ACC NR: AT7006292

The polymers were subjected to heat treatment at 200—600°C under argon. The heat-treated polymers were either readily fusible resins, or fine powders which could not be pressed at pressures up to 10^4 kg/cm^2 and temperatures of several hundred degrees centrigrade. Therefore, conductivity measurements were carried out for samples directly under pressure (10^3 kg/cm^2). It was found that prior to heat treatment, the polymers were typical insulators (ρ, > 10^{14} ohm cm). Heat treatment at 300—500°C produced products with organic-semiconductor and paramagnetic properties (unpaired spin concentration, 10^{18}—10^{19} spin/g). The electrical conductivity of the polymers had no ionic component. The temperature dependence of resistivity measured at 20—150°C obeyed an exponential law. The resistivity at 20°C was of the order of 10^{11} to 10^6 ohm·cm, and the activation energy for conduction was 0.3—0.5 ev. Each polymer had a critical heat-treatment temperature beyond which resistivity dropped sharply; for polymers of I and II it was about 400°C, and for the polymer of III, about 300°C. IR spectroscopy and weight loss data suggest that on heat treatment at 300—400°C, the polymers undergo partial degradation and formation of conjugated regions. Orig. art. has: 3 figures. [SM]

SUB CODE: 11, 20/ SUBM DATE: none/ ORIG REF: 004/ ATD PRESS: 5116

Card 3/3

ACC NR: AP7000201 (A) SOURCE CODE: UR/0079/66/036/011/2003/2005

AUTHOR: Lyukas, S. D.; Smetankina, N. P.; Kuznetsova, V. P.

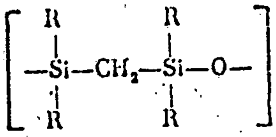
ORG: Institute of Chemistry of High Molecular Compounds, Academy of Sciences, Ukrainian SSSR (Institut khimii vysokomolekulyarnykh soyedineniy Akademii nauk Ukrainskoy SSSR)

TITLE: Synthesis and study of functional organosilicon compounds with a hydrocarbon bridge between the silicon atoms. Part 8: Methods of preparation of alkylchlorodisilylmethanes

SOURCE: Zhurnal obshchey khimii, v. 36, no. 11, 1966, 2003-2005

TOPIC TAGS: siloxane, organosilicon compound

ABSTRACT: In an attempt to find a convenient method for synthesizing chloromethyldisilylmethanes, the authors studied the cleavage of siloxanes containing the units



$$\left[-\overset{R}{\underset{R}{Si}}-CH_2-\overset{R}{\underset{R}{Si}}-O-\right]$$

by chlorinating agents. It was found that such siloxanes are readily cleaved by $TiCl_4$, PCl_5 and $SOCl_2$ in the presence of catalytic amounts of $FeCl_3$, the corresponding

UDC: 547.342

Card 1/2

ACC NR: AP7000201

chlorosilanes being formed in 90-95% yields. The most convenient method of cleaving siloxanes is that involving the use of thionyl chloride. 1,3-Dichloro-1,1,3,3-tetramethyldisilylmethane was synthesized via a Grignard reaction, ethyl ether being used instead of tetrahydrofuran, and a 35% yield of the compound was obtained. Orig. art. has: 4 formulas.

SUB CODE: 07/ SUBM DATE: 12Jul65/ ORIG REF: 002/ OTH REF: 004

Card 2/2

ACC NR: AP7000202 (A) SOURCE CODE: UR/0079/66/036/011/2005/2009

AUTHOR: Smetankina, N. P.; Kuznetsova, V. P.; Lyukas, S. D.; Belogolovina, G. N.; Frolova, Ye. K.

ORG: Institute of Chemistry of High Molecular Compounds, Academy of Sciences, Ukrainian SSR (Institut khimii vysokomolekulyarnykh soyedineniy Akademii nauk Ukrainskoy SSR)

TITLE: Synthesis and study of functional organosilicon compounds with a hydrocarbon bridge between the silicon atoms. Part 11: Acetylenic alcohols of disilylmethylene and -ethylene and some of their conversions

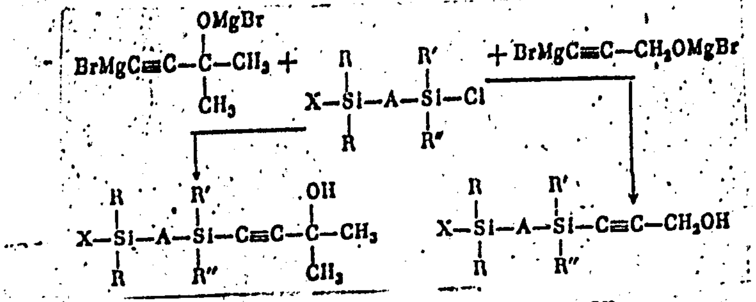
SOURCE: Zhurnal obshchey khimii, v. 36, no. 11, 1966, 2005-2009

TOPIC TAGS: acetylene compound, organosilicon compound, alcohol

ABSTRACT: Continuing their studies, the authors investigated primary and tertiary acetylenic organosilicon alcohols and glycols and some of their conversions. Acetylenic alcohols of the disilylmethylene and -ethylene series were synthesized as follows:

Card 1/5 UDC: 661.718.5+547.362

ACC NR: AP7000202



A = $-CH_2-$

(VII) $X = R = R' = R'' = CH_3$;
(VIII) $X = C_6H_{11}$, $R = R' = R'' = CH_3$;
(IX) $X = C{\equiv}C-C(OH)(CH_3)-CH_3$, $R = R' = R'' = CH_3$.

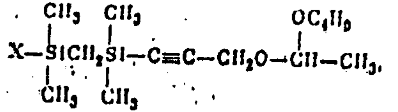
A = $-CH_2-$

(I) $X = R = R' = R'' = CH_3$;
(II) $X = C_6H_5$, $R = R' = R'' = CH_3$;
(III) $X = C{\equiv}C-CH_2OH$, $R = R' = R'' = CH_3$.

A = $-CH_2CH_2-$

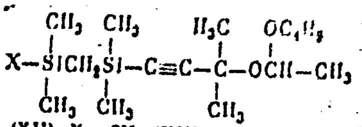
(IV) $X = C{\equiv}C-CH_2OH$, $R = R' = C_2H_5$, $R'' = CH_3$;
(V) $X = C{\equiv}C-CH_2OH$, $R = R' = R'' = C_2H_5$;
(VI) $X = C{\equiv}C-CH_2OH$, $R = C_2H_5$, $R' = CH_3$, $R'' = iso\text{-}C_4H_9$.

In the presence of HCl, the alcohols and glycols obtained readily react with vinyl butyl ether to give the corresponding acetals:



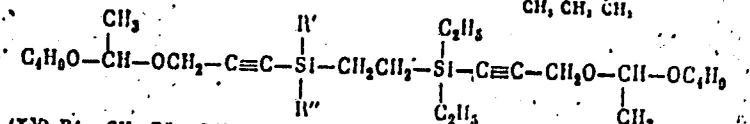
$$X-\underset{CH_3}{\overset{CH_3}{Si}}CH_2\underset{CH_3}{\overset{CH_3}{Si}}-C\equiv C-CH_2O-\overset{OC_4H_9}{CH}-CH_3,$$

(X) $X = CH_3$,
(XI) $X = C_4H_9$,



$$X-\underset{CH_3}{\overset{CH_3}{Si}}CH_2\underset{CH_3}{\overset{CH_3}{Si}}-C\equiv C-\underset{CH_3}{\overset{H_3C}{C}}-O\overset{OC_4H_9}{CH}-CH_3$$

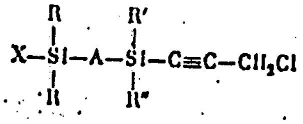
(XII) $X = CH_3$, (XIII) $X = C_4H_9$,
(XIV) $X = C\equiv C-\underset{CH_3\ CH_3}{C}-\underset{CH_3}{OCH}-OC_4H_9$.



$$C_4H_9O-\overset{CH_3}{CH}-OCH_2-C\equiv C-\underset{R''}{\overset{R'}{Si}}-CH_2CH_2-\underset{C_2H_5}{\overset{C_2H_5}{Si}}-C\equiv C-CH_2O-\underset{CH_3}{CH}-OC_4H_9$$

(XV) $R' = CH_3$, $R'' = C_2H_5$; (XVI) $R' = R'' = C_2H_5$; (XVII) $R' = CH_3$, $R'' = iso\text{-}C_4H_9$.

Substitution of chlorine for the hydroxyl group in primary acetylenic alcohols by means of thionyl chloride in the presence of pyridine formed products of the type



$$X-\underset{R}{\overset{R}{Si}}-A-\underset{R''}{\overset{R'}{Si}}-C\equiv C-CH_2Cl$$

$A = -CH_2-$
(XVIII) $X = R = R' = R'' = CH_3$;
(XIX) $X = C_2H_5$, $R = R' = R'' = CH_3$;
(XX) $X = C\equiv C-CH_2Cl$, $R = R' = R'' = CH_3$.

$A = -CH_2CH_2-$
(XXI) $X = C\equiv C-CH_2Cl$, $R = R' = C_2H_5$, $R'' = CH_3$;
(XXII) $X = C\equiv C-CH_2Cl$, $R = R' = R'' = C_2H_5$;
(XXIII) $X = C\equiv C-CH_2Cl$, $R = C_2H_5$, $R' = CH_3$, $R'' = iso\text{-}C_4H_9$.

ACC NR: AP7000202

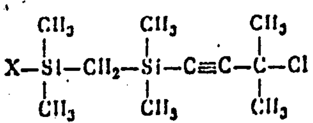
Table 1

Compound No.	Yield (%)	B P (p in mm)	n_D^{20}	d_4^{20}	MR_D measured	MR_D calculated	Formula
I	50	90—92° (5)	1.4637	0.8812	62.71	62.85	$C_9H_{20}OSi_2$
II	57	112 (2)	1.5265	0.9805	82.27	82.67	$C_{14}H_{22}OSi_2$
III	50	130—131 (0.14)	1.5000	0.9910	71.37	71.89	$C_{11}H_{20}O_2Si_2$
IV	40	130—145 (0.15)	1.4950	0.9532	90.48	90.38	$C_{15}H_{28}O_2Si_2$
V	30	142—147 (0.14)	1.4920	0.9572	94.12	93.43	$C_{16}H_{30}O_2Si_2$
VI	36	150—152 (0.15)	1.4940	0.9500	99.47	99.66	$C_{17}H_{32}O_2Si_2$
VII	54	62—63 (2)*	1.4558	0.8555	72.55	72.14	$C_{11}H_{24}OSi_2$
VIII	59	140—142 (5)	1.5123	0.9525	91.57	91.96	$C_{16}H_{26}OSi_2$
IX	57	117—119 (2)**	—	—	—	—	$C_{13}H_{28}O_2Si_2$
X	72	130—132 (3)	1.4505	0.8696	92.06	92.47	$C_{13}H_{32}O_2Si_2$
XI	61	175—180 (3)	1.5118	0.9630	112.70	112.97	$C_{20}H_{34}O_2Si_2$
XII	75	111—114 (3)	1.4460	0.8627	101.57	101.75	$C_{17}H_{36}O_2Si_2$
XIII	60	162—163 (2)	1.5061	0.9527	121.60	121.57	$C_{22}H_{28}O_2Si_2$
XIV	70	167—170 (3)	1.4505	0.8995	151.12	149.70	$C_{27}H_{52}O_4Si_2$
XV	40	157—160 (0.15)	1.4770	0.9324	150.50	149.90	$C_{27}H_{32}O_4Si_2$
XVI	40	165—178 (0.15)	1.4735	0.9303	154.30	154.71	$C_{28}H_{54}O_4Si_2$
XVII	30	145—147 (0.15)	1.4750	0.9270	159.20	159.20	$C_{29}H_{36}O_4Si_2$
XVIII	60	71—72 (2)	1.4645	0.9172	65.90	66.16	$C_9H_{19}ClSi_2$
XIX	58	170—173 (4)	1.5245	1.0040	85.66	85.98	$C_{14}H_{21}ClSi_2$
XX	63	140—145 (6)	1.4870	1.0205	78.16	78.51	$C_{11}H_{18}Cl_2Si_2$
XXI	50	113—115 (0.15)	1.4939	0.9949	97.29	96.94	$C_{15}H_{26}Cl_2Si_2$
XXII	50	115—117 (0.15)	1.4900	0.9854	101.90	101.45	$C_{16}H_{28}Cl_2Si_2$
XXIII	50	108—110 (0.15)	1.4886	0.9656	107.50	106.20	$C_{17}H_{30}Cl_2Si_2$
XXIV	59	80—82 (7)	1.4525	0.8675	76.84	75.95	$C_{11}H_{23}ClSi_2$
XXV	63	160—163 (8)	1.5115	0.9706	95.44	95.27	$C_{16}H_{25}ClSi_2$
XXVI	65	112—113 (5)	1.4820	0.9713	97.86	97.10	$C_{15}H_{28}Cl_2Si_2$

Card 4/5

ACC NR: AP7000202

In addition, the following γ-chloro derivatives of tertiary alcohols were obtained by chlorination:



$$X-\overset{CH_3}{\underset{CH_3}{Si}}-CH_2-\overset{CH_3}{\underset{CH_3}{Si}}-C\equiv C-\overset{CH_3}{\underset{CH_3}{C}}-Cl$$

(XXIV) $X = CH_3$, (XXV) $X = C_6H_5$, (XXVI) $X = -C\equiv C-C(CH_3)_2Cl$.

The yields and physical constants of the synthesized compounds are given in Table 1. Orig. art. has: 2 tables.

SUB CODE: 07/ SUBM DATE: 12Jul65/ ORIG REF: 005/ OTH REF: 001

Card 5/5

L 46604-66 EWT(m)/EWP(j)/T IJP(c) RM

ACC NR: AP6016482 (A) SOURCE CODE: UR/0021/66/000/005/0627/0628

AUTHOR: Novikova, O. A.; Kuznyetsova, V. N.—Kuznetsova, V. P.; Kornyev, K. A.—Kornev, K. A. (Corresponding member AN UkrSSR)

15

B

ORG: Institute of Chemistry of Macromolecular Compounds, AN UkrSSR (Institut khimii visokomolekulyarnikh spoluk AN URSR)

TITLE: Polymerization of triethylethynylsilane in the presence of $(C_2H_5)_3Al.TiCl_4$ as catalyst

SOURCE: AN UkrRSR. Dopovidi, no. 5, 1966, 627-628

TOPIC TAGS: polymer, polymerization catalyst, conjugated polymer, triple bond system, triethylethynylsilane

ABSTRACT: The article deals with the polymerization of triethylethynylsilane in the presence of $(C_2H_5)_3Al.TiCl_4$ as catalyst. The resulting polymers have molecular weight of the order of 1000, and are orange oil-like products. The infrared spectra confirm that polymerization is effected along the triple bond system, resulting in the formation of conjugated double bonds products. [Translation of authors' abstract] [AM]

SUB CODE: 07/ SUBM DATE: 13May65/ ORIG REF: 005/ OTH REF: 003

Card 1/1 mjs

VORONOVA, N.A., doktor tekhn.nauk; TESLYUK, A.K.; MIROSHNICHENKO, G.L.; KUZNETSOVA, V.P.

Composite teeth for the EKG-4 excavator bucket. Met. i gornorud. prom. no. 2:53-54 Mr-Ap '64. (MIRA 17:9)

ACCESSION NR: AP4042086 S/0079/64/034/006/1864/1867

AUTHOR: Kuznetsova, V. P.; Smetankina, N. P.; Oprya, V. Ya.; Goreva, G. N.

TITLE: The synthesis and investigation of functional silicon organic compounds with a hydrocarbon bridge between silicon atoms. IV. The basic production and synthesis of dichlortetraalkyldisilylethane acetylene alcohols.

SOURCE: Zhurnal obshchey khimii, vol. 34, no. 6, 1964, 1864-1867

TOPIC TAGS: ternary alcohol, 1, 2 disilylethane series, acetal

ABSTRACT: The present work is a continuation of earlier investigations by the authors. The authors found that the addition reaction of hydridalkylchlorsilanes to a vinylalkylchlorsilane sinthesized 4 dichlortetraalkyldisilylethane of symmetric and non-symmetric structure. With the dehydration and reaction with ether vinylbutyl of diacetylene ternary alcohol 1, 2-disilylethane series, vinylacetylene hydrocarbons and acetals were produced.

ASSOCIATION: Institut khimii polimerov i monomerov, Akademii nauk Ukrainskoy SSR (Institute of polymer and monomer chemistry, Academy of Sciences, Ukrainian SSR).

Card 1/2

ACCESSION NR: AP4042086

SUBMITTED: 16Feb63 ENCL: 00

SUB CODE: OC NO REF SOV: 007 OTHER: 000

Card 2/2

L 2949-66 EWT(m)/EPF(c)/EWP(j)/T RM

ACCESSION NR: AP5025041 UR/0286/65/000/016/0085/0085

678.84

44,55 44,55 44,55 44,55

AUTHOR: Kuznetsova, V. P.; Smetankina, N. P.; Oprya, V. Ya.; Chernaya, N. S.

37

B

7 44,55

TITLE: Preparation of organosilicon polymers. Class 39, No. 173953 15

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 85

TOPIC TAGS: semiconducting polymer, organosilicon compound, acetylene alcohol

ABSTRACT: An Author Certificate has been issued for a preparative method for semiconducting organosilicon polymers based on acetylenic alcohols. 7 The method involves thermal condensation of organosilicon acetylenic alcohols followed by heat treatment of the polymers in argon at 300—400C. [BO]

ASSOCIATION: Institut khimii polimerov i monomerov AN UkrSSR (Institute of the Chemistry of Polymers and Monomers, AN UkrSSR) 44,55

SUBMITTED: 20Jan64 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4108

Card 1/1 DP

5.3300

75690
SOV/80-32-10-39/51

AUTHORS: Kazakov, Ye. I., Kuznetsova, V. P.

TITLE: Brief Communications. Investigation of the Chemical Nature of Cracking Residues of Crude Oil

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 10, pp 2342-2344 (USSR)

ABSTRACT: Cracking residues of Baytugan and Bugul'ma crude oils from industrial cracking were investigated. The cracking residue was an asphalt-like product, $d_4^{20} = 1.02181$, viscosity at 80° $\eta_{80} = 7.9$, 93% of the product was evaporated on distillation at over 320°. The elemental composition was C 85%, H 9.65%, S 3.6%, O 0.87%. Nitrogen was absent. After usual isolation, the following components were found: carbenes, carboids, asphaltenes, tars, paraffin and naphthene hydrocarbons, monocyclic substitutes, and bicyclic and polycyclic compounds. The hydrocarbons (about 67%) are mostly aromatic. There are 2 tables; 7 Soviet references.

Card 1/1

SUBMITTED: August 23, 1958

22517

5.3700 2209

S/062/61/000/004/006/008
B118/B208

AUTHORS: Shostakovskiy, M. F., Komarov, N. V., Kuznetsova, V. P., and Igonina, I. I.

TITLE: Study in the field of synthesis and conversions of unsaturated organosilicon compounds. 1. Esterification of primary and tertiary γ-silicon-containing acetylene alcohols by adipic acid

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, no. 4, 1961, 699-703

TEXT: The authors studied the esterification of primary and tertiary γ-silicon-containing acetylene alcohols with adipic acid. This esterification was accomplished by direct reaction of the alcohols with adipic acid, and by reaction of these alcohols, or their magnesium derivatives, with adipic acid chloride. The esterification of the primary γ-silicon-containing acetylene alcohols with adipic acid without catalysts takes place either to form the acid adipic ester: $R_3SiC{\equiv}C\text{-}CH_2OH + HOOC(CH_2)_4COOH \rightarrow R_3SiC{\equiv}C\text{-}CH_2OOC(CH_2)_4COOH$, where

Card 1/4

22517

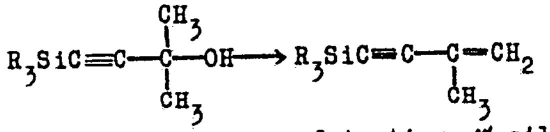
S/062/61/000/004/006/008
B118/B208

Study in the field...

R = CH_3, C_2H_5, and C_6H_5, or to form the neutral adipic ester:

$$2R_3SiC\equiv C-CH_2OH + HOOC(CH_2)_4COOH \rightarrow R_3SiC\equiv C-CH_2OOC(CH_2)_4COOCH_2C\equiv CSiR_3,$$

where R = CH_3 and C_6H_5, depending on the conditions and the quantitative ratio of the components. This method is, however, not applicable to the esterification of tertiary γ-silicon-containing acetylene alcohols, since the reaction of these alcohols with adipic acid, with or without acid catalysts (such as boric acid etc.) gives rise to dehydration of the initial alcohols with formation of the corresponding silicon vinyl acetylene hydrocarbons:



$$R_3SiC\equiv C-\underset{CH_3}{\overset{CH_3}{C}}-OH \rightarrow R_3SiC\equiv C-\underset{CH_3}{C}=CH_2 + H_2O,$$

where R = CH_3 and C_2H_5. Also the esterification of tertiary γ-silicon-containing acetylene alcohols by their reaction with adipic acid chloride in the presence of pyridine as well as the ester interchange of these alcohols with dimethyl adipate under the action of sodium ethylate were unsuccessful. The synthesis of

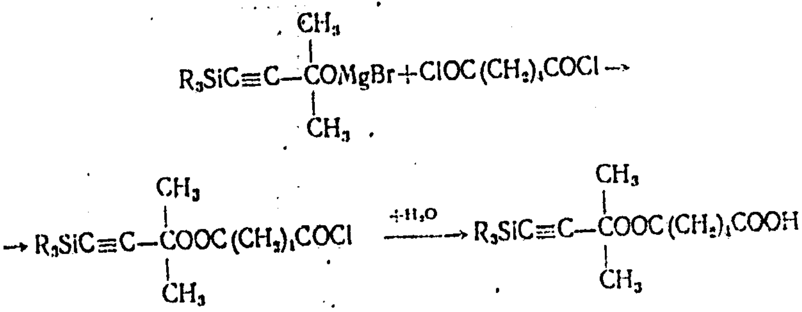
Card 2/4

22517

S/062/61/000/004/006/008
B118/B208

Study in the field...

acid and neutral esters of tertiary γ-silicon-containing acetylene alcohols was accomplished by reaction of magnesium alcoholates with adipic acid chloride



$$R_3SiC\equiv C-\overset{CH_3}{\underset{CH_3}{C}}OMgBr + ClOC(CH_2)_4COCl \rightarrow$$

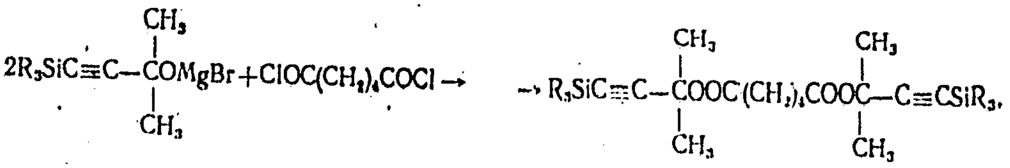
$$\rightarrow R_3SiC\equiv C-\overset{CH_3}{\underset{CH_3}{C}}OOC(CH_2)_4COCl \xrightarrow{+H_2O} R_3SiC\equiv C-\overset{CH_3}{\underset{CH_3}{C}}OOC(CH_2)_4COOH$$

Card 3/4

22517

Study in the field...

S/062/61/000/004/006/008
B118/B208



$$2R_3SiC{\equiv}C{-}\overset{CH_3}{\underset{CH_3}{C}}OMgBr + ClOC(CH_2)_4COCl \rightarrow R_3SiC{\equiv}C{-}\overset{CH_3}{\underset{CH_3}{C}}OOC(CH_2)_4COO\overset{CH_3}{\underset{CH_3}{C}}{-}C{\equiv}CSiR_3,$$

где $R = CH_3$ и C_2H_5.

There are 7 Soviet-bloc references.

ASSOCIATION: Irkutskiy institut organicheskoy khimii Sibirskogo otdeleniya AN SSSR (Irkutsk Institute of Organic Chemistry of the Siberian Branch of the Academy of Sciences USSR)

SUBMITTED: December 15, 1959

Card 4/4

25365

S/079/61/031/008/003/009
D215/D304

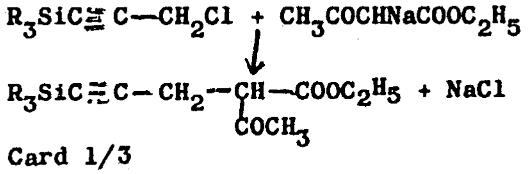
S 3700

AUTHORS: Shostakovskiy, M.F., Kuznetsova, V.P., and Komarov, N.V.

TITLE: Study of synthesis and transformations of unsaturated organo-silicon compounds: interaction of γ-silicon-acetylene chlorides with sodium-acetoacetic and sodium-malonic esters

PERIODICAL: Zhurnal obshchey khimii, 1961, v. 31, no. 8, 2504-2507

TEXT: This paper studies reactions of γ-Si-acetylene chlorides of the propargyl type with Na acetoacetic and Na malonic esters and the prospects of obtaining Si-acetylene carbonyl compounds from these reactions. The reaction is smooth and the yield of keto-esters reaches 40-50%:



$$R_3SiC\equiv C-CH_2Cl + CH_3COCHNaCOOC_2H_5 \longrightarrow R_3SiC\equiv C-CH_2-\underset{\displaystyle COCH_3}{CH}-COOC_2H_5 + NaCl$$

(R is CH_3, C_2H_5 or C_6H_5)

Card 1/3

25365

X

Study of synthesis...

S/079/61/031/008/003/009
D215/D304

A Si-acetylene acid was obtained by the following reaction -

$$(C_2H_5)_3SiC\equiv C-CH_2Cl + NaCH(COOC_2H_5)_2$$

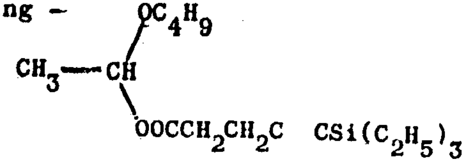
$$\downarrow$$

$$(C_2H_5)_3SiC\equiv CCH_2CH(COOC_2H_5)_2$$

$$\downarrow +H_2O$$

$$(C_2H_5)_3SiC\equiv C-CH_2-CH_2-COOH + CO_2 + 2C_2H_5OH$$

The presence of the carboxyl group in the product of this reaction was established by reaction with vinylbutyl ester - forming -



$$CH_3-CH(OC_4H_9)OOCCH_2CH_2C\quad CSi(C_2H_5)_3$$

Card 2/3

25365

Study of synthesis...

S/079/61/031/008/003/009
D215/D304

The acylal formed hydrolyzes to form the original Si-acetylene acid together with butyl alcohol and acetaldehyde. The stages in which the original Si-acetylebe keto-ester is converted into the acid are two, i.e. formation of a Si-acetylene keto-acid which then breaks down with fission of the Si≡C bond. Synthesis of the following new compounds is described: 6-trimethylsilyl-3-carbetoxyhexene-5-on-2,6-trisethylsilyl-3-carbetoxyhexene-5-on-2;6-dimethylphenylsilyl-3-carbetoxyhexene-5-on-2,6-triethylsilyl-3-carboxyhexene,5-on-2,4-triethylsilyl-1-carboxybutene-3, 1-butoxyethyl ester (4-triethylsilyl-1-carboxybutene-3). There are 3 Soviet-bloc references.

ASSOCIATION: Irkutskiy institut organicheskoy khimii Sibirskogo otdeleniya akademiy nauk SSSR (Irkutsk Institute of Organic Chemistry, Siberian Division, Academy of Sciences, USSR)

SUBMITTED: July 25, 1960

Card 3/3

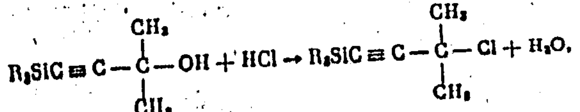
S/062/62/000/003/013/014
B110/B101

AUTHORS: Shostakovskiy, M. F., Komarov, N. V., Kuznetsova, V. P., and Igonina, I. I.

TITLE: Investigations into synthesis and conversions of unsaturated organosilicon compounds. Communication 3. Interaction of tertiary γ-silicon acetylene alcohols with concentrated hydrochloric acid and thionyl chloride

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 3, 1962, 510-512

TEXT: The reaction of tertiary γ-silicon acetylene alcohols with concentrated hydrochloric acid and thionyl chloride showed that the low homologs of tertiary γ-silicon acetylene compounds react easily and almost quantitatively with concentrated hydrochloric acid:



$$R_3SiC\equiv C-\overset{CH_3}{\underset{CH_3}{C}}-OH + HCl \rightarrow R_3SiC\equiv C-\overset{CH_3}{\underset{CH_3}{C}}-Cl + H_2O, \qquad (1)$$

where $R = CH_3$ и C_2H_5.

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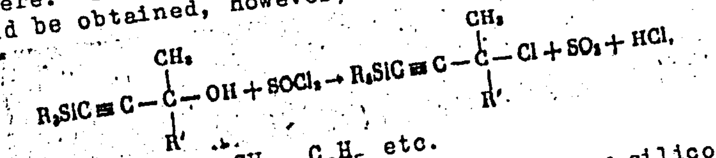
S/062/62/000/003/013/014
B110/B101

Investigations into synthesis and...

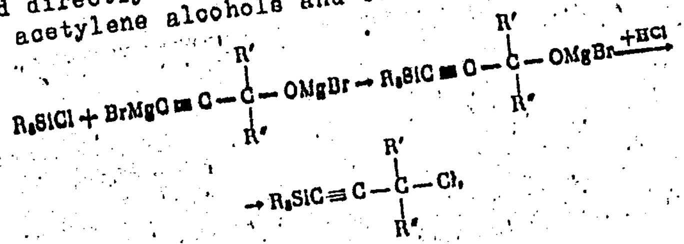
Rupture of the Si-C bond conjugated with the triple bond does not take place here. The exchange of hydroxyl for chlorine only occurs partially; it could be obtained, however, with $SOCl_2$:



$$R_3SiC\equiv C-\underset{R'}{\overset{CH_3}{C}}-OH+SOCl_2\rightarrow R_3SiC\equiv C-\underset{R'}{\overset{CH_3}{C}}-Cl+SO_2+HCl, \qquad (2)$$

where R and R' = CH_3, C_2H_5 etc.

Here too, the Si-C bond is stable. Tertiary γ-silicon acetylene chlorides may be obtained directly from triaryl(alkyl)chlorosilanes, magnesium derivatives of acetylene alcohols and concentrated HCl:



$$R_3SiCl+BrMgC\equiv C-\underset{R''}{\overset{R'}{C}}-OMgBr\rightarrow R_3SiC\equiv C-\underset{R''}{\overset{R'}{C}}-OMgBr\xrightarrow{+HCl}\rightarrow R_3SiC\equiv C-\underset{R''}{\overset{R'}{C}}-Cl, \qquad (3)$$

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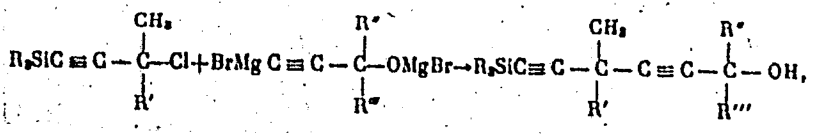
S/062/62/000/003/014/014
B110/B101

AUTHORS: Shostakovskiy, M. F., Komarov, N. V., Kuznetsova, V. P., Igonina, I. I., and Semenova, N. V.

TITLE: Investigations into synthesis and conversions of unsaturated organosilicon compounds. Communication 4. Synthesis and some conversions of organosilicon diacetylene alcohols with isolated ternary bonds

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 3, 1962, 512-515

TEXT: The reaction of tertiary γ-silicon acetylene chlorides with magnesium derivatives of primary, secondary and tertiary acetylene alcohols was studied:



$$R_3SiC\equiv C-\underset{R'}{\overset{CH_3}{C}}-Cl+BrMgC\equiv C-\underset{R'''}{\overset{R''}{C}}-OMgBr\rightarrow R_3SiC\equiv C-\underset{R'}{\overset{CH_3}{C}}-C\equiv C-\underset{R'''}{\overset{R''}{C}}-OH,$$

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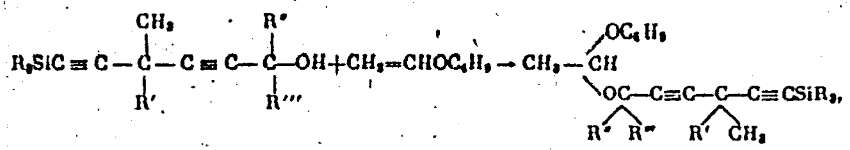
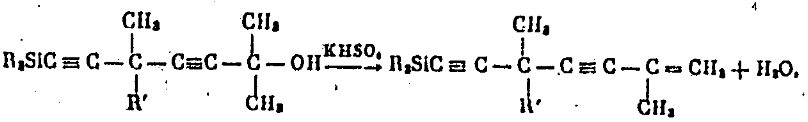
where R and R' are similar or dissimilar organic radicals, R" and R"' = H or organic radicals. The reaction proceeds easily under formation of organosilicon diacetylene compounds with isolated ternary bonds. The behavior of this new class of organosilicon compounds was tested with regard to acetal formation, dehydration and exchange of hydroxyl for halogen. Organosilicon diacetylene alcohols with vinyl butyl ether produced organosilicon diacetylene acetals, not yet described:



$$R_3SiC\equiv C-\underset{R'}{\overset{CH_3}{C}}-C\equiv C-\underset{R'''}{\overset{R''}{C}}-OH+CH_2{=}CHOC_4H_9\rightarrow CH_3-CH\begin{matrix}OC_4H_9\\ OC(R'')(R'')-C\equiv C-C(R')(CH_3)-C\equiv CSiR_3\end{matrix}$$

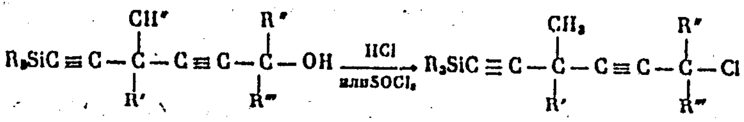
where R and R' are similar and dissimilar organic radicals; R" and R"' = H or organic radicals. Primary alcohols react without catalyst under heating, secondary ones without catalyst during heating, and tertiary ones require concentrated hydrochloric acid as catalyst. Tertiary silicon acetylene alcohols are dehydrated by the action of $KHSO_4$:



$$R_3SiC \equiv C-\underset{R'}{\overset{CH_3}{C}}-C\equiv C-\underset{CH_3}{\overset{CH_3}{C}}-OH \xrightarrow{KHSO_4} R_3SiC \equiv C-\underset{R'}{\overset{CH_3}{C}}-C\equiv C-\underset{CH_3}{C}=CH_2 + H_2O,$$

where $R = CH_3$; $R' = CH_3$ и C_2H_5.

The dehydration of secondary alcohols is not possible in this way. When treated with concentrated hydrochloric acid or thionyl chloride, tertiary alcohols exchange hydroxyl for chlorine:



$$R_3SiC \equiv C-\underset{R'}{\overset{CH''}{C}}-C\equiv C-\underset{R'''}{\overset{R''}{C}}-OH \xrightarrow[\text{или } SOCl_2]{HCl} R_3SiC \equiv C-\underset{R'}{\overset{CH_3}{C}}-C\equiv C-\underset{R'''}{\overset{R''}{C}}-Cl$$

no rupture taking place at the Si-C bond conjugated to the triple bond. The following compounds were synthesized: 6-trimetyhl-silyl-4,4-dimethyl-hexadiin-2,5-ol-1, b.98-99°C (2 mm Hg), n_D^{20} 1.4736, d_4^{20} 0.8973; 7-trimethyl-silyl-5,5-dimethyl-heptadiin-3,6-ol-2, b.116°C (12 mm Hg), Investigations into synthesis and...

S/062/62/000/003/014/014
B110/B101

n_D^{20} 1.4675, d_4^{20} 0.8930; 7-trimethyl-silyl-2,5,5-trimethyl-heptadiin-3,6-ol-2, b.102°C (7 mm Hg), m.41-42°C; 7-trimethyl-silyl-2,5-dimethyl-5-ethyl-heptadiin-3,6-ol-2, b. 105°C (6 mm Hg), n_D^{20} 1.4697, d_4^{20} 0.8867; 6-trimethyl-silyl-4,4-dimethyl-hexadiin-2,5-butylacetal, b.133-134°C (5 mm Hg), n_D^{20} 1.4590, d_4^{20} 0.8993; 6-trimethyl-silyl-1,4,4-trimethyl-hexadiin-2,5-butylacetal, b.121-122°C (2 mm Hg), n_D^{20} 1.4465, d_4^{20} 0.8670; 6-trimethyl-silyl-1,1,4,4-tetramethyl-hexadiin-2,5-butylacetal, b.134-135°C (9 mm Hg), n_D^{20} 1.4439, d_4^{20} 0.8523; 6-trimethyl-silyl-1,1,4-trimethyl-4-ethylhexadiin-2,5-butylacetal, b.122-123°C (2 mm Hg), n_D^{20} 1.4502, d_4^{20} 0.8786; 7-trimethyl-silyl-2,5,5-trimethyl-heptadiin-3,6-ene-1, b.90-91°C (7 mm Hg), n_D^{20} 1.4658, d_4^{20} 0.8187; 7-trimethyl-silyl-2,5-dimethyl-5-ethyl-heptadiin-3,6-ene-1, b.89-90°C (6 mm Hg), n_D^{20} 1.4732, d_4^{20} 0.8754; 7-trimethyl-silyl-2-chloro-2,5,5-trimethyl-

Card 4/5

heptadiin-3,6, b.78-79°C (3 mm Hg), n_D^{20} 1.4605, d_4^{20} 0.9044, and 7-trimethyl-silyl-2-chloro-2,5-dimethyl-5-ethylheptadiin-3,6, b.93-94°C, n_D^{20} 1.4666, d_4^{20} 0.8982.

ASSOCIATION: Irkutskiy institut organicheskoy khimii Sibirskogo otdeleniya Akademii nauk SSSR (Irkutsk Institute of Organic Chemistry of the Siberian Branch of the Academy of Sciences USSR)

SUBMITTED: October 24, 1961

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).

KUZNETSOVA, V.P.; SMETANKINA, N.P.

Synthesis and study of functional organosilicon compounds with hydrocarbon bridges between silicon atoms. Part 6: Synthesis and dehydration of organosilicon tertiary acetylenic alcohols with a p-phenylene group between silicon atoms. Zhur. ob. khim. 35 no.5:913-916 My '65. (MIRA 18:6)

1. Institut khimii vysokomolekulyarnykh soyedineniy AN UkrSSR.

KUZNETSOVA, V.P.; SMETANKINA, N.P.; BELOGOLOVINA, G.N.; OPRYA, V.Ya.;
KUDINOVA, M.A.

Synthesis and study of functional organosilicon compounds with a hydrocarbon bridge between silicon atoms. Part 7: Certain properties of acetylene hydrocarbons with ethylene and phenylene bridges between silicon atoms. Zhur. ob. khim. 35 no.9:1636-1639 S '65. (MIRA 18:10)

1. Institut khimii vysokomolekulyarnykh soyedineniy AN UkrSSR.

L 1359-66 E[illegible](s)-2/EWT(m)/EPF(c)/EWP(j)/T RM

ACCESSION NR: AP5022011

UR/0286/65/000/014/0078/0078
678.84

44,55 44,55 44,55 44,55

AUTHOR: Smetankina, N. P.; Chernaya, N. B.; Oprya, V. Ya.; Kuznetsova, V. P.; Karbovskaya, L. Ye. 44,55 37 B

44,55

TITLE: Preparation of vinylpolysiloxane. Class 39, No. 172997 15

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 14, 1965, 78

TOPIC TAGS: polysiloxane, vinyl group, vinylpolysiloxane, semiconducting polymer 15

ABSTRACT: An Author Certificate has been issued for a preparative method for vinylpolysiloxanes involving the condensation [sic] of vinyl group-containing silanes at 150C. To impart semiconducting properties to the polymer, vinylpolysiloxanes are heat treated at 700—1100C. [BO]

ASSOCIATION: Institut khimii polimerov i monomerov AN UkrSSR (Institute of the Chemistry of Polymers and Monomers, AN UkrSSR) 44,55

SUBMITTED: 08Feb64 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4087

Card 1/1

L 32758-66 EWT(m)/T/EWP(e)/EWP(v) WH/AM
ACC NR: AP6009934 (A) SOURCE CODE: UR/0413/66/000/004/0164/0164

19
B

INVENTOR: Rabinovich, S. A.; Kuznetsova, V. P.

ORG: None

15

TITLE: Paste for producing refractory articles. Class 80, No. 61925

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 4, 1966, 164

TOPIC TAGS: refractory material, refractory casting

ABSTRACT: An author certificate has been issued describing a paste for making refractory articles, using andalusite and kyanite as fillers. To make the paste suitable for molding, the following composition is suggested (%): filler of granulometric composition, 93.5 — to 88.0; plastic clay, 5.5 — 8.0; bentonite, 0.5 — 2.0; sulfite pulp liquor, 1.0 - 2.0.

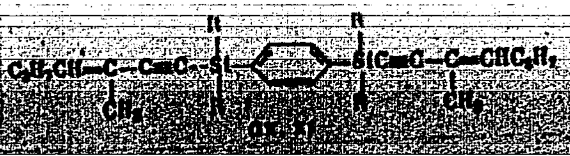
SUB CODE: 11/ **SUBM DATE:** 17Jun37

Card 1/1

CHORNAYA, N.S. [Chorna, N.S.]; TERLETSKIY, B.S. [Terlets'kyi, V.S.];
SMETANKINA, N.P.; KUZNETSOVA, V.P. [Kuznietsova, V.P.]

Mechanism underlying the conductivity of puropolysiloxanes.
Ukr.fiz.zhur. 10 no.10:1150-1152 O '65.
(MIRA 19:1)

1. Institut poluprovodnikov AN UkrSSR i Institut khimii
polimerov AN UkrSSR, Kiyev. Submitted May 28, 1965.



(IX, X)

(IX) $R = CH_3$, (X) $R = C_6H_5$.

The entire experimental procedure is described. Orig. art. has: 7 tables.

VAKULOVA, L.A.; KUZNETSOVA, V.P.; KOLOT, F.B.; BAB'YEVA, I.P.; SAMOKHVALOV, G.I.

Rapid method of quantitative determination of β-carotene in microorganisms. Mikrobiologiia 33 no.6:1061-1064 N-D '64.
(MIRA 18:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy vitaminnyy institut.

SILAYEV, A.B.; ORLOVA, T.I.; KUZNETSOVA, V.S.; MIRONOVA, I.B.

Chemical characteristics of aurantin. Antibiotiki 5 no.3:18-21 My-Je '60. (MIRA 14:6)

1. Laboratoriya antibiotikov biologo-pochvennogo fakul'teta Moskovskogo gosudarstvennogo universiteta.
(ANTIBIOTICS)

SILAYEV, A.B.; KUZNETSOVA, V.S.; ORLOVA, T.I.; MIRONOVA, I.B.

Amino acid composition of aurantin fractions. Antibiotiki 6 no.1: 25-29 Ja '61. (MIRA 14:5)

1. Laboratoriya antibiotikov biologo-pochvennogo fakul'teta Moskovskogo gosudarstvennogo universiteta.
(ANTIBIOTICS) (AMINO ACIDS)

SILAYEV, A.B.; MIRONOVA, I.B.; ORLOVA, T.I.; KUZNETSOVA, V.S.

Chemical structure of the A$_4$ fraction of aurantin. Antibiotiki 6 no.7:597-603 Jl '61. (MIRA 15:6)

1. Laboratoriya antibiotikov biologo-pochvennogo fakul'teta Moskovskogo universiteta.

(ANTIBIOTICS)

SEDOVA, K.D., kand.farm.nauk; KUZNETSOVA, V.S.

Preservation of concentrations used in pharmacies for burette installations. Sbor. nauch. trud. TSANII 3:75-85 '62. (MIRA 16:11)

1. Laboratoriya tekhnologii lekarstvennykh form i galenovykh preparatov TSentral'nogo aptechnogo nauchno-issledovatel'skogo instituta (for Sedova). 2. Zavod meditsinskikh preparatov No.2 Moskovskogo gorodskogo soveta narodnogo khozyaystva (for Kuznetsova).

KUZNETSOVA, V.S.; MIRONOVA, I.B.; ORLOVA, T.I.; SILAYEV, A.B.

Chemical structure of the components of the antibiotic aurantin A_2 and A_3. Antibiotiki 7,no.3:30-34 Mr '62. (MIRA 15:3)

1. Laboratoriya antibiotikov biologo-pochvennogo fakul'teta Moskovskogo ordena Lenina universiteta imeni Lomonosova. (ANTIBIOTICS)

SHAPOSHNIKOV, V. N., akademik; NEFELOVA, M. V.; ORLOVA, T. I.;
MIRONOVA, I. B.; KUZNETSOVA, V. S.; ZUBOVA, O. V.;
SILAYEV, A. B.

Formation of new fractions of auranthin and the study of their chemical and biological properties. Dokl. AN SSSR 147 no.6: 1476-1479 D '62. (MIRA 16:1)

(Auranthin)

SHAPOSHNIKOV, V. N.; SILAYEV, A. B.; NEFELOVA, M. V.; ORLOVA, T. I.; KUZNETSOVA, V. S.;
MIRONOVA, I. B.; ZUBOVA, O. V.

"Directed biosynthesis of aurantin and investigation of biological and chemical properties of new aurantin fractions."

report submitted for Antibiotics Cong, Prague, 15-19 Jun 64.

Lab of Antibiotics, Faculty of Soil Biology, Moscow State Univ.

MIRONOVA, I.B.; KUZNETSOVA, V.S.; ORLOVA, T.I.

New system of solvents for the chromatography of actinomycins.
Antibiotiki 8 no.3:273-275 Mr'63 (MIRA 17:4)

1. Laboratoriya antibiotikov biologo-pochvennogo fakul'teta
Moskovskogo universiteta imeni Lomonosova.

VOROB'YEVA, L.I.; KUZNETSOVA, V.S.

Effect of $MnSO_4$ on the formation of vitamin B-12 by propionic acid bacteria. Mikrobiologiia 33 no.1:26-30 Ja-F '64. (MIRA 17:9)

1. Institut mikrobiologii AN SSSR.

KUZNETSOVA, V. T.

"On Certain Factors Which Influence the Screening of Dysentery Bacilli," a report given at an interoblast scientific-practical conference on problems of laboratory diagnosis of infectious diseases which was held at the Tomsk Scientific Research Institute of Vaccines and Sera, 12-16 March 1956.

SUM: 1360 p. 238.

KUZNETSOVA, Vera Vasil'yevna; BANNIKOV, N.A., red.; GUREVICH, M.M., tekhn.red.; BALLOD, A.I., tekhn.red.

[Planning and building production centers of collective farms; practices of agricultural artels in Poltava Province] Planirovka i zastroika proizvodstvennoi zony kolkhozov; iz opyta sel'skokhoziaistvennykh artelei Poltavskoi oblasti. Moskva, Gos.izd-vo sel'khoz. lit-ry, 1958. 220 p. (MIRA 12:3)

(Poltava Province--Collective farms) (Farm buildings)

KUZNETSOVA, Vera Vasil'yevna; KIYANICHENKO, N [Kyianichenko,N.], red.; NARINSKAYA, A.[Narins'ka, A.], tekhn. red.

[Construction of field shelters for animals and poultry] Budivnytstvo taboriv dlia tvaryn i ptytsi. Kyiv, Derzhbudvydav URSR, 1960. 76 p. (MIRA 15:7)
(Ukraine--Stock and stockbreeding)
(Ukraine--Farm buildings)

RUDAKOV, Ya. D., inzh.; MARTYNOV, A. V., inzh.; KUZNETSOVA, V. V., inzh

Admixture of caustic magnesite in burning mazut. Elek.sta. 32 no.9: 29-31 S '61. (MIRA 14:10)

(Boilers—Incrustations)
(Petroleum as fuel)

RUDAKOV, Ya.D., inzh.; MARTYNOV, A.V., inzh.; KUZNETSOVA, V.V., inzh.

Fuel oil department of a thermal electric power plant. Energetik 11 no.4:11-13 Ap '63. (MIRA 16:3)

(Electric power plants)
(Petroleum as fuel)

NEKLYUDOVA, L.I.; KORNEYEVA, G.F.; PIKEL', N.V.; KUZNETSOVA, V.V.

Characteristics of influenza in Krasnodar in 1959. Vop.virus. 7
no.6:738 N-D '62. (MIRA 16:4)

1. Kubanskiy meditsinskiy institut i krayevaya sanitarno-epidemiologicheskaya stantsiya, Krasnodar.
(KRASNODAR—INFLUENZA)

BELOV, M.I., doktor ist. nauk, st. nauchn. sotr. Prinimali uchastiye KUZNETSOVA, V.V., nauchn. sotr., inzh.-kartograf; SHPITSBERG, I.P., st. nauchn. sotr.; LARIONOV, A.L.; KOBLENTS, Ya.P., st. nauchn. sotr.; OKSENOVA, Ye.I., red.

[First Russian Antarctic Expedition, 1819-1821 and its resultant navigational chart] Pervaia russkaia antarkticheskaia ekspeditsiia 1819-1821 gg. i ee otchetnaia navigatsionnaia karta. Pod red. M.I.Belova. Leningad, Izd-vo "Morskoi transport," 1863. 164 p. (MIRA 17:4)

1. Leningrad. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut. 2. Arkticheskiy i antarkticheskiy institut, Leningrad (for Belov, Kuznetsova, **Koblents**). 3. Institut teoreticheskoy astronomii AN SSSR (for Shpitsberg). 4. TSentral'nyy muzey Voyenno-Morskogo Flota SSSR (for Larionov).

KRYLOVA, N. N.; KUZNETSOVA, V. V.

"Changes of sulfhydryl groups in meat as influenced by a kind of treatment."

report presented at the 10th Annual Mtg, European Meat Research Workers' Association, Roskilde, Denmark, 7-15 Aug 64.

All-Union Res Inst of the Meat Industry, Talalikhin 26, Moskva.

KUZNETSOVA, V.V.

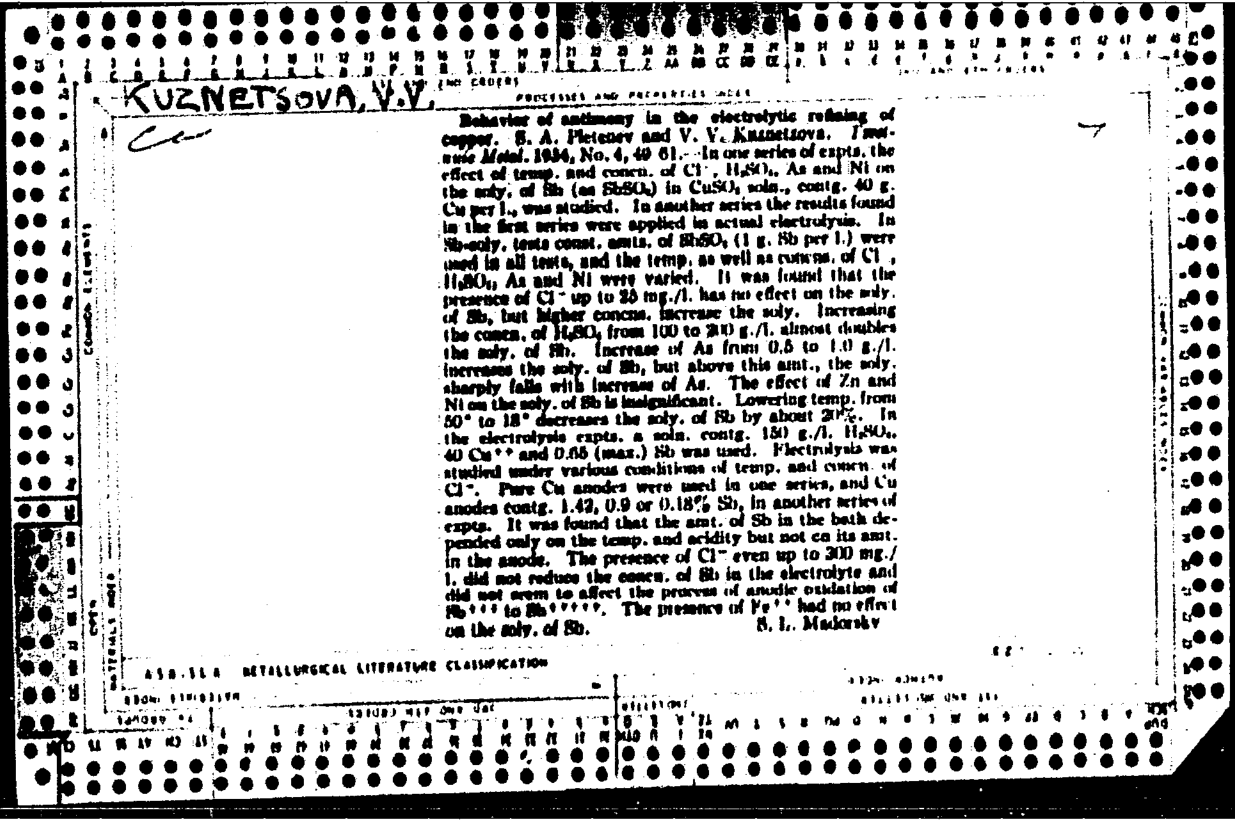
PROCESSES AND PROPERTIES INDEX

4

Electrodeposition of alloys. I. Nickel-cobalt alloys. S. A. Pletenev and V. V. Kuznetsova. *Z. Elektrochem.* 39, 201-4(1933).—The electrodeposition of Co-Ni alloys from acid solns. of $NiSO_4$ and $CoSO_4$ in which Ni:Co = 15:1 has been studied. The influence of p_H (kept const. during electrolysis by addn. of H_2SO_4 or NH_3), temp., c. d., velocity of rotation of cathode, and agitation by means of a stream of air on the compn. of the deposit and the percentage of the total Co deposited has been investigated. Under the optimum conditions (Ni 80, Co 5.33 g. per l., c. d. 100 amp. per sq. m., p_H 3.5, 20°, 2000 r. p. m.) 90% of the Co is deposited as a 41% alloy in 20 hrs.

B. C. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



KUZNETSOVA, V.V.

Cu

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PROCESSES AND PROPERTIES INDEX

Behavior of antimony in the electrolytic refining of copper. S. A. Pletenev and V. V. Kuznetsova. *Tsvetnye Metal.* 1934, No. 4, 49 61.—In one series of expts. the effect of temp. and concn. of Cl⁻, H_2SO_4, As and Ni on the soly. of Sb (as $SbSO_4$) in $CuSO_4$ soln., contg. 40 g. Cu per l., was studied. In another series the results found in the first series were applied in actual electrolysis. In Sb-soly. tests const. amts. of $SbSO_4$ (1 g. Sb per l.) were used in all tests, and the temp. as well as concns. of Cl⁻, H_2SO_4, As and Ni were varied. It was found that the presence of Cl⁻ up to 25 mg./l. has no effect on the soly. of Sb, but higher concns. increase the soly. Increasing the concn. of H_2SO_4 from 100 to 200 g./l. almost doubles the soly. of Sb. Increase of As from 0.5 to 1.0 g./l. increases the soly. of Sb, but above this amt., the soly. sharply falls with increase of As. The effect of Zn and Ni on the soly. of Sb is insignificant. Lowering temp. from 50° to 18° decreases the soly. of Sb by about 20%. In the electrolysis expts. a soln. contg. 150 g./l. H_2SO_4, 40 Cu^{++} and 0.05 (max.) Sb was used. Electrolysis was studied under various conditions of temp. and concn. of Cl⁻. Pure Cu anodes were used in one series, and Cu anodes contg. 1.42, 0.9 or 0.18% Sb, in another series of expts. It was found that the amt. of Sb in the bath depended only on the temp. and acidity but not on its amt. in the anode. The presence of Cl⁻ even up to 300 mg./l. did not reduce the concn. of Sb in the electrolyte and did not seem to affect the process of anodic oxidation of Sb^{+++} to Sb^{+++++}. The presence of Fe^{++} had no effect on the soly. of Sb.

S. L. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KUZNETSOVA, V. V.

24(7),24(0)

AUTHOR: Stepanov, B. I., Academician AS Belorusskaya SSR SOV/30-59-1-9/57

TITLE: Investigations by Belorussian Scientists in the Field of Spectroscopy and Luminescence (Raboty belorusskikh uchenykh po spektroskopii i lyuminestsentsii)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 1, pp 68-76 (USSR)

ABSTRACT: These investigations are being carried out at the Institut fiziki i matematiki (Institute of Physics and Mathematics) and the fizicheskiy fakul'tet Belorusskogo universiteta (Physics Department, Belorussian University) under the direction of B. I. Stepanov, A. N. Sevchenko, M. A. El'yashevich, Academicians AS BSSR, and F. I. Fedorov, Corresponding Member, Academy of Sciences, BSSR. In the field of theoretical spectroscopy, the investigations by P. A. Apanasevich, B. I. Stepanov are mentioned. Further, the following investigations are indicated:

B. I. Stepanov, Ya. S. Khvashchevskaya used the general principles of spectroscopy of negative currents in their examinations.

On the basis of experimental data A. M. Samson obtained important results in the determination of genuine values of optical characteristics of the substances examined.

L. A. Kravtsov, N. P. Ivanov examined calculation methods of reabsorption with large overlapping of absorption and luminescence spectra.

N. A. Borisevich succeeded in obtaining fundamental results in the examination of luminescence of phthalimide vapors. He also showed that the efficiency of quenching collisions may be much less than one.

L. G. Pikulik, under the direction of A. N. Sevchenko, examines the influence of the solvent on the yield of fluorescence as well as the absorption and emission spectra.

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A. N. Sevchenko, G. P. Gurinovich, A. K. Sarzhevskiy examined the luminescence polarization of many combined molecules. At the same time they designed an improved apparatus.

A. N. Sevchenko, V. V. Kuznetsova work in the field of luminescence of rare-earths complexes.

V. A. Pilipovich examined the phenomenon of phosphorescence. The examinations of optical properties of chlorophyll and related compounds are being carried out in close cooperation with the Institut biologii Akademii nauk BSSR (Institute of Biology, Academy of Sciences, Belorusskaya SSR).

T. N. Godnev, L. A. Kravtsov, E. V. Yefremova examined the absorption and luminescence spectra of a live leaf.

A. N. Sevchenko, G. P. Gurinovich, K. N. Solov'yev, L. A. Kravtsov examined polarization spectra and the dependence of polarization on the wave length of fluorescence.

A. N. Sevchenko, L. V. Volod'ko obtained valuable data of the composition of complex compounds and the nature of intermolecular forces of interaction.

I. P. Shapiro examined the optical and electrical properties of some crystal phosphors.

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A. N. Sevchenko, B. I. Stepanov examined cellulose and its products of transformation.

R. G. Zhbankov, I. N. Yermolenko worked at high pressure in order to study the composition of cellulose by means of spectroscopical methods.

I. N. Yermolenko, R. G. Zhbankov examined the oxidizing kinetics of cellulose by means of nitrogen dioxide, iodic acid and chloride.

R. G. Zhbankov, B. I. Stepanov, A. Ya. Rozenberg, A. I. Marupov, A. M. Shishko examined the mercerizing process of cellulose.

M. M. Pavlyuchenko, I. N. Yermolenko examined the oxidation of cellulose with the use of absorption spectroscopy in the ultraviolet range.

M. M. Pavlyuchenko and collaborators spectrophotometrically examined the absorption of coloring substances on cellulose.

I. N. Yermolenko, N. A. Gavrilov examined the luminescence of cellulose products.

B. I. Stepanov, Yu. I. Chekalinskaya determined the dependence of the spectra of dispersed objects on the reduction ratio, the character of the binding agent, and the layer thickness.

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24(7)

AUTHORS: Kuznetsova, V. V., Sevchenko, A. N. SOV/48-23-1-1/36

TITLE: Luminescence of Organic Complexes of Europium, Samarium, and Terbium (Lyuminestsentsiya organicheskikh kompleksov yevropiya, samariya i terbiya)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 1, pp 2-8 (USSR)

ABSTRACT: The organic complexes of the rare earths possess the agreeable property that the absorption band spectrum belongs to the organic component of the molecule and the luminescence line spectrum is characteristic of the ions of rare earths. These facts were checked. The complexes of rare earths with 5-nitro-salicyl aldehyde, 5-nitro-salicylaldehyde ethylene diamine and ethylene diamine salicyl-aldehyde were investigated. In order to check the band spectrum also the pure organic compounds were investigated. A comparison of the complexes to the pure organic compounds has shown that both almost do not differ. The luminescence of the compounds was investigated in crystalline state and in solution (water, methyl alcohol, ethyl alcohol, amyl acetate, and acetone). The luminescence was excited with light (λ= 365 mμ) at -185°C. The wave

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Luminescence of Organic Complexes of Europium, Samarium, and Terbium SOV/48-23-1-1/36

lengths and the centers of electron transitions are given in the figures of the spectra. In general, it is shown that the line groups characteristic of the inorganic compounds are maintained in the complexes; on the other hand, the number of lines in the groups, their position and energy distribution change considerably during the transition from the inorganic to the organic complexes and from one organic complex to the other. Above all, the number of lines is greater in the individual groups, which is related to the different distribution of levels by the electric field of molecules. The luminescence spectra of the solution differ from crystal spectra as well. In the spectra of the solutions the number of components in the groups is considerably smaller and varies in the individual solvents. The smallest number is to be found in acetone and ether solutions. The solvent exercises influence upon the level distribution. In this manner, the luminescence spectrum of the solutions indicates the surrounding medium. In addition to that, the temperature dependence of the luminescence spectra of some organic complexes and the quantum yield of luminescence were

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Luminescence of Organic Complexes of Europium, Samarium, and Terbium SOV/48-23-1-1/36

investigated (+20°- -185°). The temperature dependence of luminescence is indicated by the change in brightness of the flare. In the case of inorganic compounds the flare is much weaker and independent of temperature. Measurements of the duration of excitation have shown that it depends on the respective organic compound. According to these data the authors arrived at the conclusion that in organic complexes the ions of rare earths receive the excitation energy from the organic component of the molecule and extinction is caused by deactivation in the organic component of the molecule. There are 5 figures, 1 table, and 9 references, 7 of which are Soviet. (This article and the following 34 articles of this issue were read at the VI Conference on Luminescence, held in Leningrad, 17-23 February 1958.)

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32202
S/201/61/000/003/005/006
D299/D303

5 2300
5 2620

KUZNETSOVA, V. V.*

AUTHOR: Kuznyatsova, V. V.

TITLE: Effect of acidity of medium on spectra of solutions of rare-earth complex compounds

PERIODICAL: Akademiya nauk Bielorusskoy SSR. Izvestiya. Seriya fiziko-tekhnicheskikh nauk. no. 3, 1961, 58-62

TEXT: The stability of rare-earth complex compounds (as well as their form) may depend on the nature of the solvent, and in particular on its acidity. Hence the importance of studying the effect of the acidity of the solvent on the spectral properties of the complex. In the present investigation, complex compounds were studied which dissolve only in organic solvents. Changes in acidity were produced by adding KOH or HCl. The absorption spectra were recorded by means of the spectrophotometer СФ-4 (SF-4), and the luminescence spectra by means of the spectrograph ИСП-51 (ISP-51) and the photoelectric accessory ФЭП-1 (FEP-1). In the eu-dibenzoylmethane complex under study (abbreviated $Eu(DBM)_3$), the

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absorption band which belongs to the π-electron system, is shifted by 7 - 8 milliμ towards the long-wave end with respect to free DBM. The maximum of the absorption band of free DBM is 343 milliμ, and of the complex 350 milliμ. In passing to an acid and alkaline medium, the absorption coefficient for λ_{max} increases. The radiant intensity of the Eu^{+++}-ion is maximal for pH values equal to 6.8 to 8; it decreases considerably on passing to alkaline and acid media. The linear luminescence spectrum changes considerably with changing pH. The presence, in the spectrum, of the 2 lines 5780 and 5790 Å, is an indication of partial dissociation at pH = 6.8 already. By adding acid to the solution, the line 5790 Å becomes weaker. The luminescence spectra of $Eu(DBM)_3$ for various pH are shown in a figure. The many lines and spectral groups are apparently due to the presence in the solution of several types of complexes. The absorption spectrum of the complex eu-ethylenediamine-salicylaldehyde ($Eu(EDSA)_2$) has a maximum λ_{max} = 327 milliu. An-

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other maximum is observed in the region of 350 milliμ. Changes in pH do not affect the absorption spectra of Tb with ethylenediamine-salicylaldehydes ($Tb(EDSA)_2$). A study of the absorption and luminescence spectra of complexes of Eu and Tb with salicyl aldehydes at various pH showed that these complexes have a linear spectrum of rare-earth ion in acid media only. The spectrum of Eu-picric acid was also investigated; the absorption band maximum was found at λ= 350 milliμ. In conclusion, the study of spectral-luminescence properties of Eu and Tb solutions with various organic addends at various pH showed that different types of complexes with different luminescence spectra can be simultaneously present in the solution. With various degrees of dissociation, the luminescence spectra of the complexes differ which is an indication of possible energy transfer in partly dissociated complexes, too. The spectra are continuous for the crystalline state of the complexes and become discrete for solutions. There are 3 figures, 1 table and 10 references: 5 Soviet-bloc and 5 non-Soviet-bloc. The references to the English-language publications read as follows: S. Weissman, J. Phys. Chem.,

X

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32202

Effect of acidity ...

S/201/61/000/003/005/006
D299/D303

10, 214, 1942; S. Free, S. Weissman, F. Fortress, J. Amer. Chem. Soc., 63, 1079, 1941; R. J. P. Williams, Chem. Revs., 56, 299, 1956; H. Bethe, Ann. Phys., (5) 3, 133, 1929.

X

Card 4/4

KUZNETSOVA, V.V.

Effect of temperature on the spectral and luminescent properties of complex compounds of rare earths. Dokl.AN BSSR 5 no.5:203-207 My '61. (MIRA 14:5)

1. Institut fiziki AN BSSR. Predstavleno akademikom AN BSSR B.I. Stepanovym.
(Rare earth compounds—Optical properties)

KUZNETSOVA, V.V.; SAUKOV, A.A.

Occurrences of molybdenum and rhenium in coals of Central Asia. Geokhimiia no.9:750-756 '61. (MIRA 15:2)

1. Department of Geochemistry, M.V. Lomonosov State University, Moscow.

(Asia, Central—Molybdenum)
(Asia, Central—Rhenium)

S/075/61/016/006/005/006
B106/B147

AUTHOR: Kuznetsova, V. V.

TITLE: Determination of rhenium in coals

PERIODICAL: Zhurnal analiticheskoy khimii, v. 16, no. 6, 1961, 736-737

TEXT: Based on the fact that perrhenates are much stabler than rhenium oxides and rhenium sulfides (Ref. 5, see below), the author combined the incineration of coal with the sintering for determining rhenium in sulfides and stones 20 g of CaO each, and 50; 20; 20; and 5 γ of Re, respectively, were added to several weighed-in portions of 10 g each of coal sample containing no rhenium. After sintering at 600°C, the author found 48; 22; 19.5; and 5 γ of Re, respectively. Thus, the decomposition temperature can be raised to 600-650°C in the presence of calcium oxide without any rhenium being lost. If potassium permanganate is added to the sample as oxidizing agent prior to sintering, the organic substance of coal is oxidized while rhenium and molybdenum are converted into stable calcium perrhenate and calcium molybdate, respectively. For complete oxidation of the organic components, bromine water was added to the

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B106/B147

Determination of rhenium ...

sintered sample when it was leached. Rhenium was photometrically determined as rhodanide complex after molybdenum had been separated by potassium butyl xanthogenate in chloroform. But frequently, yellow-green colors were obtained instead of the yellow color of the rhenium-rhodanide complex in natural coals, which could not be compared with the color of standard solutions. An addition of tartaric or citric acid did not eliminate the disturbing color. It was found by spectrum analysis that the coals contained considerable amounts of vanadium (up to 0.1%). In order to mask the green color of the vanadium-rhodanide complex, a solution fluoride was added to the solution to be photometered which forms a colorless complex with vanadium. Thereafter it was possible to compare visually or photocolorimetrically the yellow color of the rhenium rhodanide complex with the color of standard solutions. The method has an accuracy of ±0.15%. V. M. Gol'dshmidt and K. Peters (Ref. 1. Sb. statey po geokhimii redkikh elementov (Collection of articles on the geochemistry of rare elements). M.-L., 1938, str. 41) and V. M. Ratynskiy (Ref. 2. Tr. biogeokhim. lab. AN SSSR VIII, 1946, str. 181) are mentioned. There are 2 tables and 9 references: 5 Soviet and 4 non-Soviet. The three most recent references to English-language publications read as follows:

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S/075/61/016/006/005/006
B106/B147

Determination of rhenium ...

Headlee A. Hunter R. G., Ind. Eng. Chem. 45, 548 (1953); Ref. 5: Mellor J. W., A comprehensive treatise on inorganic and theoretical chemistry, vol. XII, 1947; Dick A. T., Bingley J. B., Austr. J. Exp. Biol., Med. Sci. 25, 193 (1947).

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: February 1, 1961

Card 3/~~4~~ 5

KHOMENKO, V.S.; KUZNETSOVA, V.V.

Methods of obtaining and properties of some rare-earth inner-complex compounds. Dokl. AN BSSR 7 no.9:610-613 S '63. (MIRA 17:1)

1. Institut fiziki AN BSSR. Predstavleno akademikom AN BSSR A.N. Sevchenko.

RAZENKOVA, N.I.; KUZNETSOVA, V.V.

Study of the mode of occurrence of molybdenum and rhenium in coals by electrodialysis. Trudy IMGRE no.18:20-24 '63.
(MIRA 16:12)

L 9858-63
RM/JD/MAY/IJP(C) EWP(j)/EWT(l)/EWP(q)/EWT(m)/BDS--AFFTC/ASD/ESD-3/SSD--Pc-4--
ACCESSION NR: AP3001344

AUTHOR: Sevchenko, A. N.; Kuznetsova, V. V.; Khomenko, V. S. S/0048/63/027/006/0710/0716

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TITLE: Luminescence of solutions and salts of organic-rare earth complexes [Report of the Eleventh Conference on Luminescence held in Minsk from 10 to 15 September 1962]

SOURCE: AN SSSR. Izv. Seriya fizicheskaya, v. 27, no. 6, 1963, 710-716

TOPIC TAGS: luminescence, rare earth-organic complexes, analysis of rare earths

ABSTRACT: Investigation of the luminescence of rare earth compounds is of interest in view of the distinctive nature of the spectroluminescent properties of this class of compounds and the light such studies throw on different theoretical and practical problems. For the present study there were synthesized compounds of 14 rare earth elements with various organic addends: dibenzoylmethane, benzoylacetone, acetylacetone, derivatives of salicylaldehyde and salicylic acid, derivatives of 8-hydroxyquinoline, alpha-substituted pyridines, etc. Most of the complexes had the metal:addend proportions 1:3. The absorption

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L 9858-63
ACCESSION NR: AP3001344

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spectra of complexes with dibenzoylmethane in ethyl alcchol are given. The shift of the main absorption band and decrease of the absorption coefficient are criteria for the existence of stable complexes in solution. The luminescence of Eu, Sm, Tb, Dy and Yb complexes in solution and in the crystalline state is excited in the near UV, that is, in the continuos absorption region of the organic part of the molecules. The complexes formed by the other rare earths exhibit no or only weak luminescence. The excitation mechanism is discussed. Level and transition diagrams for rare earth complexes with some organic molecules are proposed and energy transfer (migration) is discussed. Use of organic complexes and observation of luminescence provides a simple and reliable method for determination of the luminescing rare earth elements. The spectroluminescent rare earth-organic complex procedure should be particularly useful for determination of the total rare earth content and for checking the purity of some substances. Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 01Jul63 ENCL: 00

SUB CODE: PH,CH NR REF SOV: 014 OTHER: 009 FR AID: 29Aug63

Card 2/2 ja/nh

RAVSKIY, E.I.; ALEKSANDROVA, L.P.; VANGENGEYM, E.A.; GERBOVA, V.G.; GOLUBEVA, L.V.; PEYVE, A.V., glavnyy red.; NIKIFOROVA, K.V., otv. red.; KUZNETSOVA, V.V., red.; TIMOFEYEV, P.P., red.

[Quaternary sediments in the south of Eastern Siberia.] Antropogenovye otlozheniia iuga Vostochnoi Sibiri. Moskva, Nauka 1964. 279p. (Akademiia nauk SSSR. Geologicheskii institut. Trudy, no.105) (MIRA 17:10)

APANASEVICH, P.A.; BORISEVICH, N.A. VOLOD'KO, L.V.; GLADCHENKO, L.F.; GRIBKOVSKIY, V.P.; GURINOVICH, G.P.; IVANOV, A.P.; KUZNETSOVA, V.V.; PIKULIK, L.G.; PILIPOVICH, V.A.; RUBANOV, A.S.; RUBANOV, V.S.; SAMSON, A.M.; SARZHEVSKIY, A.M.; SOLOV'YEV, K.N.; UMREYKO, D.S.; KHAPALYUK, A.P.; YEL'YASHEVICH, M.A., akademik, red.

[Interaction betwen nonequilibrium radiation and matter] Vzaimodeistvie neravnovesnogo izlucheniia s veshchestvom. Minsk, Nauka i tekhnika, 1965. 223 p. (MIRA 18:3)

1. Akademiya nauk SSSR. Institut fiziki. Akademiya nauk Belorusskoy SSR (for Yel'yashevich).

ACC NR: AP6034214 SOURCE CODE: UR/0368/66/005/004/0480/0485

AUTHOR: Kuznetsova, V. V.; Sevchenko, A. N.; Khomenko, V. S.

ORG: none

TITLE: Analysis of the eruopium chelates composition in solutions by means of luminescence spectra

SOURCE: Zhurnal prikladnoy spektroskopii, v. 5, no. 4, 1966, 480-485

TOPIC TAGS: organoeuropium compound, chelate compound, ion concentration, stability constant, luminescence spectrum, EUROPIUM COMPOUND

ABSTRACT: The luminescence property of the $Eu(DBM)_3$, $Eu(TTA)_3$, $Eu(BA)_3$, $Eu(DBM)_4 \cdot HP$, and $Eu(BA)_4 \cdot HP$ chelate solutions in ethanol has been studied at different stages of dissociation of the complexes to determine the composition of the complex molecule in solution, the concentration of admixture of partially dissociated molecules, and the instability constants of various chelate forms. The concentration of admixture and instability constant data are important for evaluation of the stimulated emissio capability of the rare earth chelates. The admixture content is directly related to the loss in pumping energy in lasers. Dissociation of the complexes was achieved by additions of anhydrous HCl; luminescence spectra Eu^{3+} in solutions were recorded at different pH values. Three complex forms: $Eu(BA)_3$, $Eu(BA)_2^+$, and $Eu(BA)^{2+}$ were detected in solutions of $Eu(BA)_3$ at Ph in the 9.2—3.0 range. A four-ligand complex

Card 1/2 UDC: 535.37

ACC NR: AP6034214

complex $Eu(BA)_4^-$ was assumed to exist in the solution containing Eu^{3+} and BA in a 1:4 ratio at pH ≥ 9.7. Dissociation forms of the $Eu(BA)_4 \cdot HP$ complex in solution appeared at the same pH as the three equilibrium forms of the $Eu(BA)_3$ complex. Luminescence spectrum of the $Eu(BA)_4 \cdot HP$ solution coincided with that obtained for the solution containing $EuCl_3$ and BA in a 1:4 ratio and pyridine. Two complex forms: $Eu(DBM)_2^+$ and $Eu(DBM)^{2+}$, or $Eu(TTA)_2^+$ and $Eu(TTA)^{2+}$ were assumed to be the products of a stepwise dissociation of $Eu(DBM)_3$ or $Eu(TTA)_3$ in solution at pH in the 8.5—3 range. The $Eu(DMB)_4^-$ ion was probably formed at pH > 9 in a solution containing Eu and DMB in a 1:4 ratio. A stable equilibrium between the complex forms was established when $Eu(TTA)_3$ is dissolved. The concentration of partially dissociated molecules was the lowest in solutions of the $Eu(BA)_4.HP$ complex, as determined from the data of relative intensity and quantum yield of luminescence spectral lines of the starting solution and the experimental ratios of quantum yields of different complex forms. The instability constants of various forms of Eu complexes with BA and DMB were calculated from the equilibrium reaction $MeA_n \rightleftarrows MeA_{n-1} + A$ using the data obtained for the relative concentrations of various complexes in solution. The lowest value ($9.5 \cdot 10^{-5}$ mol/ℓ) was found for the $Eu(BA)_4^-$ complexion. Orig. art. has: 4 figures, 1 table, and 3 equations.

SUB CODE: 07/ SUBM DATE: 30Dec65/ ORIG REF: 005/ OTH REF: 002/

Card 2/2

ACC NR: AP6034214

SOURCE CODE: UR/0368/66/005/004/0480/0485

AUTHOR: Kuznetsova, V. V.; Sevchenko, A. N.; Khomenko, V. S.

ORG: none

TITLE: Analysis of the eruopium chelates composition in solutions by means of luminescence spectra

27

SOURCE: Zhurnal prikladnoy spektroskopii, v. 5, no. 4, 1966, 480-485

TOPIC TAGS: organoeuropium compound, chelate compound, ion concentration, stability constant, luminescence spectrum, EUROPIUM COMPOUND

ABSTRACT: The luminescence property of the $Eu(DBM)_3$, $Eu(TTA)_3$, $Eu(BA)_3$, $Eu(DBM)_4 \cdot HP$, and $Eu(BA)_4 \cdot HP$ chelate solutions in ethanol has been studied at different stages of dissociation of the complexes to determine the composition of the complex molecule in solution, the concentration of admixture of partially dissociated molecules, and the instability constants of various chelate forms. The concentration of admixture and instability constant data are important for evaluation of the stimulated emission capability of the rare earth chelates. The admixture content is directly related to the loss in pumping energy in lasers. Dissociation of the complexes was achieved by additions of anhydrous HCl; luminescence spectra Eu^{3+} in solutions were recorded at different pH values. Three complex forms: $Eu(BA)_3$, $Eu(BA)_2^+$, and $Eu(BA)^{2+}$ were detected in solutions of $Eu(BA)_3$ at Ph in the 9.2—3.0 range. A four-ligand complex

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APPROVED FOR RELEASE: 06/19/200

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L 33484-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AR6016210

SOURCE CODE: UR/0058/65/000/011/D058/D058

36

B

AUTHORS: Korol'kov, V. S.; Kuznetsova, V. V.

TITLE: Spectroscopic investigation of crystalline fields of intracomplex compounds of rare earth elements

21

SOURCE: Ref. zh. Fizika, Abs. 11D444

REF SOURCE: Tr. Komis. po spektroskopii. AN SSSR, t. 3, vyp. 1, 1964, 563-566

TOPIC TAGS: luminescence spectrum, line splitting, rare earth element

ABSTRACT: The parameters of the crystalline field of coordination compounds of rare-earth eleemnts are calculated on the basis of an investigation of the picture of splitting in the luminescence spectra of rare earth ions. Certain conclusions are drawn with respect to the character of the coordination bonds. [Translation of abstract]

SUB CODE: 20, 07

GRUDEV, D.I., doktor sel'skokhoz. nauk; SADOVNIKOVA, N.V., starshiy nauchnyy sotrudnik; SMIRNITSKAYA, N.Ye.; KARAVAYEVA, S.G.; KOTOV, P.Ya.; RODIONOVSKIY, M.S.; KRYLOVA, N.N., kand. biol. nauk; KRASIL'NIKOVA, T.F., inzhener-khimik; SOLNTSEVA, G.L., aspirant; KUZNETSOVA, V.V., mladshiy nauchnyy sotrudnik; Prinimali uchastiye: BAZAROVA, K.I.; MALYGINA, M.I.; BUDINSKAYA, S.Z.; SINITSYNA, I.K.

Comparative evaluation of the fattening and slaughtering characteristics of Shorthorn and Kalmyk steers and physico-chemical indices of their meat. Trudy VNIIMP no.16:5-23 '64. (MIRA 18:11)

L 13801-66 EWT(m)/EWP(j) RM
SOURCE CODE: UR/0051/65/019/005/0764/0770
ACC NR: AP5027660
43
B

AUTHOR: Korol'kov, V. S.; Kuznetsova, V. V.

ORG: none

TITLE: The interpretation of the fine structure of spectra of type MX_3 Eu coordination compounds. Part 1. Theory. The spectrum of Eu benzoylacetate 7,44,55

SOURCE: Optika i spektroskopiya, v. 19, no. 5, 1965, 764-770

TOPIC TAGS: chelate compound, fine structure, molecular spectroscopy, spectrum analysis, luminescence spectrum, europium compound, rare earth element, acetate

ABSTRACT: The investigation of the peculiarities of the structure of chelate compounds of rare earth elements is of particular importance in connection with their possible practical uses. In particular, the study of the fine structure of the luminescence spectra of rare earth ions within the chelate compounds may prove useful for the elucidation of the character of the chemical bond between the organic molecules and the rare earth ions. The interpretation of the fine structure of such spectra is difficult because of the lack of data concerning the polarization of individual lines. The present authors began their study with the compounds of trivalent europium. This paper considers the derivation of the basic theoretical results

UDC: 535.37:548.0.001.1

Card 1/3

L 13801-66
ACC NR: AP5027669

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Table 1

Luminescence spectrum of Eu benzoylacetate

Transition	λ mμ	ν, cm^{-1}	I, rel.
	527.0	18980 ± 20	—
$^5D_1$—$^7F_0$	535.3	18680 ± 15	0.8
$^5D_1$—$^7F_1$	537.0	18620 ± 15	0.2
	552.2	18100 ± 20	0.3
$^5D_1$—$^7F_2$	555.5	18020 ± 20	0.7
	580.5	17230 ± 15	—
$^5D_0$—$^7F_0$	583.4	17140 ± 20	—
	584.4	17110 ± 20	—
$^5D_0$—$^7F_3$	586.8	17040 ± 20	—
	591.0	16875 ± 15	0.33
$^5D_0$—$^7F_1$	592.6	16920 ± 15	0.67
	611.0	16370 ± 25	0.03
	612.0	16340 ± 15	0.8
$^5D_0$—$^7F_2$	615.1	16260 ± 15	0.2
	651.2	15360 ± 15	0.8
$^5D_0$—$^7F_3$	654.0	15290 ± 15	0.2
	703.5	14210 ± 25	0.55
	701.0	14290 ± 25	0.20
$^5D_0$—$^7F_4$	697.0	14350 ± 25	0.3
	691.0	14470 ± 25	0.20

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ACC NR: AP5027669

needed for the interpretation of the luminescence spectra of the MX_3-type Eu coordination compound. Formulas needed for the calculation of the level splitting within the intercrystalline field of the Eu^{3+} ion are presented together with equations and tables needed for the calculation of the relative intensity of the $^5D_0-^7F_J$ lines. A discussion is given on the structure of such transitions, as well as the methodology for the analysis of such spectra. The newly developed theory is illustrated by the interpretation of the Eu benzoylacetate spectrum, and the results are summarized in Table 1. Orig. art. has: 22 formulas, 1 figure, and 4 tables. [08]

SUB CODE: 07, 20/ SUBM DATE: 20Jul64/ ORIG REF: 002 / OTH REF: 008/ ATD PRESS: 4188

Card 3/3 FW

KERCHA, Yu.Yu., kand. khim. nauk; VOYTSEKHOVSKIY, R.V. [Yoitsekhivs'kyi, R.V.], kand. khim. nauk; OSTROVERKHOV, V.G. [Ostroverkhov, V.H.], kand. khim. nauk; KOVALENKO, G.F. [Kovalenko, H.F.]; KUZNETSOVA, V.V. [Kuznietsova, V.V.]

Effect of the esters of pentaerythritol and synthetic fatty acids on the properties of polyvinyl chloride. Khim. prom. [Ukr.] no.3: 38-40 Jl-S '64. (MIRA 17:12)

137-58-4-7083

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 112 (USSR)

AUTHORS: Kuznetsova, V. Ya., Samaryanov, M. M.

TITLE: Determining the "Difficulty Factor" for the 250 Mill in the "Hammer and Sickle" Plant Section-rolling Department (Opredeleniye koeffitsiyenta trudnosti dlya stana 250 sorto prokatnogo tsekha zavoda "Serp i molot")

PERIODICAL: Sb. tr. Mosk. vech. metallurg. in-t, 1957, Nr 2, pp 149-155

ABSTRACT: The calculated weighted mean output, arrived at with allowance for output of good products, is used to determine a "difficulty factor" in rolling various shapes of metal. Factors affecting the output of a mill are examined. From the investigations performed it is concluded that the difficulty factor used in this shop for the 250 mill is excessive.

Yu. F.

1. Rolling mills--Production--Factors

Card 1/1

YEGOROVA, N.G.; KUZNETSOVA, V.Ye.; KUPRIKHIN, V.I.; MARTYNOV, B.P.; HUGAYEVA, V.A.; FEDOROVA, L.P.; CHUYAN, K.I.[deceased]; SHTRUK, G.G., inzh., red.; GORDEYEVA, L.P., tekhn.red.

[General engineering time norms for cold forging] Obshchemashinostroitel'nye normativy vremeni na kholodnuiu shtampovku. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 151 p. (MIRA 13:7)

1. Moscow. Nauchno-issledovatel'skiy institut truda. TSentral'noye byuro promyshlennykh normativov po trudu.
(Forging)

VAVILOV, L.; KUZNETSOVA, Ye.

Forecasters' seminar. Zashch. rast. ot vred. i bol. 10 no.12: 52 '65. (MIRA 19:1)

1. Nachal'nik Primorskoy stantsii zashchity rasteniy (for Vavilov).

YURKIN, S.; KHIZHNYAK, P.; CHENKIN, A.; KUZNETSOVA, Ye.; SHAKHRAY, L.;
KALASHNIKOV, K., kand. sel'skokhoz. nauk (Pushkin)

Meetings, conference and seminars. Zashch. rast. ot vred. i bol. 10 no.7:55-58 '65. (MIRA 18:10)

1. Uchenyy sekretar' Nauchno-tekhnicheskogo soveta Ministerstva sel'skogo khozyaystva SSSR (for Yurkin). 2. Zamestitel' nachal'nika Upravleniya zashchity rasteniy Ministerstva sel'skogo khozyaystva RSFSR (for Chenkin). 3. Zaveduyushchaya sektorom signalizatsii i prognozov po RSFSR Upravleniya zashchity rasteniy Ministerstva sel'skogo khozyaystva RSFSR (for Kuznetsova).

KUZNETSOVA, Ye.A.; SVETLAYEVA, V.M.; ZHURAVLEV, S.V.; VINOKUROV, V.G.;
TROITSKAYA, V.S.; Prinimala uchastiye SOLOKHINA, N.D.

Synthesis and properties of 2-mercaptobensothiazole derivatives. Part 1: Some S-substituted 2-mercaptobenzothiazoles and their sulfones. Zhur.ob.khim. 32 no.9:3007-3011 S '62. (MIRA 15:9)

1. Institut farmakologii i khimioterapii AMN SSSR.
(Benzothiazole) (Sulfones)

GORDIYENKO, M.G. [Hordiienko, M.H.]; KRAVCHENKO, R.Ya.; KUZNETSOVA, Ye.A.

Black dyeing of lavsan. Leh.prom. no.3:74-75 Je - Ag '62. (MIRA 16:2)
(Dyes and dyeing) (Synthetic fabrics)

SVETLAYEVA, V.M.; KUZNETSOVA, Ye.A.; ZHURAVLEV, S.V.

Synthesis and properties of 2-mercaptobenzothiazole derivatives. Part 3: Benzothiazolyl-2-mercaptoacetic acid. Zhur. ob. khim. 34 no. 3:983-986 Mr '64. (MIRA 17:6)

1. Institut farmakologii i khimioterapii AMN SSSR.

LEVITSKAYA, M.A.; KUZNETSOVA, Ye.A.

X-ray investigation of second order strains in thin layers of rock salt and aluminum prepared by evaporation in vacuum. Fiz. met. i metalloved. 9 no. 4:507-509 Ap '60. (MIRA 14:5)

1. Voronezhskiy gosudarstvennyy universitet.
(X-ray crystallography)

KUZNETSOVA, Ye. A.

2.0

PHASE I BOOK EXPLOITATION SOV/5685

Fridlyander, I. N., Doctor of Technical Sciences, and B. I. Matveyev, Candidate of Technical Sciences, eds.

Teploprochnyy material iz spechennoy alyuminiyevoy pudry [SAP]; sbornik statey (Heat-Resistant Material From Baked Aluminum Powder [SAP]; Collection of Articles) Moscow, Oborongiz, 1961. 122 p. Errata slip inserted. 3,550 copies printed.

Reviewers: M. F. Bazhenov, Engineer, and M. Yu. Bal'shin, Candidate of Technical Sciences; Ed.: M. A. Bochvar, Engineer; Ed. of Publishing House: S. I. Vinogradskaya; Tech. Ed.: V. I. Oreshkina; Managing Ed.: A. S. Zaymovskaya, Engineer.

PURPOSE: This collection of articles is intended for scientific workers and engineers in the institute and plant laboratories of the metallurgical and machine-building industry; it may also be useful to instructors and advanced students.

COVERAGE: The 12 articles contain the results of research on the structure, properties, and manufacture of semifinished products

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