl-5-phenylamino-1,3,4-oxadiazole. Metod.poluch.khim.reak. i prepar. no.7:92-93 '63. (MIRA 17:4)

1. Institut khimii polimerov i monomerov AN UkrSSR.

L 40987-65 EWT(m)/EPF(c)/EWP(j)/T/EWA(c) Pc-4/Pr-4 IJP(c) RM
ACCESSION NR: AR5005638 S/0081/64/000/022/B049/B050 36
B

SOURCE: Ref. zh. Khimiya, Abs. 22B329

AUTHOR: Kutsyna, L.M.; Grekov, A.P.; Lupashko, Ye. A.; Verkhovtseva, E.T.; Aleksandrova, D.M.; Titskiy, G.D.; Demchenko, N.P.

TITLE: The use of 1-methylnaphthalene in scintillation technology

CITED SOURCE: Sb. Stsintillyatory i stsintillyats. materialy. Khar'kov, Khar'kovsk. un-t, 1963, 203-208

TOPIC TAGS: scintillator, scintillation counter 17, methylnaphthalene, photoelectric current, luminescence, oxygen quenching, triphenylpyrazoline, terphenyl, radioisotope

TRANSLATION: The scintillation effectiveness of liquid scintillators prepared from solutions of PPO, BPO or 1,3,5-triphenylpyrazoline in 1-methylnaphthalene is 20-40% higher than that of p-terphenyl + POPOP in toluene. They are stable with time, relatively non-volatile (higher boiling points) and less toxic, and have luminescence at longer wavelengths (maximum at 3900-4500 A). Oxygen quenching is observed. The authors used the "kh.ch." brand of 1-methylnaphthalene, which was treated with chromic anhydride in aqueous acetic acid solution and distilled in a vacuum. An unknown impurity was

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L 40987-65

ACCESSION NR: AR5005638

detected in this preparation, but was shown to have no effect on the scintillation effectiveness. The scintillation effectiveness was determined from the photoelectric current in an FEU during irradiation with gamma rays from Ag-110. I. Keirim-Markus

ENCL: 00 SUB CODE: OP, OC

Card 2/2

KUTSYNA, L.M.; OGURTSOVA, L.A.; GREKOV, A.P.; SHVAYKA, O.P.

Use of oxadiazole derivatives as scintillation activators in various solvents. Opt. i spektr. 15 no.3:438-440 S '63. (MIRA 16:10)

GREKOV, A.P.; SUKHORUKOVA, S.A.; KORNEV, K.A.

Potentiometric determination of dicarboxylic acid hydrazides with potassium iodate. Zav.lab. 29 no.12:1436 '63. (MIRA 17:1)

1. Institut khimii polimerov i monomerov AN UkrSSR.

GREKOV, A.P.; MARAKHOVA, M.S.

Structure and reactivity of hydrazine derivatives. Part 5: Kinetics of the reaction of ortho derivatives of benzhydrazide with picryl chloride in benzene. Zhur. ob. khim. 33 no.5: 1469-1473 My '63. (MIRA 16:6)

1. Institut khimii polimerov i monomerov AN UkrSSR i Institut monokristallov, stsintillyatsionnykh materialov i osobo chistykh veshchestv.

(Picryl chloride) (Hydrazides)

GREKOV, A.P.; MARAKHOVA, M.S.

Structure and reactivity of hydrazine derivatives. Part 6: Kinetics of the reaction between aliphatic acids hydrazides and picryl chloride in benzene solution. Zhur. ob. khim. 33 no.5:1474-1478 My '63. (MIRA 16:6)

1. Institut khimii polimerov i monomerov AN UkrSSR.
(Hydrazides) (Picryl chloride)

GREKOV, A.P.; MARAKHOVA, M.S.

Structure and reactivity of hydrazine derivatives. Part 7: Kinetics of the reaction of some meta and para derivatives of benzhydrazide with picryl chloride and benzoyl chloride in benzene. Zhur. ob. khim. 33 no.5:1552-1556 My '63. (MIRA 16:6)

1. Institut khimii polimerov i monomerov AN Ukrainskoy SSR.
(Hydrazides) (Picryl chloride)
(Benzoyl chloride)

KORNEV, K.A., glav. red.; SHEVLYAKOV, A.S., red.; CHERVYATSOVA, L.L., red.; SMETANKINA, N.P., red.; YEGOROV, Yu.P., red.; ROMANKEVICH, M.Ya., red.; KUZNETSOVA, V.P., red.; PAZENKO, Z.N., red.; KACHAN, A.A., red.; VOYTSEKHOVSKIY, R.V., red.; GREKOV, A.P., red.; DUMANSKIY, I.A., red.; AVDAKOVA, I.L., red.; VYSOTSKIY, Z.Z., red.; GUMENYUK, V.S., red.; MEL'NIK, A.F., red.

[Synthesis and physical chemistry of polymers; articles on the results of scientific research] Sintez i fiziko-khimiia polimerov; sbornik statei po rezul'tatam nauchno-issledovatel'skikh rabot. Kiev, Naukova dumka, 1964. 171 p. (MIRA 17:11)

1. Akademiya nauk URSR, Kiev. Institut khimii vysokomolekulyarnykh soyedineniy. 2. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo AN USSR (for Vysotskiy). 3. Institut khimii vysokomolekulyarnykh soyedineniy AN USSR (for Romankevich, Chervyatsova, Voytsekhovskiy).