SIMON, V.

SIMON, V. Production estimate of wheat species. p. 5

Vol. 11, no. 12, June 1956
MAGYAR MEZAGAZDASAG
AGRICULTURE
Budapest, Hungary

SO: EAST EUROPEAN ACCESSIONS, VOL. 6, no. 3, March 1957

PROCESSES AND PROPERTIES INDEX

15

Use of Complexones in Chemical Analysis. III. Oxidimetric Determination of Manganese by Ferricyanide. (In English.) R. Přibil and V. Simon. *Collection of Czechoslovak Chemical Communications*, v. 14, nos. 8-10, 1949, p. 454-468.

Properties of complexes of Mn and Co with "complexone III" were studied. Differential stability of the two complexes were used in a potentiometric determination. It was found that the determination can also be performed in presence of Fe, Cu, Ni, Ce, Zn, Al, Ti, Cr, Mg, Mo, W, and alkaline-earth metals.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

SIMON, V

8

CH

Reductometric determination and proof of silver. R. Přibil, V. Simon, and J. Doležal (Inst. Anal. Chem., Karlova Univ., Prague). *Sborník I. Celostátní Pracovní Konf. Anal. Chemiků* (Prague) 1952, 90-5 (Pub. 1953).—The Fe^{++} complex with ethylenediaminetetraacetic acid (I) at pH 4-6 reduces Ag salts to elemental Ag. This reaction has been used for potentiometric, polarographic, and spot-test detn. of Ag in concn. above $0.001 M$. Best results are obtained with Ag/I ratios 1-2. Hg(I), Hg(II), Au(III), Pt(IV), and Pd(II) interfere. Herbert Morawetz

PM

SIMON, V.

6

Complexometric titrations in pharmaceutical analysis. R. Přibil, J. Čihalík, J. Doležal, V. Simon, and J. Zýka. *Sbornik Celostatni Pracovni Konf. Anal. Chemiku* I, 217-20 (1952)(Pub. 1953); cf. *C.A.* 48, 2085*e*.—Zn, Mg, and Ca salts are directly titrated in solns. contg. sufficient NH_4Cl and NH_4OH with di-Na ethylenediaminotetraacetate (I) with Eriochrome Black T as an indicator. Hg and Al salts are dissolved in excess of I. The unreacted I is titrated with $ZnSO_4$.

Nicholas Feldman

CH

④

Simon, Vl

Chemical Abst.
Vol. 48
Apr. 10, 1954
Analytical Chemistry

Deležal, J., and Simon, Vl.: Základy kvalitativní semimikroanalysy. Prague: Nakladatelství Československé akad. věd. 1953. 127 pp. 16 Kčs. Reviewed in *Chem. Listy* 47, 1260(1953).

CIHALIK, J.;DOLEZAL, J.;SIMON, V.;ZYKA, J.

Determination of thiopental with silver nitrate solution. Cesk. farm. 2 no.2:43-47 Feb 1953. (CIML 24:4)

1. Of the Institute of Analytical Chemistry of Charles University, Prague.

SIMON, V

CZECH SIMON, V.

757. **Compleximetric titrations in pharmaceutical analysis. V. Determination of magnesium.** K. Přibil, J. Cihalik, J. Doležal, V. Simon and J. Zýka (*Českosl. Farmac.*, 1953, **2** (6), 181-185; *Referativnyi Zh., Khim.*, 1954, Abstr. No. 20,359).—Magnesium sulphate or chloride is dissolved in water and, after the addition of 5 to 8 ml of buffer soln. at pH 10 and Eriochrome black T indicator, titrated with 0·1 *M* soln. of complexone III to a steel-blue colour. Magnesium hydroxide is dissolved in excess of buffer soln.; MgO and $MgCO_3$ are dissolved in the minimum quantity of conc. HCl, and the buffer and indicator are then added. Magnesium can be determined in mixtures with Na_2SO_4, NaCl, Na_2CO_3, sucrose or citric acid; the error is ± 0·80 per cent.

E. HAYES

SIMON, V.

Complexometric titrations in pharmaceutical analysis. VI. Determination of aluminium. R. Přibil, L. Čihalík, J. Doležal, V. Simon and J. Zýka (Česk. Farmac., 1953, 2 [7-8], 223-224; *Referat. Zh., Khim.*, 1954, Abstr. No 29,366).—To a sample containing 70 to 130 mg of Al dissolved in 20 ml of water, add 0·1 *M* complexone III soln. (about 2 ml in excess), one drop of methyl red soln. and aq. NH_3 soln. to give a faint yellow colour. Add Eriochrome black T indicator and titrate the excess of complexone III with 0·1 *M* $ZnSO_4$ until the colour changes from greenish-blue to wine-red. In the analysis of powders or tablets, the sample is dissolved by boiling with a little conc. HCl soln.; to the cooled soln. one drop of methyl red is added, followed by aq. NH_3 soln. to neutralise; an excess of complexone III is then added and the analysis is completed as above. For pure soln. of Al, the error is −2·7 to + 2·1 per cent., and for pharmaceutical preparations, −3·32 to + 0·4 per cent.

E. Hayes

Simon, V.

5/

Complexometric titrations in pharmaceutical analysis. R. Přibil, J. Čihalik, J. Doležal, V. Simon, and J. Zýka (Charls Univ., Prague). *Pharmazie* 8, 561-72(1953).—A review with 14 references. G. W. Hargreaves

Mel

SIMON, V.

5

③

*Use of Complexones in Chemical Analysis. XXXVI.—A New Qualitative Test for Silver. R. Přibil, J. Doležal, and V. Simon (*Coll. Czechoslov. Chem. Commun.*, 1953, 18, (6), 780-782).—[In English]. Cf. *ibid.*, 1951, 16, 573; *M.A.*, 20, 882. A spot test is described for the detection of Ag. The reducing power of $FeSO_4$ is increased by the addn. of a soln. of Na_2 ethylenediaminetetraacetate (complexone III), the complex formed between the latter and Fe^{3+} ions being much more stable than the corresponding complex formed with Fe^{2+} ions, the most favourable conditions being at *p*H 3-5. One or two drops of complexone III are placed on a spotting plate, one or two drops of Na acetate added as a buffer, one drop of the soln. to be tested, and finally one drop of $FeSO_4$ soln. A black or grey coloration indicates Ag. Limit of detection—$\sim 1\ \gamma$ Ag.—L. D. H

Metallurgical Abstracts
July 1954
Analysis

SIMON, V.

"Use of complexons in chemical analysis. XXXVI. New method for the detection of silver."
Ceskoslovenska Morfologie, Praha, Vol. 47, No. 1, Jan. 1953. p. 88.

SO: Eastern European Accessions List, Vol. 3, No. 1 , Nov. 1954, L.C.

SIMON, VLADIMIR

Chemical Abst.
Vol. 48 No. 6
Mar. 25, 1954
Inorganic Chemistry

6

Polarographic and polarometric study of some noble metals. III. Complexes formed by palladium and gold in solutions of certain amines. Oldřich Tomíček, Jaroslav Cíhalík, Jan Doležal, Vladimír Simon, and Jaroslav Zýka (Charles Univ., Prague, Czech.). *Chem. Listy* 47, 363-6 (1953); cf. *C.A.* 47, 4243e.—The behavior of the Au^{+++} and Pd^{++} ions in Et_2NH, $H_2NCH_2CH_2NH_2$, $NH(CH_2CH_2NH_2)_2$, $N(CH_2CH_2OH)_3$, $C_6H_{12}N_4$, and $H_2NCH_2CH_2NH_2.HOCO(CHOH)_2COOH$ (I) solns. has been studied. For the polarographic detn. of Pd in the presence of Au, the 1 *M* soln. of I is recommended. E. Erdös

Simon, V.

2925. Use of complexones in chemical analysis. XL. Redoximetric determination of silver. R. Přibil, J. Doležal and V. Simon (Chem. Listy, 1953, 47 [7], 1017–1022).—Silver is determined potentiometrically and polarographically at pH 4 to 6·5 (at which the redox potential of the system FeY''/FeY' is 0·117$_5$ V) with $FeSO_4$ in the presence of complexone III (I). *Procedure*—To 5 to 100 mg of Ag, add 0·1 *M* I in an amount corresponding to a Ag to I ratio of 1 to 1. Adjust the pH to 5 with an acetate buffer (5 to 10 ml), dil. to a Ag^+ concn. of 0·005 *M* and titrate with 0·1 *M* $FeSO_4$. Up to 200 mg of Pb, 50 mg of Cu, 50 mg of Bi and 50 mg of Cd do not interfere, provided sufficient I is added to bind these metals. G. Glaser

SIMON, Vladimir

Chemical Abst.
Vol. 48
Apr. 10, 1954
Electrochemistry

⑥ 13

Polarographic and polarometric study of some noble metals. IV. Polarographic behavior of gold and palladium in solutions of ethylenediamine tartrate. Přemysl Beran, Jaroslav Čihalík, Jan Doležal, Vladimír Simon, and Jaroslav Zýka (Karlova univ., Prague, Czech.). *Chem. Listy* 47, 1309-14(1953); cf. *C.A.* 48, 31[illegible].—The half-wave potential of complex Au^{3+} ions depends on the concn. of ethylenediamine tartrate. The tartrate anion does not take part in the Au^{3+} complex (I) formation. I is suppressed by the presence of Cl^- ions. The $\pi_{1/2}$ of complex Pd^{++} ions is −0.65 v. against the satd. Hg_2Cl_2 electrode. The formation of the Pd^{++} complex is substantially faster than that of I. V. **Polarographic behavior of gold, palladium, and other metals in complex-forming electrolytes.** *Ibid.* 1315-22.—The polarographic behavior of Au, Pd, Pb, Cd, Cu, Bi, As, Sb, Sn, W, Mo, U, Fe, Cr, Co, Ni, Mn, and Zn in various mixts. of ethylenediamine tartrate with the complexons I, II, and IV (*C.A.* 46, 10860d) is summarized in a table of half-wave potentials and in a chart of polarographic spectra. Au, Pd, and other components of dental alloys can be detd. simultaneously. E. Erdös

CZECH

2541. Compleximetric titration in pharmaceutical analysis. VII. Determination of lead. R. Přibil, J. Cihalík, J. Doležal, V. Simon and J. Zýka (*Českosl. Farmac.*, 1954, 3 (3), 84–86; *Referativnyĭ Zh., Khim.*, 1954, Abstr. No. 46,824).—Lead is determined in $(CH_3COO)_2Pb.3H_2O$, PbO, $2PbCO_3.Pb(OH)_2$, lead plasters and ointments containing lead compounds by treatment with an excess of EDTA (disodium salt) and titration of the excess with $ZnSO_4$ soln. A sample of a pure lead compound (50 mg) or of a lead-containing pharmaceutical preparation (0·2 to 0·5 g) is dissolved in 5 to 10 ml of 0·1 *M* EDTA (disodium salt) soln. and diluted to 20 ml; 5 ml of aq. NH_3 - NH_4Cl buffer soln. (pH 10) and Eriochrome black T indicator (mixture with NaCl, 1 + 200) are added and the solution is titrated with 0·1 *M* $ZnSO_4$ soln. until the colour changes to wine-red. E. HAYES

SIMON, V.

CIHALIK, J.; DOLEZAL, J.; Simon, V.; SERY, V.; ZYKA, J.

Polarometric titration in pharmaceutic analysis. 7. Determination of cyanides in aqua laurocerasi. Cesk. farm. 3 no.4:136-137 Ap '54.

1. Z Ustavu pro chemii analytickou Karlovy university v Praze.
(CYANIDES, determination,
*polarometric titration, in aqua laurocerasi)

SIMON V

PRIBIL, R.; CIHALIK, J.; DOLAZAL, J.; SIMON, V.; ZYKA, J.

Complexometric titration in pharmaceutic analysis. VII. Determination of insulin zinc. Cesk. farm. 3 no.7:242-244 Sept 54.

1. Z Ustavu pro chemii analytickou Karlovy university v Praze.
Z Vyzkumneho ustavu pro farmacii a biochemii v Praze.
(INSULIN, determination,
zinc insulin, complex titration)

~~VLADIMIR~~ SIMON, Vladimir

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(5)

Polarographic and polarometric study of some noble metals. VI. Selective polarographic determination of gold. Jaroslav Čihalík, Jan Doležal, Vladimír Simon, and Jaroslav Zýka (Karlova Univ., Prague, Czech.). *Chem. Listy* 48, 28-31(1954); cf. *C.A.* 48, 3813f.—The 0.6*M*-ethylenediamine tartrate and 0.1*M*-$Na_4P_2O_7$ soln. is a suitable electrolyte for the selective detn. of Au. Some other metals can be detd. simultaneously. A graph of polarographic spectra and a table of half-wave potentials of 22 metals in this soln. are given. E. Erdös

A qualitative test for selenium and tellurium. V. Simon and V. Grim (Karlova Univ., Prague). Chem. Listy 48, 1415-16(1954).—SeO_3^{--} is reduced with $FeSO_4$ in the presence of complexon (III) to red Se at pH 3. TeO_3^{--} to black Te at pH 10. These reactions are suitable for the detection of both elements in the presence of one another. M. Hudlický

SIMON, V.

2

992. Detection and determination of selenium with ascorbic acid. V. Šimon and V. Grün (Karlovy Univ., Prague, Czechoslovakia). *Chem. Listy*, 1954, **48** (12), 1774–1778.—Under acid conditions, selenates and selenites are reduced by ascorbic acid to red Se. Quantitatively, Se (6 to 30 mg) can be determined by polarometric titration at −0·05 V with 0·1 *N* ascorbic acid in solutions adjusted to pH 1 to 2 by means of dil. HCl or H_2SO_4. Noble metals interfere. Copper must be eliminated by pptn. as $Cu_2Fe(CN)_6$ and Fe masked by means of NaF. The reagent should be stabilised by the addition of 0·1 g of EDTA (disodium salt) and 4 ml of formic acid per litre. G. GLASER

Simon, V.

8000

Potentiometric microdetermination of free halogens and of active chlorine with hydroquinone solution. V. Simon and J. Zyka (Charles Univ., Prague). *Pharmazie* 11, 648-50 (1955).—In the prepn. of 0.1*N* solns., pure hydroquinone was dissolved in H_2O at 50° and standardized against 0.1*N* $K_2Cr_2O_7$ in acid soln. with diphenylamine soln. as indicator or potentiometrically. By exact diln., 0.01*N* and 0.001*N* solns. were prepd. These solns. checked at intervals up to 50 days showed no significant change in titer, although after 2 weeks, they showed some coloration. At pH 6-8, in the presence of $NaHCO_3$, I is reduced to iodide according to the equation $C_6H_4(OH)_2 + I_2 = C_6H_4O_2 + 2I^- + 2H^+$. With 0.001*N* soln., 10 γ of I was detd. potentiometrically. In 20% H_2SO_4 or 15% HCl, free Cl and hypochlorite are reduced quantitatively.

G. W. Hargreaves

Chem 2

Simon, Vladimir

Quinol as a new reduction reagent. Vladimír Simon and Jaroslav Zýka (Karlova Univ., Prague). [illegible] 49, 1640-5(1955).—Solns. of p-$C_6H_4(OH)_2$ in distd. H_2O (0.1-0.001N) are sufficiently stable for analytical purposes; their titer can be detd. and controlled with $K_2Cr_2O_7$. They were used for the volumetric detn. of halogens, and reducible cations and anions by using potentiometric indication, and in some cases, visual indication with Ph_2NH or ferroin. Iodine was detd. at pH 6-8 in 0.1-0.01 N solns. contg. 2 g. $NaHCO_3$ in 50 ml. of the liquid (starch as the indicator). The detn. of Br was carried out in 1-3% HCl or in 20% H_2SO_4 in 25 ml. vol., the detn. of Cl in 20 ml. 20% H_2SO_4 or 15% HCl. BrO_3^- was detd. in 1-3% HCl or 20% H_2SO_4, IO_3^- in 20% H_2SO_4, $Fe(CN)_6^{---}$ in 50% H_2SO_4 in a vol. of 20-30 ml. with ferroin. Au was titrated as $AuCl_3$ in 20 ml. vol. at pH 6 and at 80°; Cu, Ni, Co, Pb, Pt, Rh, and Ir do not interfere, Pd and Fe do; Fe can be masked with NaF. Cr was detd. in 20% H_2SO_4 or 15% HCl in vols. of 50-300 ml. at temps. up to 50° with Ph_2NH as the indicator. Ni, Co, Mn, Pb, Se, Ti, W, Cu, Zn, Cd, Al, and Mg do not interfere. A large excess of $FeCl_3$ must be masked with H_3PO_4. Ce^{4+} and VO_3^- interfere. VO_3^- was detd. in 20% H_2SO_4 with Ph_2NH, Ce^{4+} in 20% H_2SO_4 with ferroin. To det. Cr in steel, add to 0.2 g. alloy a mixt. of 15 ml. 12N H_2SO_4 and 5 ml. H_3PO_4 (4:5), after dissolving in 5 ml. 7.5N HNO_3, evap. the soln. on the steam bath until white fumes appear, dil. to 200 ml., add 10 ml. 15% $(NH_4)_2S_2O_8$, boil with 2 ml. 5% NaCl, dil. to 250 ml., and titrate a 50-ml. aliquot after the addn. of 10 ml. 18N H_2SO_4. To det. V, dissolve 1 g. of a steel, by boiling with 30 ml. 15% H_2SO_4 and 50 ml. H_3PO_4 (1:2), dil. with 200 ml. 10% H_2SO_4, add with stirring 2.5% soln. of $KMnO_4$ to a rose color, then 2 ml. more, decolorize after 1-2 min. with 1% soln. of $(CO_2H)_2$, and titrate after adding H_2SO_4 to reach the concn. of 20%.

M. Hudlický

(1)

SIMON, VLADIMIR

CZECHOSLOVAKIA/Analytical Chemistry - Analysis of Inorganic Substances G-2

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4781

Author : Dolezal Jan, Simon Vladimir, Zyka Jaroslav

Title : Micro-Determination of Cyanides in Bitter Almonds Water by Visual Titration.

Orig Pub : Ceskosl. Farmac., 1956, 5, No 6, 339-340

Abstract : The method is based on the formation of a relatively stable cyanide complex in ammoniacal medium. 1-5 ml bitter almond water are diluted with water to 25 ml, 1 ml of ammonia and murexide are added and the red-violet solution is titrated with 0.01 M solution of $NiSO_4$. Just before reaching the end point the solution is orange-red and on addition of one more drop of the titrating solution the color changes to yellow. The method yields accurate results.

Card 1/1

Simon, V.

CZECHOSLOVAKIA/Analytical Chemistry - General Questions G-1

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4652

Author : Simon, V., Zyka, J.
Inst :
Title : Hydroquinone as a New Reductometric Reagent

Orig Pub : Sb. chekhosl. khim. rabot, 1956, 21, No 2, 327-338

Abstract : See RZhKhim, 1956, 58338.

Card 1/1

Simon, V.

2

Chem

2. **The use of some organic substances as reducing reagents.** V. Simon and J. Zýka (Inst. Anal. Chem., Karlova Univ., Prague, Czechoslovakia). *Coll. Czech. Chem. Commun.*, 1956, **21** (3), 571–575.—Some compounds used as photographic developers have been tried as volumetric reagents (*Chem. Listy*, 1955, **49**, 1646). Only the *para*-substituted phenols (metol, *p*-aminophenol, and *p*-phenylenediamine) react stoicheiometrically, and the factor of a 0·1 *N* soln. remains constant for two months, although the solutions discolour. The end-point is best detected potentiometrically, but indicators may also be used. Iodine (down to 20 µg) may be determined in Na_2CO_3 solution, Cl (down to 1 µg) in HCl or H_2SO_4 solution, and BrO_3^- in 10 to 20% HCl or 10 to 50% H_2SO_4 by the potentiometric method; $Cr_2O_7^{2-}$, VO_3^- and Ce^{4+} can be titrated, with diphenylamine or ferroin as indicators. Two potential steps are found during the reduction of gold solutions, depending on the conditions, corresponding to the reduction to the univalent state and to the metal. Iron in moderate quantity does not interfere with any of these determinations, and if present in large excess may be complexed with F^- or PO_4^{3-}. P. S. Stross

Simon, Vladimir

5

✓Organic compounds as reductometric reagents. Vladimir
Simon and Jaroslav Zýka (Karlova Univ., Prague). ~~Chem.~~
CH ~~Listy~~ 50, 360-3(1950).—p-MeNHC$_6$H$_4$OH (I), p-C$_6$H$_4$-
(NH$_2$)$_2$ (II), and p-HOC$_6$H$_4$NH$_2$ (III) were used successfully
for the analysis of inorg. compds. The solns. (0.1N) of I,
II, and III were quite stable though darkening. The titer of
I did not change after 2 months; II and III showed a neg-
ligible change after 3 weeks. Iodine was best titrated with I
in a soln. of NaHCO$_3$, chloramine T with all the reagents in
HCl or H$_2$SO$_4$ solns., BrO$_3^-$ with III in 15% HCl, Fe(CN)$_6^{---}$
with I and III, Cr$_2$O$_7^{--}$, VO$_3^-$, and Ce^{4+} with I (titration with
II and III was less advantageous), and Au^{+++} with I and III
at pH 6 and 80°. Au could also be titrated with II in 0.5-
1% HCl. Fe^{+++} interfered with the detn. of Au if present
in a 10-fold excess. F$^-$ had to be used for masking. Ortho-
and meta-substituted dibasic phenols or aminophenols were
found unsuitable as volumetric reagents. M. Hudlický

①

Simon, V.

Chem

1

2

1101. **Use of some organic compounds as reducing agents.** V. Simon and J. Zýka. *Chem. Listy*, 1956, **50** (3), 300-303.—This paper has been published in German in *Coll. Czech. Chem. Commun.*, 1956, **21**, 571 (*cf. Anal. Abstr.*, 1957, **4**, 2).

J. Zýka

- SIMON, VLADIMIR

CZECHOSLOVAKIA/Analysis of Inorganic Substances G-2

Abs Jour: Ref Zhur-Khimiya, No 6, 1957, 19579

Author : Valdimir Simon, Eugenie Priplatova
Inst : -
Title : Columetric Determination of Uranium with Application of Ferricyanide

Orig Pub: Chem. Listy, 1956, 50, No 6, 907 - 910

Abstract: The salts of U (6+) (15 - 50 mg of U) are reduced using 3% Zn amalgam and 5% H_2SO_4 in a separating funnel to $U(SO_4)_2$, the solution of which is stable in air 5 hours. After the removal of the amalgam, the U^{4+} solution is neutralized with 3 - 5 g of $NaHCO_3$, 2 - 3 g of KCN and 1 g of NH_4Cl are added and U is oxidized to UO_2^{2+} with 0.1 n. solution of

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CZECHOSLOVAKIA/Analysis of Inorganic Substances G-2

Abs Jour: Ref Zhur-Khimiya, No 6, 1957, 19579

$K_3Fe(CN)_6$ by the potentiometric method at 18 - 20° and in the air in accordance with the equation: $U^{4+} + 2[Fe(CN)_6]^{3-} + 4OH^- \rightleftharpoons UO_2^{2+} + 2[Fe(CN)_6]^{4+} + 2H_2O$. The angular factor at the inflection point is about 1400. Pb, Bi, Cu, Sn, As, Sb, Zn, Ni, Co, Cr, Ca, Mg, Th, Be, WO_4^{3-} and little amounts of Ti, Fe and Al do not interfere. The interfering influence of a large amount of Fe is checked by the addition of tartaric or citric acid or F^-. Ag, Cd, Mn, V and Co interfere. The described method was applied to the determination of U in ores.

Card 2/2

SIMON, VLADIMIR

E-2

CZECHOSLOVAKIA/Analytic Chemistry - Analysis of Inorganic
Substances.

Abs Jour : Ref Zhur - Khimiya, No 10, 1958, 32162

Author : Jan Dolezal, Vladimir Simon, Jaroslav Zyka

Inst : -

Title : Titration with Potassium Cyanide Solution.

Orig Pub : Chem. listy, 1957, 51, No 5, 880-883: Sb. chekhosl. khim. rabot, 1957, 22, No 6, 1805-1808

Abstract : The complexometric titration of Cu^{2+} and Ni^{2+} with 0.1 to 0.01 M KCN solution in NH_4OH medium with the use of murexide as an indicator is described. Ni^{2+}, Hg^{2+}, Ag^{+}, Au^{+} and Pd^{2+} are determined even in very low concentrations by an indirect method - by the titration of the excessive KCN with 0.1 to 0.01 M $NiSO_4$ solution in the presence of the same indicator. This titration method is very accurate and it is suitable also to the determination of cyanides. The direct Ni determination in

Card 1/2

CZECHOSLOVAKIA/Analytic Chemistry - Analysis of Inorganic
Substances.

E-2

Abs Jour : Ref Zhur - Khimiya, No 10, 1958, 32162

concentrations up to 0.01 M, as well as the indirect Cu determination, are not so advantageous. Pd is determined in the presence of Ir and Rh (but not of Pt), and Hg and Ni are determined in the presence of Zn up to the ratio Hg(Ni) : Zn = 2 : 1. The simultaneous determination of Ag^+ and Cu^{2+} in mixtures is possible, at which occasion first Cu is determined by titration with complexone III solution in weakly ammonium medium, after which Ag is determined by indirect titration as described above; murexide is used as an indicator in both cases.

Card 2/2

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E-2

CZECHOSLOVAKIA / Analytical Chemistry. Analysis of Inorganic Substances.

Abs Jour: Ref Zhur-Khimiya, 1958, No 17, 57214.

Author : Krejzova E., Simon V., Zyka J.
Inst : Not given.
Title : Titration with Hydroquinon and Similar Reducing Agents. IV. Determination of Azides of the Exchange Precipitation Reaction.

Orig Pub: Chem. listy, 1957, 51, No 9, 1764-1766.

Abstract: A method of determining small quantities of azide (A) based on the exchange between A and Ag_2CrO_4 is described. Since AgN_3 is less soluble than Ag_2CrO_4, when a suspension of Ag_2CrO_4 is added to an

Card 1/4

CZECHOSLOVAKIA / Analytical Chemistry. Analysis of Inorganic Substances. E-2

Abs Jour: Ref Zhur-Khimiya, 1958, No 17, 57214.

Abstract: A solution, the following reaction takes place: 2 $NaN_3 + Ag_2CrO_4 = 2AgN_3 + Na_2CrO_4$. An equivalent A quantity in the filtrate is determined from CrO_4^-, by titration with the solution of hydroquinon (I). Due to a lower NaN_3 equivalent (1cc of 0.1 n I corresponding to 4.33 mg NaN_3) this method is more sensitive than that involving the direct titration of A with $AgNO_3$ solution (1cc of 0.1 n $AgNO_3$ corresponds to 6.50 mg NaN_3). In determining A, the analyzed samples, containing approx. 3-60 mg NaN_3, are dissolved in a small volume of water followed by the addition of approx. 12 gr of pure Ag_2CrO_4, and of 1 drop of 2% KNO_3 solution, by the dilution with water to 50cc volume and by the filtration. 25cc of the obtained filtrate is

Card 2/4

CZECHOSLOVAKIA / Analytical Chemistry. Analysis of Inorganic Substances. E-2

Abs Jour: Ref Zhur-Khimiya, 1958, No 17, 57214.

Abstract: then acidified with 20% H_2SO_4 (20cc) and titrated (with the use of either potentiometric or visual methods) with 0.1 n I solution and using diphenylamine as indicator. The above method is also suitable for the determining of Cl^-, Br^-, and I^-. Principle of this method is also applicable to the SO_4^{2-} determination. In this instance suspension of $BaCrO_4$ is being employed (Ref Zhur-Khimiya, 1957, 8534). In order to obtain quantitative exchange involved in the latter reaction, the reactants are acidified with hydrochloric acid up to approx. 0.1 M concentration, heated for about 10 minutes on a steam bath, neutralized with NH_3 while hot, kept

Card 3/4

CZECHOSLOVAKIA / Analytical Chemistry. Analysis of Inorganic Substances.

E-2

Abs Jour: Ref Zhur-Khimiya, 1958, No 17, 57214.

Abstract: for 8-10 hours and then subjected to the analysis steps similar to those used in the determination of A. For Part III refer to Ref Zhur.-Khimiya, 1957, 19600.

Card 4/4

E-2

CZECHOSLOVAKIA / Analytical Chemistry. Analysis of
Inorganic Substances.

Abs Jour: Ref Zhur-Khimiya, 1958, No 17, 57163.

Author : V. - Krejzova E., Simon V., Zyka J.
VI. - Mras L., Simon V., Zyka J.

Inst : Not given.

Title : Titration with Hydroquinon and Similar Reducing Agents. V. - Determination of Cerium in Pharmaceutical Preparations. VI. - Utilization of the Exchange Reaction of Tetravalent Cerium with the Salts of Divalent Manganese.

Orig Pub: V -Ceskosl. farmac., 1957, 6, No 8, 438-440.
VI-Chem. listy, 1957, 51, No 10, 1828-1831.

Abstract: V. - A new method for determining Ce in the

Card 1/6

E-2

CZECHOSLOVAKIA / Analytical Chemistry. Analysis of Inorganic Substances.

Abs Jour: Ref Zhur-Khimiya, 1958, No 17, 57163.

Abstract: "Vomitin SPOFA" tablets, that contain cerium oxalate, and the "Khemotser BOTIKA" solution, that contains cerium nitrate in the mixture of sodium cacodylate and nikethamide, has been developed. The method consists in the oxidation of Ce(3+) to Ce(4+) with persulfate in an acidic medium and with the aid of Ag^+ catalyst. Ce(4+) formed is titrated with a solution of hydroquinon (I) using ferroin as indicator. In the determination of Ce, present in the "Khemotser" preparation, it is essential either to destroy beforehand an organic complex (by combustion) and to remove As, or to mineralize the preparation, or to isolate Ce(3+) as an oxalate. The latter method, probably, is the most convenient one. Titration determines

Card 2/6

CZECHOSLOVAKIA / Analytical Chemistry. Analysis of Inorganic Substances. E-2

Abs Jour: Ref Zhur-Khimiya, 1958, No 17, 57163.

Abstract: the true Ce content of a sample, whereas the weight determines content of other lanthanides. Presence of La and Y in certain "Khemotser" preparations is established by means of spectographic analyses. The described methods are considered suitable for control purposes.

VI. - A method for the selective determination of Ce^{4+} in the presence of strong oxidizing agents ($Cr_2O_7^{2-}$, in particular), has been developed. It is based on the $2\ Ce^{4+} + Mn^{2+} + 2H_2O = 2\ Ce^{3+} + MnO_2 + 4H^+$. An analysed solution that contains,

Card 3/6

CZECHOSLOVAKIA / Analytical Chemistry. Analysis of Inorganic Substances. E-2

Abs Jour: Ref Zhur-Khimiya, 1958, No 17, 57163.

Abstract: along with free H_2SO_4, 50-200 mg $Ce(SO_4)_2$, is neutralized to 0.2-0.4 n acidity. 20 cc of concentrated K_2SO_4 solution is then added (the total volume of the solution at this point should be $\leqslant$ 30-40 cc), heated up to boiling point, 20 cc of 0.1 n $MnSO_4$ is added, boiled for a short time, followed by the precipitation of $Mn(OH)_2$ and filtration. Under described conditions the reaction between Ce^{4+} and Mn^{2+} proceeds quantiatatively, is selective with respect to Ce^{4+}, and $MnO(OH)_2$ formed precipitates in a form readily separated by filtration. The determination of Mn(4+) (the quantity of which is equivalent to that of Ce^{4+} present) in the

Card 4/6

12

CZECHOSLOVAKIA / Analytical Chemistry. Analysis of Inorganic Substances. E-2

Abs Jour: Ref Zhur-Khimiya, 1958, No 17, 57163.

Abstract: residue is conducted either by an indirect or by a direct reductometrical titration with I solution, or by the complexometrical titration method. In the former case, the residue is dissolved in 4 n H_2SO_4 that contains an excess of 0.1 n solution of I. The H_2SO_4 concentration is increased to a level of approx. 2 n, and the excess of I is backtitrated with 0.1 n $Ce(SO_4)_2$ solution, while resorting to either potentiometrical visual observation of an end point obtained with ferrion indicator. The direct potentiometrical titration of Mn(4+) with I

Card 5/6

CZECHOSLOVAKIA / Analytical Chemistry. Analysis of Inorganic Substances. E-2

Abs Jour: Ref Zhur-Khimiya, 1958, No 17, 57163.

Abstract: solution in 2 n H_2SO_4 is not considered as suitable. In the second case, Mb(4+) is first reduced to Mn(2+) by means of adding $(NH_2OH)_2H_2SO_4$ solution. An excess of 0.1 M solution of complexon III is then added to the solution together with the buffer solution (ammonical solution of pH 10) and an excess of complexon III. The resulting solution is then titrated with 0.1 M $MgSO_4$ solution in the presence of "eriochrome" black T indicator. Certain cations, adsorbed on the $MnO(OH)_2$ residue, interfere with the titration. The strong hydrolizing ions also interfere. $Cr_2O_7^{2-}$, VO_3^-, and NO_3^- do not. For Part IV refer to Ref Zhur-Khimiya, 1958, 57214.

Card 6/6

CZECHOSLOVAKIA/Chemical Technology. Pharmaceuticals. H
Vitamins. Antibiotics.

Abs Jour: Ref Zhur-Khim., No 24, 1958, 82711.

Author : Krejzova E., Simon V., Zyka J.
Inst :
Title : The Oxidimetric Determination of Tartaric Acid and its Salts.

Orig Pub: Ceskosl. farmac., 1958, 7, No 2, 82-83.

Abstract: The indirect oxidimetric determination of tartaric acid and some of its salts with $K_2Cr_2O_7$ and with salts of Ce^{4+} was investigated. The best results were obtained with $K_2Cr_2O_7$. The conditions were found under which the method can be used for volumetric determination. The excess of the reagent

Card : 1/2

H

CZECHOSLOVAKIA/Chemical Technology. Pharmaceuticals.
Vitamins. Antibiotics.

Abs Jour: Ref Zhur-Khim., No 24, 1958, 82711.

is titrated potentiometrically with the standard solution of hydroquinone.

Card : 2/2

E-2

GDR / Analytical Chemistry. Analysis of Inorganic
Substances.

[illegible] Ref Zhur-Khimiya, No 1, 1959, 932.

Author : Uraz, L., Simon, V., Zyka, J.
Inst : Not given.
Title : Titration With Hydroquinone and With a Similar Reducer. VI. The Utilization of the Reaction of Four Valent Cerium With the Salts of Di-valent Manganese.

Orig Pub: Collect, Czechosl. chem. commun., 1958, 23, No 6, 1061-1065.

Abstract: See R. Zh. Khim., 1958, 57163.

Card 1/1

19105

Country : Czechoslovakia
Category : Analytical Chemistry - Analysis of Inorganic Substances
Abs. Jour. : Ref Zhur-Khimiya, No 6, 1959

Author : Krejzova, E.; Simon, V.; Zyka, J.
Institut. :
Title : Titration with Hydroquinone and Similar Reducing Agents. VIII. Potentiometric Determination of 3-Valent Thallium Salt.

Orig Pub. : Chem. listy, 1958, 52, No 5, 936-938

Abstract : Hydroquinone is used as a reducing agent in potentiometric determination of Tl^{3+}. Oxidation of Tl^+ prior to analysis can be effected with $(NH_4)_2S_2O_8$ in acid medium; Br-water usually utilized for this purpose, is not suitable. The solution to be titrated must contain 5-20% by weight of H_2SO_4 and 3-30 mg Tl, and its maximum volume should be 30 ml. On determination of Tl, approximately 20% solution of H_2SO_4 is added to the solution being analyzed, in a 50 ml beaker, diluted to about 20 ml, added about 0.5 g solid $(NH_4)_2S_2O_8$, heated gently for 15-20 minutes (final volume of the solution should be about 15 ml), and after cooling it is potentiometrically titrated with 0.01 N solution of hydroquinone.

Card: 1/3

Country : Czechoslovakia E-2
Category : Analytical Chemistry - Analysis of Inorganic Substances
Abs. Jour. : Ref Zhur-Khimiya, No 6, 1959 19105

Author :
Institut. :
Title :

Orig. Pub. :

Abstract : The inflection point is at about 500 mv (relative to saturated calomel electrode); change in potential at equivalence point is well defined (angle coefficient about 1500). Determination of Tl is not interfered with by the presence of Cu^{2+}, Pb^{2+}, Ag^{+}, Bi^{3+}, Co^{2+}, Zn^{2+}, Al^{3+}, Mg^{2+}, As^{5+}, MoO_4^{2-} and WO_4^{2-}, even when they are present in 10-fold excess; also no interference results from the presence of considerable amounts of PO_4^{3-}, NO_3^{-}, SO_4^{2-}, and Cl^{-} (up to a concentration of about 0.01 N). The presence of Fe^{3+}, Sn^{4+}, $Sb(5+)$, Hg^{2+}, Ce^{4+}, $Cr_2O_7^{2-}$, MnO_4^{-}, interferes, as does the presence of even small amounts of Br^{-} and I^{-}. For reasons
Card: 2/3

E-21

Country : Czechoslovakia E-2
Category : Analytical Chemistry - Analysis of Inorganic Substances
Abs. Jour. : Ref Zhur-Khimiya, No 6, 1959 19077

Author : Krejzova, E.; Simon, V.; Zyka, J.
Institut. :
Title : Titration with Hydroquinone and Similar Reducing Agents.VII. Determination of Higher Oxides of Manganese and Lead.
Orig. Pub. : Chem. listy, 1958, 52, No 5, 976-978

Abstract : A titrimetric method was developed for determination of MnO_2, Mn_2O_3 and PbO_2, which is based on their reduction with hydroquinone (I) and subsequent titration of excess I with $Ce(SO_4)_2$, usinf ferroin as indicator. To the finely comminuted sample (about 60 mg PbO_2, or 45 mg MnO_2, or 40 mg Mn_2O_3)are added, in a titration flask with a ground glass stopper, 10-20 ml 0.1 N solution of I and about 10 ml 2 N H_2SO_4(10 ml of 5% CH_3COOH in the case of PbO_2), the mixture is shaken with glass beads (5 to 10) for 5-10 minutes until the sample is completely dissolved, ferroin is added and titration with 0.1 N solution $Ce(SO_4)_2$ is carried out

Card:1/3

E-9

E-2

19077

Country : Czechoslovakia
Category : Analytical Chemistry - Analysis of Inorganic Substances
Abs. Jour. : Ref Zhur-Khimiya, No 6, 1959

Author :
Institut. :
Title :

Orig Pub. :

Abstract : until the color of the solution changes from red to brilliant-blue or green. In determinations of oxides of Mn the back-titration of I can be effected with $K_2Cr_2O_7$ using diphenylamine as indicator, however the titration with $Ce(SO_4)_2$ is more sensitive. Fe^{3+} and Cu^{2+} need not be removed or masked, since they do not react with I. By the described procedure active O is determined in the sample; the total metal content can be determined by complexometry after reduction of the higher oxides. To do this, there are added to the sample in the titration flask, an excess of $NH_2OH.H_2SO_4$ solution and 0.1 M solution of Complexon III,

Card: 2/3

Simon, Vladimir

E

CZECHOSLOVAKIA/Analytical Chemistry. General Topics.

Abs Jour: Ref Zhur-Khim., No 9, 1959, 30926.

Author : Mráz, Ladislav, Simon, Vladimir, Zýka, Jaroslav.

Inst :

Title : Titration with Hydroquinone and Similar Reducing Agents. IX. On the Stability of Hydroquinone Solutions.

Orig Pub: Chem. listy, 1958, 52, No 6, 1083-1088.

Abstract: The effect of various factors on the stability of hydroquinone solutions (I) was studied by means of systematic control of the titer of 0.1-0.001 normal solutions of I by visual, photometric or potentiometric titration with $K_2Cr_2O_7$ solution or with $Ce(SO_4)_2$ solution (in the case of highly di-

Card : 1/4

E

CZECHOSLOVAKIA/Analytical Chemistry. General Topics.

Abs Jour: Ref Zhur-Khim., No 9, 1959, 30926.

luted solutions of I), and also by means of photometric measurement of the intensity of the brownish-red color which formed in the presence of the disassociation of I. It was established that the I solutions acidified with 1-3% H_2SO_4 are the most stable ones. The titer of these solutions does not begin to change until 3-4 months after their preparation. When boiled these solutions retain their stability for at least 1 hour. Neutral solutions of I have a somewhat lesser stability, but even in this case changes were observed only after 2-3 months. The concentration of I has practically no effect either on the acid or on the neutral solutions of I. The I solutions alkalized with the addition

Card : 2/4

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Simon, Vladimir

CZECHOSLOVAKIA/Analytical Chemistry. Analysis of Inorganic Substances. E

Abs Jour: Ref Zhur-Khim., No 9, 1959, 30966.

Author : Mráz, Ladislav, Simon Vladimír, Zýka, Jaroslav.
Inst :
Title : Titration with Hydroquinone and Similar Reducing Agents. X. Titration of Cerium, Chromium and Vanadium and the Feasibility of Their Determination When Present Simultaneously.

Orig Pub: Chem. listy, 1958, 52, No 6, 1089-1092.

Abstract: A method of accurately determining small quantities of Ce, V and of Cr has been developed. This method is based on the potentiometric titration of Ce^{4+}, $Cr_2O_7^{2-}$ and VO_3^- with hydroquinone solution (I)

Card : 1/4

CZECHOSLOVAKIA/Analytical Chemistry. Analysis of Inorganic Substances. E

Abs Jour: Ref Zhur-Khim., No 9, 1959,30966.

quantities of H_3PO_4, and the determination of V is hindered by the presence of HCl. The titration of all 3 of the above-mentioned ions can be carried out in the presence of MnO_4 since the jump in potential corresponding to MnO_4 is clearly distinct from the jump in the potentials of the ions being determined. In comparison with the method of titration with Fe^{2+} solution the hydroquinone method is much more sensitive. From the combinations of Ce, Cr and V it is possible to reliably determine VO_3^{-} together with Ce^{4+} and somewhat less clearly $Cr_2O_7^{2-}$ with Ce^{4+}. Simultaneous determination of $Cr_2O_7^{2-}$ and VO_3^{-} is difficult or

Card : 3/4

E-2

CZECHOSLOVAKIA / Analytical Chemistry--Analysis of inorganic substances.

Abs Jour : Ref Zhur - Khimiya, No 14, 1959, No. 49229

Author : Mraz, L.; Simon, V.; Zuka, J.
Inst : Not given
Title : Titrations with Hydroquinone and Similar Reducing Agents. XI. The Determination of Cerium in Various Materials

Orig Pub : Chem Listy, 52, No 7, 1354-1356 (1958)

Abstract : The method discussed in Communication X (RZhKhim, No 9, 1959, 30966) for the titration of Ce (4+) with hydroquinone has been applied to the determination of Ce in monazite sands, cerite metal (Ce, La, Pr, Nd, Y, Fe, Ni, Si, Mg, Ca), Al-Th-Ce alloy, Auer gas mantles, and in the raw material wastes during electrolysis [sic]. Ce (3+) is first oxidized to C (4+) with K or ammonium

Card 1/3

E-15

E-2

CZECHOSLOVAKIA / Analytical Chemistry--Analysis of inorganic substances

Abs Jour : Ref Zhur - Khimiya, No 14, 1959, No: 49229

persulfate in the presence of Ag^+ as catalyst, and the solution is then titrated with 0.1 - 0.001 N solutions containing 1% H_2SO_4 as a stabilizer. Potentiometric or visual (ferroin indicator) techniques are used in the determination of the endpoint. The probable average error in the determinations is ±0.35%; many cations (e.g., Co^{2+}, Zn^{2+}, Cu^{2+}, Cd^{2+}, Na^+, and K^+) do not interfere with the titration even when present in high concentrations. The presence of large amounts of Fe(3+), Pb(2+), Al(3+), Ni(2+), Mo(6+), Ag^+, Bi(3+) and As(5+) introduces considerable errors (the first two cations cause positive deviations, whereas the rest introduce negative deviations). The presence of Hg(2+), W(6+), Sb(5+), Ca(2+), Sr(2+), Ba(2+), and Rh(3+) even in small amounts leads to a lowering of the results. The

Card 2/3

Titrations with hydroquinone and analogous reducing agents. VIII. Potentiometric determination of thallium(III) salt. B. Krejzová, V. Simon, and J. Zýka. *Collection Czechoslov. Chem. Communs.* 24, 448-51(1959)(in German).—See *C.A.* 53, 3974i. L. [illegible]

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SIMON, V.; ZYKA, J.; MRAZ, L.

"Titration with quinol and analogous reducing agents." X. Titration of cerium, chromium, and vanadium, and the possibility of their simultaneous determination." In German. p. 1487.

COLLECTION OF CZECHOSLOVAK CHEMICAL COMMUNICATIONS, Praha, Czech.,
Vol. 24, No. 5, May 1959

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 6, Sept. 59
Unclassified

[illegible], kand.
[illegible] retsenzent; [illegible]N, V.[illegible], kand.
[illegible], retsenzent; NEKHAY, V.I., red.

[Using the deduction method in investigating basic thermodynamic processes] Issledovanie osnovnykh termodinamicheskikh protsessov deduktivnym metodom. Minsk, Izd-vo "Vysshaia shkola," 1963. 57 p. (MIRA 17:6)

[illegible]

Studies on the inductive effect. [illegible]. Coll Cz Chem 29 no.9: 2[illegible] '64.

[illegible] Polarographic Institute, Czechoslovak Academy of Sciences, Prague.

CZECHOSLOVAKIA

EXNER, O., SIMON, W.

1. J. Heyrovsky Institute of Polarography, Czechoslovak Academy of Sciences - (for Exner); 2. Laboratory for Organic Chemistry, [Eidg ?] Technical Institute, (Laboratorium fur Organische Chemie, Eidg. Technische Hochschule), Zurich, Switzerland - (for Simon).

Prague, Collection of Czechoslovak Chemical Communications, No 12, December 1965, pp 4078-4094

"Acyl derivatives of hydroxylamine. Part 12; Dissociation constants of hydroxamic acids and their functional derivatives."

(Dedicated To the 75th birthday of Academician J.Heyrovsky).

1. SIMON, Ye.

2. USSR (600)

4. Feeding and Feeding Stuffs

7. Preparing feed crops for feeding. Kolkh.proiz. 12 no. 12 1952.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

SIMON, Ye. I.

[Methods of determining the nitrogen balance in farm animals]
Metodika opredeleniia balansa azota u sel'skokhoziaistvennykh
zhivotnykh. Moskva, 1956. 15 p. (MLRA 10:4)
(Nitrogen metabolism)

USSR / Farm Animals. Swine

Abs Jour: Ref Zhur-Biol., No 5, 1958, 21492

Author : Simon Ye. I.
Inst :
Title : The Use of Antibiotics in the Meat-Type Fattening of Swine (Ispol'zovaniye antibiotikov pri myasnom otkorme sviney)

Orig Pub: Svinovodstvo, 1956, No 1, 39-41

Abstract: Of 4 groups of young pigs, the first group was fed basic rations consisting of a mixture of corn, oatmeal, bran, with 5% hay flour; the 2nd group was receiving the same rations with an addition of 30 mcg. of biomycin per 1 kg. of feed; in animals of the 3rd group, 30 to 40% of grain mixture was replaced by potatoes; the 4th group was also receiving biomycin as a supplement to the rations of the 3rd group. The

Card 1/2

Q

USSR / Farm Animals. Swine

Abs Jour: Ref Zhur-Biol., No 5, 1958, 21492

Abstract: average daily weight gain for 120 days in pigs was, respectively (in g.): 455, 574, 537, 593. The feed units used per 1 kg. of weight gain were 6.2, 4.9, 5.5, 4.9.

Card 2/2

VARVAK, P.M.; KIRIYENKO, V.I.; CHUDNOVSKIY, V.G.; KRYLOV, V.K.; BRAUDE, Z.I.; EKIMYAN, V.A.; IVANOV-DYATLOV, A.I.; FRANOV, P.I.; ASHANOV, A.Ye.; BERDICHEVSKIY, N.M.; IZAKSON, S.I.; [illegible], [illegible]; KOLESNI[illegible], K.S.; KUYDICH, S.A.; SVERDLOV, A.I.; SIMON, Yu.A.; SHTEYNFAYN, S.K.; BOLOTIN, V.V.; GOL'DENBLAT, I.I.

Book reviews and bibliography. Stroi. mekh. i rasch. soor. 3 no.6:46-50 '61. (MIRA 15:4)

(Bibliography--Structures, Theory of)

ROSIN, S., dr.; SIMON, Z.

A quantitative study of granupoesis and the valuation of myelotransfusion. Med. intern. (Bucur) 17 no.5:537-544 My '65.

1. Lucrare efectuata la Institutul oncologic Bucuresti director: prof. O. Costachel).

K

RUMANIA/Optics - Luminescence.

Abs Jour : Ref Zhur Fizika, No 11, 1959, 26066

Author : Simon, Zeno

Inst :

Title : On the Possibility of Appearance of Fluorescence in Molecules

Orig Pub : Studii si cercetari fiz. Acad. RPR, 1958, 9, No 4, 469-481

Abstract : An attempt is made to give a quantum-mechanical method of estimating the probability of internal conversion of the energy of the electron excitation into vibrational energy. The perturbation method is used. The perturbation that determines the frequency of the non-radiative transitions is given by terms neglected in the Born-Oppenheimer approximation. Using the metallic model for the electron functions of state and the harmonic approximation for the oscillation functions of the nuclei, the

Card 1/2

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Luminescence.

Abs Jour : Ref Zhur Fizika, No 11, 1959, 26066

author makes an attempt to justify theoretically certain empirical rules for the possibility of appearance of fluorescence.

Card 2/2

1

Distr: 4E3b/4E3d

The photodissociation of aniline molecules: a theoretical discussion. Z. Simon. *Acad. rep. populare Romîne, Inst. fiz. atomica si Inst. fiz., Studii cercetări fiz.* 10, 291-305 (1959); cf. Stevens, C.A. 50, 13015f.—The preëxponential coeff. of the velocity of the photodissocn. of aniline mols. excited in ultraviolet (2500-2000 A.) light was calcd. The electronic functions of state are based on mol. orbitals, calcd. by the simple method. The effect of the NH_2 group is considered as a perturbation dependent on the C-N distance. For the function of C-N valence vibration, the harmonic approxn. is used in the case of the excited state, and the approxn. of the potential box in the case of the fundamental state. The agreement between the calcd. preëxponential coeff. and the general form of the velocity const. of the photodissocn. with exptl. data, justifies the theoretical hypotheses advanced.

M. Lapidot

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2b

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S/058/62/000/003/039/092
A061/A101

AUTHOR: Simon, Z.

TITLE: Intramolecular radiationless transitions

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1962, 5 - 6, abstract 3V35
("Rev. phys. Acad. RPR", 1961, v. 6, no. 1, 105 - 118, German)

TEXT: The use of the nonstationary perturbation method is suggested for calculating the probability of radiationless transitions in complex molecules by considering all such states to be isoenergetic as are comprised in the energy range corresponding to the overlapping widened vibrational levels. Under these conditions, the frequency d_{AB} of the radiationless transition between two electron states is found as $d_{AB} = 2\, w_{AB} \sqrt{\Delta n}/h$, where w_{AB} is the matrix element of nonadiabatic or spin-orbital interaction between the states A and B, and Δn is the number of levels in the region of overlapping. The quantity w_{AB}, estimated within the method of LKAO MO, for singlet-triplet transitions was found to be of the order of 0.04 ev for $^1n \rightarrow {}^3\pi^*$ excitation, and of $4 \cdot 10^{-5}$ ev for $^1\pi \rightarrow {}^3\pi^*$ excitation. It is noted that w_{AB} can be significantly temperature-dependent only provided the

Card 1/2

S/058/62/000/003/039/092
A061/A101

Intramolecular radiationless transitions

equilibrium positions on surfaces of potential energy differ in that states A and B considerably.

S. Vetchinkin

[Abstracter's note: Complete translation]

Card 2/2

SAHINI, V.; SIMON[1], Z.

Infrared spectrum of cis-trans isomerism in coordinative compounds. II. Correlation between the vibrations of complex ions and those of the free complex-forming anions. Studii cerc chim 9 no.3:573-577 '61.

1. Laboratorul de chimie-fizica al Universitatii "C. I. Parhon", Sectia de chimie-fizica a Centrului de cercetari chimice al Academiei R.P.R., Bucuresti.

SIMON, Z.

Nonradiative transitions, and luminiscence of molecules. Derivatives of the cation of diphenylmethyl and other torsionable aromatic systems. Studii cerc chim 9 no.4:667-672 '61.

1. Centrul de cercetari chimice al Academiei R.P.R., Sectia de chimie-fizica, Bucuresti.

SIMON, Z.; BALABAN, A. T.

Relative stability of isomeric aromatic monocyclic systems appreciated by M. O. methods. Rev chimie 7 no.1: 555-560 '62.

1. Institute for Atomic Physics and Chemical Centre of the Academy of the R.P.R., Bucharest.

MURGULESCU, I.G., acad.; SIMON, Z.

Computing the pre-exponential coefficients of some monomolecular reactions. Studii cer chim 10 no.1:11-30 '62.

1. Centrul de cercetari chimice al Academiei R.P.R., Sectia de chimie fizica, Bucuresti. 2. Membru al Comitetului de redactie, "Studii si cercetari de chimie" (for Murgulescu).

MURGULESCU, I.G. acad.; SIMON, Z.

Pre-exponential coefficient and the activation energy for the unimolecular decomposition of cyclobutane. Studii cer chim 10 no.1:31-37 '62.

1. Centrul de cercetari chimice al Academiei R.P.R., Sectia de chimie fizica, Bucuresti. 2. Membru al Comitetului de redactie, "Studii si cercetari de chimie" (for Murgulescu).

S/051/62/012/001/004/020
E202/E492

AUTHOR: Simon, Z.

TITLE: Calculation of the energy level shifts of diphenyl, phenylpyridines and salts of phenylpyrile

PERIODICAL: Optika i spektroskopiya, v.12, no.1, 1962, 22-31

TEXT: The author extends the L. Goodman and H. Schull method (Ref.4: J. Chem. Phys., v.22, 1954, 1338) to the substituted derivatives of benzene in order to calculate the energy levels and intensities of the transitions in diphenyl, phenylpyridine and salts of phenyl and phenylpyrilium, starting with the experimental data for benzene. This type of method is particularly convenient since it has the simplicity of the MO method and the advantages of the highly complicated and purely theoretical ASMO. The author's method is substantially MOLCAO but with corrections allowing for a very simplified treatment of configuration interactions. The naive semi-empirical approach is complemented with theoretically computed repulsion integrals and applied to the compounds in question. Sufficiently good agreement of the calculated results with the experimental data is explained by the fact that in the low

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S/051/62/012/001/004/020
E202/E492

Calculation of the energy level ...

symmetry molecules which were studied the degeneration of the energy levels is either weak or completely absent. Altogether 11 forms were studied and for some of them there are included full data of the energy of configuration interaction, apart from the symmetry, wavelength and f-numbers. Wave functions corresponding to the levels of the first two bands in the spectra of pyrilium derivatives are also calculated. Acknowledgments are expressed to Doctor A.T.Balaban of Institute of Atomic Physics (Bucharest) and Doctor V.Ye.Sakhin of the Physical Chemistry Department, Bucharest University imeni K.I.Parkhon for their discussions and to Doctor I. Zamfiresku of the Institute of Atomic Physics for assistance. E. Keplinger is mentioned in the article. There are 4 tables and 12 references: 3 Soviet-bloc and 9 non-Soviet-bloc. The four most recent references to English language publications read as follows: Ref.2: R. Pariser, R.G.Parr. J. Chem. Phys., v.21, 1953, 466, 767. Ref.3: H.C.Longuett-Higgins, J.N.Murrel. Proc. Phys. Soc., A68, 1955, 601. Ref.4: as quoted in text. Ref.7: C.A.Coulson, Valence. Oxford, 1953.

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Card 2/3

Calculation of the energy level ...

S/051/62/012/001/004/020
E202/E492

ASSOCIATION: Tsentr khimicheskikh issledovaniy Akademiya Nauk Rumynskoy NR, Bukharest (Centre of Chemical Studies, Academy of Sciences, Rumanian PR, Bucharest)

SUBMITTED: February 23, 1961

✓

SIMON,Z.; BALABAN, A.T.

Simple Huckel M.O. treatment of electronic spectra of some aromatic heterocyclic compounds with five atom cycle. Studii cerc chim 11 no.1:53-60 '63.

1. Institutul de fizica atomica si sectia de chimie fizica a Centrului de cercetari chimice al Academiei R.P.R.
2. Membru corespondent al Academiei R.P.R. (for Balaban).

MURGULESCU, I.G., acad.; SIMON, Z.

Photochemical reactions and nonradiative transitions of ketones and aldehydes. Studii cerc chim 11 no.2:161-170 '63.

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