ACCESSION NR: AP4019498

conductance decreases with a decrease of the dielectric constant of the solvent, except for nitrobenzene in which the solubility and electric conductance are insignificant. Thus the electric conductance of $NbOCl_3$ depends not only on the dielectric constant of the solvent but also on its chemical nature. The solubility in dioxane (dielectric constant = 2.18) is greater than in chloroform (dielectric constant = 4.98), and greater than in nitrobenzene and in acetone. The stability of methanol and dioxane solutions of $NbOCl_3$ to hydrolysis is indicative of the formation of strong molecular compounds or solvates between $NbOCl_3$ and the solvent. The dipole moment of $NbOCl_3$ in dioxane is 4.80 ± 0.1D. The obtained data was interpreted from the standpoint of chemical interaction between $NbOCl_3$ and the solvent, the oxygen of the alcohol or dioxane or the nitrogen of the pyridine acting as electron donor, and the niobium atom as the acceptor. A plot of the conductance of $NbOCl_3$ in the alcohols as a function of temperature shows a straight line function with methanol. Curves for propanol, butanol and heptanol go through a maximum, the lower the alcohol radical and the higher the temperature at which the maximum conductance occurs. The dielectric constant, refractive index, density and molar polarization of various concentrations of $NbOCl_3$ in dioxane are tabulated. Orig. art. has: 4 tables and 1 figure

Card 2/3

ACCESSION: NR: AP4019498

ASSOCIATION: Rostovskiy-na-Donu gosudarstvenny*y universitet (Rostov-on-Don State University)

SUBMITTED: 07Feb63	DATE ACQ: 31Mar64	ENCL: 00
SUB CODE: CH	NO REF SOV: 002	OTHER: 006

Card 3/3

OSIPOV, O.A.; MINKIN, V.I.; KOGAN, V.A.

Dipole moments and the structure of o-hydroxyaldehyde anils. Zhur.fiz. khim. 37 no.7:1492-1499 Jl '63. (MIRA 17:2)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.

GAYVORONSKIY, V.I., OSIPOV, O.A., SHAGID'LLIN, R.R.

Infrared spectra of thorium, zirconium, and uranyl complex compounds with 8-oxin and tributyl phosphate. Radiokhimiia 5 no.2:244-248 '63. (MIRA 16:10)

DOROFEYENKO, G. N.; BABIN, Ye. P.; ROZENBERG, B. A.; OSIPOV, O. A.; KASHIRENINOV, O. Ye.

Catalytic acetylation of some polymers. Izv. vys. ucheb. zav.; khim. i khim. tekh. 5 no.5:804-807 '62. (MIRA 16:1)

1. Donetskoye otdeleniye Instituta organicheskoy khimii AN UkrSSR i Rostovskiy-na-Donu gosudarstvennyy universitet.

(Polymers) (Acetylation)

OSIPOV, O.A.; SEMENOVA, I.M.

Infrared spectra of the molecular compounds of indium chlorides with nitrogen-containing organic substances. Zhur.ob.khim. 33 no.3:720-724 Mr '63. (MIRA 16:3)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.
(Indium chloride)
(Nitrogen compounds--Absorption spectra)

S/186/63/005/002/003/005
E075/E136

AUTHORS: Gayvoronskiy, V.I., Osipov, O.A., and Shagidullin, R.R.

TITLE: Infrared spectra of complex compounds of thorium, zirconium, and uranyl with 8-hydroxyquinoline and tributylphosphate

PERIODICAL: Radiokhimiya, v.5, no.2, 1963, 244-248

TEXT: The authors investigated the structure of the complex compounds by studying infrared spectra of the solid internal complex compounds dispersed in vaseline. For Th and UO_2, in addition to complexes $Th(C_9H_6ON)_4$ and $UO_2(C_9H_6ON)_2$, the complexes with the composition of 1:5 and 1:3 were also synthetized. The spectra of the complexes and those of 8-hydroxyquinoline in the frequency range 700 to 3000 cm^{-1} indicate that the double bonds in the aromatic rings conjugate to an increased degree in the complexes. The conjugation is probably transmitted through the complexing metal. There are three strong absorption bands in the spectra of the complexes in the region of 400 - 700 cm^{-1}, which are not present in the spectrum of 8-hydroxyquinoline. These bands

shift towards longer wavelengths (from 485, 505 and 605 cm^{-1} to 495, 515 and 615 cm^{-1}) on passing from the heavy metals to Zr. Differences were also found between the absorption bands at 700-825 cm^{-1} of the complexes due apparently to differences in their crystal structure. The strong absorption band for the UO_2 complex at 917 cm^{-1}, absent in other complexes, is ascribed to the asymmetric vibration of UO_2 group. The spectra of the mixtures of the metal chlorides and tributylphosphate (TBP) indicate that a molecular compound between the metals and TBP is formed via the oxygen in P = O group.
There are 3 figures and 2 tables.

SUBMITTED: July 5, 1961

OSIPOV, O.A.; MINKIN, V.I.; KOGAN, V.A.

Effect of the chemical structure of organic complex-forming anions on the polarity of complex compounds. Zhur. fiz. khim. 36 no.4:889-894 Ap '62. (MIRA 15:6)

1. Rostovskiy universitet.

(Complex compounds)

S/137/62/000/012/065/085
A006/A101

AUTHORS: Lesnykh, D. S., Lifshits, Ya. O., Osipov, O. A., Smovt, M. S.

TITLE: An electrochemical method of metal sulfonation

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 12, 1962, 131 - 132, abstract 12I808 ("Uch. zap. Rostovsk.-n/D. un-ta", 1959, v. 60, 151 - 172)

TEXT: The authors studied the effect of factors upon the quality of a forming surface layer in the electrochemical method of cast-iron and steel sulfonation. These factors are: bath composition; metal type used for the cathode specimen (part) prior to sulfonation; current density on th anode; bath temperature; duration of the process and throwing power of the bath. Aqueous solutions and melts of sulfur-containing salts were used as sulfonation baths, e.g. CH_3COOK 50%, CH_3COONa 30%, $Na_2S_2O_3$ 10% and KCNS 10% with an operational temperature of the melt as high as 260 - 240°C, and a 10% aqueous solution of $Na_2S_2O_3$ and KCNS in a 5 to 2 ratio; the sulfonation temperature is 50 - 75°C. To obtain a strong and elastic sulfonated layer, the specimens were

Card 1/2

OSIPOV, O.A.; MINKIN, V.I.; KASHIRENINOV, O.Ye.

Physicochemical properties of resins obtained by polycondensation of benzyl chloride and 1-chloromethylnaphthalene in the presence of chlorides of elements of the fourth group. Vysokom.soed. 3 no.12:1774-1781 D '61. (MIRA 15:3)

1. Rostovskiy gosudarstvennyy universitet.
(Resins, Synthetic) (Toluene) (Naphthalene)

OSIPOV, O.A.; ARTEMOVA, V.M.; KOGAN, V.A.; LYSENKO, Yu.A.

Dipole moments of the complex compounds of tin, titanium, and zirconium tetrachlorides with dibasic acid esters. Zhur.ob.khim. 32 no.5:1368-1373 My '62. (MIRA 15:5)
(Complex compounds—Dipole moments)

OSIPOV, O.A.; K. SHIRENINOV, Ye.

Interaction of $TiCl_4$ and $AlCl_3$ with organotin compounds. Zhur.-ob.khim. 32 no.6:1717-1723 Je '62. (MIRA 15:6)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.
(Titanium chlorides) (Aluminum chloride)
(Tin organic compounds)

MINKIN, V.I.; OSIPOV, O.A.; KOGAN, V.A.

Dipole moments and absorption spectra of o-hydroxyaldehyde anils.
Dokl.AN SSSR 145 no.2:336-339 Jl '62. (MIRA 15:7)

1. Rostovskiy-na-Donu gosudarstvennyy universitet. Predstavleno akademikom B.A.Arbuzovym.
(Schiff Bases--Dipole moments)

OSIPOV, O.A.; PANINA, M.A.; KASHIRENINOV, O.Ye.; NEMIROV, G.V.; SHELOMOV, I.K.

Dielectric constant of binary liquid systems consisting of polar components. Zhur.ob.khim. 31 no.10:3153-3160 O '61.
(MIRA 14:10)

(Systems (Chemistry)) (Dielectrics)

OSIPOV, O.A.

Relation between the dielectric constant and mean dipole moments in mixtures of polar liquids. Uch.zap. RGU 41:3-25 '58.
(MIRA 12:1)

(Dielectric constants) (Liquids--Dipole moments)

OSIPOV, O.A.

Dipole moments in halides of elements of the 4th group of the D.I.Mendeleev periodic system. Uch.zap.MGU no.60:13-36 '59. (MIRA 14:10)

(Complex) (Compounds- Dipole moments)

LESNYKH, D.S.; LIFSHITS, Ya.G.; OSIPOV, O.A.; SMOVT, M.S.

Electrochemical method for the sulfidization of metals. Uch.zap. RGU no.60:151-172 '59. (MIRA 14:1)
(Metals) (Sulfurization)

KOVALENKO, P.N.; BAGDASAROV, K.N.; OSIPOV, O.A., dots., otv. red.; SHKORINOV, V.P., red.; PAVLICHENKO, M.I., tekhn. red.

[Physicochemical methods of analysis; practical handbook] Fiziko-khimicheskie metody analiza; prakticheskoe rukovodstvo. Rostov-na-Donu, Izd-vo Rostovskogo univ., 1962. 349 p. (MIRA 15:6)
(Chemistry, Analytical) (Electrochemical analysis)

S/079/62/032/006/001/006
D202/D304

AUTHORS: Osipov, O. A. and Kashireninov, O. Ye.

TITLE: Interactions of $TiCl_4$ and $AlCl_3$ with organic compounds of tin

PERIODICAL: Zhurnal obshchey khimii, v. 32, no. 6, 1962, 1717-1723

TEXT: Reactions of $Sn(C_2H_5)_4$, $Sn(C_2H_5)_3Cl$, $Sn(C_2H_5)_2Cl_2$ and $Sn(C_2H_5)Cl_3$ with $TiCl_4$, $ZrCl_4$, $ThCl_4$ and $AlCl_3$ were carried out to investigate the structures and catalytic properties of the resulting complexes. All these compounds react violently when mixed directly with $TiCl_4$. Only the first two give violent reactions with $AlCl_3$; none of them reacts with $ThCl_4$ and $ZrCl_4$. The reactions with $TiCl_4$ and $AlCl_4$, when carried out in benzene, proceed smoothly without the formation of resins to give stable bimetallic

Card 1/2

OSIPOV, O.A.; KLETENIK, Yu.B.

Reaction of zirconium chloride with organic additives having various functional groups. Zhur.ob.khim. 31 no.8:2451-2456 Ag '61. (MIRA 14:8)

(Zirconium chloride)
(Zirconium organic compounds)

1969

1800 2408

AUTHORS Kovalenko, P. N., Rozin, G. N., Osipov, V. A.
Yevstifeyev, M. M., Kravtsov, Ye. Ye.

TITLE Anodizing in the presence of chloride ions, and the quality control of oxide films on the alloy D16T

PERIODICAL Referativnyy zhurnal. Khimiya, no. [illegible], 1969, [illegible]
2K164 Tr. "Fiz.-khim. metod. analiza i kontrol' v tsv. met." Rostov na-Donu, Rostovsk. un-t, 1967, [illegible]

TEXT: An investigation is made of the effect of the presence of [illegible] g/liter, in the tank, on the potential, depth of oxide film and test time in the alloy D16T in the process of anodizing in [illegible]

It is found that improve the potential of the anodizing and [illegible] more durable oxide films without affecting the depth or rate [illegible] It is suggested that sheet D16T Duralumin could be anodized [illegible] presence of <0.5 g/liter Cl⁻. Optimum conditions for anodizing [illegible] with chlorides, have been found to be D_k = 2 a/dm² and t = water [illegible]
[Abstracter's note: Complete translation.]

Card 1/1

3/13 [illegible]
A [illegible] A. I

AUTHORS: K valenk , P N , R in, G. N., [illegible] v, A , Yevstifeyev, M M
K tsis v, Ye. Ye

TITLE: Filling and [illegible] of anodized al y Д i T (1-7) [illegible]
[illegible] hi/rine [illegible] ion

PERIODICAL: Referativnyy zhurnal. Metallurgiya, n . 11, 1 61, [illegible], stract
11I4. (V st.: "Fiz.-khim. sot dy analiza [illegible] kan'r ova pr -va"
Rostov-na-Donu, [illegible] st vo [illegible], 1 61, 1 - 14)

TEXT: The authors studied the effect [illegible] the presence [illegible]
[illegible] ta'e [illegible] s upon the pr ess [illegible] chromate filling [illegible] the oxide fil [illegible] the D1T
[illegible] y. The dependen e [illegible] the film qua.ity (im [illegible] test and thickness [illegible] the fi m)
upon the con entrati n [illegible] impurity ions is estat.lished. Sulfate [illegible] ns suppres
the chromate ion adsorpti n, as result [illegible] of whi h the films have a higher thi .
It is rec mmended that films formed [illegible] high D be subjected t [illegible] ater [illegible]
It is entirely possible t raise the admissible limit of admixtures in the fi.-
ing var from 1.5 to 3, and fr m 5 to [illegible] grams per liter for hl rine and s.[illegible]
. ns respectively. There are 6 referen es.
[Abstracter's note: Complete translation]
Ye. Layner
Card 1/1

LYSENKO, Yu.A.; OSIPOV, O.A.

Interaction between titanium tetrachloride and chloromethyl acetate and ethyl stearate. Zhur. neorg. khim. 6 no.7: 1656-1661 Jl '61. (MIRA 14:7)

1. Kubanskiy sel'skokhozyaystvennyy institut, kafedra organicheskoy fizicheskoy i kolloidnoy khimii.
(Titanium chloride) (Esters)

S/190/61/003/012/...
B101 B110

15.8063

AUTHORS: Osipov, O. A., Minkin, V. I., Kashirenkov, O. Ye.

TITLE: Physicochemical properties of resins obtained by [illegible] sation of benzyl chloride or 1-chloromethyl naphthalene with chlorides of elements of the fourth group

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, n. 12, 1961, 1774 - 1781

TEXT: The purpose of this study was (1) to obtain data on the activity halides of elements of the fourth group ($SiCl_4$, $TiCl_4$, $GeCl_4$, $ZrCl_4$, and $ThCl_4$); (2) to compare the polyphenylene methyl resins obtained by polycondensation of benzyl chloride with the polynaphthylene methyl resins obtained by polycondensation of 1-chloromethyl naphthalene. Polycondensation of benzyl chloride was achieved at a molar ratio catalyst: benzyl chloride = [illegible]:50. The yield was 50 - 90%. Dark-red brittle substances were obtained, easily soluble in benzene, toluene, tetralin, carbon tetrachloride, and hexane, poorly soluble in ethanol, acetone, and other polar

Card 1/[illegible]

Physicochemical properties

solvents. The solutions fluoresced slightly. For the catalysts used it is indicated: with $TiCl_4$ the reaction started at 20°C, softening point of the resin 89°C, molecular weight (MW) 2100; $SnCl_4$ reaction started at 20°C, softening point 74°C, MW 2200; $ZrCl_4$ reaction started at 40°C softening point 75°C, MW 1800. With $SiCl_4$ and $ThCl_4$ no reaction occurred even after long heating at 100°C. Polycondensation of dichloromethyl naphthalene was carried out at equal ratio catalyst : monomer. Results are given in Table 2. The catalytic activity increased in the row $SiCl_4$ - $ThCl_4$ - $ZrCl_4$ - $SnCl_4$ - $TiCl_4$. The decrease of catalytic activity in the order Ti... It is attributed to the reaction of oxides between metal and chlorine. Poorly soluble polymers were obtained at elevated temperatures. The... is described briefly. The dielectric constant of the polymer was measured in benzene solution by a method described earlier (Osipov et al., Zh. obshch. khimii, ... 1958) (Table ...). ...°C n_D ... is ascribed to infrared absorption. ... solid phase. $\varepsilon_{20°C}$ was between 2.4 (polyphenylene methyl) and 2.6

Card 2/ [illegible]

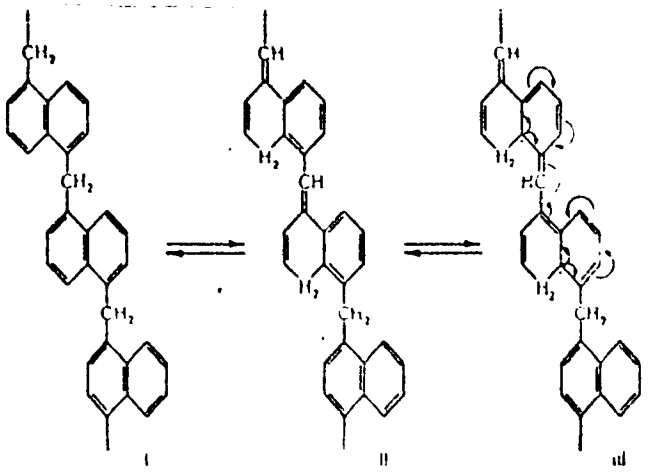
Physicochemical properties...

(polynaphthylene methyl). The polymers are recommended for impregnation of paper condensers. The magnetic susceptibility was determined according to L. G. Gouy. $\pi \cdot 10^{-6}$ cm^3/g for polynaphthylene methyl obtained with $SiCl_4$ was: +1.441; with $TiCl_4$: -0.045; with $GeCl_4$: +0.892; with $ZrCl_4$: +0.226; with $SnCl_4$: +0.758; with $ThCl_4$: +0.331; with $TiCl_4$ in hexane: +0.555; with $TiCl_4$ in CCl_4: +0.130. Since polynaphthylene methyl contains no polar groups, its paramagnetism is ascribed to formation of free radicals in the macromolecules:

Card 3/ 3

30908
S/190/61/003/012/002/012
B101/B110

Physicochemical properties...



I II III

Both the polyphenylene methyl and the polynaphthylene methyl polymers form films from benzene solution which firmly adhere to the metal and protect it from corrosion. A small iron plate covered with polynaphthylene methyl

Card 4/ 5

OSIPOV, O.A.; KASHIRENINOV, O.Ye.

Magnetic susceptibility of some tin molecular compounds. Part 1.
Zhur.ob.khim. 31 no.6:1755-1759 Je '61. (MIRA 24:6)

1. Rostovskiy-na-Domu gosudarstvennyy universitet.
(Tin organic compounds—Magnetic properties)

S/078/61/006/011/[illegible]
D228/D305

AUTHORS: [illegible], O. V., [illegible], O. A., [illegible], M. [illegible], and Marchenko, V. A.

TITLE: Magnetic susceptibility of binary liquid [illegible]

PERIODICAL: Zhurnal [illegible] khimii, v. [illegible], no. 11, 1961, 2504-[illegible]

TEXT: The authors determined the [illegible] susceptibility [illegible] (I) benzaldehyde [illegible] liquid [illegible] quinoline (III) isoamyl [illegible] ethyl ket[illegible] caproate [illegible] benzoate (IX) and stannic chloride [illegible] and [illegible] to clarify the influence of the polarity of components [illegible] susceptibility of mixtures [illegible] (X [illegible] the magnitude of the magnetic [illegible] there is a direct [illegible] this field suggests that [illegible] liquid systems and the [illegible] susceptibility of binary [illegible] of the magnetic susceptibility [illegible]

Card 1/3

the additivity is greatest in systems consisting of polar components
Experimental procedu... All materials were first purified by O. A
Gregory's method (Ref. to Zh. obshch. Khimii 26, 322, 1956; Ref. ...
Theo... 1957). The susceptibi...
measu... were made by Gouy's method at a field of about 5...
oe; the magnets were fitted with coiling devices to maintain the field
strength constancy and to eliminate convection currents. The apparent
changes in the unpoola... weights were measured by means of micro-analytic
weights, and the calibrating material was purified and... with
with a magnetic susceptibility of ... Experimental results
and discussion. The data show that the susceptibility isotherms of sys-
tems I, in whose components possess either a scalar of polar moments or
a rectilinear course at the ... concentration levels studied by the
authors. For other systems where the components react chemically with
the formation of a hydrogen or donor-acceptor bond, the convergence or
difference of the magnetic moments is not important since the
behavior is largely governed by the heterogeneity, contact ...

Card 2/

Magnetic susceptibility

with the exception of system V the deviations of the isotherms from the rectilinear course have positive values and the maximum deviations correspond to the composition of the resulting compound. The authors consider that magnetic susceptibility may find a wide application in physico chemical analysis. There are 10 tables and 20 references: 4 Soviet bloc and 16 non Soviet bloc. The references to the 4 most recent English language publications read as follows: J. van Vleck. The Theory of Electric and Magnetic Susceptibilities. Oxford University Press, [illegible]; V. Trew, D. Watkins. Trans. Far. Soc., 29, 140 (1933); F. Seely. Phys. Rev., 49, 812 (1936); A. Stoms, D. [illegible]. (1947).

SUBMITTED:

Card 3/3

KASHIRENINOV, O.Ye.; OSIPOV, O.A.; PANINA, M.A.; MARCHENKO, V.K.

Magnetic susceptibility of binary liquid systems. Zhur. ob. khim. 31 no. 11:3504-3509 N '61. (MIRA 14:11)
(Systems (Chemistry)---Magnetic properties)

OSIPOV, O.A.; SIMONOV, A.M.; MINKIN, V.I.; GARNOVSKIY, A.D.

Dipole moments of imidazole and its derivatives. Dokl.AN SSSR 137 no.6:1374-1376 Ap '61. (MIRA 14:4)

1. Rostovskiy-na-Donu gosudarstvennyy universitet. Predstavleno akademikom M.M.Shemyakinym.
(Imidazole--Dipole moments)

KLETENIK, Yu.B.; OSIPOV, O.A.

Reaction of titanium tetrahalides with esters of acetic acid.
Zhur. ob. khim. 31 no.3:710-716 Mr '61. (MIRA 14:3)

1. Khimiko-metallurgicheskiy institut Sibirskogo otdeleniya AN SSSR.
(Titanium compounds)

OSIPOV, O.A. ; LYSENKO, Yu.A.

Electric properties of systems formed by titanium tetrachloride with esters of trichloroacetic acid. Zhur. ob. khim. 30 no.12:3866-3869 D '60. (MIRA 13:12)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.
(Titanium chloride) (Acetic acid)

OSIPOV, O.A.; KLETENIK, Yu.B.

Heats of reactions between zirconium halides and esters. Zhur. neorg. khim. 5 no.10:2220-2222 O '60. (MIRA 13:10)
(Zirconium halides) (Chemical reaction, Heat of)

3/073/60/030/012/004/B001/B004

AUTHORS: Osipov, O. A. and Lysenko, Yu. A.

TITLE: Electrical Properties of the Systems Formed From Titanium Tetrachloride and Esters of Trichloro Acetic Acid

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No 12, pp. 3866-3869

TEXT: This paper gives the dielectric constants of the systems of $TiCl_4$ with ethyl trichloro acetate, n-butyl trichloro acetate, isobutyl trichloro acetate, isotrichloro amyl acetate, and the dipole moments of some etherates $TiCl_4 \cdot E$, where E is the molecule of the ester. All determinations were carried out by previous methods (Refs. 1, 3, 5) at $20 \pm 0.1°C$. Tables 1-4 show the dielectric constants (ε), densities (d), refractive indices n_D, as well as the values of the orientation polarization and the mean dipole moments of the systems of $TiCl_4$ and the four esters of trichloro acetic acid. The two last columns of the table show the deviations of the dielectric constants and polarization from the additive values.

Card 1/3

Electrical Properties of the Systems [illegible] S/079/60/030/012/001/B001/B064
From Titanium Tetrachloride and Esters of Tri- B001/B064
chloro Acetic Acid

members of a homologue series (Tables 1-4). There are [illegible]
11 references: 9 Soviet, 1 US, and 1 British.

ASSOCIATION: Rostovskiy-na-Donu gosudarstvennyy universitet
(Rostov-na-Donu State University)

SUBMITTED: February [illegible], 1959

Card 3/3

86494
S/078/60/[illegible]/XX
B023/B064

53700 2209 1236 1273

AUTHORS: Osipov, O. A., Lysenko, Yu. A.

TITLE: Heat of Formation of Esterates of Titanium Tetrachloride

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 8, pp. 1840-1845

TEXT: The authors investigated the heats of mixing of the systems: $TiCl_4$ - iso-$CH_3COOC_5H_{11}$; $TiCl_4$-sec-$CH_3COOC_8H_{11}$; $TiCl_4$ - n-$HCOOC_4H_9$; and $TiCl_4$- iso-$HCOOC_5H_{11}$. On the basis of the results obtained per g-mole, also the chemical nature of each component may be determined. For systems in which chemical processes take place, the interaction between the components is clearly seen if the thermal effects per g-mole of each component are calculated (Figs.1-4, Tables 1-4). Further investigations of the authors confirm the hypothesis according to which compounds of the type $2TiCl_4.E$ (E = ester are not formed in the liquid phase. It was shown that in the compounds $TiCl_4.E$,

Card 1/6

86494
S/078/60/005/0[illegible]/XX
B023/B066

Heat of Formation of Esterates of Titanium Tetrachloride

titanium has the coordination number 5, with the ester oxygen of the ester molecule being the principal electron donor. There are 4 figures, [illegible] tables, and 11 references: 9 Soviet and 2 German.

SUBMITTED: March 31, 1959

Legend to Fig. 1: Heats of mixing in the system $TiCl_4$ - $i\text{-}C_5H_4OOCCH_3$, kcal/mole; 1: thermal effects of $TiCl_4$; 2: thermal effects of the ester; 3: thermal effects of the mixture.

Legend to Fig. 2: Heats of mixing in the system $TiCl_4$ - $sec\text{-}C_8H_{17}OOCCH_3$, kcal/mole; for 1,2,3 see Fig. 1.

Legend to Fig. 3: Heats of mixing in the system $TiCl_4$ - $n\text{-}C_4H_9OOCCH_3$, kcal/mole; for 1,2,3 see Fig. 1.

Legend to Fig. 4: Heats of mixing in the system $TiCl_4$ - $i\text{-}C_5H_{11}OOCCH_3$, kcal/mole; for 1,2,3 see Fig. 1.

Card 2/6

86494
S/078/60/005/009/010/011/XX
B023/B066

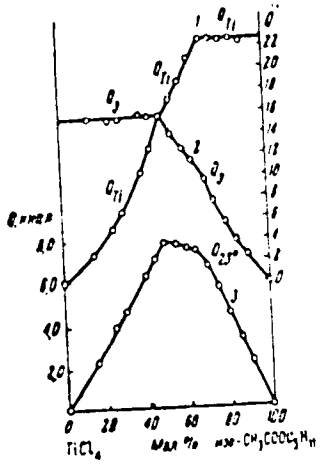


Рис. 1. Теплоты смешения системы $TiCl_4$ — изо-$C_3H_4OOCCH_3$, ккал/г-моль

1 — тепловые эффекты четыреххлористого титана; 2 — тепловые эффекты эфира; 3 — тепловые эффекты смеси

Card 3/6

86494
S/078/60/005/008/030/031/XX
B023/B066

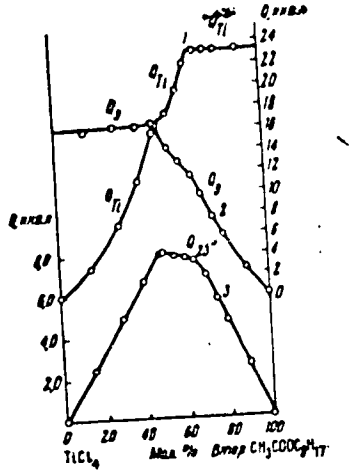


Рис. 2. Теплоты смешения системы $TiCl_4$ — втор-$C_8H_{17}OOCCH_3$, ккал/г-моль.

1 — тепловые эффекты четыреххлористого титана; 2 — тепловые эффекты эфира, 3 — тепловые эффекты смеси

Card 4/6

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S/078/60/005/008/030/031/XX
B023/B066

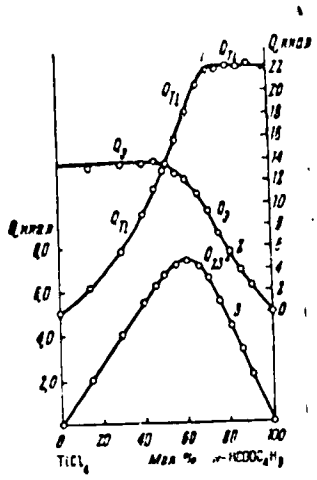


Рис. 3. Теплоты смешения системы $TiCl_4$—$н$-C_4H_9OOCH, ккал/г-моль.
1 — тепловые эффекты четыреххлористого титана; 2 — тепловые эффекты эфира; 3 — тепловые эффекты смеси

Card 5/6

86194

S/078/60/005/008/030/031/XX
B023/B066

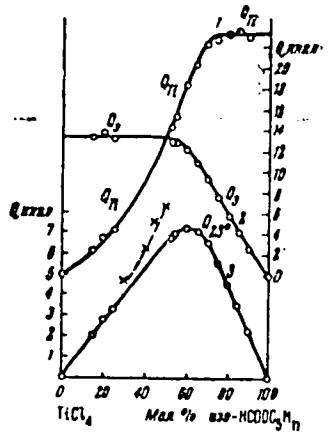


Рис. 4. Теплоты смешения системы $TiCl_4$ — изо-$C_5H_{11}OOCH$, ккал/г-моль.

1 — тепловые эффекты четыреххлористого титана; 2 — тепловые эффекты эфира; 3 — тепловые эффекты смеси

Card 6/6

S/078/60/005/010/042/040 XX
B017/B067

AUTHORS: Osipov, O. A. and Kletenik, Yu. B.

TITLE: The Heat of the Reaction of Zirconium Halides With Esters

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 10, pp. 2220-2222

TEXT: The heat which is generated in the reaction of zirconium bromide and zirconium chloride with ethyl formiate, ethyl acetate, and ethyl butyrate, as well as the heat of solution of zirconium iodide in ethyl acetate were determined. The ratio of zirconium bromide and zirconium chloride to the esters was 1 : 1, and 1 : 2, respectively. The heats of solution of zirconium halides and their complex compounds in these esters which were also determined are given in Table 1. Table 2 shows the heat of formation of the complexes. The complexes could be obtained only as solutions, not in the solid form. The heat of formation of complexes with the composition 1 : 1 was, in all cases investigated, higher than that of complexes with the composition 1 : 2. This result confirms the

Card 1/2

dissociation scheme suggested earlier by the authors (Refs. 4,5). In contrast to molecular compounds of tetrahalides of tin in the order chloride - bromide - iodide with these esters, no continuous decrease in the heats of formation in the above order was observed in the complexes of zirconium halides. The heat of formation of complexes of zirconium bromide with these esters is somewhat higher than that of complexes of zirconium chloride. The heat of solution of zirconium iodide in ethyl acetate is 4% lower than the heat of solution of zirconium chloride in the same ester. There are 4 tables and 9 references: 7 Soviet and 2 US.

SUBMITTED: July 3, 1959

KLETENIK, Yu.B., OSIPOV, O.A.

Physiochemical investigation of some zirconium halide complexes with esters of monobasic carboxylic acids. Izv.vys.ucheb.zav.; khim.i khim.tekh. 2 no.5:679-684 '59. (MIRA 13:8)

1. Rostovskiy-na-Donu gosudarstvennyy universitet, kafedra fizicheskoy i kolloidnoy khimii.
(Zirconium compounds)

OSIPOV, O.A.; PANINA, M.A.; YAGUBYAN, Ye.S.

Heats of mixing dioxane with chloroform and o-toluidine.
Zhur.ob.khim. 30 no.7:2127-2130 Jl '60. (MIRA 13:7)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.
(Dioxane) (Chloroform) (Toluidine)

OSIPOV, O.A.; ARTEMOVA, V.M.

Electric properties of inner complex compounds. Dokl.AN SSSR 133 no.1:166-169 Jl '60. (MIRA 13:7)

1. Rostovskiy-na-Donu gosudarstvennyy universitet. Predstavleno akademikom A.N.Frumkinym.
(Complex compounds--Electric properties)

AUTHORS: Osipov O.A. Lysenko Yu A SOV 78 3 7 23/44

TITLE: XI The Electrolysis of Tetrachlorotitanium Compounds With Some Esters of Monobasic Acids (XI. Elektroliz soyedineniy chetyrekhkhloristogo titana s nekotorym efirami odnoosnovnykh kislot)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 7, pp 1605-1607 (USSR)

ABSTRACT: In the course of the present paper the results obtained by the electrolysis of the solutions of titanium-(IV)-chloride in n butyl-formiate, isoamylacetate ethyl acetate and ethyl formiate are investigated. Graphite and in some cases, platinum and silver were used as materials for electrodes. In the course of electrolysis there is a black precipitation at the cathode in the case of all experiments in which the ratio between titanium and chlorine is 1 : 3. At the anode a product is separated in the case of which the ratio between titanium and chlorine is 1 : 4. On the strength of these investigations it is assumed that at the cathode $TiCl_3$ is first separated which is reduced with $TiCl_4$ to $TiCl_2$.

Card 1/2 The formation of $TiCl_2$ is characterized by the fact that at first

XI. The Electrolysis of Tetrachlorotitanium Compounds With Some Esters of Monobasic Acids

SOV 78-3 7-23/44

a yellowish brown precipitation is formed on the cathode. The results obtained confirm the scheme of the electrolytic dissociation of titanium-(IV) chloride in complex esters as described in earlier works. There are 1 table and 9 references, 8 of which are Soviet.

SUBMITTED June [illegible] 1957

1. Titanium compounds--Electrolysis 2. Titanium compounds--Separation 3. Titanium compounds--Precipitation 4. Titanium compounds--Test results

Card 2/2

81731
S/020/60/133/01/46/070
B004/B007

53700 (A)

AUTHORS: Osipov, O. A., Artemova, V. M.

TITLE: The Electrical Properties of Intr complex Compounds

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 1, pp. 166 - 169

TEXT: The authors investigated the electrical properties of the acetyl acetonates and hydroxyquinolates of zirconium thorium, indium, beryllium, chromium, copper and cadmium, which have a chelate bond. The present investigation aimed at ascertaining the cause of the great difference between molecular and electron polarization. The dielectric constant, the density, and the refractive index in solutions (carbon tetrachloride, benzene, dioxane) were determined. Table 1 gives the values found, which show that the dipole moments do not depend on the nature of the solvent, and that the difference between molecular and electron polarization is not caused by this solvent. The authors assumed the cause to be a shifting of the atomic nuclei due to the application of a voltage, and therefore investigated the electrical properties of these compounds in the solid phase.

Card 1/2

OSIPOV, O.A.

Deposition potentials of zinc and hydrogen in the presence of potassium xanthogenate. Uch. zap. RGU 40:103-11 '58. (MIRA 13:10)
(Xanthic acid) (Zinc)
(Hydrogen) (Reduction, Electrolytic)

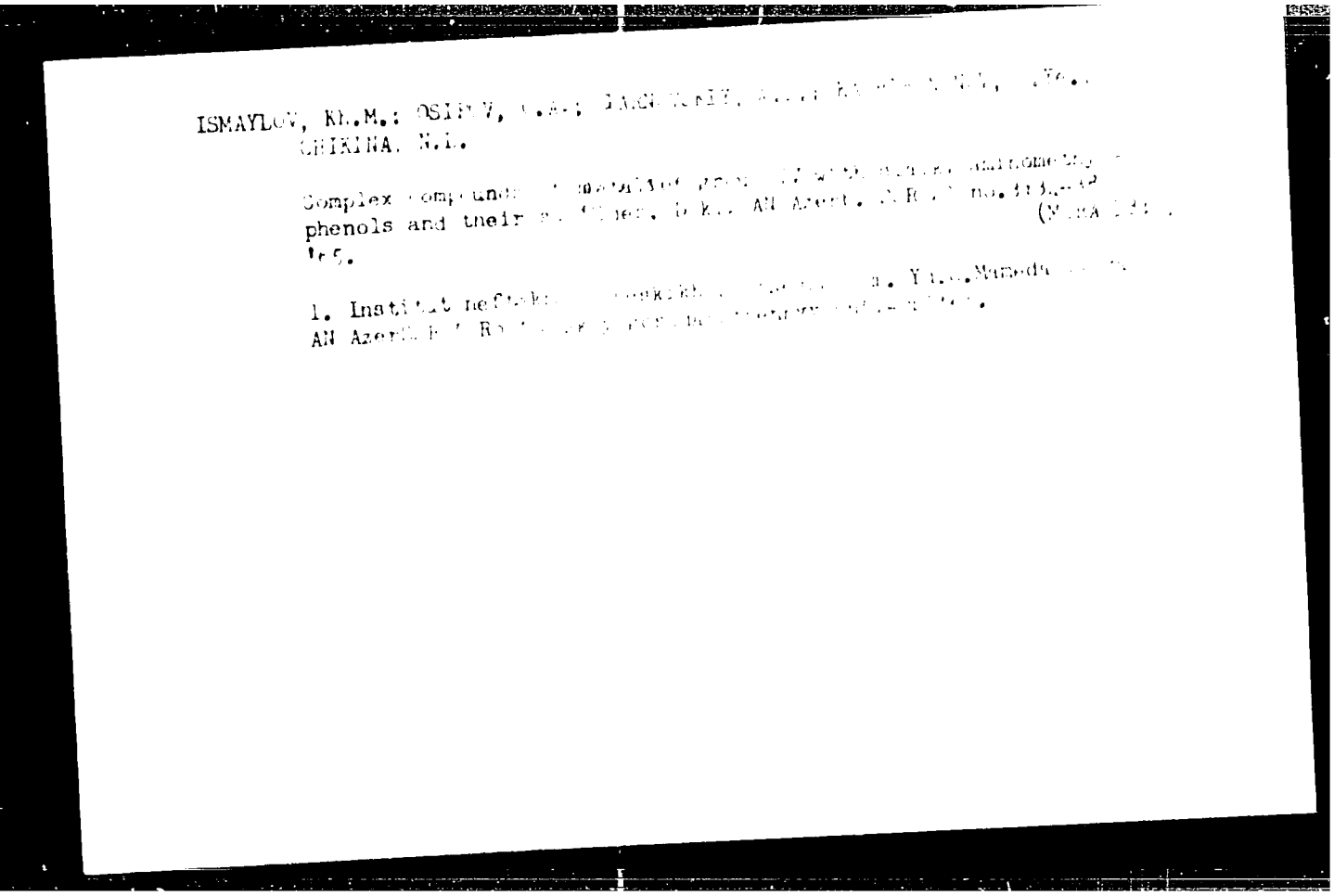
OSIPOV, O.A ; MINKIN, V I.; TUMAKOVA, Zh.A.

Dipole moments and structure of bis-salicylalarylimines (II). Zhur. struk. khim. 5 no.6:918-919 N-D '64. (MIRA 18:...

1. Rostovskiy-na-Donu gosudarstvennyy universitet.

MINKIN V.I.; GOSTEV, M.I., KOZLOV, O.A.; OSTROUMOV, Yu.A.

Electron structure and absorption spectra of salicylalanilide and its derivatives. Opt. i spektr. 18 no.4:571-578 Ap '65. (MIRA 18:8)

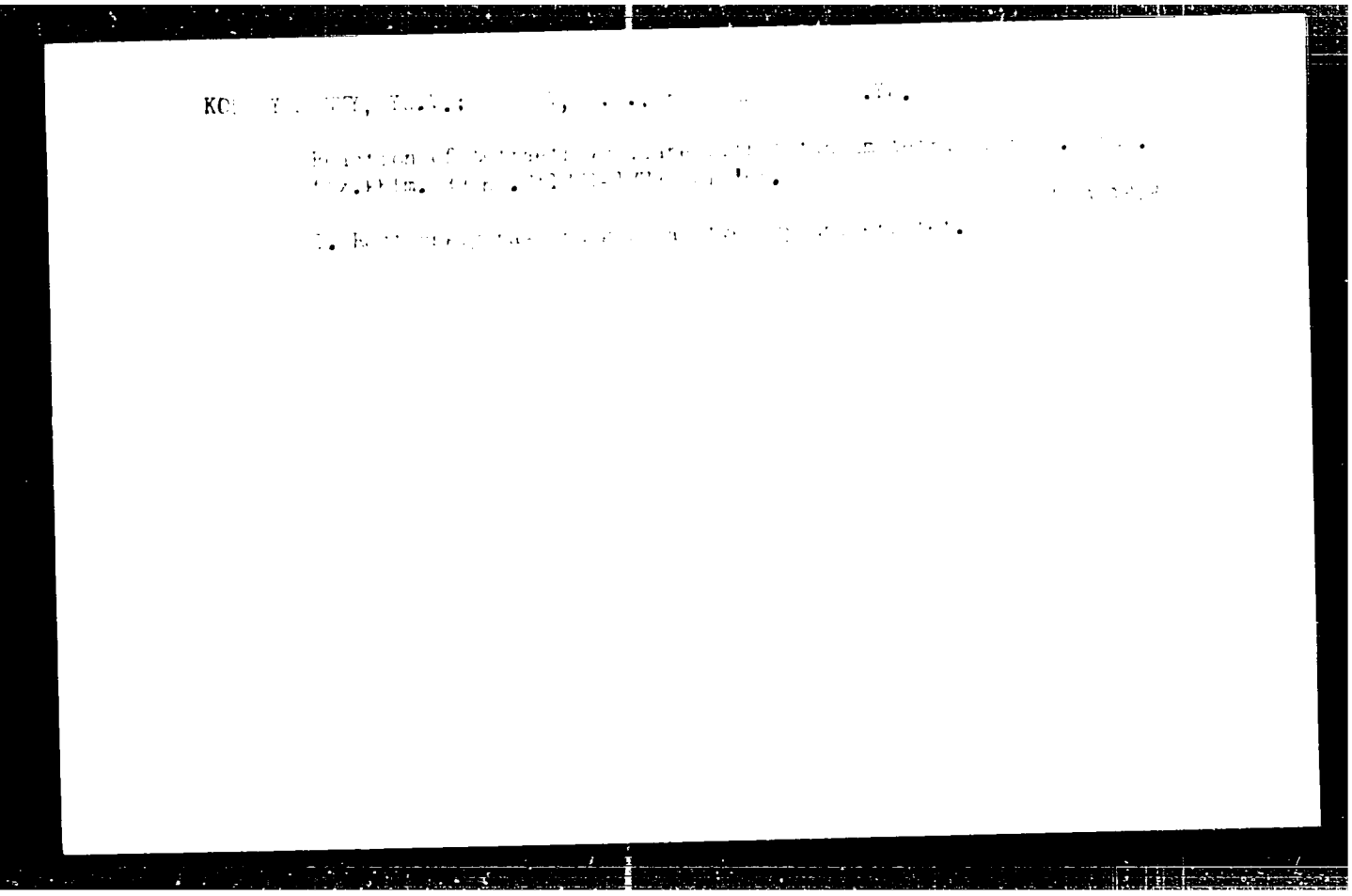


ISMAYLOV, Kh.M.; OSIPOV, V.A.; [illegible]

CHIKINA, N.I.

Complex compounds [illegible] phenols and their [illegible]. Dokl. AN Azerb. SSR no. 11 [illegible] (MIRA [illegible]

1. Institut neftekhimicheskikh [illegible] AN Azerbaydzhanskoy SSR [illegible]. Yu. Mamedaliyev [illegible].



L 11409-67 EWT(m)/EWP(j) RM

ACC NR: AT7003666 SOURCE CODE: UR/0079/66/036/008/1484/1487

KOZLOV, I.A., OSIPOV, O.A., Volgodonskaya Affiliate, All-Union Scientific Research Institute of Synthetic Oil Substitutes (Volgodonskoy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta sinteticheskikh zhirozamenitoley)

"Reaction of Tin and Titanium Tetrachlorides with Ethanolamides of Aliphatic Acids. III"

Moscow, Zhurnal Obshchey Khimii, Vol 35, No 8, 1966, pp 1484-1487

Abstract: It was found that in the reaction of tin and titanium tetrachlorides with monoethanolamides (MEA)$RCONHC_2H_4OH$ and diethanolamides (DEA)$RCON(C_2H_4OH)_2$ of aliphatic acids, where R is a hydrocarbon radical containing from seven to 11 carbon atoms, complex compounds with the composition $2MEA \cdot 2MeCl_4$ and $2DEA \cdot 3MeCl_4$ are formed. It was further found that in dioxane solution these complex compounds undergo further molecular transformations: a molecular rearrangement of complex compounds of tin and titanium tetrachlorides with ethanolamides of aliphatic acids was detected and studied. A mechanism was proposed for the rearrangement: when solutions of the complexes in dioxane are heated, there is a replacement of the hydrogen of the hydroxyl group of the ethanolamides by the $SnCl_3$ or $TiCl_3$ group, liberating a HCl molecule. The latter causes a rearrangement of the ligand molecule, according to the scheme:

$$(RCONHC_2H_4OH \cdot SnCl)_2 \rightarrow HCl \cdot NH_2C_2O_4OOCR + RCONHC_2H_4 \cdot OSnCl_3.$$

UDC: 547.258.11 + 547.372

Card 1/2

ACC NR: AP7005109 SOURCE CODE: UR/0079/66/036/009/1693/1702

KOLODYAZHNYY, Yu. V., MARCHENKO, V. N., OSIPOV, O. A., ROGAN, M. G., Rostov-on-Don State University (Rostovskiy-na-Donu gosudarstvennyy universitet)

"Investigation of the Interaction Between Tetra-n.-Butoxytitanium and the Tetrachlorides of Tin and Silicon"

Moscow, Zhurnal Obshchey Khimii, Vol 36, No 9, 66, pp 1693-1702

Abstract: With the aid of various physicochemical techniques (dielectric losses, cryoscopy, electric conductivity, etc.) it is shown that tetrabutoxytitanium $Ti(OBu)_4$ forms conducting complex compounds not only with stannic tetrachloride but also with such a weak electron acceptor such as silicon tetrachloride. It was shown that the interaction between the tetrachlorides of tin and silicon and tetra-n.butoxytitanium in dilute benzene solutions leads to the formation of the following complexes: $SnCl_4 \cdot Ti(OBu)_4$, $SnCl_4 \cdot 2Ti(OBu)_4$, $SiCl_4 \cdot Ti(OBu)_4$, $SiCl_4 \cdot 2Ti(OBu)_4$. The association of complexes 1:2 composition was established and this is attributed to not only donor-acceptor interaction between molecules of tetrabutoxytitanium but also, and to a large degree, to the interaction between the butoxy-group hydrocarbon radicals; the gradual decomposition of such associated complexes accounts for the decrease in their electric conductivity with time. Orig. art. has: 11 figures, 2 formulas and 8 tables. [JPRS: 38,970]

TOPIC TAGS: organotitanium compound, organotin compound, organosilicon compound
SUB CODE:07 / SUBM DATE: 06Jul65 / ORIG REF: 013 / OTH REF: 001

Card 1/1 UDC: 547.1'3 + 546.81 + 546.28

OSIPOV, G. P.; [illegible]

Fertilizers and Manures

Effect of mineral fertilizers on hay crops in Nagorno-Karabakh, G. P. Osipov, V. A. Shteryar. Pochv. bazy, 2, No. 12, 1941

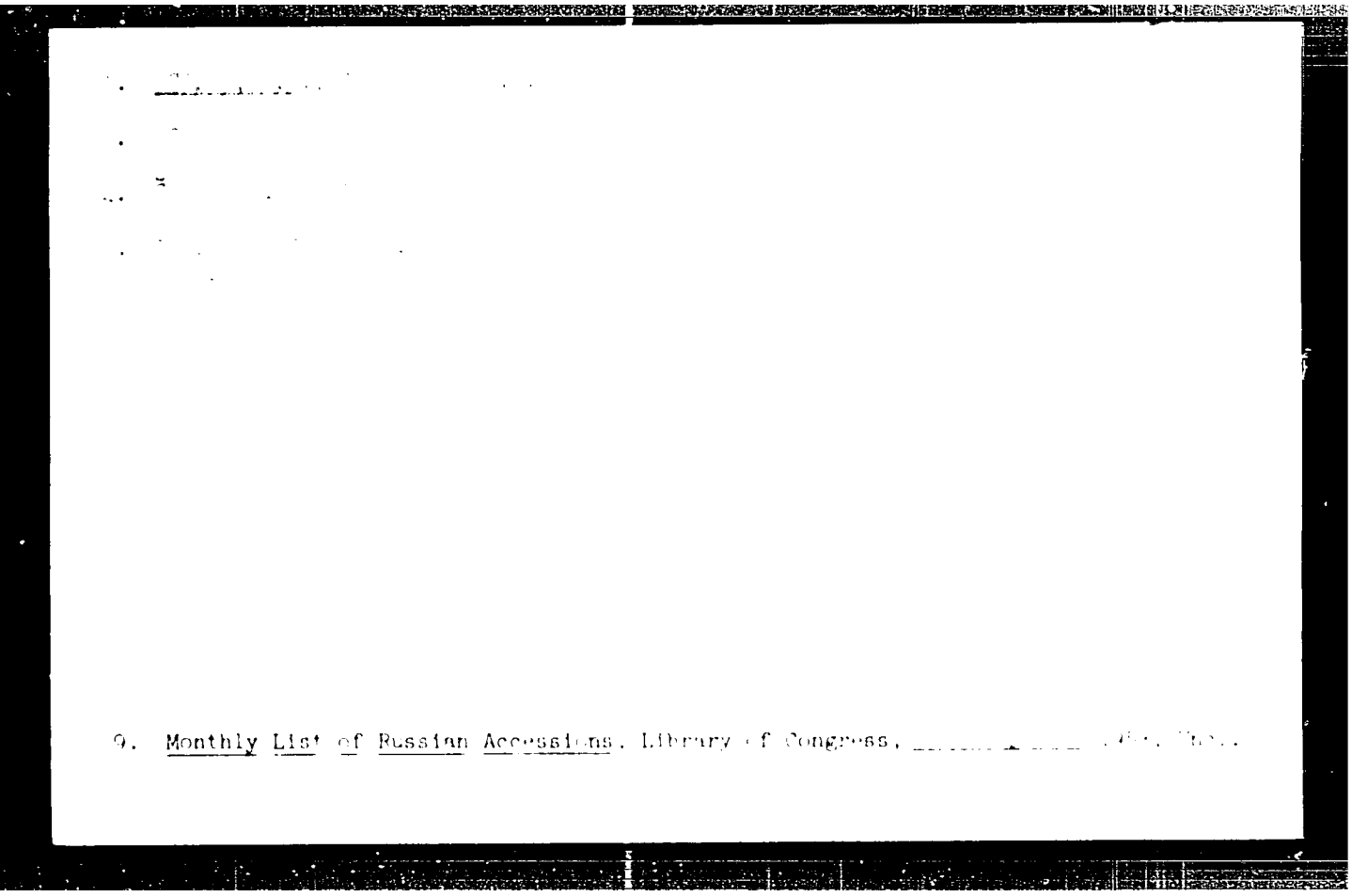
9. Monthly List of Russian Accessions, Library of Congress, May 1953, Uncl.

Chichva, G. I., Chichva, G. I.

Cranes

Effect of mineral fertilizers on hay crop in Nagorno-Karabakh., Korm. baza, 2, no. 12, 1951

9. Monthly List of Russian Accessions, Library of Congress, May 1954, Uncl.



9. Monthly List of Russian Accessions. Library of Congress,

MAMEDOV, Sh.A.; OSIPOV, O.B.; MAMEDOVA, A.R.

"Etheran"- a new type of agricultural poison [in Azerbaijani with summary in Russian]. Izv. AN Azerb. SSR. Ser. fiz.-tekh. i khim. nauk no.1:125-131 '59. (MIRA 12:6)
(Ether) (Insecticides)

MAMEDOV, Shamkhal; OSIPOV, O.B.; ALIYEVA, Kh.M.

Catalytic alkoxymethylchlorination of olefons. Azerb.khim. zhur. no.2:83-91 '60. (MIRA 14:8)
(Olefins) (Ether)

MAMEDOV, Shamkhal; MAGERRAMOV, B.G.; OSIPOV, O.B.; ALESKEROV, A.S.

Bactericidal properties of certain ether preparations. Azerb. khim.zhur. no.1:65-69 '61. (MIRA 14:8)
(Ether) (Bactericides)

MAMEDOV, Shamhal; OSIPOV, C.B.; ALIYEVA, Kh.M.; ZEYNALOVA, V.M.

Efiran-66, a new herbicide. Dokl.AN Azerb.SSR 17 no.4:331-334 '61. (MIRA 14:6)

1. Institut neftekhimicheskikh protsessov AN AzerSSR. Predstavleno akademikom AN Azerbaydzhanskoy SSR V.R. Volobuyevym.
(Herbicides) (Isopropyl ether)

MAMEDOV, Shamkhal; OSIPOV, O.B.; ALIYEVA, Kh.M.

"Betaefiran" (ether preparation). Azerb.khim.zhur. no.5:59-63 '61. (MIRA 15:5)

(Ethers) (Insecticides)

, Shamkhal; , O.B.; GRISHINA, Ye.N.

Efiran-99 and efiran-94, new highly effective chemicals for bollworm control. Dokl. AN Azerb. SSR 17 no.8:691-695 '61. (MIRA 14:10)

1. Institut neftekhimicheskikh protessov AN AzerbSSR. Predstavleno akademikom AN Azerbaydzhanskoy SSR I.D. Mustafayevym.
(Bollworm)
(Insecticides)

MAMEDOV, Shamkhal [illegible]OV, O.B.; KHYDYROV, D.N.; AVANESYAN, M.A.; AGAYEV, A.S.; GRISHINA, Ye.N.

The new contact insecticides efiran-79 and efiran-103 for agricultural pests. Dokl. AN Azerb. SSR 17 no.10:937-940 '61. (MIRA 14:12)

1. Institut neftekhimicheskikh protsessov AN AzerSSR. Predstavlen akademikom AN AzSSR G.A. Aliyevym.
(Insecticides)

MAMEDOV, Shamkhal; ALIYEVA, Kh.M.; OSIPOV, O.B.

Utilization of olefinic components from the liquid pyrolysis products of petroleum hydrocarbons. Neftekhimia 2 no.1:115-120 Ja-F '62. (MIRA 15:5)

1. Institut neftekhimicheskikh protsessov AN AzSSR.
(Olefins) (Herbicides)

MAMEDOV, Shamkhal; OSIPOV, O.B.; DZHALILOV, T.N.; GRIZHINA, Ye.N.

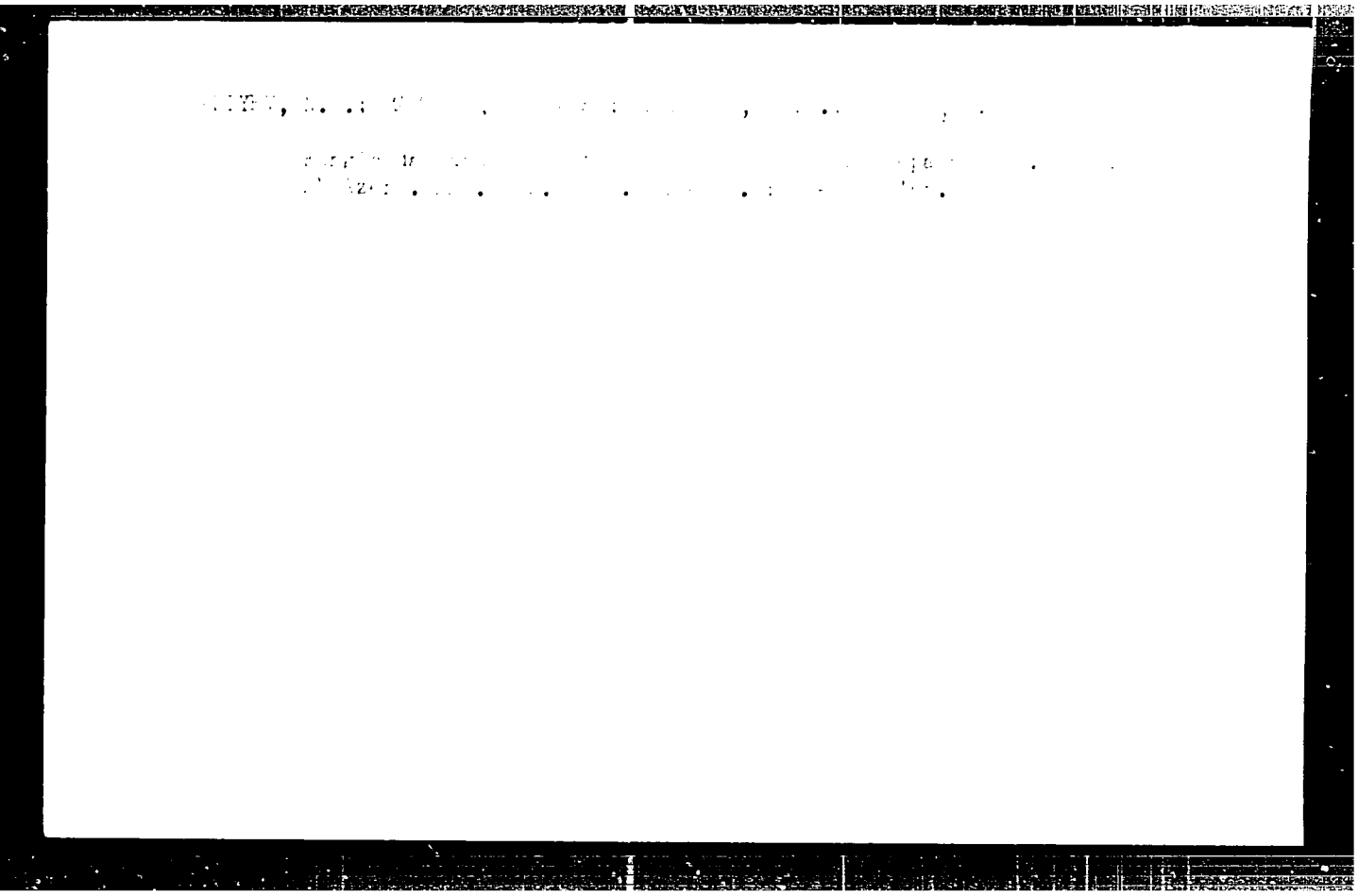
New contact poisonous chemicals "efiran-168" and "efiran" 169."
Dokl. AN Azerb. SSR 18 no.9:19-23 '62. (MIRA 17:1)

1. Institut neftekhimicheskikh protsessov AN AzerSSR.
Predstavleno akademikom AN AzSSR I.D. Mustafayevym.

KESSLER, Yu.M.; ALPATOVA, N.M., OSIPOV, O.A.

Electrochemical and physicochemical properties of aluminum compounds in nonaqueous solutions. Usp. khim. 33 no.3:361-395 Mr '64. (MIRA 17:4)

1. Institut elektrokhimii AN SSSR.



L 64382-65
(AJ)

ACCESSION NR: AP5021616 UR/0286/65/000/013/0094/0094

AUTHORS: Mamedov, Sh.; Arabov, A. K. o.; Osipov, O. B.; Grishina, Ye. N. 11 B

TITLE: A method for controlling insects harmful to farm vegetation. Class 45, No. 172575

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 13, 1965, 94

TOPIC TAGS: pesticide, agriculture, insect control, organic compound

ABSTRACT: This Author Certificate presents a method for controlling insects harmful to farm vegetation by using an insecticide acting as a reaction starter. To enlarge the assortment of insecticides, β-diethylaminoethanol benzyl ether is used as a starting compound.

ASSOCIATION: none

SUBMITTED: 18Apr64 ENCL: 00 SUB CODE: LS, OC

NO REF SOV: 000 OTHER: 000

Card 1/1 lle

KESSLER, Yu.M.; OSIPOV, O.R.

Electromagnetic chopper with a wide regulation range of the operational pulses. Zhur.fiz.khim. 39 no.11:2847-2848 N '65. (MIRA 18:11)

1. Institut elektrokhimii AN SSSR.

MOTORIN, I.I.; OSIPOV, O.V.; ARIFULIN, S.A.; PETRYAYEV, A.A., otv. red.; CHERNEGOVA, E.N., red. izd-va; LOMILINA, L.N., tekhn. red.

[Regulations for the exploitation of drilling, pumping, compressor, power, special, and construction equipment] Pravila ekspluatatsii burovogo, nasosnogo, kompressornogo, silovogo, spetsial'nogo i stroitel'nogo oborudovaniia. Moskva, Gosgortekhizdat, 1962. 22 p. (MIRA 16:7)

1. Soyuzshakhtoosusheniye, trust.
(Machinery)

L 52170-65 EWT(1)/EWA(j)/EWA(b)-2 Pa-4 RO

ACCESSION NR: AP5015539 UR/0286/65/000/008/0080/0080

AUTHORS: Mamedov, Sh.; Mamedova, A. Kh. A.-K.; Avanesyan, M. A.; Osipov, O. V.; Zeynalova, V. M.; Karakhanova, S. V.

TITLE: A method for controlling weeds. Class 45, No. 170246

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 8, 1965, 80

TOPIC TAGS: agriculture, pesticide, ester

ABSTRACT: This Author Certificate presents a method for controlling weeds by herbicides. To broaden the assortment of herbicides, para-β-cresoxy-β'-carbomethoxydiethyl ester is used for this purpose.

ASSOCIATION: none

SUBMITTED: 31Jul64 ENCL: 00 SUB CODE: 00

NO REF SOV: 000 OTHER: 000

Card 1/1

OSIPOV, P.

All-purpose lathe for young technicians. IUn.tekh. 7 no.11:70-71 N '62. (MIRA 15:12)

(Lathes)

OSIPOV, P., nachal'nik; ZUBKOV, G., slesar'.

Window scaffold. Zhil.-kom. khoz. 1 no.6:18-21 Je '5. (Scaffolding)

1. Remontno-stroitel'naya kontora Kirovskogo rayzhilupravleniya Kirovsko-no-Domu.

OSIPOV, P.

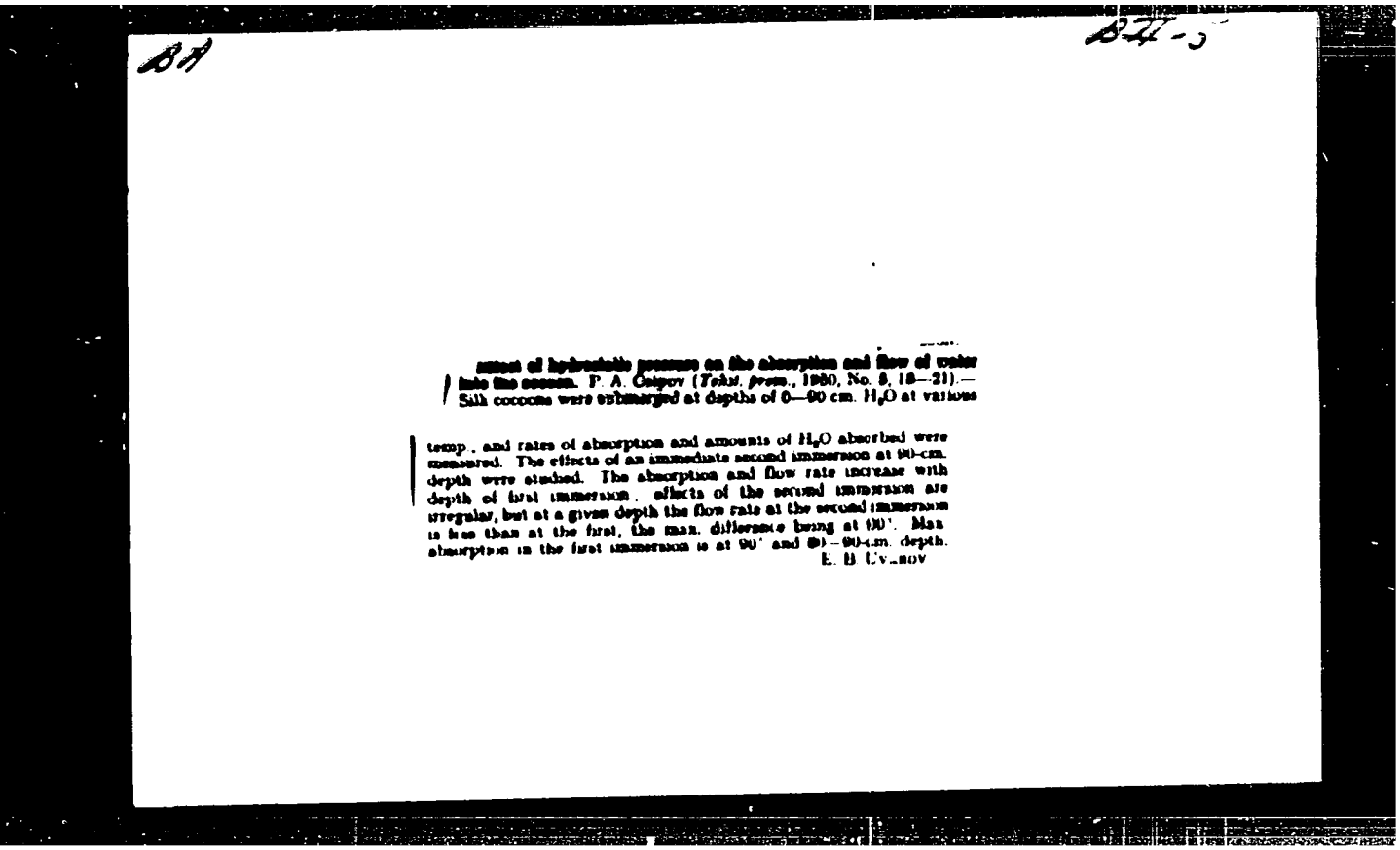
More about the lag in production of equipment for concrete work. Mekh. trud. rab. 9 no.7:18-19 Jl '55. (MLRA 8:9)

1. Nachal'nik Glavnogo upravleniya stroitel'nykh mashin i oborudovaniya dlya proizvodstva stroitel'nykh materialov Ministerstva stroitel'nogo i dorozhnogo mashinostroyeniya SSSR
(Building machinery)

OSIPOV, P.A.

Causes of the formation of twist in raw silk during the unwinding of cocoons. Izv.vys.ucheb.zav.; tekh.tekst.prom. no.2:35-39 '63. (MIRA 16:6)

1. Kostromskoy tekhnologicheskiy institut.
(Silk manufacture) (Winding machines)



ament of hydrostatic pressure on the absorption and flow of water into the cocoon. P. A. Gaipov (*Tekst. prom.*, 1950, No. 8, 18—21).—Silk cocoons were submerged at depths of 0—90 cm. H_2O at various temp., and rates of absorption and amounts of H_2O absorbed were measured. The effects of an immediate second immersion at 90-cm. depth were studied. The absorption and flow rate increase with depth of first immersion; effects of the second immersion are irregular, but at a given depth the flow rate at the second immersion is less than at the first, the max. difference being at 90°. Max. absorption in the first immersion is at 90° and 80–90-cm. depth.

E. B. Ev_nov

OSIPOV, P.A.

Forces acting in the re-reeling [illegible]
Izv.vys.ucheb.zav.; tekh.tekst.ir m. no.3:3-50 [illegible].

1. Kostromskoy tekhnol[illegible] institut.

OSIPOV, P.A.

Moisture of raw silk filaments. Izv. vys. ucheb. zav., tekh. teks. prom. no.6:28-33 '65. (MIRA 19:1)

1. Kostromskoy tekhnologicheskiy institut. Submitted November 17, 1964.

BATASHOV, Nikolay Nikolayevich; KURNEV, Yevgeniy Mikhaylovich; OSIPOV, Petr Fedotovich; IOFEVSKIY, V.I., red.; ISAYEVA, V.V., ved. red.; YAKOVLEVA, Z.I., tekhn. red.

[Preparation, treatment, and cleaning of clay solutions; practices of petroleum workers in Kuybyshev Province] Prigotovlenie, obrabotka i ochistka glinistykh rastvorov; opyt neftianikov Kuibyshevskoi oblasti. Moskva, Gostoptekhizdat, 1963. 80 p. (MIRA 16:11)
(Oil well drilling fluids)

26445
S/021/60/000/004/001/010
D232/D305

24 4100

AUTHOR: Osypov, P.M.

TITLE: The inertial motor dyad

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 4, 1960, 419 - 425

TEXT: The inertial properties of a moving particle are given by a single scalar - the mass of the particle. However, for the inertial properties of a moving rigid body to be fully determined, the following ten integrals are necessary: 1) The total mass

$$m = \int_V dm; \qquad (1)$$

2) The three statical moments, giving the coordinates of the center of gravity

$$S_1 = mx_c = \int_V x\,dm,\ S_2 = my_c = \int_V y\,dm,\ S_3 = mz_c = \int_V z\,dm; \qquad (2)$$

Card 1/5

The inertial motor dyad

3) The three moments of inertia

$$I_{11} = \int_V (y^2 + z^2)\, dm,\quad I_{22} = \int_V (z^2 + x^2)\, dm,\quad I_{33} = \int_V (x^2 + y^2)\, dm; \tag{3}$$

4) The three products of inertial

$$I_{12} = I_{21} = -\int_V xy\, dm,\quad I_{23} = I_{32} = -\int_V yz\, dm,\quad I_{13} = I_{31} = -\int_V zx\, dm. \tag{4}$$

These 10 quantities are the components of a motor dyad which defines the combined inertial properties of the rigid body and which is called the inertial motor dyad. Theorem:

$$\hat{q} = mv + \hat{v} \cdot \hat{J} \tag{5}$$

where q is the motor of the quantity of motion, $\hat{v} = \omega^* + \epsilon v$ is the velocity motor corresponding to the pole O, and $\hat{J}$ is the inertial motor dyad. It is shown that $\hat{J} = J + J^*$, where

Card 2/5

The inertial motor dyad

$$J + \varepsilon J^{*} = \begin{bmatrix} 0 & S_3 - S_2 \\ -S_3 & 0 & S_1 \\ S_2 - S_1 & 0 \end{bmatrix} + \varepsilon \begin{bmatrix} I_{11} & I_{12} & I_{13} \\ I_{21} & I_{22} & I_{23} \\ I_{31} & I_{32} & I_{33} \end{bmatrix} \qquad (13)$$

i.e. J is a hypercomplex dual number. Two orthogonal coordinate systems are chosen - a stationary system Oxyz, and a moving system Oxyz. r_0 is the position-vector of the moving origin referred to the fixed axes, so that the position vector of a general point of the body is given by $\bar{r} = r_0 + r$, where $\bar{r}$ and r are the position vectors of the point referred to the stationary and moving systems respectively. The general equation of motion of a rigid body is discussed then. The derivative with respect to time of the motor of the quantity of motion equals the motor of the force applied to the body, k. Hence, from

$$\frac{d\hat{u}}{dt} = \frac{\partial \hat{u}}{\partial t} + \hat{v} \times \hat{u}, \qquad (23)$$

Card 3/5

The inertial motor dyad

$$\frac{\partial \hat{q}}{\partial t} + \hat{v} \times \hat{q} = \hat{k}. \tag{27}$$

Applying the theorem, writing the expression in terms of J and simplifying gives

$$m \frac{\partial \hat{v}}{\partial t} + m\omega \times v + \frac{\partial \hat{v}}{\partial t} \cdot \hat{J} + \hat{v} \cdot \frac{d\hat{J}}{dt} = \hat{k}, \tag{34}$$

where

$$\frac{d\hat{J}}{dt} = \begin{bmatrix} 0 & \dot{S}_3 - \dot{S}_2 \\ -\dot{S}_3 & 0 & \dot{S}_1 \\ \dot{S}_2 - S_1 & 0 \end{bmatrix} + \varepsilon \begin{bmatrix} \dot{I}_{11} & \dot{I}_{12} & \dot{I}_{13} \\ \dot{I}_{21} & \dot{I}_{22} & \dot{I}_{23} \\ \dot{I}_{31} & \dot{I}_{32} & \dot{I}_{33} \end{bmatrix} \tag{35}$$

Hence, the kinetic energy of the body is calculated as the dual part of the scalar product of the velocity motor by the motor of the quantity of motion of the rigid body

$$2T + mv^2 + \omega \cdot (\omega \cdot J^*) + \omega \cdot (v \cdot J) - v \cdot (\omega \cdot J). \tag{36}$$

Card 4/5

26445
S/021/60/000/004/001/01
The inertial motor dyad D232/D305

There are 6 references: 4 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Kyyivs'kyy tekhnolohichnyy instytut kharchovoy promyslovosti (Kyyiv Technological Institute of the Food Industry)

PRESENTED: by Academician AS UkrSSR, O.Yu. Ishlins'kiy

SUBMITTED: May 5, 1959

Card 5/5

28678
S/021/60/000/007/001/009
D211/D305

24.4200

AUTHOR: Osypov, P.M.

TITLE: The motor diad of infinites-imal transformations

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 7, 1960, 863 - 868

TEXT: The question of the continuous transformation of coordinates has an important theoretical as well as practical significance. The author aims at improving the formulae concerning this matter by R. Mises (Ref. 1: Zs. für ang. Math. u. Mech., 4, 3, 193, 1924) Mises' diad contains four times as many scalar components as the diad the author considers which has dual components. For t = 0 the new coordinate system Ox_1', x_2' x_3' coincides with the old coordinate system $Ox_1x_2x_3$. For any time t its motion could be described by $\mathring{V}(V_1, V_2, V_3) = \bar{\omega} + \varepsilon\bar{V}(v_1, v_2, v_3)$, i.e. the new origin O' moves in space with velocity $v(v_1, v_2, v_3)$ and rotates round O' with angu-

Card 1/5

The motor diad of infinitesimal

lar velocity $\omega(\omega_1, \omega_2, \omega_3)$. For the diad of infinitesimal transformation the author uses a formula (21) from his previous paper (Ref. 2: DAS, Ukr RSR, 7, 1960)

$$U_\lambda = \sum_{x=1}^{3} U_x i_x \cdot (i'_\lambda + \varepsilon r \cdot i_\lambda), \quad (\lambda = 1,2,3) \qquad (2)$$

where

$$i'_\lambda = i_\lambda + \frac{di_\lambda}{dt}\, dt \qquad (3)$$

and

$$\left.\begin{aligned} \frac{di_1}{dt} &= \omega \times i_1 = (\omega_1 i_1 + \omega_2 i_2 + \omega_3 i_3) \times i_1 = \omega_2 i_3 - \omega_3 i_2 \\ \frac{di_2}{dt} &= \omega_1 i_3 - \omega_3 i_1, \quad \frac{di_3}{dt} = \omega_3 i_1 - \omega_1 i_3 \end{aligned}\right\} \qquad (4)$$

Applying formulae (3) and (2) and omitting the expressions with dt^2 one obtains

Card 2/5

The motor diad of infinitesimal ...

$$\left.\begin{aligned} U_1' &= U_1(1+\varepsilon O)+U_2(\omega_3+\varepsilon v_3)\,dt + U_3(-\omega_2-\varepsilon v_2)\,dt \\ U_2' &= U_1(-\omega_3-\varepsilon v_3)dt + U_2(1+\varepsilon O) + U_3(\omega_1+\varepsilon v_1)\,dt \\ U_3' &= U_1(\omega_2+\varepsilon v_2)dt + U_2(-\omega_1-\varepsilon v_1)\,dt + U_3(1+\varepsilon O) \end{aligned}\right\}. \qquad (7)$$

Therefore the matrix for the motor-diad of infinitesimal transformation is

$$\hat{A} = A + \varepsilon A^{\circ} = \begin{vmatrix} 1+\varepsilon O & V_3dt - V_2dt \\ -V_3dt & 1+\varepsilon O \quad V_1dt \\ V_2dt & -V_1dt \quad 1+\varepsilon O \end{vmatrix}^{\circ}. \qquad (8)$$

Introducing the identical diad E and dividing by dt the author obtains

$$\overset{\circ}{A} = \overset{\circ}{V}dt + E \quad i \quad \overset{\circ}{A}^{C} = \overset{\circ}{V}^{C}dt + E = -\overset{\circ}{V}dt + E. \qquad (11)$$

Using Theorem (1) (Ref. 2: Op.cit.) and Eq. (11) a new diad is obtained ($\hat{D}'$) with respect to a new coordinate system.

Card 3/5

The motor diad of infinitesimal ...

$$\hat{D}' = \hat{A}\cdot\hat{D}\cdot\hat{A}^{C} = (\hat{V}\,dt + E)\cdot\hat{D}\cdot(-\hat{V}\,dt + E) \qquad (12)$$

$$\frac{d\hat{D}}{dt} = \lim_{\Delta t \to 0} \frac{\hat{D}' - \hat{D}}{\Delta t} = \hat{V}\cdot\hat{D} - \hat{D}\cdot\hat{V}. \qquad (13)$$

The author proves later that the derivative of the motor diad could be expressed as follows:

$$\frac{d\hat{D}}{dt} = \hat{D} \times \hat{V} - \hat{V} \times \hat{D} \qquad (15)$$

and that the second member of the formula

$$\frac{d\hat{u}}{dt} = \frac{\hat{u}}{t} + \hat{v} \times \hat{u} \qquad (21)$$

satisfies $\hat{v} \cdot \hat{u} = \hat{u} \cdot \hat{v}$. Applying his formula to the diad of inertia

The motor diad of ..finitesimal ...

$$\mathbf{J} + \varepsilon \mathbf{J}^{\circ} = \begin{bmatrix} 0 & S_3 - S_2 \\ -S_3 & 0 & S_1 \\ S_2 - S_1 & 0 \end{bmatrix} + \varepsilon \begin{bmatrix} I_{11} & I_{12} & I_{13} \\ I_{21} & I_{22} & I_{23} \\ I_{31} & I_{32} & I_{33} \end{bmatrix}. \qquad (23)$$

he obtains

$$\frac{d\mathbf{J}}{dt} = \dot{\mathbf{J}} + \varepsilon \dot{\mathbf{J}}^{\circ} = \begin{bmatrix} 0 & S_3 - \dot{S}_2 \\ -\dot{S}_3 & 0 & \dot{S}_1 \\ S_2 & -\dot{S}_1 & 0 \end{bmatrix} + \varepsilon \begin{bmatrix} \dot{I}_{11} & \dot{I}_{12} & \dot{I}_{13} \\ \dot{I}_{21} & \dot{I}_{22} & \dot{I}_{23} \\ \dot{I}_{31} & \dot{I}_{32} & \dot{I}_{33} \end{bmatrix}. \qquad (28)$$

which is important for the general theory of the motion of rigid bodies. There are 4 references: 3 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Kyyivs'kyy tekhnolohichnyy instytut kharchovoyi promyslovost (Kyyiv Technological Institute for the Food Industry)

PRESENTED: by O.Yu. Ishlins'kyy Academician AS UkrSSR

SUBMITTED: May 5, 1959

Card 5/5

S/021/60/000/008/004/011
D210/D305

AUTHOR: Osypov, P.M.

TITLE: Ostrogradsky's theorem in motor calculus

PERIODICAL: Akademiya nauk Ukrayinskoyi RSR. Dopovidi, no. 8, 1960, 1019 - 1023

TEXT: The aim of the paper is to prove the formulae of R. Mises (Ref. 4: Zsch. fur ang. Math. u. mech., 4, 193, 1924) given without the proof. The motor is said to be any bivector received by reducing the systems of transmissible vectors to any point in the space. The motor-field is this part of the space which to each point some motor is prescribed respectively. The main argument the author uses is the proof of Ostrogradsky's theorem for the motor field and the motor diad. It has the following from:

$$\oint_S \hat{A}\cdot ds = \int_T \nabla \cdot \hat{A}d \qquad (4)$$

Card 1/5

Ostrogradsky's theorem in ...

or

$$\oint_s A_n ds = \int_\tau \left(\frac{\partial A_1}{\partial x_1} + \frac{\partial A_2}{\partial x_2} + \frac{\partial A_3}{\partial x_3} \right) d\tau, \qquad (5)$$

For the motor diad

$$\oint_s \hat{D} \cdot ds = i_1 \int_\tau \nabla \cdot \hat{a}_1 d\tau + i_2 \int_\tau \nabla \cdot \hat{a}_2 d\tau + i_3 \int_\tau \nabla \cdot \hat{a}_3 d\tau = \int_\tau \nabla \cdot (i_1 \hat{a}_1 + i_2 \hat{a}_2 + i_3 \hat{a}_3) d\tau, \qquad (7)$$

$$\oint_s \hat{D} \cdot ds = \int_\tau \nabla \cdot \hat{D} d\tau.$$

where $\hat{D} = i_1 \hat{a}_1 + i_2 \hat{a}_2 + i_3 \hat{a}_3$ is the motor diad field and $\hat{a}_1 = a_1 + \varepsilon a_1^*$. To find the motion of an elastic body, the author assumes in agreement with R. Mises that in each point of a continuous medium act the resultant force motors $\hat{K} = K + \varepsilon K^*$ as well as force motors $\hat{p} = p + \varepsilon p^*$ with respect to the unit surface. The generalized Newton's law for the continuous medium has the form

Card 2/5

$$\frac{d\hat{q}}{dt} = \hat{f} + \hat{p} \qquad (8)$$

where $\hat{q}$ is the motor of linear momentum, and $d\hat{q}/dt = \mu\hat{w}$ where $\hat{w}$ is the motor of acceleration. Using formula Eq. (8) the equations of motion have the form

$$\int_\tau \mu\hat{w}d\tau = \int_\tau \hat{k}d\tau + \int_\tau \hat{p}_n ds \qquad (13)$$

but

$$\oint_S \hat{p}_n ds = \int_\tau \nabla \cdot \hat{P}d\tau \qquad (15)$$

and therefore

$$\int_\tau \mu\hat{w}d\tau = \int_\tau \hat{k}d\tau + \int_\tau \nabla \hat{P}d\tau \qquad (16)$$

Since it is true for any volume τ $\mu\hat{w} = \hat{k} + \nabla \cdot \hat{P}$ (17). By substituting $\hat{p}_i = p_i + \epsilon(p_i^* + r \cdot p_i)$ $(i = 1,2,3)$ and using Eq. (17) one

Card 3/5

Ostrogradsky's theorem in ...

obtains

$$\mu w + \varepsilon_{ijk}(r \times w) = k + \nabla \cdot P + \varepsilon_{ijk}\{k_i^* + r \times (k + \nabla \cdot P) + \nabla \cdot P^* + (p_{33} - p_{22})i_1 + (p_{31} - p_{13})i_2 + (p_{12} - p_{21})i_3\}, \quad (20)$$

By comparison, two equations were obtained

$$\mu w = k + \nabla \cdot P, \quad (21) \qquad (21)$$

$$\mu(r \times w) = k_i^* + r \times (k + \nabla \cdot P) + \nabla \cdot P^* + (p_{33} - p_{22})i_1 + (p_{31} - p_{13})i_2 + (p_{12} - p_{21})i_3, \quad (22) \qquad (22)$$

By substituting (21) into Eq. (22) follows

$$0 = k_1^* + \nabla \cdot P^* + (p_{23} - p_{32})i_1 + (p_{31} - p_{13})i_2 + (p_{12} - p_{21})i_3. \quad (23)$$

If one assumes as usual that $K_1^* = 0$, $P^* = 0$ then

$$p_{12} = p_{21}, \; p_{13} = p_{31}, \; p_{23} = p_{32}, \quad (24)$$

Card 4/5