PIVEN', P.K., red.; BARYSHNIKOVA, N.I., red.; PROTOPOPOVA, V.M., red.; IVANOVA, Yu.I., red.; CHEREPANOVA, N.A., red.; KOSTKO, R.P., red.; PETROVA, O.Ye., red.; SYCHEVA, G.F., red.; CHURIKOVA, A.K., red.; POZDEYEV, A.P., tekhn.red.

[Economy of Tyumen Province] Narodnoe khoziaistvo Tiumenskoi oblasti. Omsk, Gos.stat.izd-vo, 1958. 198 p. (MIRA 12:3)

1. Tyumen oblast'. Statisticheskoye upravleniye. 2. Nachal'nik statisticheskogo upravleniya Tyumenskoy oblasti (for Piven').
(Tyumen Province--Economic conditions)

PETROVA, P.

Fountain on a table. Znan.-sila 35 no.1:7 Ja '60.
(MIRA 13:5)

(Ultrasonic waves) (Growth (Plants))

PRAMATAROV, Iv.; KRUSHKOVA, Al.; PETROVA, P.

On changes in the blood sugar level after glucose loading in silicosis patients from the Rhodopes mining basin. Suvrem med., Sofia no.9: 96-98 '60.

1. Iz Mediko-sanitarnata chast v Madan (Gl. lekar I.Ezhdik)
(BLUCOSE TOLERANCE TEST)
(SILICOSIS blood)

MOLLOV, N.M.; PETROVA, P.Ch.

Addition of the derivatives of phenylacetic acid to the Schiff bases and hydramides under the catalytic action of anhydrous aluminum chloride. Izv Inst org khim 1:127-138 '64

ANDREYEV, Mikhail Aleksandrovich; VOZNESENSKIY, N.N., retsenzent; PETROVA, P.I., retsenzent; POLYAK, T.B., redaktor; LIOZNOV, A.G., redaktor; POPOVA, T.G., tekhnicheskiy redaktor

[Organization and planning of finishing work in the cotton industry] Organizatsiia i planirovanie otdelochnogo proizvodstva khlopchatobumazhnoi promyshlennosti. Pod red. T.B.Poliaka. Moskva, Gos. nauchno-tekhn. izd-vo Ministerstva legkoi promyshl. SSSR, 1956. 303 p.
(Cotton finishing) (MLRA 10:3)

KUKHARKOVA, L. L., BOYARSHINOV, P. K., ADUTSKEVICH, V. A. and PETROVA, P. V.

"About the problem of sanitary estimation of meat during listerilosis."

Veterinariya Vol. 37, No. 3, 1960, p. 74

All Union Sci Res Inst Meat Industry

PETROVA, Radka

Luminiscent analysis giving a helping hand to agriculture. Nauka i tekhn mladezh 14 no.3:24-25 Mr '62.

KANEV, [illegible]; NANEV, K.; [illegible]ROVA, R.

[illegible] antimony rubidium-cesium photocathodes. Radiotekh.
i elektron. [illegible] F '65.

(MIRA 18:3)

1. Institut elektroniki Bolgarskoy Akademii nauk.

L 36226-65 EPA(s)-2/EWT(m)/EWP(t)/EWP(b) Pt-10 IJP(c) JD/JG

ACCESSION NR: AP5005367 S/0109/65/010/002/0393/0396 36

19

AUTHOR: Kanev, V.; Nanev, K.; Petrova, R. B

21 21 21

TITLE: Photoemission characteristics of antimony-rubidium-cesium photocathodes

SOURCE: Radiotekhnika i elektronika, v. 10, no. 2, 1965, 393-396

TOPIC TAGS: photocathode, photoemission

ABSTRACT: The current-voltage characteristics of $(Cs, Rb)_3Sb$ photocathodes were measured, graphically differentiated, and translated into curves showing the energy distribution of photoelectrons. The plateaus of the latter are explained by either the electron emission from a wide energy band of the valence bond or the electron emission from two partly overlapping energy bands. The forbidden-band width was found to be 1.8—2.0 ev; the activation energy, 0.36—0.53 ev; the thermionic work function, 1.40—1.76 ev; integral sensitivity, 60—100 μamp/lumen.

Card 1/2

L 36226-65
ACCESSION NR: AP5005367

The antimony-rubidium-cesium photocathodes are claimed to be thermally stable. An increase in Rb content results in a sharp decrease in integral sensitivity, but sensitivity can be increased by treating with oxygen. Orig. art. has: 8 figures.
[03]

ASSOCIATION: Institut elektroniki Bolgarskoy Akademii nauk (Institute of Electronics, Bulgarian Academy of Sciences)

SUBMITTED: 03Feb64 ENCL: 00 SUB CODE: EC, EM

NO REF SOV: 001 OTHER: 001 ATD PRESS: 3219

Card 2/2 10

VERBITSKIY, V.I.; VUL'FSON, I.N.; PETROVA, R.F.

Hormonal therapy for nephritis in children. Vop.okh.mat.i det. 7 no.8:12-18 Ag '62. (MIRA 15:9)

1. Iz kafedry gospital'noy pediatrii (zav. - prof. K.F.Popov) II Moskovskogo meditisnskogo instituta imeni N.I.Pirogova i Detskoy gorodskoy klinicheskoy bol'nitsy imeni I.V.Rusakova (glavnyy vrach - dotsent V.A.Kruzhkov).

(KIDNEYS--DISEASES) (HORMONE THERAPY)

KANEV, S.; PETROVA, R.; KAN[illegible]

Photoemissive properties [illegible] cesium rubidium antimonide. Pt. 2. Doklady [illegible] 8: 801-804 '63.

1. Vorgelegt von E. Djakov [illegible], korresp. Akad.-Mitglied.

LOBKO, P.; PETROVA, R.

Coordinated conference on morphology. Zdrav.Bel. 7 no.11:67-68 N '61. (MIRA 15:11)

(MORPHOLOGY--CONGRESSES)

ACC NR: AT6028291 SOURCE CODE: UR/0000/64/000/000/0091/0097

AUTHOR: Petrova, R. A.

ORG: none

TITLE: Comparison of the radiation balance of the atmosphere with turbulent heat transfer of the earth's surface and atmosphere

SOURCE: AN SSSR. Institut prikladnoy geofiziki. Issledovaniya teploobmena v atmosfere (Investigations of heat exchange in the atmosphere). Moscow, Izd-vo Nauka, 1964, 91-97

TOPIC TAGS: atmospheric radiation, heat transfer, turbulent heat transfer, atmospheric circulation, atmospheric temperature

ABSTRACT: An estimate is made in the first approximation of the difference between the radiation balance of the atmosphere and the heat received or lost by the atmosphere by turbulent heat transfer. Turbulent heat transfer is considered to be negative when the earth's surface gives heat to the atmosphere and positive when the earth's surface receives heat from the atmosphere. A comparison of the two components of the heat balance of the atmosphere made it possible to plot two charts of the difference of the radiation balance of the atmosphere and turbulent heat transfer of the earth's surface and atmosphere for January and July. An analysis of the obtained data permitted distinguishing regions characterized by a tendency toward the predomi-

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ACC NR: AT6028291

nance of one of the components of the heat balance over the other. It was found that on the chart of the difference of the radiation balance of the atmosphere and turbulent heat transfer between the earth's surface and the atmosphere for January, the regions where turbulent exchange exceeds the radiation balance are mainly parts of continents and regions affected by warm oceanic currents. A negative radiation balance of the atmosphere predominates in January in regions 40° S and higher in the Southern Hemisphere and in a region from 55° N with the exception of the Atlantic Ocean region. In July the pattern is more complicated not only at middle but also at high latitudes. In conclusion the author states that a refinement of the initial data, especially the magnitude of the radiation balance of the atmosphere, and consideration of the heat released upon condensation of moisture in the atmosphere, will permit a more rigorous solution of the problem of the significance of the heat-balance components of the atmosphere and an estimation of the advection sources acting in the atmosphere. Orig. art. has: 4 figures.

SUB CODE: 04,08/ SUBM DATE: 24Jun64/ ORIG REF: 003

Card 2/2

PETROVA, A.A.; BORODKIN, V.F.

Chloromethylation of arylaminoanthraquinone dyes. Izv. vys. ucheb. zav.; khim. i khim. tekh. 7 no.3:472-475 '64. (MIRA 17:10)

1. Ivanovskiy khimiko-tekhnologicheskiy institut, kafedra tekhnologii krasiteley i promezhutochnykh produktov.

SHITSKOVA-MARTYNKINA, V.V., kand.med.nauk, PETROVA, R.F.

Clinical aspects of acute diffuse glomerulonephritis in children.
Vop.okh.mat. i det. 3 no.5:11-18 S-O '58 (MIRA 11:11)

1. Iz kafedry gospital'noy pediatrii (zav. - prof. K.F. Popov)
II Moskovskogo gosudarstvennogo meditsinskogo instituta imeni
N.I. Pirogova i detskoy klinicheskoy bol'nitsy imeni I.V. Rusakova
(glavnyy vrach V.A. Kruzhkov, nauchnyy rukovoditel' - prof. M.A.
Bubnova).
(KIDNEYS--DISEASES)
(CHILDREN--DISEASES)

62-58-3-5/30

AUTHORS: Petrova, R. G., Freydlina, R. Kh.

TITLE: The Synthesis of Mercaptanes, Sulfides and Sulfo Acids Containing Trichloromethyl-, Dichlorovinyl- or Carboxyl Groups (Sintez merkaptanov, disul'fidov i sul'fokislot, soderzhashchikh trikhlormetil'nyye, dikhlorvinil'nyye ili karboksil'nyye gruppy)

PERIODICAL: Izvestiya Akademii Nauk SSSR Otdeleniye Khimicheskikh Nauk, 1958, Nr 3, pp. 290 - 295 (USSR)

ABSTRACT: The synthesis of titanium sulfides described in the preceding paper by Nesmeyanov, Zakharkin and Petrova started from α,α,α,ω-tetrachloroalkanes. It was of interest also to synthesize compounds with other functions, chiefly sulfurous ones, from the α,α,α,ω-tetrachloroalkanes. No data were published on a synthesis of compounds of the type $SH(CH_2)CH=CCl_2$ as well as others (References I, III, IV, V, VI, VII, and VIII). Starting from the above-mentioned tetrachloroalkanes and trichloroalkanes with the structure $CCl_2=CH(CH_2)_nCl$ and ω-chlorocarboxylic acids the authors synthesized:

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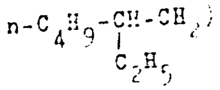
62-58-3-5/30

The Synthesis of Mercaptanes, Sulfides and Sulfo Acids Containing Trichloromethyl-, Dichlorovinyl- or Carboxyl Groups

dithio-mercaptano- and sulfo compounds as well as some derivatives:

$[CCl_3(CH_2)_4]_2S_2$; $[CCl_2{=}CH(CH_2)_3]_2S_2$;

$[ROOC(CH_2)_4]_2S_2$; (where R = H, C_2H_5;  $n\text{-}C_4H_9\text{-}\underset{\displaystyle C_2H_5}{\underset{|}{CH}}\text{-}CH_2$)

$CCl_3(CH_2)_4SCl$; $CCl_3(CH_2)_nSH$ (where n = 4, 6, 8); $CCl_2{=}CH(CH_2)_3SH$; $ROOC(CH_2)_4SH$ (where R = H, C_2H_5); $CCl_3(CH_2)_nSO_3Na$ (where n = 4, 6, 8) ; $C_2H_5OOC(CH_2)_4SO_3Na$.

There are 1 table and 6 references, 2 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute for Elemental- organic Compounds, AS USSR)

SUBMITTED: November 17, 1956

Card 2/2

[illegible]

PETROVA, R. G.

"Study of Horseflies (Tabanidae) of Moscow and Astrakhan Oblasts, and of Their Parasitic Action upon the Animal Organism." Zoological Inst of Acad Sci Ussr, Learned Council, Leningrad, 1955. (Dissertation for the Degree of Candidate in Biological Sciences)

SO: M-955, 16 Feb 56

PETROVA, R.G.

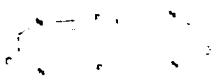
Study of species composition, and the seasonal and diurnal activity of horseflies (Diptera, Tabanidae) in Astrakhan Province. Ent.oboz. 35 no.2:359-370 '56. (MLRA 9:10)

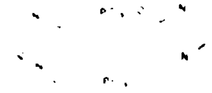
1. Otdel zooparazitologii Gosudarstvennogo instituta veterinarnoy dermatologii, Moskva.
(Astrakhan Province--Horseflies)

CA

10

Structure of protein micromolecule V Action of phosphorus pentachloride on diketopiperazine N I Gavrilov, R G. Petrova, and N A Poddubnaya (Moscow State Univ) Zhur Obshchei Khim (J Gen Chem) 21, 284 (8 1951) cf C A 43, 7908g 2,5-Diketopiperazine (I) with PCl_5 gives [illegible] irreproducible results, which at times lead to the isolation of P-contg products The specific conditions assuring their formation have not been worked out However 0.5 g powd I and 0.4 g PCl_5, carefully triturated together, heated rapidly in 40 ml CCl_4 in the previously described app , refluxed 5 hrs , cooled without access of moisture and filtered, gave yellowish crystals, [illegible] (II), decomp 200°, giving the reactions of I and forming in air a dipeptide which yields a characteristic Cu complex The product was unpure, as some I crystals could be seen under a microscope, the material could not be recrystd nor could its mol wt. be detd because of its insolv Similarly, 1 g I and 8 g PCl_5 in 40 ml hot C_6H_6 gave much HCl, filtering the hot soln after 20 min without access to moisture and letting it stand 1 hr gave 0.75 g needles, decomp 160-70° and analyzing as above the microscopic appearance was very similar to 2,5-dichloro-3,6-dihydropyrazine (III) the product was sol in cold H_2O had no amino N and treatment


(IIIA


(IIIB)

with MeOH precooled with Dry Ice and letting warm up to to 15° gave I indicating the ease of hydrolysis of the P link and thus showing the product was not IIIA but possibly an ester of the acid with an enol form of I (IIIB) Treatment with $(COCl)_2$ failed to yield III and PCl_5 expected for the amide formulation and no reaction took place even in 6 hrs Treatment of the product in cold Et_2O with $H_2NCH_2CO_2Et$ and extn with Et_2O gave [illegible] CO_2Et HCl, and H_3PO_4 Thus, P is not joined to the N of I nor is it an ester of the enol, since neither Et glycineamidine nor N-phosphorylated glycine Et ester were isolated The structure of the product remains unknown Unsuccessful attempts were made to establish the best conditions for the prepn of III by the above reaction In C_6H_6 the reaction occasionally succeeds but the yields are lower than in CCl_4. In MePh both II and III form II predominating In pentane or cyclohexane the reaction does not go, while in isooctane a poorly stable product is formed, contg 44% Cl, indicating some III No reaction occurs in petr ether, b 50-70°, while in hexane is formed a chlorinated product, m. 120-2°, which decomp in air and gives a biuret reaction In AcCl II formed exclusively Addn of quinoline did not facilitate the reaction I was prepd by diverse methods in a high degree of purity and was tried in the PCl_5 reaction with the following results the product purified by crystn from $PhNH_2$, m 274°, does not react with $KMnO_4$, with PCl_5 gives both II and III, and with PCl_3 does not react at all, indicating a completely keto form I, from the di-[illegible] Ac deriv and $H_2NCH_2CO_2Na$ in H_2O m 316°, gave with PCl_5 only II; irradiation with ultraviolet light failed to alter the result I crystd from EtOH and dried at 110° also gave only II After 4 hrs PCl_5 with the di-Ac deriv in CCl_4 gave only impure unreacted material but in 24 hrs [illegible]

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[illegible] III [illegible] was obtained III
trace of III m [illegible] and free of P [illegible] thoroughly dried 150° I
best prepd in CCl₄ from fresh or thoroughly dried 150° I
although even then II may form occasionally VI Prep-
aration of some amidines of the dihydropyrazine series and
their acylation N I Gavrilov and L N Akimova
Ibid 289 94 Addn of 27.8 ml 25% NH₄OH in 45 min
to 50 g MeO₂CCH₂NH₂ HCl in 10 ml H₂O at −10° gave,
after 48 hrs, 60% *2,5-diketopiperazine* (I) 1.1 g I and 8 g
PCl₅ treated with 70 ml dry CCl₄ (for app, see *C.A.* 43,
3790h), rapidly heated, boiled 1.5 hrs cooled, filtered
without access of moisture, and washed with CCl₄, gave
95.7% *2,5-dichloro-3,6-dihydropyrazine* (II), m 83°, and
free of P II (1.5 g gradually added to 4.6 g tyrosine Me
ester HCl salt in 25 ml dry MeOH with ice cooling gave
the poorly sol *2,5-dityrosyl-3,6-dihydropyrazine di-Me*
ester 2HCl, m 132° (from CHCl₃); when CHCl₃ is used as
solvent, the reaction does not take place, and some glycine
dipeptide may be isolated Treatment with PhCH₂O₂CCl
yields the *N,N'-dicarbobenzyloxy deriv*, m 122° (from
C₆H₆) Similarly H₂NCH₂CONHCH₂CO₂Et HCl gave 2,
5-bis(N-glycylglycyl)-3,6-dihydropyrazine di-Et ester-2HCl
salt, m 156° (from MeOH-Et₂O); attempts to form the
carbobenzyloxy deriv under various conditions gave only
the corresponding deriv *of glycine*, m 119°; I formed in a
reaction run in aq NaOH Apparently the acylated
amidine loses ROH and the glycyl residue is acylated in a
reaction of the exo-type. **VII Some transformations of**
acylated 2,5-diketopiperazines in their reaction with amino
acids and amines I N Akimova and N I Gavrilov
Ibid 294 311 1,4 Diacylated diketopiperazines react
with amino acids and some primary amines in such a way
that the NH₂ group adds to the CO group of the diketo-
piperazine, forming a hydrate of the corresponding amidine,

which undergoes the exo rearrangement of the acyl group;
the product may either lose the acylated amine with forma-
tion of the diketopiperazine or it may lose ROH and form
bis-exo-aminoacyl-2,5-dihydropyrazineamidines The exo
acylated amidines form Cu complexes of the tripeptide type
with a 1:1 ratio of Cu to the amidine; on treatment with
alkali the amidines form Cu salts of the acyldipeptide
type Refluxing 1,4-diacetyldiketopiperazine with excess
abs EtOH until soln occurs and chilling rapidly followed
by addn of H₂NCH₂CO₂Et (2.1 g 2 g piperazine) gave in 2
hrs a ppt of diketopiperazine I, and a cmpd, C₁₀H₁₈N₄O₄
(II) (extd with EtOH from the crude ppt) that gives the
anhydride and the biuret reactions of dipeptide type; II,
m 133.5 5.0° (from EtOH-Et₂O) apparently *bis(exo-N-*
acetyl)-2,5-(N-glycine Et ester)-2,5-dicarboxyl-hydropy-
razine, RC(OH) CH₂ NH C(OH) R CH₂ NH R = EtO
CCH₂Na) while the mother liquor yielded *4-NHCH₂CO₂Et*,
m 48°, and H₂NCH₂CO₂Et HCl m 145° With abs

.1957

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MeOH as solvent was similarly obtained some I, 2,5-bis
(exo-N-acetylglycine dihydropyrazine amidine, N CR.CH$_2$
N CR CH$_2$ (R = HO$_2$CCH NAc) (III), C$_{10}$H$_{14}$O$_6$N$_4$, m
177-9° (from Me$_2$CO), and a little of the II above, m 134°;
some AcNHCH$_2$CO$_2$Et was also found. When the reaction
is run in Et$_2$O, III, m. 180°, is the principal product; if
H$_2$NCH$_2$CO$_2$Me is used the same III, m 179°, forms along
with *AcNHCH$_2$CO$_2$Me*, m 58°, while substitution of MeOH
as the solvent yields the *di-Me ester analog*, C$_{14}$H$_{18}$N$_4$O$_6$,
of III, m 142° (from MeOH-Et$_2$O) II with EtOH-dry
HCl gave only some unreacted II, and H$_2$NCH$_2$CONH-
CH$_2$CO$_2$Et HCl, decomp 182° Under the same condi-
tions (1 hr) I is unchanged while its di-Ac deriv yields
AcOEt and I Shaking 2 g. di-Ac deriv of I 5 days with
3 04 g tyrosine Me ester in 50 ml abs. Et$_2$O yielded *N-
acetyltyrosine Me ester*, m 120°, and the *tyrosine Me ester
analog* of II, m 158°, which on standing in the reaction
soln slowly yields I and the above N-acetyltyrosine Me
ester; treatment with MeOH-HCl yields *glycyltyrosine
Me ester-HCl*, m 242° PhCH$_2$NH$_2$ with the di-Ac deriv
of I in Et$_2$O rapidly gave some I and the *exo-N-acetylbenzyl
analog* of III m 149° (from Me$_2$CO), as well as some
PhCH$_2$NHAc, m 60° Similarly, PrNH$_2$ in Et$_2$O gave
1,4-endo-1,4-diacetyl-2-propyl-5-ketopiperazine amidine,
AcN C(:NPr) CH$_2$ NAc CO CH$_2$, m 176°, which gives a

neg ninhydrin reaction; no AcNHPr was found, indicating
a possible absence of an Ac group in endo position An at-
tempted similar reaction with dry NH$_3$ in Et$_2$O failed to take
place, possibly because of ready loss of NH$_3$ by the expected
2,5-di-OH adduct, yielding the starting material in the
course of the isolation treatment Treatment of 2 g 1,4-
bis(chloroacetyl)-2,5-diketopiperazine in Et$_2$O with 1 45 g
H$_2$NCH$_2$CO$_2$Et for 20 min gave the *exo-N-chloroacety-
glycine Et ester analog* of II, m 146° (from EtOAc), and
ClCH$_2$CONHCH$_2$CO$_2$Et, m 63°; in EtOH as solvent, the
amidine could not be isolated and only I-piperazine and
EtO$_2$CCH$_2$NH$_2$ HO$_2$CCH$_2$Cl, m 106°, were found Tyrosine
Me ester in Et$_2$O similarly gave some tyrosine and its unreacted
Me ester, as well as the *exo-N-chloroacetyltyrosine Me ester
analog* of II, m 100° (from Me$_2$CO-Et$_2$O)
G M Kosolapoff

19.5

PETROVA, R. G.

Defended his Candidates dissertation in the Chemistry Faculty of Moscow State University on 2 July 1952.

Dissertation: "Investigation in the Field of Amino Acid Amidines of the Dihydropyrazine Series."

SO: Vestnik Moskovskogo Universiteta, Seriya Fiziko-Matematicheskikh i Yestestvennykh Nauk, No. 1, Moscow, Feb 1953, pp 151-157: tr n-l. in U-2773?, 12 April 54, [redacted]

PETROVA, R. G

USSR

Synthesis of sulfur-containing polyhalogen derivatives and ω,ω'-thiodicarboxylic acids. A. N. Nesmeyanov, L. I. Zakharkin, and R. G. Petrova. Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci. 1954, [illegible] (Engl. translation).—See C.A. 49, 6120f. H. L. H.

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PETROVA, R.G.

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USSR

Synthesis of sulfur-containing polyhalogen derivatives and ω,ω'-thiodicarboxylic acids. A. N. Nesmeyanov, L. I. Zakharkin, and R. G. Petrova. (N. D. Zelinskii Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1954, 253-7; cf. Joyce, *et al.*, *C.A.* 43, 100e.—Refluxing 1,1,3-trichloro-1-propene (40 g.) and 34 g. $Na_2S.9H_2O$ in 100 ml. aq. EtOH 3 hrs. gave 80% $(CCl_2:CHCH_2)_2S$, b_1 92-4°, n_D^{20} 1.5630, d_{20} 1.4481; with 30% H_2O_2 this gave the *sulfone*, m. 114-15° (from EtOH). The *sulfone* treated with Cl in $CHCl_3$ with heating and illumination gave about 45% $C_6H_4Cl_8O_2S$, m. 187-8° (from EtOH). Similarly 1,1,5-trichloro-1-pentene and Na_2S gave 75% $(CCl_2:CHCH_2CH_2CH_2)_2S$, b_1 147°, n_D^{20} 1.5368, d_{20} 1.2818; which gave the *sulfone*, an undistillable oil. 1,1,7-Trichloro-1-heptene and Na_2S gave 78% $[CCl_2:CH(CH_2)_5]_2S$, $b_{1.5}$ 186-7°, n_D^{20} 1.5214, d_{20} 1.1863; oxidation gave the *sulfone*, an undistillable oil. Heating 105 g. 1,1,1,5-tetrachloropentane with 60 g. $Na_2S.9H_2O$ in 30 ml. H_2O and 150 ml. EtOH 8 hrs. gave after evapn., diln. with H_2O and extn. with $CHCl_3$, 82.5 g. $(CCl_3CH_2CH_2CH_2CH_2)_2S$, b_1 203-5°, m. 35-6°, along with an oily mixt. of dehydrochlorination products. Oxidation of the sulfide with H_2O_2 in AcOH gave the *sulfoxide*, m. 67-8° (from petr. ether), while excess H_2O_2 gave the *sulfone*, m. 114-15° (from EtOH). To a soln. of 34 g. $Cl(CH_2)_4CO_2H$ in 8 g. NaOH and 100 ml. H_2O was added 25 g. $Na_2S.9H_2O$ and the mixt. refluxed 2 hrs. yielding after filtration and acidification 89.5% $S[(CH_2)_4CO_2H]_2$ (I), m. 96-7° (from dil. EtOH); oxidation with H_2O_2 gave the corresponding *sulfone*, m. 169-72° (from EtOH). I forms *di-Et ester*, $b_{1.5}$ 183-4°, n_D^{20} 1.4660, d_{20} 0.9951, and *di-Bu ester*, $b_{1.5}$ 214-15°, n_D^{20} 1.4641, d_{20} 0.9878. Similarly, $Cl(CH_2)_6CO_2H$ gave 92% $S[(CH_2)_6CO_2H]_2$, m. 98-9°; *sulfone*, m. 148-9°; *di-Et ester*, b_1 219-20°, m. 37-8°; *di-Bu ester*, $b_{1.5}$ 239-41°, m. 22-3°. G. M. Kosolapoff

PETROVA, R.G.

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Microstructure of proteins. XIII. Behavior of diacetyl-
dioxopiperazine in its reaction with amines. R. G. Petrova,
L. N. Akimova, and N. I. Gavrilov (Moscow State Univ.).
Zhur. Obshchei Khim. 24, 2230-7(1954); cf. C.A. 49,
4987c.—Among the various reactions between N,N'-di-
acetyldioxopiperazine (I) with amines is that in which there
is formed N-acetyldioxopiperazine (II). Shaking I with
$H_2NCH_2CO_2Et$ several hrs. in Et_2O gave on extn. with Me_2-
CO an unstated yield of II, m. 160°, while the soln. yielded
the aceturic ester, m. 48°; the Me ester reacts similarly;
the result is similar in C_6H_6. Shaking I with 2
moles $PrNH_2$ in Et_2O with ice-cooling again gave II, and
PrNHAc. Similarly, I and $PhNH_2$ (2 g. and 1.88 g., resp.)
gave 1.5 g. II and AcNHPh in Et_2O solvent, while in C_6H_6
the yield of II was unstated. $PhCH_2NH_2$ gave 95-8% II.
I and Bu_2NH in Et_2O gave 94% II and Bu_2NAc. I and
dioxopiperazine (IIa) refluxed 3 hrs. in EtOH gave II.
and 2-$C_{10}H_7NH_2$ in Et_2O gave 17.7% II in 3 days; no re-

form. X-ray crystal data confirms this assumption. The
m.p. of many of the compds. studied varies with the bath
immersion temp. (indicated by I.T.) and with the use of
an open capillary tube (O.T.) or an evacuated sealed capil-
lary tube (E.T.) (m.ps. reported without comment are those
heated from room temp. in an open tube). Refluxing 80
g. piperazine (III), 620 ml. HCO_2H, and 820 ml. 40% CH_2O
for 10 hrs., adding 100 ml. H_2O and 100 ml. concd. HCl,

NCH_2CO_2H at 125-30° 0.5 hr. gave IIa and aceturic acid,
m. 206°. II stirred with alc. NaOH at room temp. gave
III. Shaking II with $PhCH_2NH_2$ in abs. EtOH 1 hr. gave
IIa and III; similar reaction with Bu_2NH in EtOH gave the
same result; no reaction took place between I and $PhNH_2$
in EtOH. Heating II in dry alc. HCl gave IIa and H-
$NCH_2CONHCH_2CO_2Et.HCl$ (IV), m. 182°. Heating II
with Ac_2O gave I. Hydrolysis of II with 0.1N HCl gave
IIa and IV, if the reaction is run in dry EtOH; alc. NaOH
and II gives III. G. M. Kosolapoff

②

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

Abst Journal: Referat Zhur - Khimiya, No [illegible], 1957, [illegible]

Author: Petrova, R. G., and Gavrilov, N. I.

Institution: None

Title: Aminoacid Amidines of the Dihydropyrazine Series. I. Synthesis of the Amidines from the Iminoether (3,6-dibenzyl-2,5-dioxydihydropyrazine)

Original Periodical: Zh. obshch. khimii, [illegible], Vol [illegible], No [illegible], [illegible]-264

Abstract: The reaction of the 3,6-dibenzyl ether of 2,5-dihydroxydihydropyrazi (I) with aniline (II) yields diphenyl-2,5-dihydropyrazineamidine (I Similarly, condensation of I with propylamine (IV) yields dipropyl-2,5-dihydropyrazineamidine (V). Condensation of I with glycine este (glycine VI) and the methyl ester of thyroxine (VII) apparently lead to the formation of polypeptoic amidines of the type $H_2NCH_2C(NHCHR-COOR') = NCH_2CONHCHRCOOR'$ (VIII). The formation of VIII is possible only by the unsymmetrical cleavage of the intermediate

Card 1/3

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

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 920

Abstract: dihydropyrazineaminoacid amidines; this is confirmed by the formation
(in the reaction with IV) of diketopyrazine and the ester of VI. The
action of the acid chloride of phthallylglycine (IX) on I yields N,N'-
diphthallylglycinediketopyrazine (X). A mixture of one gramme of I,
0.63 gms of II, 1.5 gms of picric acid (XI), 30 ml anhydrous CH_3OH,
and 20 ml $CHCl_3$ is stirred for 2 weeks, evaporated at ~20° in vacuum;
addition of absolute alcohol yields the dipicrate of III (IIIa) in
yields of 96%, mp 193-193.5°. When dry HCl is passed through an ether
solution of IIIa up to pH 2-3, the hydrochloride of III is obtained,
mp 248-250°. Similarly, the condensation of 0.4 gms of I with 0.16
gms of IV and 0.62 gms XI yields the dipicrate of V in yields of 96%,
mp 194-195°; the latter is converted to the hydrochloride of V, mp
204-206°, by a method similar to that used for IIIa. A $CHCl_3$ solution
of 2.5 gms of I is heated with an absolute alcohol solution containing
2.4 gms of the hydrochloride of the ethyl ether of VI; heating is con-
tinued for several hours at 50-60° A precipitate is formed after the
addition of the ether; the author assigns the structure of the dihydro-
chloride of VIII (R = H, R' = C_2H_5) to the precipitate. When a mixture
of 0.5 gms of I, 0.66 gms of VII, 0.77 gms of XI, in 30 ml of anhydrous

Card 2/3

PETROVA, [illegible], VASILYEVA, [illegible], [illegible]ATYAN, [illegible], [illegible], [illegible], [illegible], [illegible], [illegible], [illegible],
and [illegible]YAN, A. [illegible]

"Polymerization of ethylene with [illegible] the new [illegible]," a paper presented at the 9th Congress [illegible] the Chemistry and Physics of High Polymers, 28 Jan-2 Feb 57, Moscow, [illegible] Chemistry Research Inst.

B-3,[illegible],3[illegible]

PETROVA, R. G.

4E4j

Preparation of DL-proline and DL-ornithine from 1,1,1,5-tetrachloropentane. A. N. Nesmeyanov, R. Kh. Freidlina, and R. G. Petrova (Inst. Heterorg. Compds., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1957, 451-8.—Keeping 16 g. $ClCH_2CH_2CH_2CHClCO_2H$ 72 hrs. at 20-35° in 850 ml. 25% NH_4OH, removing NH_3 by heating, passing the residual soln. over a cationic resin, washing the resin with H_2O, and eluting with 5% NH_4OH gave on evapn. 25.5% DL-proline, m. 202-3° (from EtOH-dioxane); the filtrate on evapn. and treatment with $CuCO_3$ gave addnl. 28.4% proline Cu salt; the total yield was 53.9%. Similar reaction of $ClCH_2CH_2CH_2CHBrCO_2H$ in 48 hrs. gave 10% proline and 41.3% its Cu salt, for a total yield of 51.5%. Heating 30 g. $ClCH_2CH_2CH_2CHClCO_2Et$ and 16.6 g. NH_3 in 90 ml. EtOH in an autoclave 3 hrs. at 130° and heating the crude product several hrs. with concd. HCl gave 31% proline. Heating 12.3 g. $CCl_2:CHClCH_2CH_2$-CH_2Cl, 24 g. NH_3, and 150 ml. EtOH 3 hrs. at 100° gave 41.6% insol. ppt. of *$CCl_2:CClCH_2CH_2CH_2NH_2.HCl$*, which with NaOH gave the *free amine*, b. 70-1°, n_D^{20} 1.5120, d_{20} 1.3180. Heating 12 g. $CCl_2:CHClCH_2CH_2CH_2Cl$, 23 g. o-$C_6H_4(CO)_2NK$, and 35 ml. abs. EtOH 8 hrs. at 185-90° gave 81.3% *1,1,2-trichloro-5-phthalimido-1-pentene*, m. 87-8° (from EtOH). Passage of Cl into 12.5 g. $CCl_2:CHCH_2$-

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Nesmeyanov, A.N.; Freidlina, R.Kh.; Petrova, R.G.,

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1-4E4j

$CH_2CH_2NH_2$ at 0° followed by diln. with 40 ml. H_2O and neutralization with NH_4OH gave 0.75 g. $CCl_3CHClCH_2$-$CH_2CH_2NH_2.HCl$, decomp. 196-7°, while the aq. filtrate gave 0.5 g. $H_2NCH_2CH_2CH_2CHClCO_2H$, m. 185°. The filtrates from both substances were passed over a cationic resin and eluted with 5% NH_4OH to yield after treatment with $CuCO_3$ 41.6% proline Cu salt. Heating 2.6 g. CCl_3-$CHClCH_2CH_2CH_2NH_2$ and 5 g. o-$C_6H_4(CO)_2O$ at the m.p. several hrs. gave 70% 1,1-dichloro-5-phthalimido-1-pentene, m. 106-7°, which formed in 75% yield on heating 70 g. o-C_6H_4-$(CO)_2NK$, 65 g. $CCl_2{:}CHCH_2CH_2CH_2Cl$, and 20 ml. abs. EtOH in an autoclave 12 hrs. at 185-95°. The product (9 g.) in 40 ml. concd. H_2SO_4 was chlorinated at 0° 3 hrs., then quenched in H_2O yielding 93% *2-chloro-5-phthalimidopentanoic acid*, m. 118-19° (from C_6H_6). This (30 g.) in 125 ml. 25% NH_4OH was heated in an autoclave with 135 g. $(NH_4)_2$-CO_3 and 45 ml. H_2O 15 hrs. at 100° yielding 33% DL-ornithine HCl salt after heating the crude product with concd. HCl 12 hrs., sepg. the phthalic acid, evapg., pptg. the NH_4Cl with EtOH, and adding NH_4OH to pH 6-7. The filtrate from the ornithine.HCl was concd. and treated with isatin yielding 21.2% DL-proline-isatin condensation product.

G. M. Kosolapoff

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62-58-3-5/30

AUTHORS: Petrova, R. G., Freydlina, R. Kh.

TITLE: The Synthesis of Mercaptanes, Sulfides and Sulfo Acids Containing Trichloromethyl-, Dichlorovinyl- or Carboxyl Groups (Sintez merkaptanov, disul'fidov i sul'fokislot, soderzhashchikh trikhlormetil'nyye, dikhlorvinil'nyye ili karboksil'nyye gruppy)

PERIODICAL: Izvestiya Akademii Nauk SSSR Otdeleniye Khimicheskikh Nauk, 1958, Nr 3, pp. 290 - 295 (USSR)

ABSTRACT: The synthesis of titanium sulfides described in the preceding paper by Nesmeyanov, Zakharkin and Petrova started from $\alpha,\alpha,\alpha,\omega$-tetrachloroalkanes. It was of interest also to synthesize compounds with other functions, chiefly sulfurous ones, from the $\alpha,\alpha,\alpha,\omega$-tetrachloroalkanes. No data were published on a synthesis of compounds of the type $SH(CH_2)CH=$ $=CCl_2$ as well as others (References I, III, IV, V, VI, VII, and VIII). Starting from the above-mentioned tetrachloroalkanes and trichloroalkanes with the structure $CCl_2=CH(CH_2)_n$ Cl and ω-chlorocarboxylic acids the authors synthesized:

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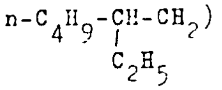
62-58-3-5/30

The Synthesis of Mercaptanes, Sulfides and Sulfo Acids Containing Trichloromethyl-, Dichlorovinyl- or Carboxyl Groups

dithio-mercaptano- and sulfo compounds as well as some derivatives:

$[CCl_3(CH_2)_4]_2S_2$; $[CCl_2{=}CH(CH_2)_3]_2S_2$;

$[ROOC(CH_2)_4]_2S_2$; (where R = H, C_2H_5; n-C_4H_9-CH-CH_2)


$n\text{-}C_4H_9\text{-}\underset{C_2H_5}{\underset{|}{CH}}\text{-}CH_2$

$CCl_3(CH_2)_4SCl$; $CCl_3(CH_2)_nSH$ (where n = 4, 6, 8);
$CCl_2{=}CH(CH_2)_3SH$; $ROOC(CH_2)_4SH$ (where R = H, C_2H_5);
$CCl_3(CH_2)_nSO_3Na$ (where n = 4, 6, 8) ; $C_2H_5OOC(CH_2)_4SO_3Na$.

There are 1 table and 6 references, 2 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute for Elemental-organic Compounds, AS USSR)

SUBMITTED: November 17, 1956

Card 2/2

5(3)

SOV/62-59-4-[illegible]

AUTHORS: Nesmeyanov, A. N., Freydlina, R. Kh., Petrova, R. G., Terent'yev, A. B.

TITLE: Interaction of 1,1,1-Trichloropropene With Sulphene Chlorides and Sulphur Dichloride (Vzaimodeystviye 1,1,1-trikhlorpropena s sul'fenkhloridami i dvukhloristoy seroy)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 4, pp 657-662 (USSR)

ABSTRACT: In the present work the addition of phenyl-, benzil-, 2,4-dinitrophenyl-, 2-nitrophenyl sulphene chloride and sulphur dichloride to 1,1,1-trichloropropene was investigated. The addition of phenyl sulphene chloride to 1,1,1-trichloropropene gave 1,1,1,3-tetrachloroisopropylphenylsulphide as the main product. The dehydrochlorination of 1,1,1,3-tetrachloroisopropyl phenyl sulphide with alkali in ethyl Cellosolve gives a mixture the composition of which depends mainly on the reaction conditions. The investigation of the reactions of other sulphene chlorides shows that 2,4-dinitro- and 2-nitrophenyl sulphene chlorides do not associate with 1,1,1-trichloropropene under the assumed conditions. The reaction of 1,1,1-trichloropropene with benzil

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SOV/62-59-4-14/42

Interaction of 1,1,1-Trichloropropene With Sulphene Chlorides and Sulphur Dichloride

sulphene chloride is more complicated and forms mainly a dehydrochlorinated adduct. The consideration of the reaction of 1,1,1-trichloropropene with sulphur dichloride, 2,4-dinitro- and 2-nitrophenyl sulphene chloride shows a similarity between the action of the -CCl$_3$ group having no double bond on the next double bond and the action of other acceptor groups having π-bonds. Sulphur dichloride reacts with 1,1,1-trichloropropene to form 1,1,1,3-tetrachloroisopropyl sulphene chloride. There are 6 references, 4 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental-organic Compounds of the Academy of Sciences, USSR)

SUBMITTED: July 13, 1957

Card 2/2

SOV/20-127-3-26/71

5(3)

AUTHORS: Nesmeyanov, A. N., Academician, Freydlina, R. Kh., Corresponding Member, AS USSR, Petrova, R. G., Terent'yev, A. B.

TITLE: Reaction Between 1,1,1-Trichloropropene and Mercaptans

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 3, pp 575 - 577 (USSR)

ABSTRACT: At least 3 types of addition reactions (Ref 1) are known for 1,1,1-trichloropropene: a)electrophilic addition (of hypobromous acid, for example; this reaction takes place in contrast to the Markovnikov law); b) nucleophilic addition, occurring together with a re-arrangement of allyl, and finally c) radical addition; this takes place together with a re-arrangement of the meanwhile developed radicals, from type "A" to type "B" (see Scheme). The addition of thiophenol and benzyl mercaptan was investigated in the present work by means of 1,1,1-trichloropropene. 2,3,3-trichloropropylphenylsulphide (see Scheme) developed by means of an addition of the first mentioned substance (and an exposure to the light of a 100 w bulb). Its structure was determined in two ways (Ref 2). Thus the reaction takes place under the given con-

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ditions, according to the homolytical mechanism. In the case of benzylmercaptan, however, 2 products develop: 2,3,3-trichloropropylbenzylsulphide (II) and 3,3-dichloropropene-2-yl-benzylsulphide (III). The latter compound is predominating. From the determination of the structure of the sulphides (II) and (III) by means of a different synthesis, it was found that HCl is separated during the reaction. Its amount corresponds to that of the produced sulphide (III) (see Scheme). The formation of sulphide (III) according to the method of a nucleophilic addition is less probable. 3,3,3-trichloropropylphenylsulphide developed during the reaction of 1,1,1-trichloropropene with thiophenol in the presence of sulphur as inhibitor of radical processes. Its structure was confirmed by the lacking of frequencies in the i.-r.-spectrum which are characteristic of the methyl group. There are 2 references, 1 of which is Soviet.

Reaction Between 1,1,1-Trichloropropene and Mercaptans SOV 20-127-3-25/[illegible]

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute for Elemental-organic Compounds of the Academy of Sciences, USSR)

SUBMITTED: May 6, 1959

Card 3/3

TERENT'YEV, A.B.; PETROVA, R.G.

Homolytic rearrangements with alkyl and aryl thio group migration. Izv. AN SSSR. Ser. khim. no.12:2153-2156 D '63. (MIRA 17:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

FREYDLINA, R.Kh.; TERENT'YEV, A.B.; PETROVA, R.G.

Radical isomerization of acetophenone diphenylmercaptole. Dokl. AN SSSR 151 no.4:866-868 Ag '63. (MIRA 16:8)

1. Institut elementoorganicheskikh soyedineniy AN SSSR. 2. Chlen-korrespondent AN SSSR (for Freydlina).
(Acetophenone) (Mercapto group) (Isomerization)

FREYDLINA, R.Kh.; TERENT'YEV, A.B.; PETROVA, R.G.

Free-radical isomerization of acetone diphenylmercaptole. Dokl. AN SSSR 149 no.4:860-861 Ap '63. (MIRA 16:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
2. Chlen-korrespondent AN SSSR (for Freydlina).
(Acetophenone) (Radicals (Chemistry)) (Isomerization)

FREYDLINA, R.Kh.; TERENT'YEV, A.B.; PETROVA, R.G.

Reaction of 1,1-dichloro-2-propene and crotonaldehyde with alkyl(aryl)thiols. Izv. AN SSSR Otd.khim.nauk no.2:282-286 F '62. (MIRA 15:2)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Propene)
(Crotonaldehyde)
(Thiols)

S/081/62/000/014/009/039
B166/B144

AUTHORS: Nesmeyanov, A. N., Freydlina, R. Kh., Kost, V. N., Khorlina, M. Ya., Sidorova, T. T., Petrova, R. G., Terent'yev, A. B.

TITLE: Connection between the structure of polyalkylhalide radicals and their ability to regroup in solution

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 14, 1962, 178, abstract 14Zh41 (Tr. po khimii i khim. tekhnol. [Gor'kiy], no. I, 1961, 106-115)

TEXT: A review of the authors' work on the homolytic addition of HBr, CCl_3, Br, Br_2, C_6H_5SH and $C_6H_5CH_2SH$ to olefins $XCCl_2CY = CH_2$ (I), where X = Cl, F, H, CH_3 and Y = H, Cl, Br, CH_3. The results of the work show that the aforesaid reactions proceed according to the general scheme: I + HBr $\rightarrow$ $HCClXCYClCH_2Br$ + $CClX = CYCH_2Br$ + $HCClXCYClCH_2Cl$. This indicates that the initially formed polyalkylhalide radicals (PR) are

Card 1/2

PETROVA, R.G.; FREYDLINA, R.Kh.

Synthesis of asymmetrical sulfides containing functional groups. (MIRA 15:1)
Izv. AN SSSR Otd.khim.nauk no.1:59-64 Ja '62.

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Sulfides)

33266

S/062/62/000/001/[illegible]
B106/B101

S 3620

AUTHORS: Petrova, R. G., and Freyd'ina, R. Kh.

TITLE: Synthesis of asymmetric sulfides containing functional groups

PERIODICAL: Akademiya nauk SSSR. Izvestiya Otdeleniye khimicheskikh nauk, no. 1, 1962, 59 - 64

TEXT: The reaction of the ethyl ester of δ-mercapto valeric acid with unsaturated compounds containing functional groups ($COOCH_3$, CN) was studied. Benzoyl peroxide, iron pentacarbonyl, and colloidal iron were used as initiators (catalysts). It was found that the two latter compounds catalyzed the addition of mercaptans to unsaturated compounds of the acryl type. This reaction takes place at 130 - 140°C with good yields and follows the pattern $C_2H_5OCO(CH_2)_4SH + CH_2 = CHR \longrightarrow C_2H_5OCO(CH_2)_4SCH_2CH_2R$; ($R = CN, COOCH_3$). When no catalysts are added, the reaction takes place only at higher temperatures and with much lower yields (Table). The ethyl ester of δ-mercapto valeric acid reacted

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B106/B101

Synthesis of asymmetric sulfides...

hardly with ethylene in the presence of benzoyl peroxide (3.5 hrs at [illegible] and 100 atm). The yield of the adduct was 13%. In the absence of catalysts, the yield of this reaction at higher temperatures (5 hrs at 180 - 200°C and 250 atm) was only 9%. The reaction of the investigated mercaptan with a high excess of methyl acrylate or acrylonitrile in the presence of iron pentacarbonyl gives only the simple addition products of the structure $C_2H_5OCO(CH_2)_4SCH_2CH_2R$ (R = $COOCH_3$, CN). When saponifying the ester or nitrile group with alkali, 2-carboxy ethyl-4'-carboxy butyl sulfide is produced from these compounds. In the presence of benzoyl peroxide, ethyl ester of δ-mercapto valeric acid reacts with methyl acrylate to a mixture of telomer homologs of the structure $C_2H_5OCO(CH_2)_4S(CH_2CHCOOCH_3)_nH$; the compounds with n = 1, 2, 3 were isolated from this mixture (Table). With acrylonitrile, only the simple addition product is also obtained in the presence of benzoyl peroxide. The reaction of diethyl disulfide and diethyl ester of δ, δ'-dithio divaleric acid with ethylene and n-decene-1 was also examined. The latter of these two disulfides reacts with ethylene at 170 - 220°C ([illegible] atm, [illegible] hrs) according to the pattern

Card 2/[illegible]

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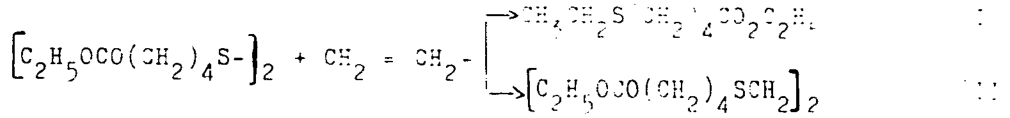
S/062/62/000/001/[illegible]
B106/B101

Synthesis of asymmetric sulfides ...



$$\left[C_2H_5OCO(CH_2)_4S-\right]_2 + CH_2=CH_2 \rightarrow \begin{cases} CH_3CH_2S(CH_2)_4CO_2C_2H_5 & (I) \\ \left[C_2H_5OCO(CH_2)_4SCH_2\right]_2 & (II) \end{cases}$$

The correctness of the structural formula proposed for compound (I) is supported by the fact that no mercapto group could be found in the titration with iodine. In the oxidation of hydrogen peroxide in glacial acetic acid, the relevant sulfone is produced as a thick oil. When reacting diethyl disulfide with ethylene at 200 - 215°C and 100 atm (5.5 hrs), diethyl sulfide is produced as the main product both in the presence and in the absence of iodine. When reacting in the presence of iodine, δ-ethyl thio-diethyl sulfide could also be isolated. Reaction of diethyl disulfide with n-decene-1 yields ethyl decyl sulfide. The formation of alkyl ethyl sulfides in the reactions mentioned is obviously caused by the reaction of intermediate radicals ($C_2H_5SCH_2\dot{C}HR$) with molecules of the reaction mixture. There are 1 table and 10 references: 4 Soviet and 6 non-Soviet. The three most recent references to English-language publications read as follows: M. S. Kharasch, C. Fuchs, J. Organ.

Card 3/6

33266

S/062/62/[illegible]
B1[illegible] B101

Synthesis of asymmetric sulfides

Chem. 13, 97 (1948); F. Sumitomo, [illegible] Ha[illegible]ama, J. Chem. [illegible]
Chem. Soc. 60, 1556 (195[illegible]); A. N. Nesmeyanov, R. Kh. Freydlina, [illegible]
Chukovskaya, R. G. Petrova, Tetrahedron, [illegible]

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii [illegible]
SSSR (Institute of Elemental [illegible]
Academy of Sciences USSR)

SUBMITTED: July 2[illegible], 19[illegible]

Legend to the Table. (a) number of experiment; (b) unsaturated [illegible] (I); (c) mercaptans (II); (d) [illegible] ratio [illegible]; (e) [illegible]; (f) temperature, °C; (g) duration, hrs; (h) reaction [illegible] (i) without initiator; (k) [illegible]; * products of experiments [illegible] were saponified. The identity of the [illegible]-dicarboxylic acid [illegible] proved by mixed melting points; ** no higher boiling [illegible] were formed; *** experiment was made in glass [illegible]; **** [illegible] from experiments 4 - 8 were identical [illegible]

Card 4/[illegible]

FREYDLINA, R.Kh.; TERENT'YEV, A.B.; PETROVA, R.G.; NESMEYANOV, A.N., akademik

Regroupment of radicals in the reactions of thiols with polyhalopropenes. Dokl.AN SSSR 138 no.4:859-862 Je '61. (MIRA 14:5)

1. Institut elementoorganicheskikh soyedineniy AN SSSR. 2. Chlen-korrespondent AN SSSR (for Freydlina).
(Mercapto compounds) (Propene) (Radicals (Chemistry))

L 33065-66
ACC NR: AP6024156 SOURCE CODE: UR/0240/66/000/003/0111/0112

34
B

AUTHOR: Petrova, R. S. (Kazan')

ORG: none

TITLE: Symposium on Self-Purification of Water Bodies

SOURCE: Gigiyena i sanitariya, no. 3, 1966, 111-112

TOPIC TAGS: scientific conference, water purification, water pollution, sanitary engineering, hydrology

ABSTRACT: An All-Union Symposium on Self-Purification of Water Bodies and Mixing of Sewage was held in the city of Tallin, Estonia in June 1965. Participants included hygienists, parasitologists, hydrochemists, microbiologists, geographers, hydrologists, biologists, sanitary engineers, and other specialists. Of general interest was a report by Kh. A. Vel'ner et al. on the theoretical basis of engineering calculations of the self-purifying capacity of rivers and of the mixing of sewage in flowing and nonflowing water bodies. F. I. Bydin suggested using a thermal gradient as a indicator of the mixing of water masses. A. A. Maastin and E. Kukk described an experiment on purification of food industry effluents and using them for irrigation. V. A. Orlova demonstrated the importance of trubulent diffusion and dilution for self-purification of water. Yu. Yu. Lur'ye described some harmless substances that become dangerous when exposed to sunlight and other factors. R. S. Petrova and G. N. Petrov reported on the results of an investigation of oil pollution of rivers in the Central Volga region. The main needs in this field, according to the Symposium, are the development of a mathematical model of self-purification of water, establishment of levels of permissible pollution for different phases of water conditions, and formulation of a research program aimed at producing methods of predicting self-purification of water. [JPRS]

SUB CODE: 13,08 / SUBM DATE: none UDC: 628.394(063) (47)"1965"

Card 1/1

FREYDLINA, R.Kh.; PETROVA, R.G.; TERENT'YEV, A.B.

Synthesis and properties of polychlorodialkyl sulfides. Izv. AN SSSR Otd.khim.nauk no.5:842-846 My '60. (MIRA 13:6)

1. Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR.

(Sulfides)

GULYAKIN, I.V., prof.,doktor biol.nauk.; YUDINTSEVA, Ye.V., kand.biol.nauk.,
starshiy nauchneyy sotrudnik; PETROVA, R.K., nauchnyy sotrudnik.

Radiostrontium in relation to calcium, and radiocesium in relation
to potassium in soil and plants. Izv. TSKhA no.5:29-42 '58.
(MIRA 11:11)

(Strontium--Isotapes) (Cesium--Isotapes) (Minerals in soil)

PETROVA, R.G.

PLYUSHCHEV, V.Ye.; TULINOVA, V.B.; KUZNETSOVA, G.P.; KOROVIN, S.S.;
PETROVA, R.G.

Studying the system CsCl - $CaCl_2$ - H_2O. Zhur.neorg.khim. 2 no.9:2212-2220 S '57. (MIRA 10:12)

1.Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova.
(Caesium chloride) (Calcium chloride)

PETROVA, K.I., mladshiy nauchnyy sotrudnik

Distinctive reactions of a series of alkaloids of the opium group.
Sbor. nauch. trud. TSANII 3:125-128 '62. (MIRA [illegible])

1. Laboratoriya farmatsevticheskogo analiza (rukovoditel' laboratorii - dotsent, kand.khim.nauk M.I.Tarasenko) TSentral'nogo aptechnogo nauchno-issledovatel'skogo instituta.

YEREMEYEVA, V.S.; POROYKOVA, L.N.; PETROVA, R.I.; MORUNOVA, Z.S.; SIVITSKAYA,
O.K.

Use of an internal indicator in the nitritometric titration of drugs.
Apt. delo 9 no.3:60-63 My-Je '60. (MIRA 14:3)
(DRUGS) (COLORIMETRY)
(INDICATORS AND TEST-PAPERS)

PETROVA, R. K.

Carbohydrate-protein metabolism and crop yield in radical assimilation of soil carbon dioxide. A. A. Anisimov and R. K. Petrova (State Univ., Gorki). *Fiziol. Rastenii* 2 558-64(1955).—Introduction into the soil of K, NH_4, and Ca carbonates reduces the monose content and that of sucrose in leaves of plants (beets, cabbage, cucumbers) but increases the sugar content of the seeds, fruit, and tubers, as well as of polysaccharides in the leaves. These extra sources of soil CO_2 also aid the accumulation of total and protein N. K and NH_4 carbonates improve crop yields by 10-15%. The use of $CaCO_3$ in liming of acid soils also gave a similar effect in comparison with $Ca(OH)_2$. G. M. K.

1D

GROMOV, V.K.; PETROVA, R.K.

Results of the study of the jointing and reservoir properties of Paleozoic rocks in eastern Bashkiria as exemplified by the Kinzebulatovo field. Trudy VNIGRI no.165:56-88 '61. (MIRA 14:8)
(Bashkiria--Oil sands--Permeability)
(Joints (Geology))

GROMOV, V.K.; PETROVA, R.K.

Oil-reservoirs in reef deposits of Bashkiria. Trudy VNIGRI no.186:315-326 '61. (MIRA 15:3)
(Bashkiria—Petroleum geology)

ANISIMOV, A.A.; PETROVA, R.K.

Carbohydrate-protein metabolism and productivity with assimilation of carbonic acid from soil by roots. Fiziol.rast. 2 no.6: 558-564 N-D '55. (MLRA 9:5)

1. Gor'kovskiy gosudarstvennyy universitet.
(Plants--Metabolism) (Roots (Botany))

USSR / Human [illegible] Morphology, Normal and Pathological.
Nervous System.
Abs Jour : Ref Zhur - Biol., [illegible]

Author : Petrov, R.M.
Inst : AS Belorussian SSR
Title : On the Development of Lung Innervation in Animals

Orig Pub : V sb.: Vopr. morfol. periferich. nervn. sistemy, [illegible]
Minsk, AN BSSR, [illegible], 91-102

Abstract : Uniformity of the development of innervation [illegible] of the lung [illegible] the Branches of the nervus vagus in the [illegible] the [illegible] the [illegible] of the [illegible] the [illegible] the follow the bronchi, [illegible] plexuses. The latter, in the [illegible] of development [illegible] the lungs of [illegible] innervated [illegible] and [illegible]

Card 1/1

[illegible]

USSR / Human and Animal Morphology (Normal and Pathological).
Nervous System. Peripheral Nervous System.

S

Abs Jour : Ref Zhur - Biologiya, No 9, 1958, No. 40796

Author : Petrova, R. A.
Inst : Health Department of Belorussia
Title : On the Morphology of the Nerves of Human Lungs

Orig Pub : Zdravookhr. Belorussii, 1956, No 9, 29-32

Abstract : The pulmonary plexus distributed on the anterior and posterior surfaces of the lung roots was investigated by the macro-microscopical method of preparation of Vorob'iev on cadavers of neonates. The broncho-pulmonary branches of the vagus nerve appear to be the basic source of innervation of the lungs. The branches of the marginal sympathetic trunk are of lesser significance. The presence of a descending bronchial branch of the vagus nerve (R. bronchialis descendens

Card 1/2

USSR / Human and Animal Morphology (Normal and Pathological). 5
Nervous System. Peripheral Nervous System.

Abs Jour : Ref Zhur - Biologiya, No 9, 1958, No. 40796

n. vagi), demonstrated in 13 out of 16 cases, was confirmed.

Card 2/2

KALITA, T.N.; LEONTYUK, A.S.; PETROVA, R.M.

David Moiseevich Golub; on his 60th birthday and the 35th anniversary of his medical, scientific, pedagogic and public work. Arkh. anat. gist.i embr. 41 no.12:118-121 D '61. (MIRA 15:3)
(GOLUB, DAVID MOISEEVICH, 1901-)

PETROVA, R.M.

Development of pulmonary innervation in mammals. Vop.morf.perif.
nerv.sist. no.4:91-102 '58. (MIRA 13:5)
(LUNGS--INNERVATION)

EXCERPTA MEDICA Sec 15 Vol. 11/7 Chest July 58

PETROVA, R.M.

1520. DEVELOPMENT OF INNERVATION OF THE BRONCHIAL TREE IN THE HUMAN LUNG (Russian text) - Petrova R. M. Inst. of Med. and Inst. of Physiol. of the White Russian Acad. of Sci., Minsk - VOPR MORFOL. PERIF. NERV. SIST. 1956, 3 (71-96) Illus. 12 Ref. 50

It is established that the main origin of lung innervation in embryogenesis is the ramifications of the vagus nerves which follow the bronchi, spreading to the periphery (of the lungs) pari passu with the growth of embryo. In the lower lobes of the lungs the nerve trunks are thicker than in the upper lobes. The development of the lower branch of the vagus nerve - the ramus bronchialis descendens - supplying the lower lobe bronchus was investigated. The development of first nerve fibres is closely associated with the development and complexity of the innervational substratum. In the first half of intra-uterine life the peribronchial nerve plexus develops, and in the second half the contour of the bronchial mucous membrane begins to become complex, producing folds. The first fibres penetrate beneath the mucous membrane, forming there a fine subepithelial network, which is particularly well in evidence in newborn infants. These embryologic observations justified the term broncho-pulmonary being applied to the branch of the vagus nerve entering the lungs. The branches of the vagus nerve spread along the bronchi, and then, as the development of the lung tissue proceeds, participate in the innervation of the lung parenchyme. In a 15-mm. long embryo there appear in lungs the nerve cells from which are later formed the intramural nodes situated along the bronchi. At birth the nodes contain some solitary differentiated cells, but the majority of the cells remain immature in various stages of differentiation. During the first months of postnatal life a gradual differentiation of ganglionic nerve cells takes place. At the age of 4-5 yr. the vast majority of the cells are differentiated.

Lebedeva - Moscow (S)

PETROVA, R.M.

Development of the innervation of the bronchial tree of human lungs. Vop.morf. perif. nerv. sist. no.3:71-96 '56 (MIRA 11:12)
(BRONCHI--INNERVATION)

CHAYKA, Ye.N., BLYUMKIN, V.P., PETROVA, R.M.

First White Russian Conference of Morphologists. E.N. Chaika,
V.P. Bliumkin, R.M. Petrova. Arkh.anat.gist. i embr. 35 no.2:106-112
Mr-Ap '58 (MIRA 11:5)
(NERVOUS SYSTEM)

PETROVA, R. M.

"The Development of Innervation in the Bronchial Tree of Human Lungs." Cand Med Sci, Minsk State Medical Inst, Minsk, 1953. (RZhBiol, No 2, Sep 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (10)

SO: Sum. No. 481, 5 May 55

PETROVA, R.M.

Distribution of myelinated fibers in the stem of the vagus nerve and its branches in the postfetal life in man. Vop. morf. perif. nerv. sist. no.6:171-183'63. (MIRA 16:10)

(VAGUS NERVE)

PETROVA, R.M.

Intratruncal distribution of pulpy fibers in the thoracic section
of the vagus nerve and its bronchopulmonary rami in man. Vop. morf.
perif. nerv. sist. no.5:136-147 '60. (MIRA 14:3)
(VAGUS NERVE) (BRONCHI--INNERVATION)

PETROVA, R. N.

66499

~~5(4)~~ 18.7100, 5.2200(C)

AUTHORS: Chizhikov, D.M., Corresponding Member SOV/20-129-1-48/64
AS USSR, Gulyanitskaya, Z.F.,
Schastlivyy, V.P., Petrova, R.N.

TITLE: Properties of the Melts of the System $CaO-FeO-SiO_2$ Upon
Substitution of FeO by Zinc Oxide

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 1, pp 174-176
(USSR)

ABSTRACT: The slag formed in melting lead, copper, and zinc contains
zinc oxide. Its effect on the properties of the silicate
melts mentioned in the title had not been investigated
systematically. Investigation results of the effect of zinc
oxide on electric conductivity, magnetic susceptibility,
and heat content of the above melts are investigated in the
paper under review. First of all, melts of SiO_2-FeO (Fe_2O_3)
were used. It was proved that an addition of ZnO at a constant
ratio SiO_2/FeO = 0.9 or the substitution of silica by ZnO
increase the electric conductivity of the melts. If FeO is
replaced by ZnO, conductivity decreases. The magnetic sus-

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ceptibility of the SiO_2-FeO melts depends on temperature and
the content of iron oxides. The specific heat of these melts
decreases with ZnO addition. The effect of the zinc oxide
additions on the properties of the melt mentioned in the
title was investigated at a constant ratio SiO_2/CaO (in
weight per cent) upon substitution of iron oxydul by zinc
oxide in 3 groups. In these groups the ratio mentioned was
0.8, 1.0 and 1.6, respectively. The sum of FeO and ZnO
remained constant in all investigations. Thermographical
analysis showed that most combinations melt between 1130
and 1230°. Melts with SiO_2/CaO = 1.0 and a ZnO content of
more than 7.0% have the highest melting temperature. They
are sintered at 1300° but not melted completely. Table 1
shows the measurements of the 3 properties mentioned made on
twice melted slags and on the melts $CaO-FeO-SiO_2-ZnO$ where
FeO was substituted by ZnO. The data are for 1200, 1300,
and 1400°. Hence it appears that the specific conductivity
is reduced upon substitution of ferrous oxyde by zinc oxide

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In all melts it decreases as temperature increases. Magnetic
susceptibility depends on the content of iron oxides and
varies hardly at all with temperature. The investigated
melts are paramagnetic. The Curie point lies at 700°. Figure
1 shows that at a ratio of SiO_2/CaO = 1 and at 1300° the melts
$CaO-FeO-SiO_2-ZnO$ have the highest average values of electric
conductivity and magnetic susceptibility but the lowest
values of specific heat. Figure 2 shows the isothermal lines
of these three properties measured for the conditions last
mentioned. At a content of 10% ZnO the curves show breaks
which seem to correspond to the formation of a new phase.
There are 2 figures and 1 table.

ASSOCIATION: Institut metallurgii im. A.A. Baykova Akademii nauk SSSR
(Institute of Metallurgy imeni A.A. Baykov of the Academy of
Sciences, USSR)

SUBMITTED: July 6, 1959

Card 3/3

CHIZHIKOV, D.M. (Moskva); GULYANITSKAYA, Z.F. (Moskva); PETROVA, R.N.
(Moskva)

Heat content, temperature and heat conductivity of alloys of the system calcium oxide - iron oxide - zinc oxide - alumina - silica. Izv. AN SSSR. Otd. tekh. nauk. Met. i topl. no.6:37-41 N-D '61. (MIRA 14:12)
(Iron-silicon-zinc alloys--Thermal properties)

GULYANITSKAYA, Z.F. (Moskva); PETROVA, R.N. (Moskva); CHIZHIKOV, D.M. (Moskva)

Heat content of alloys in the system calcium oxide - ferrous oxide - zinc oxide - silica. Izv.AN SSSR.Otd.tekh.nauk.Met.i topl. no.5:31-35 S-O '61. (MIRA 14:10)

(Silicon-iron alloys--Thermal properties)

GULYANITSKAYA, Z.F. (Moskva); PETROVA, R.N. (Moskva); CHIZHIKOV, D.M.(Moskva)

Heat content of melts in the system ferrous oxide - zinc oxide - silica. Izv. AN. SSSR. Otd. tekh. nauk. Met. i topl. no.2:55-59 Mr-Ap '61. (MIRA 14:4)

(Slag—Thermal properties)

PETROVA, R.S.

Method of ambulatory conduction of puncture. Vest. vener., Moskva no.3: 40-43 May-June 1953. (CLML 25:1)

1. Of the Department of Syphilology (Head -- Prof. N. S. Smelov), Central Skin-Venereological Institute of the Ministry of Public Health USSR (Director -- Candidate Medical Sciences N. M. Turanov).

AKSHINSKAYA, N.V.; KISELEV, A.V.; NIKITIN, Yu.S.; PETROVA, R.S.; CHUYKINA, V.K.; SHCHERBAKOVA, K.D.

Geometric and chemical modification of silica gel for the adsorption separation of hydrocarbons by gas chromatography. Zhur.fiz.khim. 36 no.5:1121-1123 My '62. (MIRA 15:3)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Silica) (Hydrocarbons) (Gas chromatography)

Petrova, R.S.

Serological and electrophoretic study of sera dried with addition of a stabilizer in serodiagnosis of syphilis. L. S. Reznikova, B. A. Ievleva, L. N. Sarycheva, and R. S. Petrova. *Vestnik Venerol. i Dermatol.* 30, No. 2, 25-8 (1956).—Serum dried without a stabilizer (40% sugar) shows a decline in serological potency as well as changes in the electrophoretic pattern, which indicates the loss of γ-globulin and a merger of the globulin fractions, which remain, into a single electrophoretic peak. G. M. K.

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PETROV, G.N.; PETROVA, R.S.

Studying the silting, filtration, and evaporation of the Domashka
Reservoir. Izv. Kazan. fil. AN SSSR. Ser. energ. i vod. khoz.
no.1:147-170 '57. (MIRA 11:10)
(Domashka Reservoir)

PETROVA, R.S

20-5-20/60

AUTHOR: PETROV, G.N., PETROVA, R.S.

TITLE: Determination of Water Losses by Percolation and Evaporation from the Water Balance in the Domashka Reservoir. (Opredeleniye poter' na fil'tratsiyu i ispareniye po vodnomu balansu na primere domashkinskogo vodokhranilishcha, Russian)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 114, Nr 5, pp 991-994 (U.S.S.R.)

ABSTRACT: Reference is made to several previous papers. The formulae found by them are not suited for the determination of losses by evaporation and require a precise definition. For precise calculation it is further necessary to determine the distribution of wind velocities above the water reservoir as function of the relief of the surroundings, of the direction of the wind, of the position of the encircling forests, the water horizon etc. Losses by evaporation from water reservoirs are greater than in the case of evaporators, because evaporation takes place not only from the water level but also a) from the parts surrounding the reservoir, which are covered with dark-colored slime These parts get considerably warmed up and always attract moisture through their capillaries, b) by the transpiration of the grass growing on the dry parts of the reservoir, c) by the transpiration of water plants, because their evaporation capacity is 3 to 6 times as great as that of the water surface. [illegible] ses for increased evaporation

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20-5-20/60

Determination of Water Losses by Percolation and Evaporation for the Water Balance of the **Domashka** Reservoir

an increased heating of the water by a relatively [illegible] transfer by an increase of the water surface by the formation of waves, mechanical stripping off of drops from wave crests. More reliable results are obtained by the direct [illegible] of the filtration losses caused by the decrease of the [illegible] reservoir volume during the winter period. The [illegible] of the **Domashka** water reservoir are shown in form of a table. [illegible] intensity of the filtration in the case of an excessive accumulation of mud does not agree with the general opinion that filtration decreases with the accumulation of mud. The causes of this phenomenon are described on the basis of the example given by the **Domashka** water reservoir (With [illegible] illustrations and [illegible] tables).

ASSOCIATION: Department for Energetics and Hydraulics of the Kazakh Branch of the Academy of Sciences of the U.S.S.R. (Otdel energetiki i vodnogo khozyaystva Kazakhskogo filiala Akademii nauk SSSR)
PRESENTED BY: Member of the Academy [illegible]
SUBMITTED: [illegible]
AVAILABLE: Library of Congress
Card 2/2

KISELEV, A.V.; PASKONOVA, Ye.A.; PETROVA, R.S.; SHCHERBAKOVA, K.D.

Study of the adsorption properties of carbon blacks by means of gas chromatography. Zhur. fiz. khim. 38 no.1:161-167 Ja'64. (MIRA 17:2)

1. Khimicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta imeni Lomonosova.

METYUSHEV, B.D.; PETROVA, R.S.; MANDZYUK, A.I.

Analytical relations in the system ethanol - isobutyl. Izv.vys. ucheb.zav.; pishch.tekh. no.1:123-127 '64. (MIRA 17:4)

1. Kiyevskiy tekhnologicheskiy institut pishchevoy promyshlennosti, kafedra vysshey matematiki i kafedra brodil'nykh proizvodstv.

METYUSHEV, B.D.; PETROVA, R.S.

Equations for determining the coefficients of evaporation and rectification of isoamyl alcohol. Izv. vys. ucheb. zav.; pishch. tekh. no.4:127-133 '63. (MIRA 16:11)

1. Kiyevskiy tekhnologicheskiy institut pishchevoy promyshlennosti, kafedra brodil'nykh proizvodstv i kafedra vysshey matematiki.

PETROVA, R.S., kand. pedagog. nauk; STABNIKOV, V.N., doktor tekhn. nauk

Generalized formulas for determining the specific heat and viscosity of water-alcohol solutions. Pishch. prom. no.1:151-158 '65. (MIRA 18:11)

METYUSHEV, B.D.; MANDZYUK, A.I.; PETROVA, R.S.

Equation for determining the coefficients of evaporation and rectification of isobutyl alcohol. Trudy KTIPP no.27:24-26 [illegible].
(MIRA 17:[illegible])

S/076/61/035/008/016/016
B110/B101

AUTHORS: Vasil'yeva, V. S., Kiselev, A. V., Nikitin, Yu. S.,
Petrova, R. S., and Shcherbakova, K. D.

TITLE: Graphitized carbon black as adsorbent in gas chromatography

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 8, 1961, 1887 - 1891

TEXT: In the work under consideration, the authors made use of geometrically and chemically modified silica gel as the carrier of another solid body. Thermal types of carbon black annealed at ~ 3000°C are high-disperse bodies with a very homogeneous surface. Their absolute adsorption values are much greater than those of other adsorbents. Tablets are difficult to produce without binding agents. Therefore, the carbon black is introduced into the large pores of the solid carrier. Thus, a powdery adsorbent with homogeneous surface may be introduced into the column. The carrier should be a large-porous body with thermally and chemically stable and very poorly adsorbing surface. In the present case, the authors used large-porous silica gel with a very small surface covered by chemically grafted trimethyl silyl groups. A 2-hr hydrothermal treatment in the

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Graphitized carbon black...

S/076/61/035/001/014/016
B110/B101

autoclave at 350°C reduced the silica gel surface to 15 m^2/g; the enlargement of skeleton globules and pores was established by electron microscopy. Further grafts of trimethyl silyl groups on the silica gel surface according to I. V. Borisenko led to a sharp decrease of adsorption. ~18% blown out and sieved graphitized thermal carbon black Т-1 (T-1) (3000°C) was then introduced into the pores. The silica gel was thereupon introduced into the column chromatograph, where it was heated for 2 hr in the nitrogen flow at 150°C. Graph a) in the figure shows chromatograms of vapor mixtures of benzene, acetone, and n-hexane on geometrically modified silica gel with hydrated surface; б) shows chromatograms of these three individual vapors on silica gel modified with trimethyl silyl groups; and в) chromatograms of the mixture on silica gel modified with carbon black at different temperatures. The succession of peaks was, however, the inverse compared with silica gel with hydrated surface. The acetone peak had a pronounced tail due to reaction between carbonyl groups and accessible hydroxyl groups of the silica gel carrier. The form of benzene- and n-hexane peaks corresponds to the form of curves illustrating the adsorption heats as functions of the form of adsorption isotherms. The peaks become narrower at higher temperatures. According to theory, the

Card 2/[illegible]
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ratio between band width and retardation time is conserved. A study of chromatograms of individual benzene and hexane vapors at five temperatures allowed estimating their adsorption heats on carbon black from the dependence of logarithm of retardation time versus inverse temperature; results were consistent with calorimetric data. Th combination described is well suited for gas chromatography as well as for a rapid physico-chemical analysis of the utilized powders alike. Silica gels modified in this way can also serve as carriers of steady liquid phases. There are 1 figure and 6 references: 3 Soviet-bloc and 3 non-Soviet-bloc. The two references to English-language publications read as follows: Ref. 4: J. Bohemen, Stanley H. Langer, R. H. Perett, J. H. Purnell, J. Chem. Soc., 2444, 1960. Ref. 5: F. T. Eggertsen, H. S. Knight, S. Groennings, Analyt. Chem., 28, 303, 1956.

ASSOCIATION: Laboratoriya adsorptsii i gazovoy khromatografii khimicheskogo fakul'teta Moskovskogo gosudarstvennogo universiteta im. M. V. Lomonosova (Laboratory for Adsorption and Gas Chromatography of the Chemistry Division of Moscow State University imeni M. V. Lomonosov)

Card 3/6
3

KISELEV, A.V.; NIKITIN, Yu.S.; PETROVA, R.S.; FAM NGOK TKHAN'

Study of magnesium oxide surface by adsorption and gas chromatography methods. Koll.zhur. 27 no.3:368-373 My-Je '65.
(MIRA 18:[illegible])

1. Moskovskiy universitet imeni Lomonosova, khimicheskiy fakul'tet. Submitted Oct. 29, 1963.

BORISENKO, I.V.; KISELEV, A.V.; PETROVA, R.S.; CHUYKINA, V.K.; [illegible]ERBAKOVA, K.D.

Chemical modification of silica gel surface by methyl[illegible] silanes for gas chromatography. Zhur.fiz.khim. 39 no.[illegible] 2690 N '65. (MIRA [illegible])

1. Moskovskiy gosudarstvennyy universitet imeni M.V. [illegible], khimicheskiy fakul'tet.

ARISTOV, B.G.; KISELEV, A.V.; MIRSKIY, Ya.V.; PAVLOVA, L.F.; PETROVA, R.S.

Adsorption from vapors and solutions on molecular sieves. Khim.i tekh.topl.i masel 7 no.8:7-12 Ag '62. (MIRA 15:8)

1. Institut fizicheskoy khimii; Moskovskiy gosudarstvennyy universitet im. Lomonosova i Groznenskiy nauchno-issledovatel'skiy neftyanoy institut.

(Adsorption)

[illegible], R.

[illegible]

[illegible]

(D[illegible] R[illegible] --Fresh-water flora)

PETROVA, R.S.; PETROV, G.N. (Kazan')

Studying local water resources. Geog. v shkole 25 no.2:36-37 Mr-Ap '62. (MIRA [illegible])

(Water supply)

[illegible]

AUTHORS: Kiselev, A. V., Korolev, A. Ya., Petrova, R. S., and Shcherbakova, K. D.

TITLE: Effect of the Degree of Chemical Modification of the Silica Surface With Tetramethyl Chloro Silane on the Adsorption of Nitrogen- and Krypton Vapors

PERIODICAL: Kolloidnyy zhurnal, 1960, Vol. 22, No. 6, pp. 671-679

TEXT: The authors of the present paper studied the effect of the silica surface modification on the adsorption of nitrogen- and krypton vapors. They achieved a considerable reduction of the interaction energy adsorbate - adsorbent by substituting trimethyl silyl groups for the hydrogen of the hydroxyl groups on the silicon dioxide surface. The adsorption of nitrogen- and krypton vapors was studied on five Aerosil samples. Aerosil is a non-porous, highly disperse silica which was treated with trimethyl chloro silane vapor or solution in benzine. To obtain samples modified as completely as possible, Aerosil is hydrated for [illegible] hours in the autoclave at 350°C and 169 atm with water, and then treated

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3

Effect of the Degree of Chemical Modification of the Silica Surface With Tetramethyl Chlor[illegible] Silane on the Adsorption of Nitrogen- and Krypton Vapors

S/063/60/0[illegible]/006/00[illegible]
B013/B066

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with $ClSi(CH_3)_3$. This led to an up to 90% occupation of the Aerosil surface with $Si(CH_3)_3$ groups. The adsorption isotherms of nitrogen and krypton vapors were plotted at temperatures of liquid nitrogen. The adsorption of the two substances was found to be reduced by modifying the silica surface with trimethyl silyl groups The krypton adsorption considerably decreases at a high degree of modification. Also the shape of the adsorption isotherms varies i.e., they are less bent. The isotherm for the above vapors are plotted in coordinates of the BET equation It may be seen from it that owing to the reduction of the absolute adsorption quantity the BET equation is less satisfied, because with the less intense interaction of adsorbate - adsorbent, the interaction of adsorbate - adsorbate must not be neglected any longer The specific surface for non-modified silica samples may be determined by the BET method, e.g. on the basis of the nitrogen vapor adsorption. For modified samples, however, the values obtained by the BET method are too low It was found that the adsorption of nitrogen- and krypton vapors depends on the degree

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Effect of the Degree of Chemical Modification of the Silica Surface With Tetramethyl Chloro Silane on the Adsorption of Nitrogen- and Krypton Vapors

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of modification to such an extent that the BET method is not applicable for determining the specific surface of considerably modified samples. The adsorption isotherms obtained for the nitrogen and krypton vapors were compared with the isotherms previously obtained (Refs. 6,7,10) for vapors of n-hexane, benzene, methanol, and water (Fig. 3). Modification was shown to effect a considerable reduction of adsorption in all adsorbents. Fig. 4 illustrates the approximate course of the adsorption decrease at $p/p_s = 0.1$ with increasing occupation θ of the surface by $Si(CH_3)_3$ groups.

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V. P. Dreving is thanked for developing a volumetric apparatus, and B. G. Aristov for plotting the adsorption isotherms of nitrogen. There are 4 figures, 3 tables, and 35 references: 22 Soviet, 5 British, 4 US, and 3 German.

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E075/E135

AUTHORS: Aristov, B.G., Kiselev, A.V., Mirskiy, Ya.V., Pavlova, L.F., and Petrova, R.S.

TITLE: Adsorption from vapours and from solutions on molecular sieves

PERIODICAL: Khimiya i tekhnologiya topliv i masel, no.8, 1962, 7-12

TEXT: Results are given of the investigation of adsorption of vapours of H_2O, N_2, Kr, n-hexane, benzene and isooctane, and also adsorption from liquid solutions of n-hexane - benzene on porous crystals of zeolites of the 4A and 5A type. The adsorption isotherms of vapours of H_2O, N_2, Kr and n-hexane on the sieve 5A rise steeply at first and rapidly reach the saturation stage. The adsorption of benzene and isooctane remains very small. The adsorption isotherm of n-hexane from solution in benzene was measured on the 5A sieve. The filling of the pores with n-hexane begins at practically negligible concentrations of n-hexane and subsequently only some additional packing of adsorbed molecules takes place. The maximum value for the full packing is reached at

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