

1ST AND 2ND CROSS PROCESSES AND PROPERTIES INDEX 3RD AND 4TH CROSS

COMMON ELEMENTS COMMON VARIANTS INDEX

AM

ТИТОВСКИЙ (D. Y.). Ускоренный способ обнаружения кольцевой гнили Картофеля. [A rapid method of diagnosing ring rot of Potato.]—*C.R. Pan-Sov. V.I. Lenin Acad. agric. Sci., Moscow, 1941, 5, pp. 35-38, 1 fig., 1941.*

The author describes an accurate and quick method (requiring two to three minutes) of diagnosing potato ring rot (*Bacterium sepedonicum*) [*R.A.M.*, xx, p. 419]. It consists in an agglutination test in which plant juice from a diseased stem or tuber is mixed with (1) immune serum obtained by injecting a pure culture suspension of *Bact. sepedonicum* into rabbits and (2) normal serum; in case of a positive reaction the drop containing the immune serum becomes flocculent and lighter in colour, while the drop with the normal serum used as a control remains turbid. In parallel tests the results obtained by means of the microscope in most cases entirely coincided with the serological data.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND CROSS PROCESSES AND PROPERTIES INDEX 3RD AND 4TH CROSS

but sometimes remained somewhat indefinite. In tests of the specificity of the immune serum it was found that 59 out of 60 strains of bacteria isolated from potatoes affected by ring rot yielded clearly negative results and the remaining strain induced an indistinct reaction. Application of the serological method in the field showed that 23.9 per cent of apparently healthy, well-developed plants were infected, and it is concluded, therefore, that appraisal of healthy plants by external appearance only does not offer sufficient guarantee against the presence of ring rot. Stems containing *Bact. sepedonicum*, when dried at room temperature, retained their capacity to agglutinate after 100 days of storage; pure cultures of the organism retained theirs after being dried at 80° C. for 50 minutes. This shows that the serological method of diagnosis can be made with both fresh and dried stems of the potato.

ТИФГРАФ, Д. Яа.

"Etiology and Diagnosis of Potato Ring Rot." Sub 4 May 51,  
Moscow Order of Lenin State U imeni M. V. Lomonosov.

Dissertations presented for science and engineering degrees in  
Moscow during 1951.

SO: Sum. No. 480, 9 May 55

ТИОГРАФ, Д. Яа.

"Etiology and Diagnostics of Ring Rot in Potatoes, Qualifying Dissertation in Competition for the Degree of Candidate in Biological Sciences, Moscow, 1951.

Mikrobiologiya, Vol XX, No. 5, 1951

W-24635

VESELOV, I.Ya.; TIPOGRAF, D.Ya.; PETIGA, T.A.

*Aspergillus candidus* as producer of abomasal enzyme. Prikl. biokhim.  
i mikrobiol. 1 no.1:52-56 Ja-P '65. (MIRA 18:5)

1. Tekhnologicheskly institut pishchevoy promyshlennosti, Moskva.

VESELOV, I.Ya.; TIPOGRAF, D.Ya.; YURKOVA, A.I.

Formation of proteolytic ferments in deep grown bacteria. *Izv. -  
vys.ucheb.zav.; pishch.tekh.* 2:24-29 '62. (MIRA 15:5)

1. Moskovskiy tekhnologicheskiy institut pishchevoy promyshlennosti,  
kafedra mikrobiologii.

(FERMENTATION)

TIPOGRAF, L.M.

Universal clamps for fork lift trucks. Avt.prom. 28 no.12:42 D  
'62. (MIRA 16:1)

1. L'vovskiy zavod avtopogruzchikov.  
(Fork lift trucks)

TIPOGRAF, S.O.

Remodeling the ventilation system in the body repair shop of  
a motor car plant. Prom.energ. 15 no.2:19-20 F '60.  
(MIRA 13:5)

(Ventilation) (Automobiles--Maintenance and repair)



SECHI, Karoy [SZECHY, Karoly], prof., doktor; TIPOLIT, S.A., inzh.  
[translator]; YEGOROV, K.Ye., kand.tekhn.nauk, nauchnyy red.;  
HEGAK, B.A., red.izd-va; OSENKO, L.M., tekhn.red.

[Errors occurring in foundation engineering] Oshibki v sooruzhenii  
fundamentov. Predisl. M.I.Gorbunova-Posedova. Moskva, Gos.izd-vo  
lit-ry po stroit., arkhitekt. i stroit.materialam, 1960. 142 p.  
(MIRA 14:1)

(Foundations) (Soil mechanics)

MOKK, Laslo [Mokk, László]; TIPOL'T, S.A., inzh. [translator]; SOROKER, V.I., doktor tekhn.nauk, red.; SHABALIN, Yu.P., red.; GILENSON, P.G., tekhn.red.

[Precast reinforced concrete construction elements; manufacture and assemblage in constructor yards] Sbornye zhelezobetonnye konstruktсии; izgotovlenie i montazh na stroitel'noi ploschadke. Pod red. V.I.Sorokera. Moskva, Gos.izd-vo lit-ry po stroit., arkhitekt. i stroit.materialam, 1959. 302 p. Translated from the Hungarian. (MIRA 13:1)

(Precast concrete)

TIPOV, G.Ye., redaktor; FLAUM, M.Ya., redaktor.

[Instructions for welding in marine ship construction and repair]  
Pravila primenienia svarki v morskome sudostroenii i sudoremonte.  
Moskva, Morskoi transport, 1953. 167 p. (MLRA 7:3)  
(Welding) (Shipbuilding)

Tipt SOVA V G.

9

AUTHORS: Gallay, Z.A., Tiptsova, V.G., and Peshkova, V.M. SOV/55-58-1-28/33

TITLE: The Application of the Ascorbic Acid in the Amperometric Titration. Communication 2. Determination of Iodine, Hypochlorites and Iodates (Primeneniye askorbiny i kisloty v amperometricheskom titrovanii. Soobshcheniye 2. Opredeleniye yoda, gipokhloritov i yodatov)

PERIODICAL: Vestnik Moskovskogo universiteta, Seriya fiziko-matematicheskikh i yestestvennykh nauk, 1958, Nr 1, pp 209-213 (USSR)

ABSTRACT: It was asserted that the ascorbic acid can be applied successfully as a reagent mean in the analytic chemistry, e.g. for the determination of copper and active chlorine in a iodometric manner, or of hypo-chlorites by a direct titration with ascorbic acid. Lead and silver can be shown by titration of the excess of the potassium iodate. There are 5 Soviet references.

ASSOCIATION: Kafedra analiticheskoy khimii (Chair of Analytic Chemistry)

SUBMITTED: September 20, 1956 Zh A Kh  
July 11, 1957 VMU

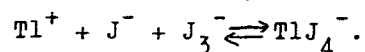
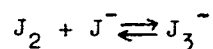
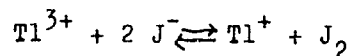
Card 1/1

AUTHORS: Busev, A. I., Tiptsova, V. G. SOV/156-58-3-20/52

TITLE: The Ionic Interaction of Trivalent Thallium and Iodide. The Thallium Iodide Complexes (O vzaimodeystvii ionov trekhvalentnogo talliya i iodida i ob iodidnykh kompleksakh talliya)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 3, pp. 486 - 490 (USSR)

ABSTRACT: The reaction between the trivalent thallium ion and iodide ion was investigated. On the addition of weakly acid solutions of  $Tl_2(SO_4)_3$  to iodide solutions the following reactions occur:



Thallium is determined titrimetrically according to the first reaction. A selective titrimetric method for the determination of small amounts of thallium (0,2 - 2,0 mg) with potassium iodide solution was worked out. The determination is not

Card 1/2

The Ionic Interaction of Trivalent Thallium and Iodide. SOV/156-58-3-20/52  
The Thallium Iodide Complexes

influenced by a great number of elements. The cadmium and mercury ions influence the titration as they also form complexes with iodine. The absorption spectrum of the following molar solutions was taken for the determination of the thallium complexes with iodine: Tl : J = 1 : 2 and Tl : J = 1 : 3. The maximum for the complex TlJ<sub>3</sub><sup>-</sup> is at 395 mμ. The absorption maximum remains constant<sup>4</sup> when more iodide is added. There are 4 figures, 2 tables, and 5 references, 1 of which is Soviet.

ASSOCIATION:

Kafedra analiticheskoy khimii Moskovskogo gosudarstvennogo universiteta im.M.V.Lomonosova (Chair of Analytical Chemistry at Moscow State University imeni M.V. Lomonosov)

SUBMITTED: December 27, 1957

Card 2/2

75-13-2-4/27

AUTHORS: Busev, A. I., Piptsov, V. G.

TITLE: Studies of the Analytical Chemistry of Thallium (Issledovaniya v oblasti analiticheskoy khimii talliya) Communication 1. Complexometric Determination of Thallium (soobshcheniye 1. Kompleksometriceskoye opredeleniye talliya)

PERIODICAL: Zhurnal Analiticheskoy Khimii, 1958, Vol. 13, Nr 2, pp. 180-185 (USSR)

ABSTRACT: A great number of methods can be found in publications for the quantitative determination of thallium (Refs 1, 2). There is, however, up to now no sufficiently specific, quick, and reliable determination method for thallium in various industrial and natural substances. In the analytical chemistry the formation of complex compounds of trivalent thallium is almost not used at all. Experiments showed that there is a great number of such compounds which are, however, only to a small extent investigated (Ref 3). Even the reaction of the trivalent thallium with complexon III is not sufficiently investigated and is therefore practically not used.  $Tl^{3+}$  forms a stable complex compound with complexon III. The methods for the determination of thallium by indirect complexo-

Card 1/4



75-13-2-4/27

Studies of the Analytical Chemistry of Thallium. Communication 1. Complexometric Determination of Thallium

metric titration (Refs 4, 5) described in publications which are based upon the last-mentioned fact, are complicated and not specific. In the present paper a method is worked out for the complexometric determination of thallium. For this purpose the lower limit of the pH-value for the stability of the complex compound of thallium was determined with ethylene diamine tetraacetic acid. The determination was carried out by amperometric titration by means of a rotating microplatinum-electrode. A mercury electrode cannot be used, since mercury is dissolved in the case of a reduction potential of the  $Tl^{3+}$ -ion on the anode (Ref 9). Based upon the results of these investigation the possibility of a direct complexometric titration of the  $Tl^{3+}$ -ion at low pH-values was investigated and a suitable indicator was sought. On the strength of these experiments a direct comparatively selective method was worked out for the complexometric titration of  $Tl^{3+}$  in several technical materials. It was found that the direct amperometric titration of trivalent thallium with complexon III is possible in the case of absence of great quantities of  $Cl^-$  and  $Br^-$  ions at pH-values  $\geq 1.2$  and in the case of presence of considerable quantities of  $Cl^-$  at

Card 2/4

75-13-2-4/27

## Studies of the Analytical Chemistry of Thallium. Communication 1. Complexometric Determination of Thallium

pH-values  $\geq 1,4$ . 1-(2-pyridylazo)-2-naphthol was found to be best suited as indicator for the  $Tl^{3+}$ -ion. This azo dye forms a red-violet colored complex in acid solutions with  $Tl^{3+}$ -ions with a  $10^{-4}$ molar concentration or higher, which permits the visual titration of thallium with complexon III at pH  $\sim 2$  and higher. This determination method is not disturbed by great quantities of Zn, Cd and Pb and can be used for the analysis of technical materials.  $Cu^{2+}$ ,  $Ni^{2+}$ ,

$Fe^{3+}$  and  $Bi^{3+}$  disturb the visual titration by formation of colored complexes with the indicator (Ref 12).  $Cl^-$ ,  $Br^-$  and  $J^-$  destroy the coloration of the complex of the  $Tl^{3+}$ -ion with 1-(2-pyridylazo)-2-naphthol and disturb therefore. Colored anions disturb, too.

The amperometric titration of thallium is disturbed by  $Fe^{3+}$ ,  $Bi^{3+}$  and  $Cu^{2+}$ , as well as by oxidizing ions which generate a reduction current at E = 0 V ( $MnO_4^-$ ,  $Cr_2O_7^{2-}$ ,  $S_2O_8^{2-}$  etc.). In spite of this the amperometric titration has advantages compared to the visual titration, since it permits the deter-

Card 3/4

75-13 2-4/27  
Studies of the Analytical Chemistry of Thallium. Communication 1. Complexometric Determination of Thallium

mination in presence of chloride ions at pH-values of 1.4-2.0 and furthermore can be used in turbid and colored solutions. The carrying out of the two complexometric determination methods (amperometric and visual) for technical materials is described precisely. There are 2 figures, 6 tables, and 12 references, 2 of which are Soviet.

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

SUBMITTED: November 27, 1956

1. Thallium--Quantitative analysis 2. Ores--Analysis 3. Thallium--Determination 4. Thallium--Titration

Card 4/4

TIPTSOVA, V.G.

"Methods of organic chemistry" [in German]. Reviewed by  
V.G. Tiptsova. Zhur. anal. khim. 13 no.3:376 My-Je '58.  
(MIRA 12:3)

(Chemistry, Organic)

5(2)

AUTHORS:

Busev, A. I., Tiptsova, V. G.

SOV/156-59-1-25/54

TITLE:

The Photometric Determination of Thallium With Tetramethyl-diaminodiphenyl-antipyryl-carbinol (Fotometricheskoye opredeleniye talliya s pomoshch'yu tetrametildiaminodifenil-antipirilkarbinola)

PERIODICAL:

Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1959, Nr 1, pp 105-107 (USSR)

ABSTRACT:

The reactions of methyl violet, crystal violet, brilliant green, rhodamine etc with certain heavy metals (Zn, Au, Sb, Tl etc) are known. Difficultly soluble compounds are formed, which can be extracted with benzene or benzene homologs whereas the dyestuff itself is not extracted. These dyestuffs, however, require a very high concentration of acid and ions etc and are not selective enough. Tetramethyl-diaminodiphenyl-antipyryl-carbinol, which has been proposed by Zhivopistsev (Ref 12) for the qualitative determination of zinc in the presence of rhodanum ions was investigated as a reagent for  $TlCl_4$  ions. In the presence of chlorine- or bromine ions a blue-violet precipitate is formed, which can be extracted with

Card 1/3

SOV/156-59-1-25/54

## The Photometric Determination of Thallium With Tetramethyldiaminodiphenyl-antipyryl-carbinol

ether or benzene. The organic solvent assumes an emerald-green color. The reagent itself is not soluble in ether or benzene. Only in the presence of bromine ions does part of the reagent enter into the organic solution as bromide. For this reason a restriction was necessary to the extraction of thallium in the presence of chlorine ions. For this purpose a mixture of 2 parts by volume benzene with 3 parts by volume carbon tetrachloride is recommended. The large surplus of the reagent required has been investigated by experiments. The light absorption curve has a maximum at 638 m $\mu$  (Diagram, Fig 1). The influence of the acid concentration on the optical density is insignificant between 0.1-1 n HCl (Diagram, Fig 2). From 2 n HCl upward the optical density decreases to be zero at 5 n HCl, which means that a colored compound is not formed in strong hydrochloric acid. In this range the optical density is proportional to the concentration (Diagram, Fig 3). 1-20  $\gamma$  thallium in 10 mole solution can be determined by this method. The molar extinction coefficient is 68000 at

Card 2/3

638 m $\mu$ . Whereas  $\text{CdCl}_4^{2-}$ ,  $\text{BiCl}_4^-$ ,  $\text{MoO}_4^{2-}$ ,  $\text{VO}_4^{2-}$  form colored pre-

SOV/156-59-1-25/54

The Photometric Determination of Thallium With Tetramethyldiaminodiphenyl-antipyryl-carbinol

precipitates with the reagent, these precipitates, however, cannot be extracted. Hg, Sb, Sn react as complex chlorides like thallium.  $Fe^{3+}$  and  $Cu^{2+}$  do not disturb themselves even at a ratio of Tl : Fe (or Cu) = 1 : 100,000. Appreciation is expressed to V. P. Zhivopistsev for having provide the reagent. There are 3 figures and 12 references, 10 of which are Soviet.

ASSOCIATION: Kafedra analiticheskoy khimii Moskovskogo gosudarstvennogo universiteta im. M. V. Lomonosova  
(Chair of Analytical Chemistry of Moscow State University imeni M. V. Lomonosov)

SUBMITTED: September 8, 1958

Card 3/3

5(2),5(3)

AD-685:

Rusev, A. I., Tiptsova, V. G.

001/71-14-1-1/22

TITLE:

A Study of the Analytical Chemistry of Thallium (obshcheobshche v oblasti analiticheskoy khimii talliya)  
 Communication 2. Precipitation Reaction of Trivalent Thallium Bromide Complexes with Some Pyrazolone Derivatives  
 (Obshcheobshche 2. Reaktsiya osazhdeniya bromida slozhnykh kompleksov trekhvalentnogo talliya s nekotorymi proizvodnymi pyrazolona)

PERIODICAL:

Zhurnal analiticheskoy khimii, 1959, Vol. 1, No. 1, pp 24-36  
 (USSR)

ABSTRACT:

The authors of the present paper investigated the precipitation reaction of thallium bromide complexes with some pyrazolone derivatives and determined the composition of the deriving compounds as well as their properties. It was found that the ion of trivalent thallium reacts in the presence of bromine ions with pyrimidon, antipyrin, diantipyryl methane and diantipyryl phenyl methane, causing corresponding compounds with the formulas  $C_{13}H_{17}O_3 \cdot H_3TlBr_4$ ,  $(C_{11}H_{12}O_2)_2 \cdot H_3TlBr_4$ ,

$C_{23}H_{24}O_2N_4 \cdot H_3TlBr_4$  and  $(C_{11}H_{11}O_2)_2CHC_6H_5 \cdot H_3TlBr_4$  to result.

Card 1/3



A Study of the Analytical Chemistry of Thallium. SOV/75-14-1-5/52  
Communication 2. Precipitation Reaction of Trivalent Thallium Bromide  
Complexes With Some Pyrazolone Derivatives

On investigating the properties of the mentioned compounds, the compounds  $C_{15}H_{17}ON_3 \cdot HgBr_4$ ,  $(C_{11}H_{12}ON_2)_2 \cdot HgBr_4$  and

$C_{29}H_{28}O_2N_4 \cdot HgBr_4$  were found to be unsuitable for the determination of thallium. The compound with pyrimidin is considerably soluble in water, moreover thallium is not precipitated quantitatively. The compound with antipyrin also possesses considerable solubility. The compound with diantipyryl phenyl methane finally, cannot be used for the gravimetric determination of thallium because the reagent is difficult to solve in water and the same applies for the bromide of diantipyryl phenyl methane, so that it precipitates along with the precipitation of the thallium complex. The compound with diantipyryl methane  $C_{23}H_{24}O_2N_4 \cdot HgBr_4$  permits a gravimetric as well as an amperometric determination of thallium. The respective determination methods were worked out and are accurately described. Copper and zinc do not disturb the determination. Cadmium can be kept in the solution by choosing the bromide concentration.

Card 2/3

A Study of the Analytical Chemistry of Thallium. SOV/75-11-1-5/72  
Communication 2. Precipitation Reaction of Trivalent Thallium Bromide  
Complexes With Some Pyrazolone Derivatives

Thallium must be masked by the aid of "Komplexon" III.  
Antimony is masked in a complex by tartaric acid. The  
disturbance in the analysis of iron (Fe<sup>3+</sup>) is eliminated by  
"Komplexon" III. See also 2 figures, 6 tables, and  
19 references, 1, 2, which are Soviet.

ADDRESS: Moskowskij gosudarstvennyj universitet im. M. V. Lomonosova  
(Moscow State University Imeni M. V. Lomonosov)

DATE: July 27, 1957

Card 3/3

TIPTSOVA, V. G. Cand Chem Sci -- (diss) "On certain complex compounds of  
[REDACTED] trivalent thallium important in analytic chemistry." Mos, 1959. 16 pp  
(Mos Order of Lenin and Order of Labor Red Banner State Univ im M. V. Lomonosov.  
Chem Faculty), 110 copies (KL, 50-59. 124)

S/075/60/015/003/013/033/XX  
B005/B066

AUTHORS: Busev, A. I. and Tiptsova, V. G.

TITLE: Investigations in the Field of the Analytical Chemistry of  
Thallium. Communication 4. Diantipyryl Propyl Methane as  
Reagent for the Quantitative Thallium Determination

PERIODICAL: Zhurnal analiticheskoy khimii, 1960, Vol. 15, No. 3,  
pp. 291 - 294

TEXT: The authors of the present report studied the applicability of aliphatically substituted diantipyryl methanes for the quantitative precipitation of trivalent thallium in the presence of chloride and bromide ions. By condensing antipyrine with acetaldehyde and butyraldehyde in hydrochloric acid medium diantipyryl methyl methane and diantipyryl propyl methane were synthesized. These two derivatives of diantipyryl methane precipitate the bromide complexes of thallium quantitatively, while the thallium chloride complexes are quantitatively precipitated only by diantipyryl propyl methane. For this reason only diantipyryl propyl methane was used for the further studies, the synthesis of which is

Card 1/4

Investigations in the Field of the Analytical Chemistry of Thallium. Communication 4. Di-antipyryl Propyl Methane as Reagent for the Quantitative Thallium Determination S/075/60/015/003/013/033/XX B005/B066

described in an experimental part. After the above-mentioned acid condensation the solution is neutralized by aqueous ammonia (1:1), in which connection diantipyryl propyl methane precipitates which melts at 155-156°C after recrystallization from methanol. The yield of the synthesis is practically quantitative. For the gravimetric determination of thallium a 1% solution of this reagent in acetic acid (1:1) was used. 5-10 ml of concentrated HCl (or HBr) and 6-8 ml of the reagent solution were added to a solution which contained 20-30 mg thallium in the sulfate form. The resultant precipitate was filtered, washed several times with water and then recrystallized from an acetone-alcohol mixture. The chloride complex (I) of thallium with the reagent is slightly yellow and melts at 56.57°C, while the corresponding bromine compound (II) is green-yellow and melts at 128-129°C. The solubilities of these two compounds in water are on the average  $5.7 \cdot 10^{-5}$  moles/l at 20°C (compound (I)), and  $6.7 \cdot 10^{-6}$  moles/l, respectively (compound (II)). The elementary analysis gave the formula  $C_{26}H_{30}O_2N_4 \cdot HTlCl_4$  for compound (I), the formula  $C_{26}H_{30}O_2N_4 \cdot HTlBr_4$  for

Card 2/4

Investigations in the Field of the Analytical Chemistry of Thallium. Communication 4. Di- antipyril Propyl Methane as Reagent for the Quantitative Thallium Determination S/075/60/015/003/013/033/XX BO05/BO66

compound (II). Both compounds can be weighed out directly. The authors investigated the effects of the bromine ion concentration and of the acidity of the solution on the determination of thallium as  $C_{26}H_{30}O_2N_4 \cdot HTlBr_4$ . Changes of the bromide concentration from 0.1 M to 1 M do not appreciably influence the results of the determination (Table 2). At a bromine ion concentration of 2 moles/l the reagent precipitates, so that the results obtained are too high. The acidity of the solution does not influence the completeness of the precipitation in the range of 0.1 N to 5 N  $H_2SO_4$  (Table 3). In the determination of thallium as  $C_{26}H_{30}O_2N_4 \cdot HTlCl_4$  neither the chlorine ion concentration ( $> 0.1$  M) nor the acidity (1 N - 6 N HCl) affect the completeness of the precipitation (Table 4). While in the determination of thallium in the form of the bromide complex the same ions disturb as in the analogous precipitation with diantipyril-methane (Ref. 1), the determination of thallium in the form of the chloride complex may be carried out in the presence of zinc, copper, cadmium, bismuth, indium, aluminum, magnesium, iron(III) and of

Card 3/4 ✓

Investigations in the Field of the Analytical Chemistry of Thallium. Communication 4. Di-antipyryl Propyl Methane as Reagent for the Quantitative Thallium Determination S/075/60/015/003/013/033/XX B005/B066

the anions  $AsO_4^{3-}$  and  $PO_4^{3-}$ . In this case the solution must contain at least 3 M HCl when being precipitating. Ga,  $Sn^{IV}$ ,  $Hg^{2+}$ ,  $Cr_2O_7^{2-}$ ,  $ClO_4^-$ , and  $MoO_4^{2-}$  disturb the determination. The method described was applied to the determination of thallium in cadmium. The proceeding is given. The method has a much higher selectivity than the method, described in publications, of precipitating thallium as  $[(C_6H_5)_4As]TlCl_4$ . There are 1 figure, 5 tables, and 5 references: 4 Soviet and 1 US.

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

SUBMITTED: June 12, 1959

Card 4/4

S/075/60/015/005/013/026/XX  
B002/B056

AUTHORS: Busev, A. I. and Tiptsova, V. G.

TITLE: Investigations in the Field of Analytical Chemistry of  
Thallium. Communication 5. Investigation of the Complexo-  
metric Indicators for Trivalent Thallium

PERIODICAL: Zhurnal analiticheskoy khimii, 1960, Vol. 15, No. 5,  
pp. 573 - 580

TEXT: It was the aim of the authors to find out to what extent three  
new complexometric indicators for the determination of thallium may be  
used at low pH-values. The following investigations were made:  
1-(2-pyridyl-azo)-2-naphthol, synthesized according to A. Ye. Chichi-  
babin; 1-(2-pyridyl-azo)-resorcinol, synthesized according to Chichi-  
babin, and xylene orange. For the purpose of measuring the absorption  
spectra, a CF-4 (SF-4) spectrophotometer was used. For the complex of  
thallium with 1-(2-pyridyl-azo)-2-naphthol the following was found:  
absorption maximum 560 m $\mu$ , molar extinction coefficient  $2.17 \cdot 10^4$ , equi-  
librium constant  $1.93 \cdot 10^2$ , measured at pH 2.2. In this region, however,

Card 1/3



Investigations in the Field of Analytical Chemistry of Thallium. Communication 5. Investigation of the Complexometric Indicators for Trivalent Thallium

S/075/60/015/005/013/026/XX  
B002/B056

chlorine- and bromine ions considerably interfere with the measurements. The influence exerted by halide-ions becomes low only at pH 4-5, where, however, the selectivity of the indicator is also very low. Besides, the solubility of the complex in water is limited. The complex may therefore practically not be used for the photometrical determination of thallium. For the complex of thallium with 1-(2-pyridyl-azo)-resorcinol the following was found: absorption maximum 520 m $\mu$ , molar extinction coefficient  $1.805 \cdot 10^4$ , equilibrium constant  $1.70 \cdot 10^4$ , measured at pH 2.2. For concentrations of between 1 and 10  $\mu\text{g}$  Tl per ml, the Beer law holds. For the complex of thallium with xylenol orange the following was found: absorption maximum 580 m $\mu$ , molar extinction coefficient  $1.96 \cdot 10^4$ , equilibrium constant  $8.00 \cdot 10^4$ , measured at pH 1.4. For the titration of a 0.01 M thallium solution, the indicators may be used from the following pH values upwards (in brackets the theoretical error of titration): 1-(2-pyridyl-azo)-2-naphthol from pH 1.88 (-0.45%),

Card 2/3

Investigations in the Field of Analytical Chemistry of Thallium. Communication 5. Investigation of the Complexometric Indicators for Trivalent Thallium

S/075/60/015/005/013/026/XI  
B002/B056

1-(2-pyridyl-azo)-resorcinol from pH 1.7 (+0.68%), xylenol orange from pH 2.0 (+1.88%). N. P. Komar' and V. N. Tolmachev are mentioned. There are 9 figures, 3 tables, and 9 references: 8 Soviet.

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

SUBMITTED: June 29, 1959



S/074/60/029/003/004/005/X  
B023/B070

AUTHORS: Busev, A. I. and Tiptsova, V. G.

TITLE: Analytical Chemistry of Thallium ✓

PERIODICAL: Uspekhi khimii, 1960, Vol. 29, No. 8, pp. 1011 - 1028

TEXT: The present paper systematizes the data on analytical reactions of mono- and trivalent thallium published in the last few years. The contents are as follows: 1. Classification of methods for estimation of thallium. The most reliable methods are considered to be the gravitational methods which depend on the precipitation of thallium as chromate, iodide, thionialdate, mercaptobenzothiazolate, oxyquinolate, hexamine cobaltihexachloro thallate, tetraphenyl arsonium tetrachloro thallate, or diantipyryl methane tetrabromo thallate. Titrimetric methods are of much more practical importance. Other methods in use are: electrochemical, coulometric, polarographic, spectral photometric, and spectral methods. Traces of thallium are determined by activation methods. Methods of separating thallium from the accompanying elements and methods of concentration are dealt with in Refs. 29-40a. 2. Analytical reactions of monovalent thallium. Those ions

Card 1/3

Analytical Chemistry of Thallium

S/074/60/029/008/004/005/XX  
B027/B070

and molecules which tend to form a covalent binding may serve as reagents of  $Tl^+$ , as, for example, mercaptobenzothiazole, thionalide, dithizone, thiourea, and Reinecke's salt. A. Reaction of precipitation of monovalent thallium ion. Precipitation in the form of chromate, bichromate, iodide, reineckate, iodate, cobalt nitrate, and ferrocyanides. The last topic was treated by I. V. Tananayev and M. N. Glushkova (Ref. 79). Precipitation as sulfide. Precipitation with inorganic ions. Precipitation of thallium by organic reagents. B. Reaction of the oxidation of monovalent thallium (Refs. 110-137). C. Reactions of reduction of monovalent thallium to metal. Reduction on dropping mercury electrode (polarographic methods). Reduction on other cathodes (electrolytic methods). D. Reactions of formation of complexes by monovalent thallium (Refs. 157-178). 3. Analytical reactions of trivalent thallium ion (Ref. 179). A. Reactions of formation of complexes of trivalent thallium. Hydrocomplexes, nitrate complexes, sulfate, cyanide-, halide-, acetate-, tartrate complexes; complexes with some amines; complex with ethylene diamine tetraacetic acid; complex compounds with 8-oxyquinoline and its derivatives; complex compounds with various dithiocarbamates; and some other complexes of thallium with organic reagents. B. Reaction of reduction of trivalent thallium

Card 2/3

Analytical Chemistry of Thallium

S/074/60/029/008/004/005/X  
B023/B070

(Refs. 270-280). It is recommended that new methods of study and application of thallium be developed for the complex compounds of tri-valent thallium. These must be simple, rapid, and accurate, and must eliminate the shortcomings of the methods available at present. K. B. Yatsimirskiy and N. I. Bashilova (Refs. 56, 57) are mentioned. There are 280 references: 96 Soviet.

ASSOCIATION: Khimicheskii fakul'tet, Moskovskiy gosudarstvennyy universitet im. M. V. Lomcnosova (Department of Chemistry, Moscow State University imeni M. V. Lomonosov) ✓

Card 3/3

BUSEV, A.I.; TIPSOVA, V.G.

Determination of thallium in its antimony, arsenic, and phosphorus alloys. *Izv.vys.ucheb.zav.; khim.i khim tekhn.* 3 no.1:69-71 '60.

1. Kafedra analiticheskoy khimii Moskovskogo gosudarstvennogo universiteta imeni M.V.Lomonosova. (MIRA 13:6)  
(Thallium alloys)  
(Thallium--Analysis)

BUSEV, A.I.; TIPTSOVA, V.G.; SOKOLOVA, T.A.

Reaction of trivalent thallium with disodium ethylenediaminetetraacetate. Zhur. neorg. khim. 5 no. 12:2749-2758 D '60.

(MIRA 13:12)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.  
(Thallium compounds) (Acetic acid)

BUSEV, A.I.; TIPTSOVA, V.G.; SOKOLOVA, T.A.

Stability constants of chloride and bromide complexes of trivalent thallium. Vest. Mosk. un. Ser. 2:42-45 K-D '60. (MIRA 14:2)

1. Kafedra analiticheskoy khimii Moskovskogo universiteta.  
(Thallium compounds)



LIPTSOVA, V. G.

PHASE I BOOK EXPLOITATION

SOV/5777

Vinogradov, A. P., Academician, and D. I. Ryabchikov, Doctor of  
Chemical Sciences, Professor, Resp. Eds.

Metody opredeleniya i analiza redkikh elementov (Methods for the  
Detection and Analysis of Rare Elements) Moscow, Izd-vo AN SSSR,  
1961. 607 p. Errata slip inserted. 6000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut geokhimi i  
analiticheskoy khimii im. V. I. Vernadskogo.

Ed. of Publishing House: M. P. Volynets; Tech. Ed.: O. Gus'kova.

PURPOSE: This book is intended for analytical chemists and for  
students of analytical chemistry.

COVERAGE: The handbook was published in accordance with a decision  
of the Vsesoyuznoye soveshchaniye po analizu redkikh elementov  
(All-Union Conference on the Analysis of Rare Elements) called

Card 1/5

Methods for the Detection (Cont.)

SOV/5777

18

together by the Gosudarstvennyy nauchno-tekhnicheskiy komitet Soveta Ministrov SSSR (State Scientific and Technical Committee of the Council of Ministers of the USSR) and the Academy of Sciences USSR in December, 1959. The material is arranged in accordance with the group position of elements in the periodic system, and each section is prefaced by an article discussing the analytical methods most used in the Soviet and non-Soviet countries. Each section deals with the physical, physicochemical, and chemical methods for the analysis of raw materials, semi-products, and pure metals, and is accompanied by an extensive bibliography listing works published in the field in recent years. The following are mentioned for their help in preparing the book for publication: I. P. Alimarin, G. N. Bilimovich, A. I. Busev, E. Ye. Vaynshteyn, M. P. Volynets, V. G. Goryushina, A. M. Dymov, S. V. Yelinson, O. Ye. Zvyagintsev, G. M. Kolosova, Ye. K. Korchemnaya, V. I. Lebedev, G. A. Malofeyeva, B. M. Malent'yev, V. A. Nazarenko, I. I. Nazarenko, T. V. Petrova, N. S. Poluektov, A. I. Ponomarev, V. A. Ryabukhin, N. S. Stroganova, and Yu. A. Chernikhov.

Card 2/5

7

SOV/5777

Methods for the Detection (Cont.)	
Analytical Chemistry of the Rare Earth Elements, Scandium and Yttrium	128
Busev, A. I., and V. G. Tiptsova. Present State of the Analytical Chemistry of Thallium	182
Busev, A. I., and L. M. Skrebkova. Present State of the Analytical Chemistry of Gallium	201
Melent'yev, B. N., and A. I. Ponomarev. Present State of the Analytical Chemistry of Titanium	238
Yelinson, S. V. Present State of the Analytical Chemistry of Zirconium and Hafnium	303
Ryabchikov, D. I., and D. I. Korchemnaya. Present State of the Analytical Chemistry of Thorium	374

Card 4/5

7

Methods for the Detection (Cont.)	SOV/5777	
Hazarenko, V. A. Present State of the Analytical Chemistry of Germanium		460
Zolotavin, V. L. Present State of the Analytical Chemistry of Vanadium		462
Alimarin, I. P., and G. M. Bilimovich. Present State of the Analytical Chemistry of Tantalum and Niobium		487
Busev, A. I. Present State of the Analytical Chemistry of Molybdenum		537
Troitskaya, M. I. Present State of the Analytical Chemistry of Selenium and Tellurium		580
Ryabchikov, D. I., and Yu. B. Gerlit. Present State of the Analytical Chemistry of Rhenium		628
AVAILABLE: Library of Congress		
Card 5/5		

JA/rsm/ec  
12-1-61

S/075/61/016/003/002/007  
B106/B208

AUTHORS: Busev, A. I., and Tiptsova, V. G.

TITLE: Studies in the field of analytical chemistry of thallium.  
Report no. 6. New complexometric methods of thallium deter-  
mination

PERIODICAL: Zhurnal analiticheskoy khimii, v. 16, no. 3, 1961, 275-278

TEXT: The authors devised a method of indirect complexometric determination of trivalent thallium, in which the complexon III excess is back-titrated with a standard solution of Mohr's salt at 40-60°C in the presence of sulfosalicylic acid as indicator at pH 2. The color changes from yellow-green to orange-red. This method permits the determination of  $Tl^{3+}$  in the presence of  $Cd^{2+}$ ,  $Zn^{2+}$ ,  $Pb^{2+}$ , and  $\leq 0.1MCl^-$ , and thus offers more advantage than a direct complexometric titration at pH 2.  $Br^-$  ions interfere with the determination, as well as Bi, In, Fe, and Cu. Table 1 presents the results obtained by this method. For a separate determination of trivalent iron and thallium the fact may be used that at pH 2 trivalent thallium forms a  
Card 1/8

Studies in the field ...

S/075/61/016/003/002/007  
B106/B208

stabler complex with  $\text{Br}^-$  than with complexon III. Thallium can thus be masked with bromide ions.  $\text{Fe}^{3+}$  ions quantitatively react with complexon III under these conditions. 5-10 ml of 2 M KBr solution and so much alcohol as to attain pH 2 are added to the acid solution containing  $\text{Fe}^{3+}$  and  $\text{Tl}^{3+}$ ; trivalent iron is then titrated with complexon III against sulfosalicylic acid as indicator at 40-60°C until the red-brown color disappears. The solution is then adjusted to pH 4-5 by adding ammonium acetate, and some drops of a 0.1% solution of pyridylazo-resorcinol or 1-(2-pyridylazo)-2-naphthol are added as indicator until a distinct red color appears. The trivalent thallium is now titrated with a complexon III solution until the color changes to orange-yellow. A distinct change can only be seen if the iron contents are not too high. This method gives good results (Table 2). The separate determination of  $\text{Cu}^{2+}$  or  $\text{Bi}^{3+}$  and  $\text{Tl}^{3+}$  is not possible by this method. For the separate determination of  $\text{Bi}^{3+}$  and  $\text{Tl}^{3+}$ , the sum  $\text{Bi}^{3+}$  and  $\text{Tl}^{3+}$  is first determined complexometrically at pH 4-5 (adjusted with ammonium acetate) against a 0.1% methanolic solution of 1-(2-pyridylazo)-2-naphthol as indicator, the color changing from red to yellow.  $\text{Tl}^{3+}$  is then

Card 2/8

Studies in the field ...

S/075/61/016/003/002/007  
B106/B208

reduced to  $Tl^+$  by  $Na_2SO_3$ . A certain amount of complexon III is thus set free which is back-titrated with a standard solution of  $Cu(NO_3)_2$  (color change from yellow to red-violet). This method gives very good results, especially in the case of high thallium contents (Table 3). To determine the end point of the direct complexometric thallium titration, the reaction of the iodide complexes of trivalent thallium with complexon III may be used, which proceeds quantitatively at pH 6-8. Starch may be used as indicator: as long as thallium ions are present in the solution, which are not bound in the form of the complexonate, i.e., as long as  $TlI_4^-$  ions exist in the presence of  $I^-$ , also the ion  $I_3^-$  is present which colors the starch blue. In the end point of the direct thallium titration the blue color disappears. Some ml of 1 M tartaric acid solution and so much  $NH_4OH$  are added to the solution to be analyzed (3-30 ml in 80-100 ml) that the color of added tropaeolin 000 changes from yellow-orange to pink. 1 M tartaric acid solution is then added until the yellow-orange color appears again. 1 ml of a 1% KI solution is now added, forming a yellow precipitate. If the precipi-

Studies in the field ...

S/075/61/016/003/002/007  
B106/B208

tate is pink, some further KI has to be added, but not too much, as otherwise TII may precipitate. The solution is then titrated with complexon III until the color changes from an intense yellow to pale-yellow. At that time, some ml of 1% starch solution are added, and titration is continued until the blue color disappears. Accuracy and reproducibility of this method are satisfactory (Table 4). At pH > 8 too low results are obtained, at pH < 6 too high ones. The method is not selective since many elements are interfering. There are 4 tables and 9 references: 3 Soviet-bloc and 6 non-Soviet-bloc. The three references to English-language publications read as follows: Kinnunen J., Wennerstrand B., *Chemyst-Analyst*. 46, 92 (1957); Foley W. T., Pottie R. F., *Anal. Chem.* 28, 1101 (1956); Reilley C.N., Schmidt R. W., *Anal. Chem.* 30, 947, 953 (1958).

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

SUBMITTED: January 29, 1959

Card 4/8



BUSEV, A. I.; TIPTOVE, V. G. [Tiptsova, V. G.]

Analytic chemistry of thallium. Analele chimie 16 no.1:50-71  
Ja-Mr '61. (EAI 10:9)

(Thallium)

TIPTSOVA, V.G.

"Methods of organic chemistry" by Houben-Weyl. Reviewed by  
V. G. Tiptsova. Zhur. anal.khim. 16 no.3:379 My-Je '61.

(MIRA 14:6)

(Chemistry, Organic)  
(Houben-Weyl)

S/137/62/000/004/200/201  
A154/A101

AUTHORS: Busev, A. I. Tiptsova, V. G.

TITLE: The analytical chemistry of thallium to-day

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 4, 1962, 13, abstract 4K81  
("Metody opredeleniya i analiza redk. elementov", Moscow, AN SSSR,  
1961, 182 - 200)

TEXT: This is a review. A classification of analytical methods of determining Tl is given. Analytical reactions of an ion of univalent Tl and an ion of trivalent Tl are given. There are 280 references.

I. Golubeva ✓

[Abstracter's note: Complete translation]

Card 1/1

BUSEV, A.I.; TIPTSOVA, V.G.; SOROKINA, L.M.

Composition and stability constants of trivalent thallium tartrate complexes. Zhur.neorg.khim. 7 no.9:2122-2126 S '62.

(MIRA 15:9)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.  
(Thallium compounds) (Tartrates)

BUSEV, A.I.; IVANOV, V.M.; TIPTSOVA, V.G.

Iodate-complexometric method for determining thorium. *Zav. lab.* 28  
no.7:799-800 '62. (MIRA 15:6)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.  
(Thorium--Analysis)

87136

5.5200

1273, 1282 only

S/075/60/015/006/009/013  
B020/B066

AUTHORS: Busev, A. I. and Tiptsova, V. G.

TITLE: Separation and Determination of Gallium by Means of Di-  
antipyril-propyl Methane

PERIODICAL: Zhurnal analiticheskoy khimii, 1960, Vol. 15, No. 6,  
pp. 698-700

TEXT: The objective of the present paper was a systematic investigation of the applicability of gallium precipitation with diantipyril-propyl methane for separation and quantitative determination. The reagent mentioned was earlier (Ref. 2) used for the gravimetric determination of thallium in the presence of Zn, Cd, Cu, In, Al, and others, in which connection the presence of gallium did not disturb. The precipitation of Ga with diantipyril-propyl methane starts from a solution in 3 M HCl, and its quantitative precipitation takes place from 5.5 - 6 M HCl. Diantipyril methane and diantipyril-methyl methane do not precipitate Ga quantitatively from hydrochloric acid solutions. The gallium complex of diantipyril-propyl methane has the composition  $C_{26}H_{30}O_2N_4 \cdot HGaCl_4$ . The accuracy of analytical results is fully satisfactory (Table 1); besides, the method

Card 1/2

87136

Separation and Determination of Gallium  
by Means of Diantipyril-propyl Methane

S/075/60/015/006/009/018  
B020/B066

is simple and does not take much time, since the precipitate is easily filtrable. The method is highly selective, since the gallium determination is not disturbed by many elements such as Zn, Cd, Cu, Al, Ni, Mn, Mg, In, Co, Bi, and others (Table 2).  $Tl^{3+}$  and  $Fe^{3+}$  do interfere. The method can be used for separating gallium from its accompanying elements.  $Fe^{3+}$  must be reduced to  $Fe^{2+}$ . After separating gallium by complexing with diantipyril-propyl methane, the determination can be carried out by the complexometric method: the precipitate is filtered, re-washed, and then rinsed from the filter with water. A few ml of a 5% solution of tartaric acid and ammonium acetate are added to the solution up to a pH of about 5. After heating up to  $70-80^{\circ}C$  in the presence of 1-(2-pyridilazo)-2-naphthol, it is titrated until the color changes from pink to yellow. The results were completely satisfactory (Table 3). There are 3 tables and 2 references: 1 Soviet and 1 German.

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

SUBMITTED: August 20, 1959

Card 2/2

TIPTSOVA, V.G.

Conference on the chemistry of rare elements. Zhur.anal.khim. 17  
no.1:3 of cover Ja-F '62. (MIRA 15:2)  
(Metals, Rare and minor--Congresses)



GOLOVINA, A.P.; TIPTSOVA, V.G.

Photometric determination of thallium with quercetin. Zhur.-  
anal.khim. 17 no.4:524-525 J1 '62. (MIRA 15:8)

1. M.V.Lomonosov Moscow State University.  
(Thallium--Analysis) (Quercetin)

TIPTSOVA, V.G.

"Methods of organic chemistry," by Houben-Weyl. Reviewed by  
V.G.Tiptsova. Zhur.anal.khim. 17 no.5:647 Ag '62. (MIRA 16:3)  
(Chemistry, Organic) (Houben-Weyl)

BUSEV, A. I.; TIPISOVA, V. G.; KHLYSTOVA, A. D.

Present state of the analytical chemistry of tungsten.(survey).  
Zav. lab. 28 no.12:1414-1424 '62. (MIRA 16:1)

(Tungsten—Analysis)

L 00039-66 EWT(m)/ETC/EWG(m)/EWP(t)/EWP(b)/EWA(h) IJP(c) RDW/JD.  
ACCESSION NR: AP5023711 UR/0075/65/020/008/0812/0814  
543.43 : 543.70

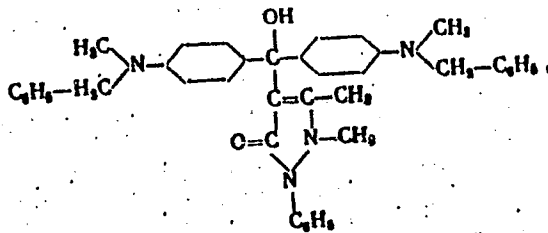
AUTHOR: Busev, A. I.; Tiptsova, V. G.; Bogdanova, Ye. S.; Andreychuk, A. N.

TITLE: Photometric determination of antimony impurities in tellurium

SOURCE: Zhurnal analiticheskoy khimii, v. 20, no. 8, 1965, 812-814

TOPIC TAGS: antimony, tellurium, photometric analysis, dye chemical antimony compound

ABSTRACT: The antipyrine dye 4,4'-bis(N-methyl-N-benzylaminophenyl)antipyryl-carbinol



Card 1/2

L 00039-66  
ACCESSION NR: AP5023711

3

reacts with  $SbCl_5^-$  ions to form a complex which can be completely extracted with benzene or toluene and has an absorption maximum at 585-590 m $\mu$ . This reagent was used to determine microgram quantities of antimony in tellurium. Prior to the analysis, the two metals must be separated; the separation is based on the difference in the redox potentials  $Sb(III)Sb^0$  and  $Te(IV)Te^0$ , which permits the selective and quantitative reduction of  $Te(IV)$  with a mixture of sulfite and hydrozine to the elemental state, while  $Sb(III)$  remains in solution. If the antimony content is less than  $5 \times 10^{-4}\%$  Sb, the weight of the sample must be increased to 1 g, but since the precipitation of tellurium would trap some of the antimony, it is necessary to concentrate the latter prior to the analysis. To this end, use was made of coprecipitation of antimony with telluric acid. The absolute sensitivity of the method is 0.2  $\mu$ g Sb in 5 ml of benzene, which for a 1 g sample amounts to  $2 \times 10^{-5}\%$ . Orig. art. has: 2 tables.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University); Moskovskiy institut stali i splavov (Moscow Institute of Steel and Alloys)

SUBMITTED: 09Feb65  
NO REF SOV: 003

ENCL: 00  
OTHER: 000

SUB CODE: GC, OP

*JW*  
Card 2/2

I 23363-66 EWT(m)/ETC(f)/EWG(m)/EWP(t) IJP(c) RDW/JD/JG

ACC NR: AP6008696

SOURCE CODE: UR/0075/65/020/011/1200/1203

AUTHOR: Tiptsova, V. G.; Andreychuk, A. M.; Bazhanova, L. A. 37ORG: Moscow Institute of Steel and Alloys (Moskovskiy institut stali i splavov) BTITLE: Spectrophotometric determination of mercury in selenium by means of 1,5-bis(8-naphthyl)thiocarbazone

SOURCE: Zhurnal analiticheskoy khimii, v. 20, no. 11, 1965, 1200-1203

TOPIC TAGS: mercury, selenium, trace analysis, spectrophotometric analysis

ABSTRACT: A simple and highly sensitive method of determining mercury traces in selenium was developed in connection with the effect exerted on the semiconducting properties of selenium by mercury in amounts as low as  $10^{-7}$ - $10^{-9}\%$ . The complexing agent--1,5-bis(8-naphthyl)thiocarbazone--forms a red complex with  $Hg^{2+}$  ions which is extractable with chloroform. The molar extinction coefficient at 620 m $\mu$  is  $(9.03 \pm 0.27) \cdot 10^4$ . Mercury can be separated from practically all elements by introducing a masking agent (complexon III); it can then be determined with a sensitivity of 0.2  $\mu$ g/5 ml, which corresponds to  $4 \cdot 10^{-6}\%$  for a 5 g sample of selenium. The sensitivity of the determination can be raised to  $1 \cdot 10^{-6}\%$  by using a 1 ml volume of the reagent solution in the final extraction. Orig. art. has: 2 figures, 1 table.

SUB CODE: 07,11/ SUBM DATE: 12Jun64/

ORIG REF: 008/

OTH REF: 004

UDC: 543.43 : 543.70

Card 1/1-20

L 13625-66 EWT(d)/EWT(m)/EWP(v)/EWP(j)/T/EWP(k)/EWP(h)/EWP(l)/ETC(m) WW/RM

ACC NR: AP6001002

SOURCE CODE: UR/0286/65/000/022/0070/0070

AUTHORS: Bogdanov, A. M.; Kulin, F. I.; Molont'yev, P. V.; Stalovich, A. M.; Tiranov, V. G.

38  
B

ORG: none

TITLE: Device for mechanical testing of materials. Class 42, No. 176448<sup>15</sup>

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 22, 1965, 70<sup>14</sup>

TOPIC TAGS: tensile test, polymer rheology

ABSTRACT: This Author Certificate presents a device for mechanical testing of materials, e.g., polymers, for extensibility. The device contains a system of two clamps for fastening the material sample. One clamp is fixed and is mechanically coupled to the force-measuring instrument. The other clamp is movable in the vertical direction, applies the load to the stretching sample, and is connected to a device for measuring the sample deformation. To automate the process of deformation measurement, the movable clamp is provided with a contact device and a support for free placing of the load on the stretching sample. The contact device in the form of a nut on the screw axle of an electric motor closes the motor circuit when the nut touches the load descending as a result of the sample stretching. The force-measuring element of the device, in the form of an elastic beam, bends under the action of the

UDC: 620.72

Card 1/2

L 13625-66

ACC NR: AP6001002

force applied to the upper clamp of the device. A switch on the free end of the beam closes with a contact fastened to a nut placed on the screw axle of an electric motor. When the circuit is closed, motion of the nut mounted on the motor axle continues until the contact is broken.

SUB CODE: 11/

SUBM DATE: 06Apr64

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2/2



L 55083-65

ACCESSION NR: AP5013500

UR/0075/65/020/005/0585/0590  
543.70

AUTHOR: Busev, A. I.; Bogdanova, Ye. S.; Tiptsova, V. G.

TITLE: Antipyrine dyes as reagents for photometric determination of antimony

SOURCE: Zhurnal analiticheskoy khimii, v. 20, no. 5, 1965, 585-590

TOPIC TAGS: antimony, photometry, organic dye, chemical analysis

ABSTRACT: The purpose of this work was to investigate the reactions of pentavalent antimony chloride complexes with the following antipyrine dyes: dimethylamino-diphenylantipyrylcarbinol, tetramethyldiaminodiphenylantipyrylcarbinol, 4,4'-bis-(dimethylamino)-3-nitrodiphenylantipyrylcarbinol, 4,4'-bis-(dimethylamino)-3,3'-dinitrodiphenylantipyrylcarbinol, 4-(dimethylamino)-4'-methylbenzylaminophenylantipyrylcarbinol and 4,4'-bis-(methylbenzylamino)-phenylantipyrylcarbinol. All of the above reagents reacted with SbCl<sub>5</sub> ion, producing dark blue precipitates when antimony was present in milligram amounts. In the presence of microgram quantities of antimony an insignificant change of the coloration of the solution was noted upon the addition of the above reagents. The obtained compounds were extracted with ben-

Card 1/2

L 55083-65

ACCESSION NR: AP5013500

0

zene, toluene, and chloroform. The completeness of the extraction of the produced compounds depends on the amount of excess reagent and the acidity of the solution. The maximum extraction was observed in all cases in 0.5-1 M HCl. By means of isomolar series it was established that  $SbCl_6^-$  forms complexes with antipyrine dyes in a 1:1 molar ratio. The complex may be represented by the formula  $R \cdot HSbCl_6$ , where R is a molecule of organic reagent. All of the above reagents are highly sensitive and sufficiently selective for the determination of antimony. The method developed for the determination of Sb was used for the determination of Sb in two samples of electrolytic copper containing 0.0020 and 0.00080% Sb respectively. Orig. art. has: 4 tables and 4 figures.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University); Orenburgskiy sel'skokhozyaystvennyy institut (Orenburg Agricultural Institute)

SUBMITTED: 12Nov64

ENCL: 00

SUB CODE: GC

NO REF SOV: 010

OTHER: 002

Card 2/2

BUSEV, A.I.; TIPTSOVA, V.G.; SOKOLOVA, T.A.

Reaction of reduced forms of tungsten with complexon III.  
Zhur.neorg.khim. 10 no.8:1857-1861 Ag '65.

(MIRA 19:1)

1. Submitted July 16, 1964.

I 35336-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6012906

SOURCE CODE: UR/0075/66/021/004/0459/0462

36  
B

AUTHOR: Tiptsova, V. G.; Malkina, E. I.; Anisimova, Z. A.

ORG: Moscow Institute of Steels and Alloys (Moskovskiy institute stali i splavov)

TITLE: Chemical spectrum determination of impurities in mercury

SOURCE: Zhurnal analiticheskoy khimii, v. 21, no. 4, 1966, 459-462

TOPIC TAGS: mercury, fatty alcohol, spectrum determination

ABSTRACT: A study has been made of the use of fatty solvent extraction of mercury from hydrochloric solutions. It was found that isoamyl alcohol is the best extractant for separating mercury from impurities in 2-3 M HCl. A method for determining the chemical spectrum was developed for Mg, Mn, Ag, Al, Pb, Ni, Cu, Ca, Cd, and Zn in mercury with an average sensitivity of  $10^{-6}$ - $10^{-7}$ % for each element. Orig. art. has: 1 figure and 3 tables. [Based on authors' conclusions.] [NT]

SUB CODE: 11, 07/ SUBM DATE: 18Dec64/ ORIG REF: 005/ OTH REF: 003

Card

1/1

*ldh*



UDC: 543.42

TIPUGIN, V.N.; VEYSEL', V.A.; VERMISHEV, Yu.Kh., kand. tekhn. nauk,  
red.; LYUBIMOVA, T.M., red.; SVESHNIKOV, A.A., tekhn. red.

[Radio control] Radioupravlenie. Moskva, Izd-vo "Sovetskoe  
radio," 1962. 749 p. (MIRA 15:2)  
(Guided missiles--Radio control)

TIPUKHIN, V. N. (Candidate of Philosophical Sciences)

"Cybernetics and Labor."

Filosofskiye voprosy kibernetiki (Philosophical Problems of Cybernetics),  
Publishing House of Socio-Economic Literature, Moscow, 1961 392 p.

KODYK, G.T.; TIR, D.E.

Joining conveyer belts with steel clamps. Nauch. trudy  
KNIUI no. 11:319-331 '62. (MIRA 17:7)

BELEN'KIY, D.M., kand.tekhn.nauk; TIR, D. E.

Research on the steel traction ropes of rope conveyers. Vop.  
rud. transp. no.3:129-132 1959. (MIRA 14:4)

1. Karagandinskiy nauchno-issledovatel'skiy ugol'nyy institut.  
(Conveying machinery)



BELEN'KIY, D.M., kand.tekhn.nauk; TIR, D.E.

Research on the sag of the conveyer belt of a rope conveyer.  
Vop. rud. transp. no.3:133-138 1959. (MIRA 14:4)

1. Karagandinskiy nauchno-issledovatel'skiy ugol'nyy institut.  
(Conveying machinery)

TIR, K. V.

K. V. Tir, "Complete Calculations of Cam Mechanisms."

paper presented at the 2nd All-Union Conf. on Fundamental Problems in the  
Theory of Machines and Mechanisms, Moscow, USSR, 24-28 March 1978.

124-58-9-9531

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 9, p 11 (USSR)

AUTHOR: Tir, K. V.

TITLE: Comparative Analysis of the Qualitative Characteristics of the Fundamental Laws of Periodic Motion (Sravnitel'nyy analiz kachestvennykh kharakteristik iskhodnykh zakonov periodicheskogo dvizheniya)

PERIODICAL: Nauchn. zap. In-ta mashinoved. i avtomatiki AN UkrSSR, 1955, Vol. 4. Ser. mashinoved. , Nr 3, pp 72-99

ABSTRACT: Bibliographic entry

1. Motion--Analysis 2. Mechanics--Theory

Card 1/1

124-58-6-6341

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 6, p 8 (USSR)

AUTHOR: Tir, K. V.

TITLE: A Synthesis and Qualitative Evaluation of the Combined Laws of Periodic Motion (Sintez i kachestvennaya otsenka kombinirovannykh zakonov periodicheskogo dvizheniya)

PERIODICAL: Nauchn. zap. In-ta mashinoved. i avtomatiki AN UkrSSR, 1956, Vol 5, pp 126-140

ABSTRACT: Bibliographic entry

1. Dynamics

Card 1/1

SOV/1844

PHASE I BOOK EXPLOITATION

25(2)

Tr, Konstantin Vadimovich

Kompleksnyy raschet kulachkovykh mekhanizmov (Complete Design of Cam Mechanisms) Kiyev, Mashgiz, 1958. 307 p. 2,500 copies printed.

Reviewer: M.L. Orlikov, Candidate of Technical Sciences, Docent; Ed.: M.S. Soroka; Chief Ed. (Southern Division, Mashgiz); V.K. Serdyuk, Engineer.

PURPOSE: The book is intended for scientific workers, engineers and designers and may be useful to students in mechanical engineering vuzes.

COVERAGE: The book presents an original method of designing cam mechanisms using prepared tables for positional and extremal constants of similitude (dimensionless coefficients-invariants of similitude) determined for a number of laws of periodic motions of followers and selected after thorough investigation. The author claims to give designers, by presenting the similitude method, a clear and simple method for designing rational cams for modern automatic machines. Ya.L. Geronimus, L.N. Roshetov, F.M. Kurovskiy,

Ch.

- 1.
- 2.
- 3.

Card 1/10

Card 2/10

and a Method for

12  
15  
21

of laws of periodic motion  
of periodic motion  
kinematic diagrams

25  
35  
37

124-58-9-9530

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 9, p 11 (USSR)

AUTHOR: Tir, K. V.

TITLE: A Classification Chart of the Laws of Periodic Motion According to Peak Velocities and Accelerations ( $e_{13}-e_{13} \dot{\gamma}_w$ ) [Karta klassifikatsii zakonov periodicheskogo dvizheniya po pikam skorostey i uskoreniy ( $e_{13}-e_{13} \dot{\gamma}_w$ )]

PERIODICAL: Nauchn. zap. In-ta mashinoved. i avtomatiki. AN UkrSSR, 1957, Vol 6, pp 152-167

ABSTRACT: Every periodic motion under examination can be represented on the  $xy$  plane at a point the coordinates of which are  $x = ST^{-2}/w_m$  and  $y = ST^{-1}/v_m$ , where  $S$  is the given finite displacement,  $T$  is the duration of the cycle of a distinct displacement, and  $v$  and  $w$  are the respective maximal values of the velocity and the acceleration. Motions having different characteristics are collected into groups which can be represented by lines on diagrams. Inasmuch as the characterization of periodic motions by means of points is exceedingly schematic, it is recommended that a more profound classification of such motions be obtained by recourse to additional criteria.

Card 1/1

S. G. Kislitsyn

1. Mechanics--Theory
2. Motion--Mathematical analysis
3. Mathematics--Applications

RUSSIAN POLYGRAPHIC INST

...IIR, R. Y. (Eds) -- "PROCEEDINGS OF THE DEPARTMENTS OF CHEMISTRY AND POLYGRAPHIC MACHINERY,"  
SOB 3 MAR 52, MOSCOW POLYGRAPHIC INST (DISSERTATION FOR THE DEGREE OF CANDIDATE  
IN TECHNICAL SCIENCES)

SO: VECHERNAYA MOSKVA, JANUARY-DECEMBER 1952

TIR, K.V.

Comparative analysis of qualitative characteristics of initial  
laws for periodic motion. Nauch.Zap. IMA AN URSR Ser. mashinoved. 4  
no. 3:72-99 '55. (MLRA 9:8)

(Kinematics)



TIR, Konstantin Vadimovich; VIKSMAN, Yefim Samoylovich; NEZNAMOVA,  
Ye.H., red.; IVANOVA, L.A., tekhn.red.

[Organizing the maintenance of printing equipment] Organizatsiia  
tekhnicheskoi ekspluatatsii poligraficheskogo oborudovaniia.  
Moskva, Gos.izd-vo "Iskusstvo," 1959. 377 p. (MIRA 13:6)  
(Printing machinery and supplies--Maintenance and repair)

*7/17/54*

TIR, K.V.

Qualitative evaluation criteria and classification of the laws of  
periodic motions. Nauch.zap. IMA L'viv fil. AN URSS. Ser.mash.3  
no.2:80-99 '54. (MLRA 8:11)

(Kinematics)

TIR, K. V.

TIR, K.V.; RABINOVICH, M.B.; ZHOVDAK, A.V.

[Time norms for repair work on stop-cylinder and platen presses].  
Normy vremeni na remont ploskikh mashin s ostanavlivaiushchimsia  
pechatnym tsilindrom i tigel'nykh mashin. Moskva, Iskusstvo, 1953.  
176 p. (MIRA 7:6)  
(Printing press)

L 65106-65 EWT(m)/EWP(t)/EWP(6) JD  
ACCESSION NR: AP5021377

REF ID: A65106-65  
1965

AUTHOR: Tir, L. L.

TITLE: An electric furnace for melting pure metals, Class 18, No. 172861

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 14, 1965, 40

TOPIC TAGS: metal melting, metal purification, induction melting, metallurgic furnace

ABSTRACT: This Author's Certificate introduces an electric furnace for melting pure metals. The unit contains a crucible which is transparent to magnetic fields. Provision is made for keeping the metal separated from the walls of the crucible so that the metal will not be contaminated by the crucible material. The crucible is surrounded by an induction coil with an intervening protective screen which does not contact the melt and is transparent to magnetic fields.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut elektrotermicheskogo oborudovaniya (All-Union Scientific Research Institute of Electrothermal Equipment)

Card 1/2

L 65106-65

ACCESSION NR: AP5021977

SUBMITTED: 27Dec62

ENCL: 00

SUB CODE: IE, MM

NO REF SOV: 000

OTHER: 000

*10.25*  
Card 2/2

TIR, L.L., kand.tekhn.nauk; SHEPELYAKOVSKIY, K.Z., kand.tekhn.nauk

New transformers for high-frequency hardening equipment. Trudy  
Sek.metalloved.i terr.obr.met.NTO mash.prom. no.2:220-228 160.

(Induction hardening) (Electric transformers) (MIRA 14:4)

TIR, Leon Lazarevich; GUTTERMAN, K.D., inzh., red.; BORUNOV, N.I.,  
tekhn.red.

[Transformers for high-frequency induction heating systems]  
Transformatory dlia ustanovok induktsionnogo nagreva povysbennoi  
chastoty. Moskva, Gos.energ.izd-vo, 1961. 238 p. (MIRA 14:6)  
(Electric transformers)  
(Induction heating)

PHASE I BOOK EXPLOITATION SOV/5457

Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Sektsiya metallovedeniya i termicheskoy obrabotki metallov.

Metallovedeniye i termicheskaya obrabotka metallov; trudy Sektsii metallovedeniya i termicheskoy obrabotki metallov (Physical Metallurgy and Heat Treatment of Metals; Transactions of the Section of Physical Metallurgy and Heat Treatment of Metals) no. 2, Moscow, Mashgiz, 1960. 242 p. 6,000 copies printed.

Sponsoring Agency: Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Tsentral'noye pravleniye.

Editorial Board: G. I. Fogodin-Alekseyev, Yu. A. Geller, A. G. Rakhshadt, and G. K. Shreyber; Ed. of Publishing House: I. I. Lesnichenko; Tech. Ed.: B. I. Model'; Managing Ed. for Literature on Metalworking and Machine-Tool Making: V. I. Mitin.

PURPOSE: This collection of articles is intended for metallurgists, mechanical engineers, and scientific research workers.

CONTENTS: The collection contains articles describing results of research conducted by members of NPO (Scientific Technical Society) of the machine-building industry in the field of physical metallurgy and in the heat treatment of steel, cast irons and nonferrous metals and alloys. No personalities are mentioned. Most of articles are accompanied by Soviet and non-Soviet references and contain conclusions drawn from investigations.

TABLE OF CONTENTS:

Blanter, M. Ye., Doctor of Technical Sciences, Professor, and L. I. Kuznetsov and L. A. Metashop, Engineers, Softening and Recrystallization Processes in Iron and Nickel Alloys	3
Trumin, I. I., Engineer. Effect of Cold-Working Conditions on the Endurance of Steel	12
Bernsheym, M. L., Candidate of Technical Sciences, and L. V. Polyanskaya, Engineer. Effect of Cold Working on the Structure and Properties of the VT2 Titanium Alloy	18
Kidin, I. N., Doctor of Technical Sciences, Professor. On the Reasons for the Improvement of Iron-Alloy Properties After High-Frequency Quench Hardening	25
Zakharov, M. I., Doctor of Physics and Mathematics, Professor. Conditions for the Sigma-Phase Formation in Alloys	39
Zakharova, M. I. Structural Transformations in Highly Coercive Alloys	52
Fogodin-Alekseyev, G. I., Doctor of Technical Sciences, Professor, and I. I. Shreyber, Candidate of Technical Sciences (deceased). Effect of Microstructure on the Development of Reversible Temper-Brittleness in Low-Carbon Manganese Steel	59
Pogoda-Alekseyeva, K. M., Candidate of Technical Sciences, Docent. Effect of Some Metallurgical Factors on Strain Aging of Constructional Carbon Steel	67
Brasin, M. P., Doctor of Technical Sciences, Professor, and E. I. Murzin, Engineer. Increasing the Penetrating Temperature in Forging	



Physical Metallurgy and Heat Treatment (Cont.) SOV/5A57

Constructional Alloy Steels 84

Lakhtin, Yu. M., Doctor of Technical Sciences, Professor, and  
M. A. Pankelina, Engineer. Gas Boronizing of Steel 92

Mankovich, A. N., Candidate of Technical Sciences, and A. N.  
Kobov, Engineer. Thermochemical Treatment of Copper and Brass  
for Increasing Their Surface Hardness and Scale Resistance 106

Makhtinov, D. M., Candidate of Technical Sciences. The Forma-  
tion of Cracks During the Quench Hardening of Steel and Their  
Prevention 118

Rabhtadt, A. G., Candidate of Technical Sciences, Docent, and  
Yu. V. Zakharov, Engineer. Transformation, Properties, and  
Treatment of Alloys of the Cu-Ni-Mn System Used for Springs 135

Malinina, Ye. I., Candidate of Technical Sciences. Determi-  
nation of Operational Properties of Tool Steels and Alloys 160

Gulyayev, A. P., Doctor of Technical Sciences, Professor, S. I.  
Rukten, Candidate of Technical Sciences, Docent, G. M. Cherkov  
and U. P. Alekseyevs, Engineers. New Steels for Die Forging of  
Heat-Resistant Alloys 179

Geller, Yu. A., Doctor of Technical Sciences, Professor, Ye. M.  
Kalinina, and V. N. Lomakin, Engineer. Hardenability of Alloyed  
Tool Steels 197

Tit, L. L., Candidate of Technical Sciences, and K. Z. Shepelyakov-  
skiy, New Transformers for High-Frequency Quench-Hardening  
Installations 220

Pogodin-Aleksyev, G. I., and V. V. Zabolseyev-Zatov. Effect of  
Ultrasonics on the Structure-Formation Processes in Metal Alloys 229

AVAILABLE: Library of Congress (M672.N34)

TIR, L. L. Cand Tech Sci -- "Development and study of <sup>the</sup> a method of 'dispersal' of ~~the~~ material ~~of~~ windings for the reduction of energy losses in stepped-up-frequency transformers ~~in~~ hardening plants." Mos, 1961 (Min of Higher and Secondary Specialized Education RSFSR. Mos Order of Lenin Power Engineering Inst). (KL, 4-61, 201)

-245-

TIR, L. L.  
TIR, L. L., inzh.

Voltage transformation in high-frequency metal hardening  
installations. Vest.elektroprom. 28 no.8:40-43 Ag '57. (MIRA 10:10)

1.Osoboye konstruktorskoye byuro tresta "Elektrpech'."  
(Metal--Hardening)

TIR, Leon Lazarevich, inzh.

Study of losses and current distribution in alternating disc windings of transformers at increased frequencies. Izv. vys. ucheb. zav.; elektromkh. 3 no.7:22-35 '60. (MIRA 13:9)

1. Nachal'nik nauchno-issledovatel'skogo sektora otdela induktsionnogo nagreva osobogo konstruktorskogo byuro "Elektrotech'."  
(Electric transformers--Windings)

L 32160-66 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6011522

SOURCE CODE: UR/0382/66/000/001/0137/0141

63  
62  
B

AUTHOR: Dragunkina, N. I.; Tir, L. L.

ORG: none

TITLE: Experimental investigation of the conditions of similarity of the melt flow in an induction furnace 18

SOURCE: Magnitnaya gidrodinamika, no. 1, 1966, 137-141

TOPIC TAGS: induction furnace, ~~similarity theory~~, induction melting, LIQUID FLOW, FLOW VELOCITY, GRAVITATION EFFECT, ALUMINUM

ABSTRACT: Experimental measurements describing the behavior of aluminum in induction furnaces are used to clarify the significance of the various criteria, especially the relative frequency and gravitation, needed in establishing similarity conditions. The range of data is sufficiently broad for use in the design of steel furnaces. It has been found that in a range of frequencies from 50 to 2500 Hz the effects of viscosity can be neglected provided the Reynolds number of the flow exceeds 20,000, which is the case in many aluminum, steel and lead furnaces. The effect of gravitation was found to be small except in cases where a large meniscus occurs. Dependence of the flow velocity on the meniscus height was measured and shown to reach a maximum of 15% reduction of the flow computed without taking gravitation into account. It is shown that flow velocity is not strongly dependent on the amount of heat circulation. Somewhat different

Card 1/2

UDC: 621.365.5:538.4

L 32160-66

ACC NR: AP6011522

effects were found in models of inductors with parallel sections. Engineer L. K. Chentsova also took part in the work. Orig. art. has: 4 figures.

SUB CODE: 20,11/      SUBM DATE: 25May65/      ORIG REF: 002

Card 2/2 *NR*

Optimum pH conditions for lead chloride precipitation. S. Tira  
(*Ric. sci.*, 1954, 24, 1072-1074).—The max. pptn. of  $PbCl_2$  with  
HCl at 20° occurred at pH 0.5 in  $PbCl_2$  solution and at pH 0.03 in  
Pb acetate solution. Fricke and Sammet's method (*Z. anal. Chem.*,  
1943, 128, 13) was used to estimate the  $PbCl_2$  remaining in solution.  
M. TADMAN.

ZHOROV, Yu.M.; PANCHENKOV, G.M.; ZEL'TSER, S.P.; TIRAK'YAN, Yu.A.

Development of the mathematical description of platforming for optimization of a process. Part 1. Kin. i kat. 6 no. 6:1092-1097 N-D '65 (MIRA 19:1)

1. Moskovskiy institut neftkhimicheskoy i gasovoy promyshlennosti imeni Gubkina. Submitted June 23, 1964.



L 22084-66 EWT(m)/EWP(j)/T WE/RM

ACC NR: AP6012991

SOURCE CODE: UR/0065/65/000/001/0012/0016

AUTHOR: Zhorov, Yu. M.; Panchenkov, G. M.; Zel'tser, S. P.; Tirak'yan, Yu. A.ORG: KHIMI i GPTITLE: Heat of reaction in catalytic reforming of gasoline fractions 51  
BSOURCE: Khimiya i tekhnologiya topliv i masel, no. 1, 1965, 12-16

TOPIC TAGS: heat of reaction, heptane, aromatic hydrocarbon, naphthalene, crude petroleum

ABSTRACT: In previous studies an empirical equation has been suggested for the determination of the heat of reaction of hydroforming:

$$q_{298} = (4.5 a_1 + 5.36a_2 + 5.45b) - \gamma c$$

where  $q_{298}$  = heat of reaction at 298°C, kcal/kg,  $a_1$ ,  $a_2$ ,  $c$ ,  $b$  = yields of aromatic hydrocarbons from naphthenes and paraffins, gas and coke respectively (in per cent weight of crude material);  $\gamma$  = coefficient, depending on gas composition and varying from 2.5 to 3.2. The heat of reaction of hydrocracking of heptane calculated from this equation and the actual value are 32 and 97 kcal/kg, respectively. Thus calculation by this equation is substantially in error. In addition, this equation cannot be used in determining

Card 1/2

UDC: 66.092 : 665.521.2

L 22084-66

0

ACC NR: AP6012991

ing the heat of reaction of the process under industrial conditions, that is, in 500°C. The empirical derivation of this equation casts doubt on its possible use in qualitative description of the platforming process. Accordingly, the authors developed an analytical method of determining heat of the reaction in catalytic reforming based on a kinetic scheme of the process, affording determination of heat of reaction with considerably greater accuracy than other methods. The crude material usually contains a slight amount of olefins, which upon further analysis is united with the paraffins. The possibility of calculating the heat of reaction of the complex technical mixture of hydrocarbons with different molecular weights and boiling points according to the scheme presented in the article is accounted for by the fact that the molar heat of reaction of any of the reactions examined depends a little on the molecular weight of the crude material. In hydroreforming of heptane, the heat of reaction is +10.5 kcal/kg, in platforming of heptane with near conversion-- + 231 kcal/kg. The heat of reaction of hydroforming of different technical forms of fuel depending on naphthene content in crude according to data given can vary from 40 to 160 kcal/kg, and the values for platforming - from 90 to 290 kcal/kg. Orig. art. has: 16 formulas and 3 tables. [JPRS]

SUB CODE: 11, 07 / SUBM DATE: none / ORIG REF: 010 / OTH REF: 001

Card 2/2 PLG

CHERNOBAY, A.V.; DMITRIYEVSKAYA, L.I.; TIRAK'YANTS, Zh.S.; DELYATITSKAYA, R.Ya.

Structure and reactivity of monomers of the 4-vinylbiphenyl series  
in the initiation of polymerization. Vysokom.sped. 7 no.7:1221-1227  
Jl '65. (MIRA 18:8)

1. Nauchno-issledovatel'skiy institut monokristallov.

AP6019536 (A)

SOURCE CODE: UR/0190766/008/006/0997/1002

AUTHORS: Chernobay, A. V.; Tirak'yants, Zh. S.; Delyatitskaya, R. Ya.  
ORG: All-Union Scientific Research Institute of Single Crystals  
(Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov)

TITLE: Structure and reactivity of some vinyl aromatic monomers in initiated polymerization  
SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no.6, 1966, 997-1002

TOPIC TAGS: monomer, polymerization initiator, polystyrene, copolymerization, homopolymerization

ABSTRACT: The relation between structure and reactivity of some vinyl aromatic monomers in initiated polymerization has been investigated. The monomers are arranged by their activeness in homopolymerization as follows: 9-vinylnaphthalene < 2-vinylfluorene < acenaphthalene < vinylnaphthalene < styrene < 2-vinylnaphthalene < 4-vinyldiphenyl. The copolymerization constants of styrene with 9-vinylnaphthalene have been determined to be  $r_1 = 0.3$  and  $r_2 = 2.2$ ,  $Q = 2.0$  and  $e = -0.16$ . It has been

UDC: 66.095.26 + 678.746