P/047/61/012/001/001/002
D221/D306

24.6900

AUTHORS: Czyżewski, Oleg, and Hołyński, Roman

TITLE: Multiple generation of particles in nucleon-nucleon and π-meson-nucleon collisions, within certain acceleration energy ranges

PERIODICAL: Postępy fizyki, v. 12, no. 1, 1961, 71 - 87

TEXT: Work done on inelastic n-n and π-n collision in Western and Soviet-bloc establishments is reviewed, and a theoretical explanation is sought for the results obtained, such as tuplicity of mesons generated, their energetic and angular distribution and coefficients of inelasticity of collisions. It is shown that Fermi's model is insufficient, while an isobaric model agrees with experimental results only for low tuplicity of produced mesons. For proton-nucleon collisions the following works are discussed: N.P. Bogachev, I.M. Gramenitskiy, V.B. Lubimov, Y.P. Merekov, M.Y. Podgoretskiy, V.N. Sidorov, and D. Tuvdendorzh (Ref. 1: Zh. Exper.

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Teor. Fiz., 37, 1225, 1959), (Ref. 2: Wan-Szu-Fen, T. Wiszki, I.M. Gramenitskiy, V.G. Grishin, N. Dolkhashav, R.M. Lebedev, A.A. Nomofilov, M.Y. Podgoretskiy, V.N. Streltsov, Preprint - Dubna, 1960), (Ref. 3: R.R. Daniel, N. Kameswara Rao, P.K. Malchotra, Y. Tsusuki, Preprint, Bombay, 1959), (Ref. 4: R. Kalbach, J. Lord, C. Tsao, Phys. Rev., 113, 325, 1959). In the first of the above works emulsion technique was used and energy of proton beam was 9 BeV. The second was a continuation of the first. The latter two both deal with the same problem also using emulsion technique with the proton beam of energy of 6.2 BeV. For pion-nucleon collision at the energy of the order of 1 BeV, the isobaric model gives a very good agreement with experimental results but it fails at energies of several BeV. Results of W.D. Walker (Ref. 10: Phys. Rev., 108, 872, 1957) with π-mesons of 4.5 BeV and of G. Maenchen, W.B. Fowler, W.M. Powell, R.W. Wright (Ref. 11: Phys. Rev., 108, 850, 1957) with π- of about 5 BeV lead to the assumption of π-π collision, where π-meson collides with another π-meson in the meson cloud of the nucleon.

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Work by V.A. Byelakov, Wan-Szu-Feh, W.W. Glagolev, N. Dolkhashav, P.M. Lebedev, N.N. Melnikova, V.A. Nikitin, V. Petrzhelka, V.A. Svipidov, M. Suk, K.D. Tolstov (Ref. 14: Preprint, Dubna 1960) with π-mesons of the energy of 6.8 BeV and J. Bartke (Ref. 17: Komunikat prywatny, 1960) who used π-mesons of 16 BeV/C also both lead to the assumption that at least a part of mesons is produced by π-π interaction. Finally a pion-nucleus interaction is investigated by H.H. Aly, J.G.M. Duthie, C.M. Fisher (Ref. 18: Phil. Mag., 4, 993, 1959) where a stack of nuclear emulsion was irradiated with π^- of 4.5 BeV. Collisions with heavy nuclei produced angular distribution different to those obtained from collision with lighter nuclei, protons and by grazing collisions. The authors suggest that in the first case a greater number of nucleons is involved in the collision with π-meson, but it is pointed out that a cascade-type mechanism would lead to the same results. In view of the inability of statistical theory to explain the results cited above, two alternatives are mentioned. The first is the isobaric model which may be still further improved, according to I. Tamm (Ref. 19: Materialy

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IX Konferentsii Fiziki Vysokikh Energii, Kiyev, 1959) and the second is the introduction of inner structure of the nucleon which would certainly take part in multiple meson generation and π-heavy nucleus collision. There are 31 graphs, 3 tables, 2 photographs and 19 references, 7 Soviet-bloc and 12 non-Soviet-bloc. The references to the four most recent English-language publications read as follows: R.R. Daniel, N. Kameswara Rao, P.K. Malchotra, Y. Tsusuki, Preprint, Bombay, 1959; R. Kalbach, J. Lord, C. Tsao, Phys. Rev., 113, 325, 1959; J.G.M. Duthie, H.H. Aly, C.M. Fisher, Phil. Mag., 4, 993, 1959; R.B. Sternheimer, S.J. Lindenbaum, Phys. Rev., 109, 1723, 1958.

ASSOCIATION: Zakład VI instytutu badań jądrowych, Kraków (VIth Institute of Nuclear Research, Cracow)

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23026

P/045/61/020/004/004/004
B133/B215

24.6700

AUTHORS: Bartke, J., Czachowska, Z., Holyński, R., Rybicki, K.

TITLE: Some examples of interaction of protons of very high energy with heavy nuclei of photographic emulsions

PERIODICAL: Acta Physica Polonica, v. 20, no. 4, 1961, 331-339

TEXT: Three stars produced in collisions with nuclei of a photographic emulsion are described. Although they were probably produced in collisions of nucleons with heavy nuclei, they show double maximum angular distributions in contradiction with the hydrodynamic model. Star I: 26 + 47p; star II: 18 + 41p; and star III: 15 + 78p. Stars I and II have been found in a stack of Ilford G5 emulsions irradiated in the Pc valley in 1957, and star III was found in an NIKFI-R emulsion stack irradiated near Moscow in 1958. Target diagrams at distances of 600, 1000, and 1400 from the primary interaction enabled the authors to distinguish between the tracks from the secondary interaction and those from the primary event. The angles between the tracks of all primary particles and the star axis were measured. From these angles ϑ_i, the Lorentz factor of the system can

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be determined as $\eta_c = \log \operatorname{ctg} \frac{\vartheta_i}{2}$. The primary energy $E_p = 2Mc^2 \gamma_c^2$ is obtained for nucleon - nucleon collisions in the laboratory system. For nucleon - nucleus collisions $E_p = 2nMc^2 \gamma_c^2$, is obtained by using the tunnel model. n is the number of particles in the tunnel. A measure for the anisotropy in the angular distribution is the dispersion

$$\sigma = \sqrt{\frac{\Sigma (\log \tan \vartheta_i - \overline{\log \tan \vartheta})}{n-1}} \qquad (A).$$

The values of E_p, η_c, and for the events described are presented in Table II

jet	type	γ_c	$E_p = 2\gamma_c^2 Mc^2$	$E_p = 2n\gamma_c^2 Mc^2$	σ
I	26+47p	83.1	1.3×10^{13} eV	5.2×10^{13} eV	1.25
II	18+41p	58.1	6.4×10^{12} eV	2.5×10^{13} eV	1.10
III	15+78p	15.3	4.4×10^{11} eV	1.8×10^{13} eV	0.71

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All differential angular distributions show strong anisotropy and two maxima which corresponds to a plateau in the integral distribution, as may be seen from Fig. 2a. The angular distributions of gray and black tracks do not deviate significantly from the isotropic distribution. Feinberg (Feinberg, E. L., Uspekhi fiz. Nauk, 70, 333, (1960). (Presented also at the Moscow and Kiev conferences)) has expressed the opinion that there are two types of nucleon-nucleon collisions, namely, head-on collisions and peripheral collisions. The hydrodynamical model can be applied only to the first type which is obviously present (Milekhin, G. A., Zh. eksper. teor. Fiz., 35, 1185, (1958)). According to this theory, the differential angular distribution can be well described by a Gaussian curve which is compared in Fig. 4 with the values obtained. In a paper by Gierula et al. (Gierula, J., Miesowicz, M., Zielinski, P., Acta phys. Polon., 19, 119 (1960)) where the three stars under consideration have been referred to as 171K, 168K, and 200K, respectively, a measure has been defined for the deviation predicted by the two-center model. The deviation is calculated in these units and according to the Kolmogorov-Smirnov test which, in the authors' view, cannot be applied here (Smirnow, H., Recueil Mathematique N.S.6, 3 (1959)). It is concluded that the experimental facts do not con-

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firm the hydrodynamical model, whereas a two-center model describes the phenomena very well if the "central" collisions take place in a very small "core". The authors thank Professors M. Mięsowicz and J. Gierula. There are 4 figures, 3 tables, and 11 references: 4 Soviet-bloc and 7 non-Soviet-bloc.

ASSOCIATION: Cosmic Ray Department of the Institute of Nuclear Research Cracow - Poland

SUBMITTED: October 24, 1960

GIERULA, J.; HOLYNSKI, R.; MIESOWICZ, M.

Interactions of nucleons with heavy nuclei of photographic emulsions at energies higher than 10^{12} eV. Acta physica Pol 22 no.4:329-334 0 '62.

1. Institute of Nuclear Research, Laboratory of High Energy Physics, Krakow Department, Krakow, and 2d Department of Physics, Academy of Mining and Metallurgy, Krakow.

HOLYST, Brunon

Estimation of the body height from the length of the foot. Arch.med. sad.,Warszawa 6:158-173 1955.

1. Z Zakladu Kryminologii Uniwersytetu Lodzkiego.Kierownik: prof. dr P. Horoszowski.

(BODY HEIGHT
determ. from length of foot prints in forensic med.)
(FOOT
foot pring length as basis for determ. of body height in forensic med.)

HOLYST, Jerzy

Echoencephalography. Neurol., neurochir., psychiat. Pol. 14 no.3:447-453 My-Je '64

1. Z Kliniki Neurologicznej Akademii Medycznej we Wroclawiu (Kierownik: prof. dr. R. Arend).

HOLYST, Jerzy

Intracranial hemorrhage in hemophilia. Neurol. neurochir. psychiat. pol. 13 no.5:601-606 '63.

1. Z Kliniki Neurologicznej AM we Wroclawiu. Kierownik: prof. dr. R.Arend.

HOLYST, Jerzy

Echo-encephalography (ultrasono-encephalography). Pol. tyg.lek. 18 no.47:1749-1752 '18.N'63

1. Z Kliniki Neurologicznej AM we Wrocławiu; kierownik: prof. dr. Rudolf Arend.

HOLST, Jerzy
SURNAME (in caps); Given Names

Country: Poland

Academic Degrees:

Affiliation: Neurological Clinic, School of Medicine (Akademia Medyczna) Wroclaw; Director: R. ARLND, Prof dr med

Source: Warsaw, Przeglad Lekarski, No 4, 1961, pp 187-189

Data: "A Dissecting Aneurysm on the Main Abdominal Artery with Contour Calcification Ascertained Intravitally."

HOLYST, Jerzy

Unusual form of phacomatosis. Neurologia etc. polska 11 no.6:843-846 '61.

1. Z Kliniki Neurologicznej AM we Wroclawiu Kierownik: prof. dr R.Arend.

(ABNORMALITIES)

RUDKOWSKA, Anna; KRAUSE, Krystyna; HOLYST, Jarzy

Electroencephalographic changes during the course of tofranil therapy of depressive states. Neurologia etc. polska 11 no.2: 241-250 Mr-Ap '61.

1. Z Kliniki Neurologicznej AM we Wroclawiu Kierownik: prof. dr R. Arend i z Kliniki Psychiatrycznej AM we Wroclawiu Kierownik: doc. dr M. Demianowska.

(DEPRESSION ther) (PSYCHOPHARMACOLOGY)
(ELECTROENCEPHALOGRAPHY)

HOLYST, Jerzy; KRAUSE, Krystyna

Neurological and psychiatric syndromes in thallium poisoning.
Polski tygod. lek. 16 no.9:337-340 27 F '61.

1. Z Kliniki Neurologicznej A.M. we Wroclawiu; kierownik: prof. dr Rudolf Arend i z Kliniki Psychiatrycznej A.M. we Wroclawiu; kierownik: doc. dr. Maria Demianowska.

(THALLIUM toxicol) (NEUROLOGICAL MANIFESTATIONS)

TOKARZ, Feliks; HOLYST, Jerzy

Tumors in the area of the foramen magnum. Neurol. neurochir. psychiat. Pol. 14 no.1:55-62 Ja-F '64.

1. Z Kliniki Neurochirurgii Akademii Medycznej w Poznaniu (Kierownik: doc. dr. med. H. Powiertowski).

HOLYST, Jerzy; KOTECKI, Andrzej; KRAUSE, Krystyna

Foreign bodies in the brain as a result of self-mutilation.
Neurol., neurochir., psychiat. Pol. 14 no.4:581-588 Jl-Ag'64

1. Z Kliniki Neurochirurgii Akademii Medycznej w Poznaniu (Kierownik: doc. dr. H.Powiertowska) i z Kliniki Psychiatrycznej Akademji Medycznej we Wroclawiu (Kierownik: doc. dr. I.Heminowska).

TOKARZ, Feliks; HOLYST, Jerzy; GRADZKI, Janusz

Anomaly of Galen's vein. Neurol., neurochir., psychiat. Pol. 14 no.3:541-543 My-Je '64

1. Z Kliniki Neurochirurgii Akademii Medycznej w Poznaniu (Kierownik: doc. dr. H. Powiertowski).

KRAUSE, Krystyna; HOLYST, Jerzy

Diagnostic difficulties in a case of subdural hematoma. Neurol., neurochir. psychiat. Pol. 14 no.3 549-552 My-Je '64

1. Z Kliniki Psychiatrycznej Akademii Medycznej we Wroclawiu (Kierownik: doc. dr. M. Demianowska) i z Kliniki Neurochirurgii Akademii Medycznej w Poznaniu (Kierownik: doc. dr. H. Powiertowski).

RUDNICKI, Stanislaw; KRAUSE, Krystyna; HOLYST, Jerzy

Polysymptomatic neuro-psychiatric syndrome as a sequel of an anomaly of the anterior part of the circle of Willis. Neurologia etc., polska 12 no.2:265-273 '62.

1. Z Kliniki Neurochirurgii AM w Warszawie Kierownik: prof. dr J. Chorobski z Kliniki Psychiatrycznej we Wroclawiu Kierownik: doc. dr.M.Demianowska i z Kliniki Neurologicznej we Wroclawiu Kierownik: prof. dr R. Arend.
(CEREBRAL ARTERIES abnorm) (NEUROLOGICAL MANIFESTATIONS)

HOLYST, J.

"Etiopathogenic studies on 323 brain strokes" by L. Iwanowski. Reviewed by J. Holyst. Neurol neurochir psych 12 no.2:310 Mr-Ap '62.

HOLYST, J.

"History and development of neurology in Poland." Neurol neurochir psych 12 no.2:310 Mr-Ap '62.

HOLYST, J.

"Myelopolyneuritis resulting from tritolylphosphorane poisoning" by H. Geoffroy and others. Reviewed by J. Holyst. Neurol neurochir psych 12 no.2:312 Mr-Ap '62.

HOLYST, J.

"The possible role of vaccines and sera in the pathogenesis of multiple sclerosis" by G. Palffy, F.T. Merei. Reviewed by J. Holyst. Neurol neurochir psych 12 no.2:312-313 Mr-Ap '62.

KRAUSE, Krystyna; HOLYST, Jerzy

Psychic disturbances after the reactivation of the heart. Neurol neurochir psych 12 no.3:401-408 My-Je '62.

1. Klinika Psychiatryczna, Akademia Medyczna, Wroclaw (Kierownik: doc. dr M. Demianowska) i Klinika Neurologiczna, Akademia Medyczna, Wroclaw, Kraszewskiego 25. (Kierownik: prof. dr R. Arend).

HOLYST, J.

"The spinal cord. Basic aspects and surgical considerations" by G.Austin. Reviewed by J. Holyst. Neurol neurochir psych 12 no.4:631-632 Jl-Ag '62.

HOLYST, J.

"A functional approach to neuroanatomy" by E.L.House, B.Pansky. Reviewed by J.Holyst. Neurol neurochir psych 12 no.4:632-633 Jl-Ag '62.

HOLYST, J.

"The effect of advancing age upon the human spinal cord" by L.R. Morrison, S.Cobb, W.Bauer. Reviewed by J.Holyst. Neurol neurochir psych 12 no.6:933-934 N-D '62.

HOLYST, J.

"Intraspinal tumors of childhood" by R.W.Rand, C.W.Rand. Reviewed by J.Holyst. Neurol neurochir psych 12 no.6:934 N-D '62.

HOLYST, Jerzy; KRZYSZTON, Zofia

Dermatomyositis simulating bulbar syndrome. Pol. tyg. lek. 17 no.13: 484-486 26 Mr '62.

1. Z Kliniki Neurologicznej AM we Wroclawiu; Kierownik prof. dr Rudolf Arend.

(DERMATOMYOSITIS diag)

POLAND

Jerzy HOLYST, Witold DOLATA and Tadeusz ORLOWSKI, Neurology Clinic of College of Medicine (Klinika Neurologiczna Akademii Medycznej), Head (kierownik) Prof Dr k. AREND; and Department of General Surgery, Regional Army Hospital (Oddział Chirurgii Ogólnej Wojskowego Szpitala Okręgowego), Head Physician (Ordynator) physician (lekarz) T. ORLOWSKI, Wroclaw.

"Cerebral Complications and Changes after Cardiac Arrest."

Krakow, Przeglad Lekarski, Vol 18/Ser 2, No 11, 1962; pp 428-430.

Abstract [English summary modified]: Description of four cases in which circulation was arrested for 1, 4, 6 and 10 minutes respectively; it was then restored in all but all four eventually died -36, 29, 17 and 5 hours later with pyrexia, pulmonary edema, respiratory center failure. Direct cardiac massage, hibernation, injection of oxygenated blood under pressure directly into carotid arteries are advocated as probably the most promising therapeutic method in such cases. Three Polish and 14 Western references.

1/1

POLAND

HRYNKIEWICZ, Leon and HOLYST, Jerzy, Psychiatric Clinic (Klinika Psychiatryczna, (Director: Docent, Dr. M. DEMIANOWSKA) and the Neurological Clinic (Klinika Neurologiczne) (Director: Prof. Dr. R. AREND), both of the AM [Akademia Medyczna, Medical Academy] in Wroclaw

"Unusual Complication of the Antiool-Alcohol Reaction. Report of Two Cases."

Warsaw, Polski Tygodnik Lekarski, Vol 18, No 3, 14 Jan 63, pp 93-95.

Abstract: [Authors' English summary modified] Two unusual cases are described. In one, with a typical onset, a syndrome appeared like in cerebral stroke with hemiparesis, symptoms of atropine poisoning and mental disturbances. All signs disappeared after two days. In the second case, of alcohol poisoning, severe consciousness disturbances and fatal circulatory and respiratory troubles developed. Of the 16 references, five are Western, and 11 Eastern.

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POLAND

HOLYST, Jerzy, Neurological Clinic (Klinika Neurologiczna), AM [Akademia Medyczna, Medical Academy] in Wroclaw (Director: Prof. Dr. Rudolf AREND)

"Echo-Encephalography in Study of Organic Intracranial Changes."

Warsaw, Polski Tygodnik Lekarski, Vol 18, No 30, 22 Jul 63, pp 1109-1111

Abstract: Review article discussing the principle and apparatus used in, and the application of supersound in medicine for both diagnostic and therapeutic purposes, the effect of supersonic waves on brain tissue, and in greater length the use of ultrasonic techniques and echo-encephalography for the study of the structure of the brain. There are two illustrations of an echo encephalogram of normal brain and explanation of the I, M, and S areas. There are 30 references, of which two (2) are in Polish, one (1) in French, and the others in English.

1/1

HOLYST, Jerzy

Echo-encephalography in the diagnosis of intracranial hematomas. Pol. tyg. lek. 19 no.48:1835-1837 30 N'64.

1. Z Kliniki Neurochirurgicznej Akademii Medycznej w Poznaniu (kierownik: doc. dr. H. Powiertowski).

HOLYST, Jerzy; KRAUSE, Krystyna

Clinico-statistical evaluation of multiple sclerosis in Lower Silesia. Pol. tyg. lek. 20 no.10:337-340 8 Mr '65

1. Z Kliniki Neurologicznej Akademii Medycznej we Wroclawiu (Kierownik: prof. dr. Rudolf Arend).

HOINST. Jerzy; GRADZKI, Janusz

Use of subtraction in neuroradiology. Pol. tyg. lek. 19 no.7: 252-255 10 F '64.

1. Z Kliniki Neurochirurgii Akademii Medycznej w Poznaniu (kierownik: doc. dr Hieronim Powiertowski).

TOKARZ, Feliks; HOLYST, Jerzy

Surgical therapy of aneurysms of communicating arteries. Neurol., neurochir., psychiat. Pol. 15 no.1:135-143 Ja-F'65.

1. Z Kliniki Neurochirurgii Akademii Medycznej w Poznaniu (Kierownik: doc. dr. med. H. Powiertowski).

TOKARZ, Feliks ; HOLYST, Jerzy; STRZYZEWSKI, Wlodzimierz

Intracranial management of an arteriovencus aneurysm of the central cerebral region. Neurol., neurochir., psychiat. Pol. 15 no.1:191-193 Ja-F'65.

1. Z Kliniki Neurochirurgii Akademii Medycznej w Poznaniu (Kierownik: doc. dr. H. Powiertowski) i z Oddzialu Neurologicznego Szpitala im. Strusia w Poznaniu (Kierownik: dr. T. Frackowiak).

HOLYST, Jerzy

Echoencephalography. Postepy hig. med. dosw. 19 no.2:273-302 Mr-Ap '65.

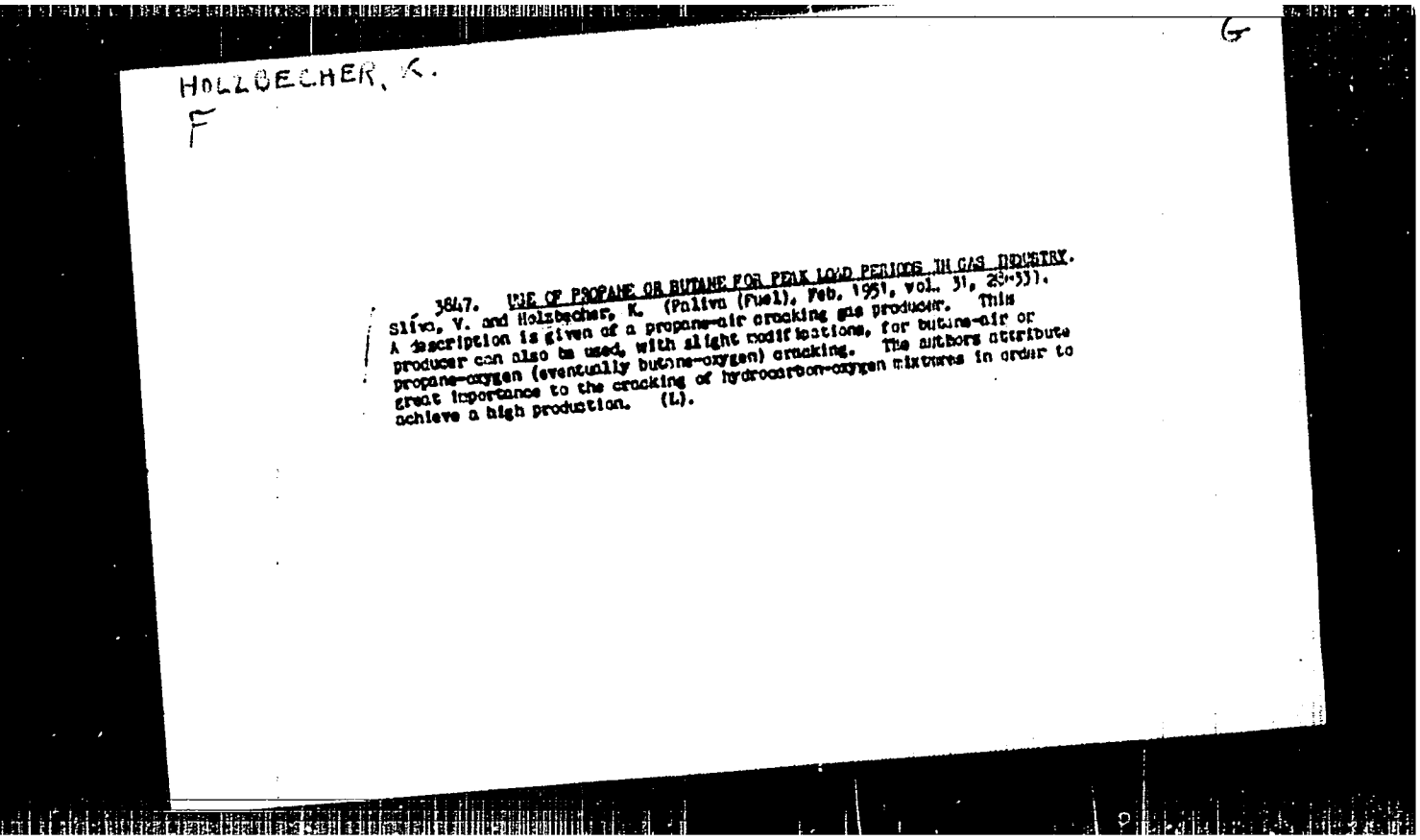
1. Z Kliniki Neurologicznej AM we Wroclawiu (Kierownik: prof. dr. R. Arend).

HOLZBECHER, K., inz.

Activities of the Third Subcommission of the International Gas Union in Czechoslovakia. Paliva 44 no.8:258-259 Ag '64.

HOLZBECHER, K.; MUSIL, J.

Radiant burners. Prace Ust paliv no. 5:34-93 '62.



HOLZBECHER, K.

F

G

3847. USE OF PROPANE OR BUTANE FOR PEAK LOAD PERIODS IN GAS INDUSTRY.
Slivo, V. and Holzbecher, K. (Paliva (Fuel), Feb. 1951, vol. 31, 28-33).
A description is given of a propane-air cracking gas producer. This producer can also be used, with slight modifications, for butane-air or propane-oxygen (eventually butane-oxygen) cracking. The authors attribute great importance to the cracking of hydrocarbon-oxygen mixtures in order to achieve a high production. (L).

HOLZBECHER, K.

"Utilisation of Infrared Gas Burners in Industry and Agriculture," p. 86.
(Paliva, Vol.33, No.4, Apr. 1953, Praha.)

SO: Monthly List of East European Accessions, Vol.2, No.9, Library of Congress, September 1953, Uncl.

HOLZBECHER, K.

"Survey of Contemporary Development in the Production of High-Capacity Gas Burners." p. 26, Praha, Vol. 34, no. 2, Feb. 1954.

SO: East European Accessions List, Vol. 3, No. 9, September 1954, Lib. of Congress

HOLZBECHER, K.

"Heating industrial enterprises with infrared gas burners." p. 705.

STROJIRENSTVI. (MINISTERSTVO TEZKEHO STROJIRENSTVI, MINISTERSTVO PRESNEHO STROJIRENSTVI A MINISTERSTVO AUTOMOBILOVEHO PRUMYSLU A ZEMEDELSKYCH STROJU.) Praha, Czechoslovakia, Vol. 5, no. 9, Sept. 1955.

The advantages are outlined and an illustrated description is given of flameless gas burners, consisting mainly of porous plates, which have been designed by the Research Institute of the Gas Industry and used in their hall. (L)/

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 9, September 1959. Uncl.

HOLZBERGER, K. BECHER

Industrial gas appliances. p. 236

PALIVA.(Ministerstvo paliv a Ceskoslovenska vedecka technicka spolecnost pro vyuziti paliv pri Ceskoslovenske akademii ved) Praha, Czechoslovakia, Vol. 39, no. 7, July 1959.

Monthly list of East European Accessions (EEAI) LC, Vol. 8, No. 11, November 1959.

uncl.

HOLZBECHER, K., ing.

Meeting of the Subcommittee on Use of Gas in Industries and Municipal Enterprises of the International Gas Union. Paliva 42 no.12:374 D '62.

HOLZBECHER, Kristian, inz.

Possibility of economical consumption of gas in industry.
Energetika Cz 13 no.1:22-23 Ja '63.

1. Ustav pro vyzkum paliv, Bechovice.

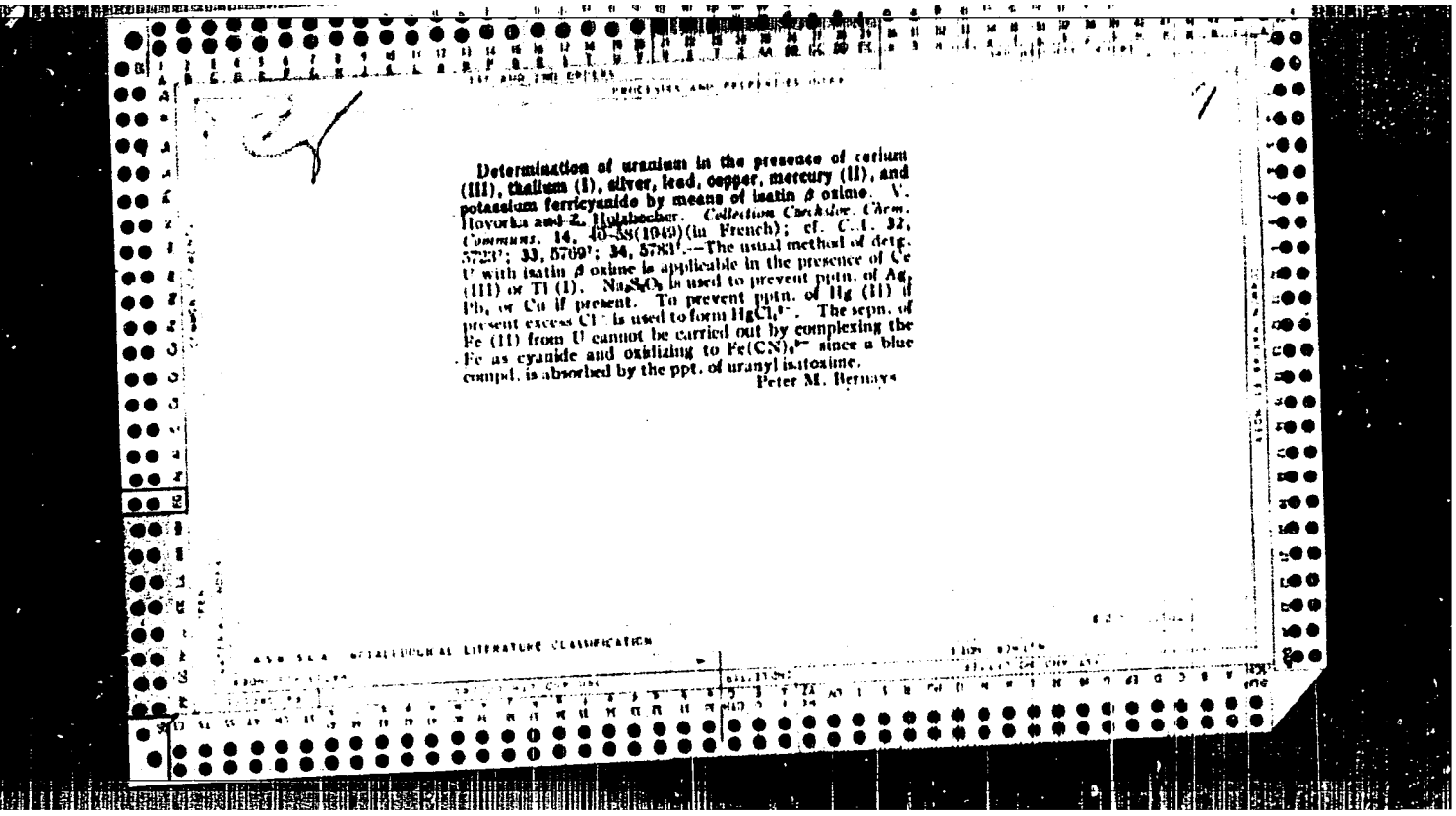
MINEO, V., inz.; HOLZBECHER, K., inz.

Radiation burners for technological processes with temperatures up to 1400° C. Paliva 44 no.2:41-45 F'64.

1. Ustav pro vyzkum paliv, Bechovice.

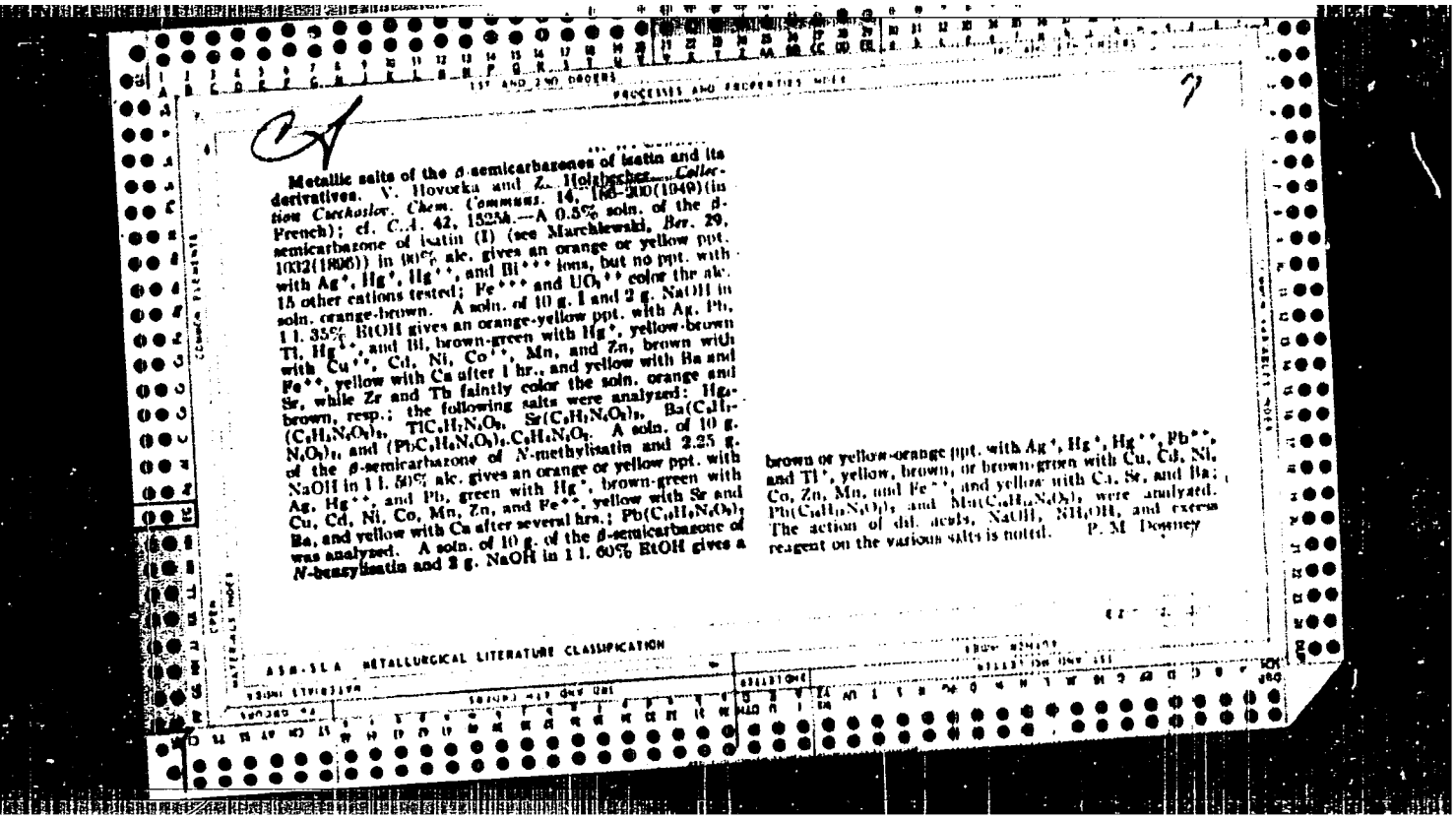
HOLZBECHER, K.

Use of gas for radiant heating. Paliva 44 no.5/6:194-198
My-Je '64.



Determination of uranium in the presence of cerium (III), thallium (I), silver, lead, copper, mercury (II), and potassium ferricyanide by means of isatin β oxime. V. Hovorka and Z. Hulánicka. *Collection Czechoslov. Chem. Communs.* 14, 40–58(1949)(in French); cf. C.A. 32, 5729⁹; 33, 5709⁷; 34, 5783⁴.—The usual method of detg. U with isatin β oxime is applicable in the presence of Ce (III) or Tl (I). $Na_2S_2O_3$ is used to prevent pptn. of Ag, Pb, or Cu if present. To prevent pptn. of Hg (II) if present excess Cl^- is used to form $HgCl_4^{--}$. The sepn. of Fe (II) from U cannot be carried out by complexing the Fe as cyanide and oxidizing to $Fe(CN)_6^{---}$ since a blue compd. is absorbed by the ppt. of uranyl isatoxime.

Peter M. Bernays



CA

Metallic salts of the β-semicarbazones of isatin and its derivatives. V. Hovorka and Z. Holzbecher. *Collection Czechoslov. Chem. Communs.* 14, 186–200(1949)(in French); cf. *C.A.* 42, 1525h.—A 0.5% soln. of the β-semicarbazone of isatin (I) (see Marchlewski, *Ber.* 29, 1032(1896)) in 80% alc. gives an orange or yellow ppt. with Ag^+, Hg^+, Hg^{++}, and Bi^{+++} ions, but no ppt. with 18 other cations tested; Fe^{+++} and UO_2^{++} color the alc. soln. orange-brown. A soln. of 10 g. I and 2 g. NaOH in 1 l. 35% EtOH gives an orange-yellow ppt. with Ag, Pb, Tl, Hg^{++}, and Bi, brown-green with Hg^+, yellow-brown with Cu^{++}, Cd, Ni, Co^{++}, Mn, and Zn, brown with Fe^{++}, yellow with Ca after 1 hr., and yellow with Ba and Sr, while Zr and Th faintly color the soln. orange and brown, resp.; the following salts were analyzed: $Hg_2(C_9H_7N_4O_2)_2$, $TlC_9H_7N_4O_2$, $Sr(C_9H_7N_4O_2)_2$, $Ba(C_9H_7N_4O_2)_2$, and $(PbC_9H_6N_4O_2)_2 \cdot C_9H_8N_4O_2$. A soln. of 10 g. of the β-semicarbazone of *N*-methylisatin and 2.25 g. NaOH in 1 l. 50% alc. gives an orange or yellow ppt. with Ag, Hg^{++}, and Pb, green with Hg^+, brown-green with Cu, Cd, Ni, Co, Mn, Zn, and Fe^{++}, yellow with Sr and Ba, and yellow with Ca after several hrs.; $Pb(C_{10}H_9N_4O_2)_2$ was analyzed. A soln. of 10 g. of the β-semicarbazone of *N*-benzylisatin and 2 g. NaOH in 1 l. 60% EtOH gives a brown or yellow-orange ppt. with Ag^+, Hg^+, Hg^{++}, Pb^{++}, and Tl^+, yellow, brown, or brown-green with Cu, Cd, Ni, Co, Zn, Mn, and Fe^{++}, and yellow with Ca, Sr, and Ba; $Pb(C_{16}H_{13}N_4O_2)_2$ and $Ba(C_{16}H_{13}N_4O_2)_2$ were analyzed. The action of dil. acids, NaOH, NH_4OH, and excess reagent on the various salts is noted. P. M. Denney

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

(A

Metallic salts of the 3-thiosemicarbazones of isatin and its derivatives. V. Hovorka and Z. Holzbecher. *Collection Czechoslov. Chem. Communs.* 14, 248-62(1949)(in French); cf. *C.A.* 43, 8070g.—A 0.5% soln. of the 3-thiosemicarbazone of isatin (I) in 90% alc. gives a yellow to orange ppt. with Ag, Hg^{++}, and Bi, brown-green with Hg^{+}, but no ppt. with Cd, Mn, Zn, and Fe^{++}, while Cu^{++}, Ni, and Co color the soln. brown, and Fe^{+++}, Sb^{+++}, and UO_2^{++} color it orange; the addn. of AcONa gives a yellow to brown ppt. with Cd, Ni, Co, Mn, Cu^{++}, and Zn, and dark green with Fe^{++}. A soln. of 10 g. I and 2.1 g. NaOH in 1 l. 50% EtOH gives a yellow to orange ppt. with Ag, Hg^{+}, Hg^{++}, and Bi, and orange with Pb and K; the following salts were analyzed: $Hg(C_9H_8N_4OS)_2$, $Pb(C_9H_8N_4OS)_2$, $TlC_9H_8N_4OS$, $Ni(C_9H_8N_4OS)_2$, $Co(C_9H_8N_4OS)_2$, $Zn(C_9H_8N_4OS)_2$. A 0.5% soln. of the 3-thiosemicarbazone of 1-methylisatin (II) in Me_2CO gives an orange ppt. with Ag and Hg^{++}, and a brown-green ppt. with Hg^{+}, while Fe^{+++} colors the soln. dark brown, and UO_2^{++} orange; ppts. are obtained with Cu, Cd, Ni, Co, Zn, and Mn only after the addn. of AcONa. A soln. of 10 g. II and 3 g. NaOH in 1 l. 70% EtOH gives a brown-green ppt. with Hg^{+} and Ag, orange with Hg^{++}, Pb, Tl, and Bi, brown, orange, or yellow with Cu, Cd, Ni, Co, Zn, Mn, and dark green with Fe^{++}; the following salts were analyzed: $Hg(C_{10}H_{10}N_4OS)_2$, $Pb(C_{10}H_{10}N_4OS)_2$, $TlC_{10}H_{10}N_4OS$, $Ni(C_{10}H_{10}N_4OS)_2$, $Co(C_{10}H_{10}N_4OS)_2$, and $Zn(C_{10}H_{10}N_4OS)_2$. A soln. of 10 g. of the 3-thiosemicarbazone of 1-benzylisatin and 2 g. NaOH in 1 l. of 75% Me_2CO gives yellow and brown to red-brown ppts. with Ag, Pb, Hg^{++}, Tl, Bi, Cu, Cd, Ni, Co, Mn, and Zn, and a dark green ppt. with Hg^{+} and Fe; $Pb(C_{17}H_{14}N_4OS)_2$ was analyzed

The action of dil. acids, NaOH, NH_4OH, and excess reagents on the various salts is noted. P. M. Downey

CA

Microchemical tests for sulfite, thiosulfate, sulfide, hydrogen peroxide, and formaldehyde. V. Hovorka and [illegible] Holzbecher (École polytech., Prague). *Collection Czech. Chem. Communs.* 15, 117-19(1950)(in French).—The test is based on the reduction of MnO_4^- by the substances named. MnO_4^- paper (I) is prepd. by moistening filter paper with 0.002 *N* $KMnO_4$ for 30 min. and drying. Pieces 1 × 1 cm. are used. A 0.5% soln. (II) of benzidine in 10% HOAc is used to form a visible color. Place a micro drop (0.003 ml.) of test soln. on I and dip in II for a few sec. White spots on the blue paper show the presence of SO_3^{--}, $S_2O_3^{--}$, S^{--}, or H_2O_2. HCHO causes green spots. Cl^-, Br^-, NO_3^-, SO_4^{--}, F^-, SiO_3^{--}, MoO_4^{--}, and WO_4^{--} cause a faint purple spot. The dilns. and sensitivities are H_2O_2, 1:3 × 10^4, 0.1 [B] 0.003; SO_3^{--}, 1:6 × 10^4, 0.5 [B] 0.003; $S_2O_3^{--}$, 1:1.5 × 10^4, 0.2 [B] 0.003; S^{--}, 1:3 × 10^4, 0.1[B]0.003; and HCHO, 1:750, 4[B]0.003.

K. G. Stone

CA

10

Metallic salts of salicylaldehyde thiosemicarbazone. V. Hovorka and Z. Holzbecher. *Collection Czechoslov. Chem. Communs.* 15, 267-74(1950)(in French). o-HOC$_6$H$_4$CH:NNHCSNH$_2$ (I), because of its tautomeric possibilities, behaves as a mono- or diacid in the formation of cryst. metallic salts. I is prepd. by mixing alc. o-HOC$_6$H$_4$CHO with aq. H$_2$NNHCSNH$_2$.HCl in equimol. quantities, chilling, and recrystg. the pptd. I from hot EtOH.

The metallic salts are prepd. with a 0.5% alc. soln. of I and upon the addn. of NaOAc characteristic colors are formed. The following salts are prepd.: C$_8$H$_7$ON$_2$SNi.NH$_3$, red-brown; C$_8$H$_7$ON$_2$SPb, yellow; (C$_8$H$_7$ON$_2$S)$_2$Cd, yellow; C$_8$H$_7$ON$_2$STl, yellow; C$_8$H$_7$ON$_2$SCo.C$_8$H$_8$ON$_2$SNH$_3$, or C$_8$H$_7$ON$_2$SCo.NH$_3$.C$_8$H$_8$ON$_2$S, black; C$_8$H$_7$ON$_2$SCu, brown-black. The structural formulas of the above salts are discussed.

Bernard Klein

C. A.

Gravimetric determination of cadmium by using the thiosemicarbazone of salicylaldehyde. V. Hovorka and Z. Holzbecher.—*Collection Czechoslov. Chem. Communs.* 13: 275–80 (1950) (in French).—Cd in solns. of NO_3^- and $SO_4^=$ ions as the salt of thiosemicarbazone of salicylaldehyde $CdC_8H_8ON_3S_2$ (I) can be readily detd. within the limits of exptl. error. An excess of NaOAc does not affect the results of the detn. but the presence of Cl^-, F^-, tartrate, and citrate prevent quant. pptn. Alkali earth metals are entrained in the ppt. A soln. contg. 0.084 to 0.14 g. Cd in 25 to 75 cc. is mixed with 45 to 50 cc. of 0.5% alc. soln. of I 0.05 g. Cd. Ten % NaOAc is then added with stirring, and the soln. is heated to boiling until faint turbidity. The addn. is halted and the turbidity is cleared by heating until a yellow crystn. ppt. forms. The remainder of the NaOAc is added. Usually 20–30 cc. of NaOAc is required/0.05 g. Cd. The mixt. is warmed 0.5 hr. and chilled. The ppt. is collected on a crucible, washed with 50 to 150 cc. ice-water and 5 to 10 cc. EtOH, dried at 110°, and weighed.

Bernard Klein

C A.

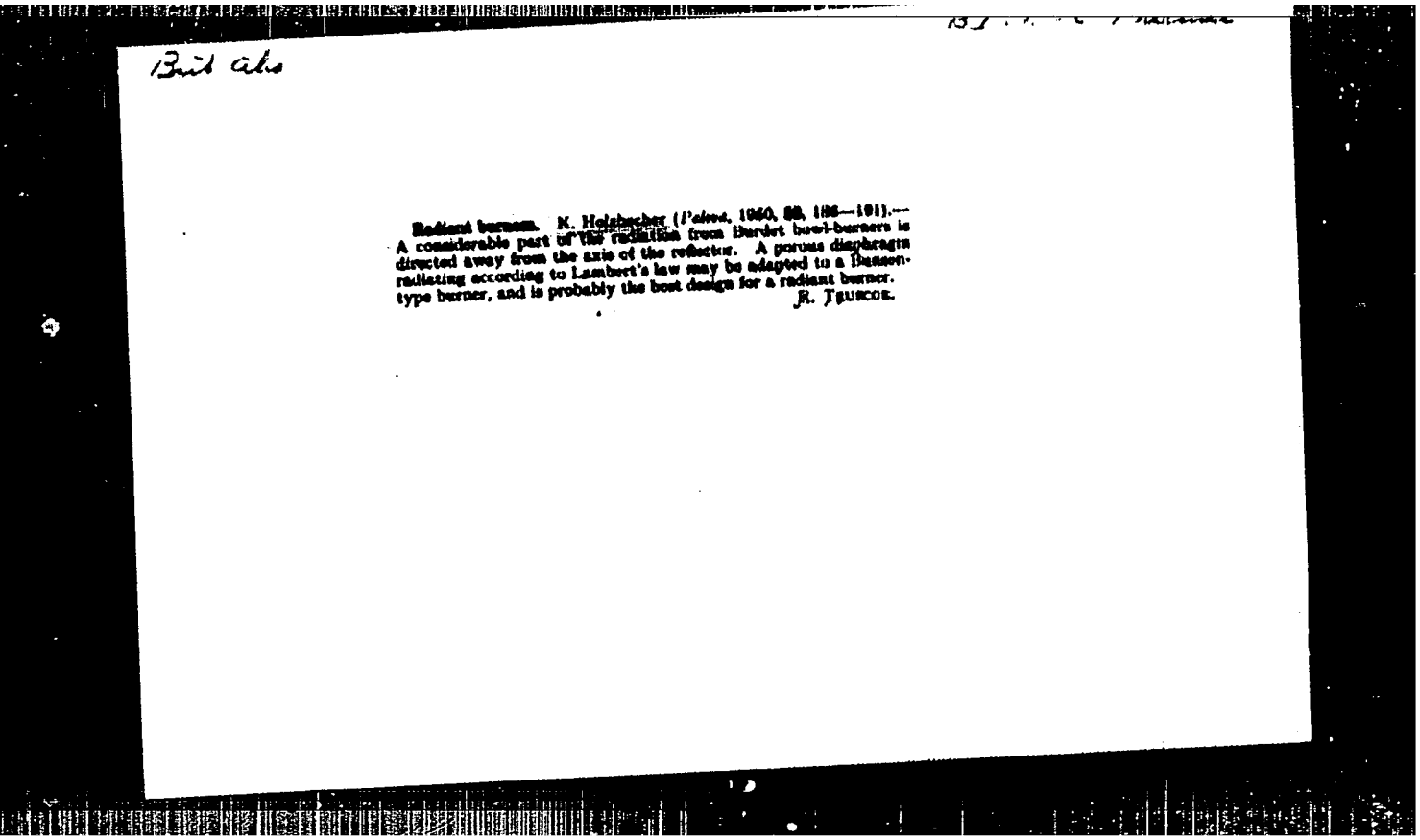
Microchemical confirmation of manganese with biacetyl-oxime-thiosemicarbazone. V. Hovorka and Z. Holzbecher. *Collection Czechoslov. Chem. Communs.* 15, 287–7 (1950) (in French). — Microchem. confirmation of Mn^{++} in solns. can be obtained either on a spot plate or paper impregnated with an alc. soln. of biacetyl oxime thiosemicarbazone. After addn. of NH_3 the spot plate or test paper shows either a red-violet ring or spot. Common ions do not interfere. Mn^{++} can be confirmed in the presence of Fe^{++} by means of tartrate, or in the presence of Ni by the use of KCN. The reagent is prepd. by heating to 50–70° g. AcC(:NOH)Me, 17.2 g. $AcONa \cdot 3H_2O$ in 500 ml. H_2O acidified with 6.0 ml. AcOH, and adding 500 ml. of a warm aq. soln. contg. 68 g. $H_2NNHC:SNH_2$. A 90% yield of a pale yellow solid is soon deposited and after heating for an addnl. 2 hrs. is chilled for several days and recrystd. from EtOH, m. 209° (decompn.). Alc. solns. are colorless and unstable, turning brown after several days.

Bernard Klein

C. A.
1951

Organic Chemistry
10

Metallic salts of diacetyl oxime thiosemicarbazone. V. Hovorka and Z. Holzbecher (École polytech., Prague). *Collection Czech. Chem. Communs.* 15, 437-44(1950)(in French); cf. C.A. 44, 2075f, 45, 975e, 2385i.—It is concluded that there are 2 tautomeric forms of biacetyl oxime thiosemicarbazone: HON:CMeCMe:NNHCSNH$_2$ (I) and HON(:CMeCMeNNHC:NH)SH (II). I is a monobasic, II a dibasic acid. Derivs. of I: *Co salt*, $(C_5H_9ON_4S)_2Co.H_2O$, brown; *Cd salt*, $(C_5H_9ON_4S)_2Cd.3H_2O$, yellow. Derivs. of II: *Ni salt*, $C_5H_8ON_4S.Ni$, brown-red. *Cu salt*, $C_5H_8ON_4S.Cu$. The *ferric salt*, $C_5H_8ON_4S.Fe:C_5H_9ON_4S$ seems to contain one group each of I and II; it occurs in a brownish-yellow and in a black form, which give the same Debye diagram. Alfred Hoffman



Brit abs

Radiant burners. K. Holzbecher (*Feuer.*, 1940, **22**, 185—191).—A considerable part of the radiation from Bunsen burners is directed away from the axis of the reflector. A porous diaphragm radiating according to Lambert's law may be adapted to a Bunsen-type burner, and is probably the best design for a radiant burner.

R. Truscott.

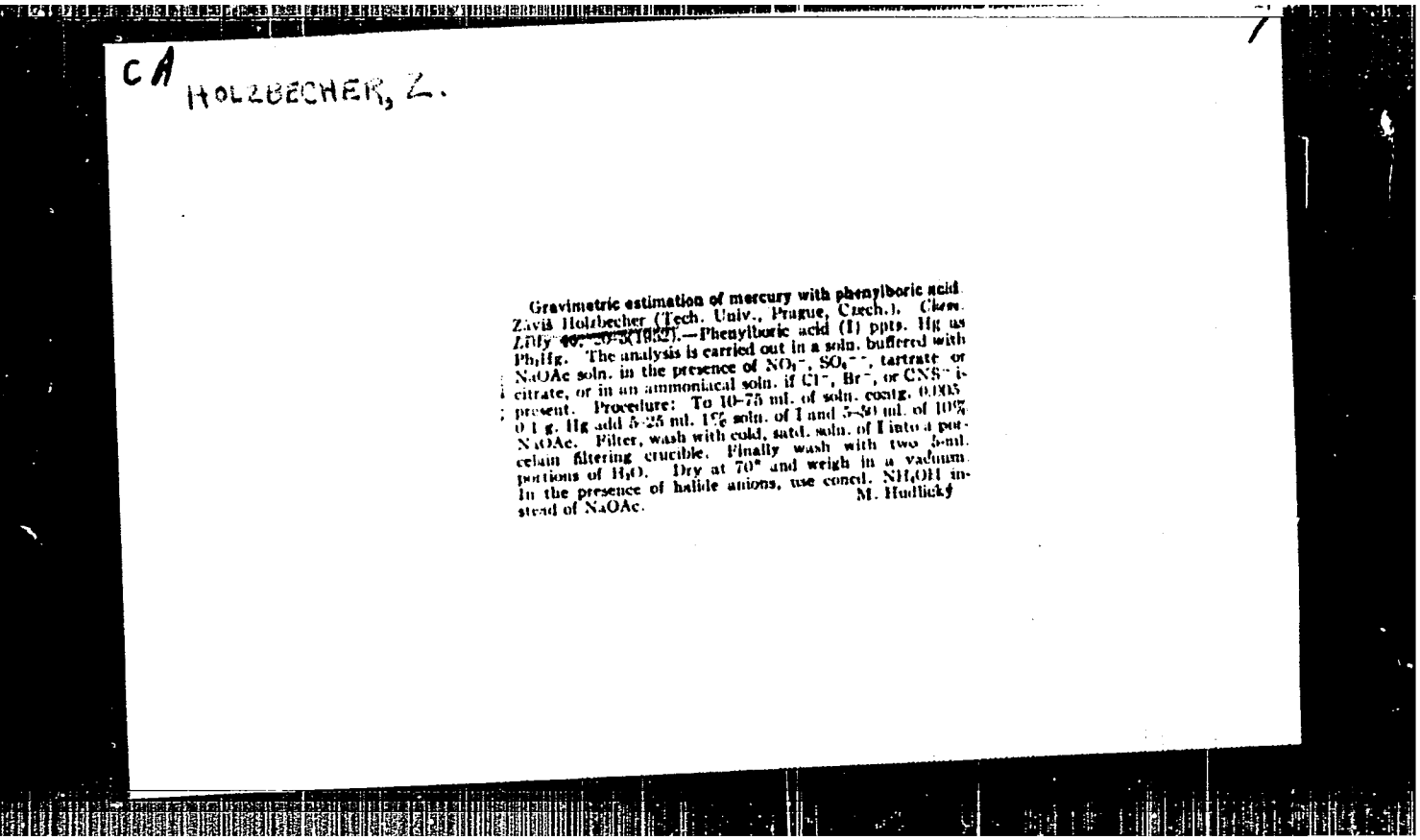
CA

3-Semicarbazones and 3-(3-thiosemicarbazones) of isatin and its derivatives. Z. Holzbecher (Tech. Univ., Prague). *Chem. Listy* 44, 126-7(1950).—To 20 g. isatin suspended in 1 l. boiling water was added 17 g. $H_2NNHCONH_2.HCl$ (I) in H_2O, the mixt. boiled a few min., and the ppt. filtered by suction and washed with water to yield 27 g. (97%) *isatin 3-semicarbazone* (II), yellow needles, decompg. 250°, soly. in MeOH 1% at the b.p., 0.5% at 20°, less sol. in EtOH and Me_2CO. The *Na salt* (III) of II was prepd. by adding an equiv. amt. of NaOH to II in aq. EtOH; its soly. is 1 g. in 100 ml. 25% EtOH. *1-Methylisatin 3-semicarbazone* was prepd. analogously from 10 g. 1-methylisatin and 7.5 g. I. Two forms of crystals were isolated: after drying at 110° both forms decomp. 230° (from water). The soly. in H_2O, MeOH, EtOH, and Me_2CO is less than 0.1%. The soly. of the *Na salt* in 50% EtOH is 1% at 20°. To 15 g. 1-benzylisatin in 300 ml. hot EtOH was added 8 g. I in 50 ml. water, and the ppt. filtered by suction, washed with hot water and EtOH, and dried at 110° to yield 17.5 g. (plus 0.5 g. from the mother liquor)(97%) *1-benzylisatin 3-semicarbazone*, m. 214° (decompn.)(from EtOH), soly. in boiling AcOH and in 0.2% NaOH in 4:6 EtOH-H_2O 1%, in MeOH, EtOH, AmOH, Me_2CO, and C_5H_5N less than 0.5%, insol. in C_6H_6, CS_2, and $CHCl_3$. *Isatin 3-(3-thiosemicarbazone)*, m. 255° (decompn.)(from MeOH), was prepd. from 15 g. isatin in 1 l. boiling water and 11 g. $H_2NCSNHNH_2$ (IV) in almost 100% yield. The soly. in EtOH is 0.5% in MeOH and in 0.2% NaOH in 1:1 aq. EtOH 1%, and in acetone more than 2% at room temp. IV (4.5 g.) in H_2O was added to 5 g. 1-methylisatin in 300 ml. boiling water and boiled 1 hr.; the addn. of 0.5 ml. dil. HCl accelerated the reaction. The ppt., washed with water and dried at 110°, yielded 7.1 g. (98%) *1-methylisatin 3-thiosemicarbazone*, m. 240° (decompn.)(from MeOH). Excess IV was necessary. The soly. is 1% in boiling, 0.5% in cold Me_2CO, less than 0.5% in MeOH, EtOH, and 50% AcOH, and 1% in 0.3% NaOH in H_2O:EtOH (3:7). IV (5 g.) in 30 ml. hot water and 0.5 ml. HCl (1:1) added to 12 g. 1-benzylisatin in 250 ml. boiling EtOH, and the mixt. boiled a few min. yielded 15.2 g. (97%) 1-benzylisatin 3-thiosemicarbazone, m. 240° (decompn.), soly. in boiling C_5H_5N 1%, in MeOH, EtOH, AmOH, Me_2CO, or AcOH less than 0.5%, in 0.2% NaOH in H_2O-Me_2CO (1:3) 1%.

M. Hudlicky

CA HOLZBECHER, Z.

Reactions of phenylboric acid and its nitro derivatives with metal salts. Zdeněk Holzbecher (Tech. Univ., Prague, Czech.). *Chem. Listy* 46, 17–19 (1952).—PhB(OH)$_2$ (I) ppts. Cu(I) from Cu(OAc)$_2$ solns. Cu(OAc)$_2$ and *o*-NO$_2$C$_6$H$_4$B(OH)$_2$ or *m*-NO$_2$C$_6$H$_4$B(OH)$_2$ give Cu(I) and 2,2′-dinitrodiphenyl (40%), resp. Hg(NO$_3$)$_2$ and I in 10% NaOAc ppts. 100% PhHgI, m. 125°. I ppts. PhHgI, m. 251–6°, in 100% yield from a soln. contg. Hg(NO$_3$)$_2$, KI, NH$_4$NO$_3$, and NH$_4$OH. M. Hudlický

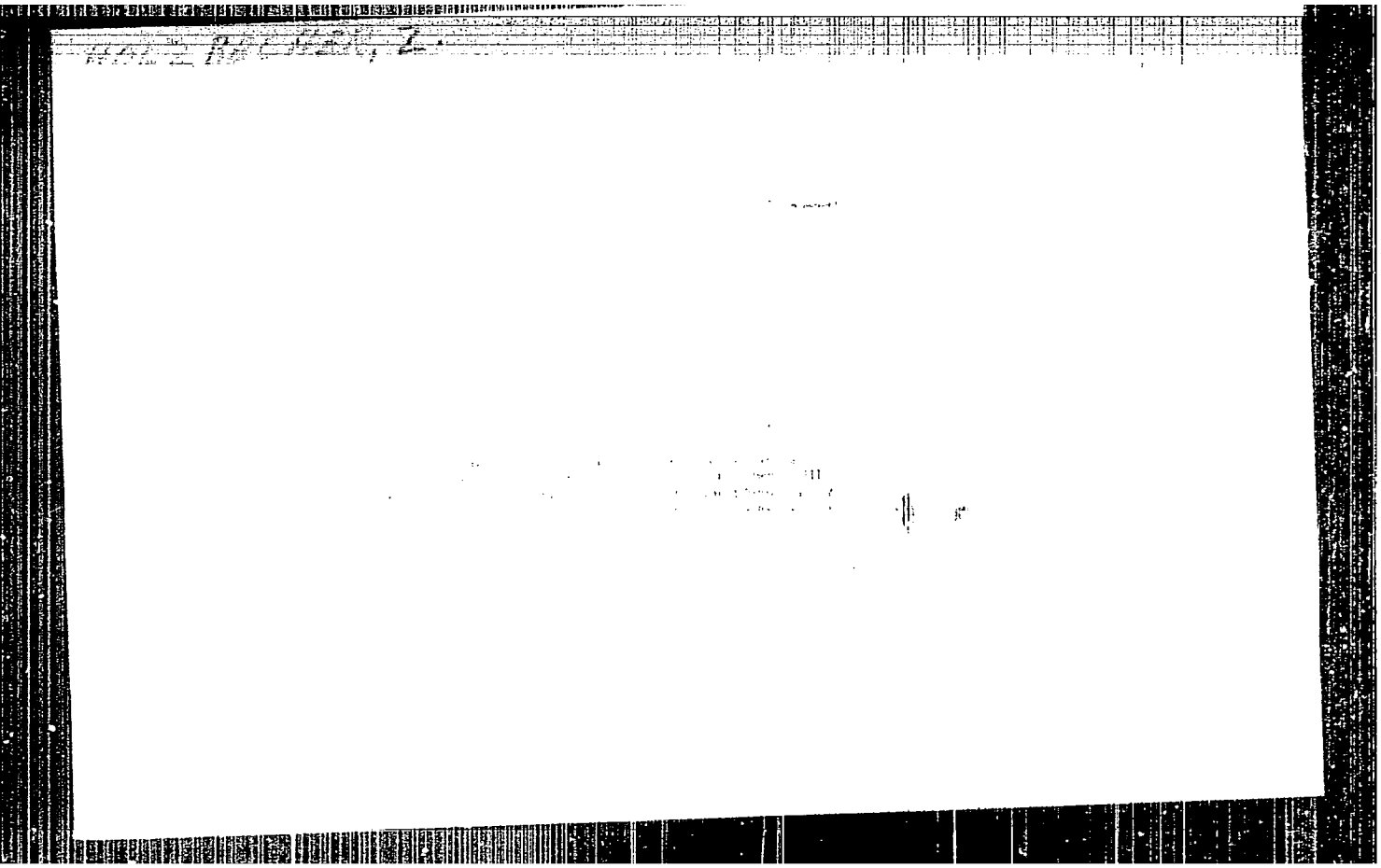


CA

HOLZBECHER, Z.

Gravimetric estimation of mercury with phenylboric acid. Zdeněk Holzbecher (Tech. Univ., Prague, Czech.). *Chem. Listy* 46, 57-8(1952).—Phenylboric acid (I) ppts. Hg as Ph_2Hg. The analysis is carried out in a soln. buffered with NaOAc soln. in the presence of NO_3^-, SO_4^{--}, tartrate or citrate, or in an ammoniacal soln. if Cl^-, Br^-, or CNS^- is present. Procedure: To 10–75 ml. of soln. contg. 0.005–0.1 g. Hg add 5–25 ml. 1% soln. of I and 5–50 ml. of 10% NaOAc. Filter, wash with cold, satd. soln. of I into a porcelain filtering crucible. Finally wash with two 5-ml. portions of H_2O. Dry at 70° and weigh in a vacuum. In the presence of halide anions, use concd. NH_4OH instead of NaOAc.

M. Hudlický



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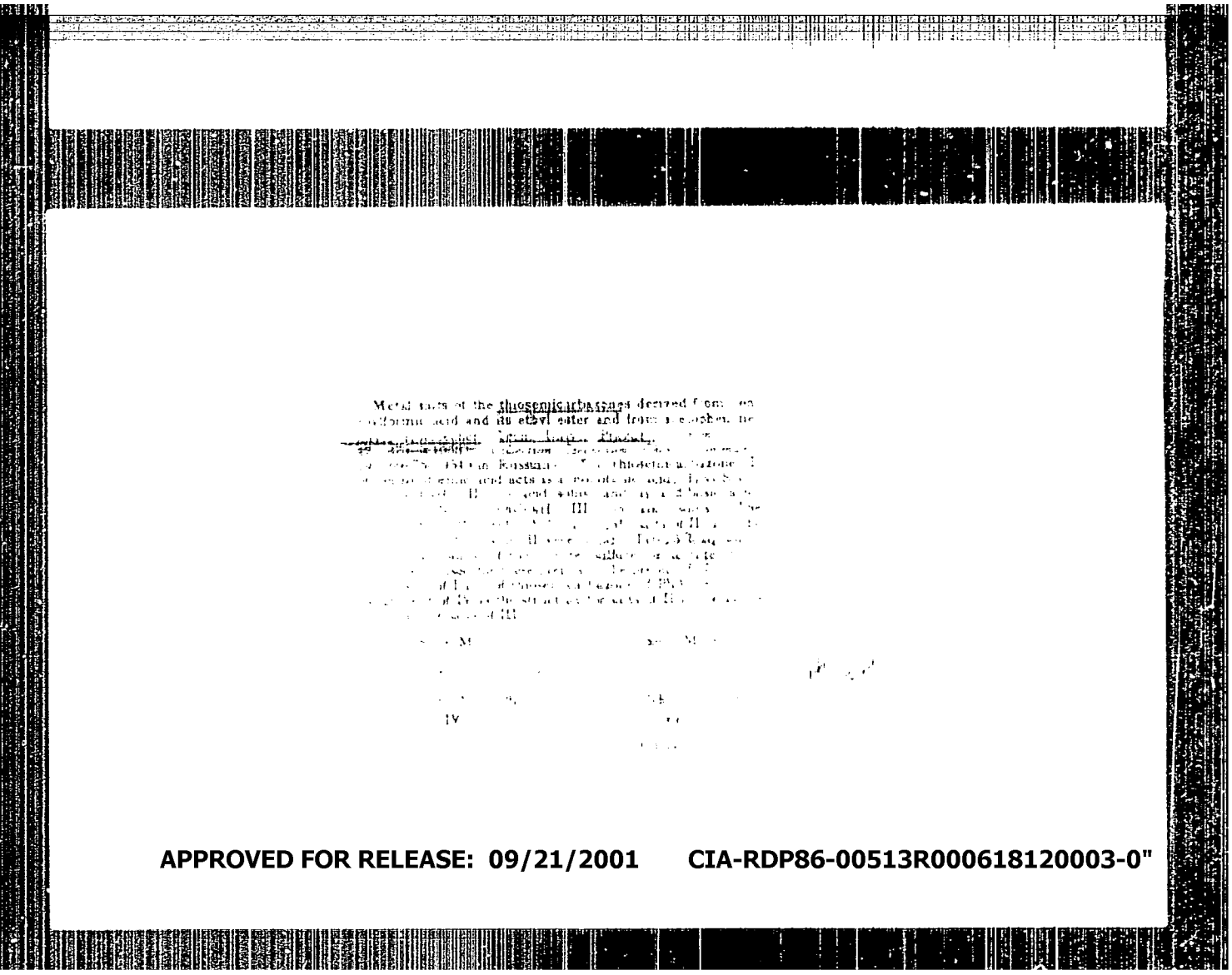
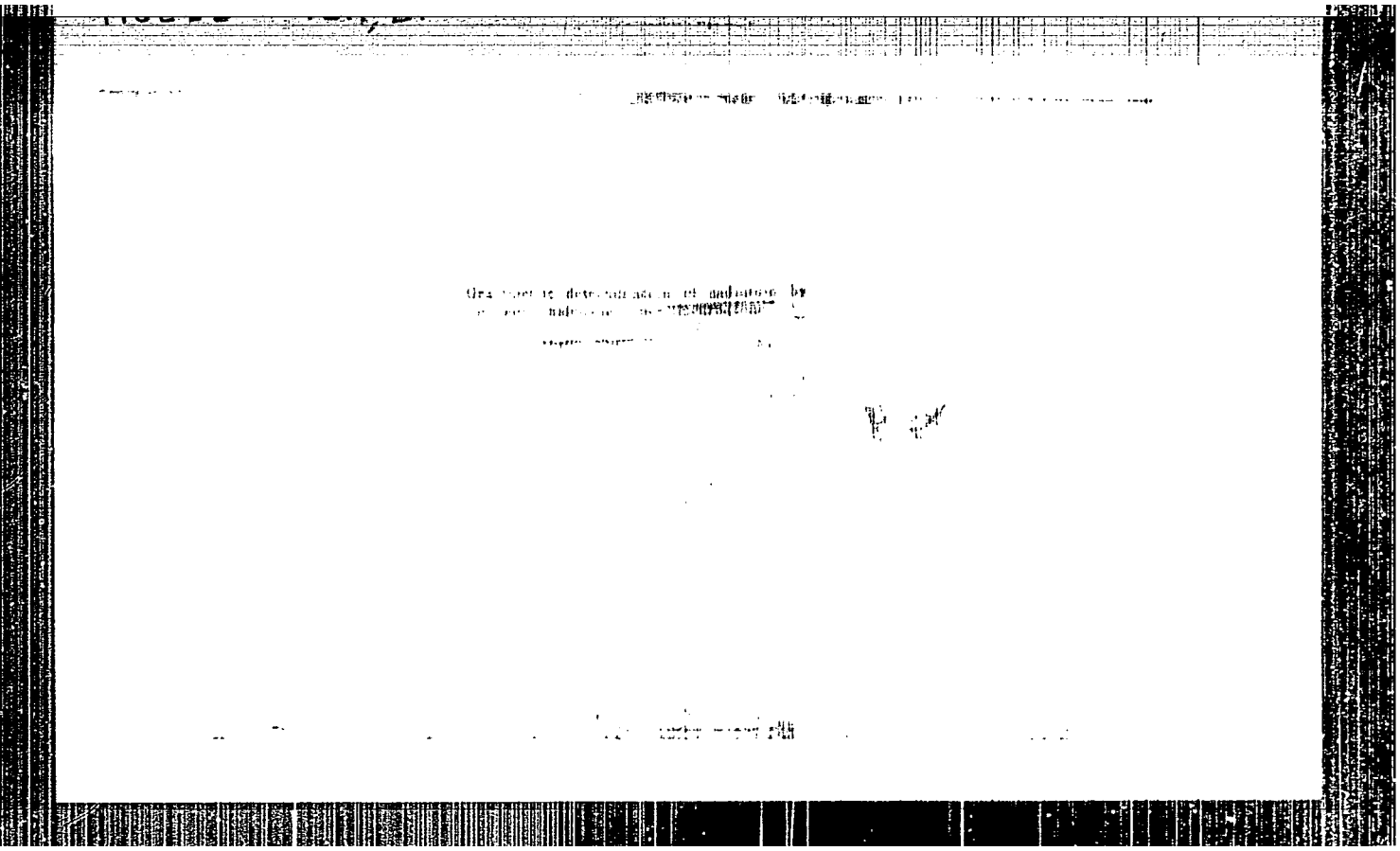


HOLZBECHER, Z.

"New Fluorescent Reactions of Aluminum" p. 680, (CHEMICKE LISTY, Vol. 47, no. 5, May 1953, Praha, Czechoslovakia).

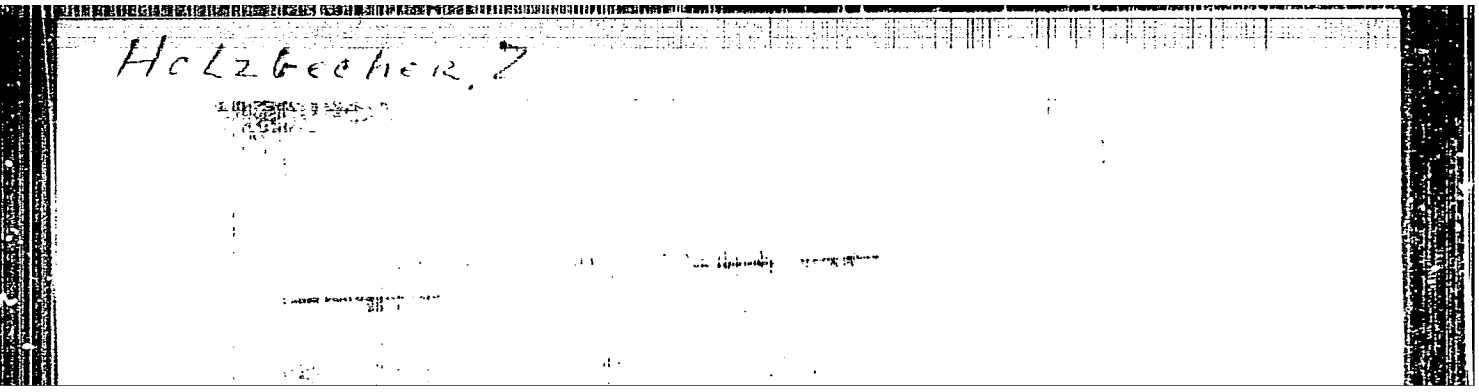
SO: Monthly List of East European Accessions, LC, Vol. 2, No. 11, Nov. 1953, Uncl.

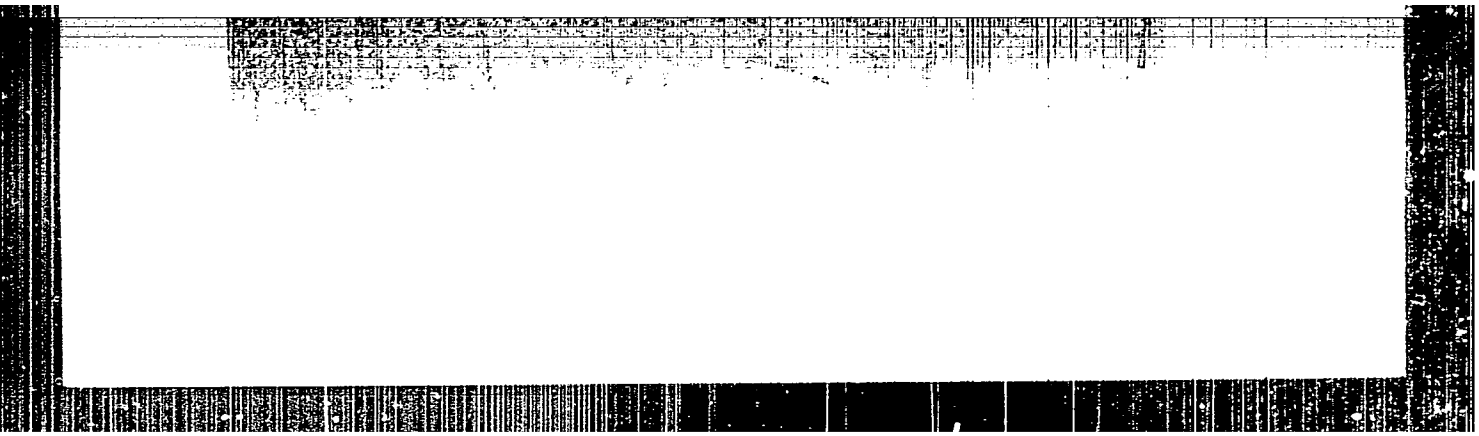


HOLZBECHER, Z.

Metal salts of the thiosemicarbazones derived from benzoylformic acid and its ethyl ester, and from acetophenone [in Russian with summary in English]. Sbor.Chekh.khim.rab. 19 no.1:69-76 F '54. (MLRA 7:6)

1. First Department of Analytical Chemistry, Technical University, Prague. (Semicarbazones) (Glyoxylic acid) (Acetophenone)





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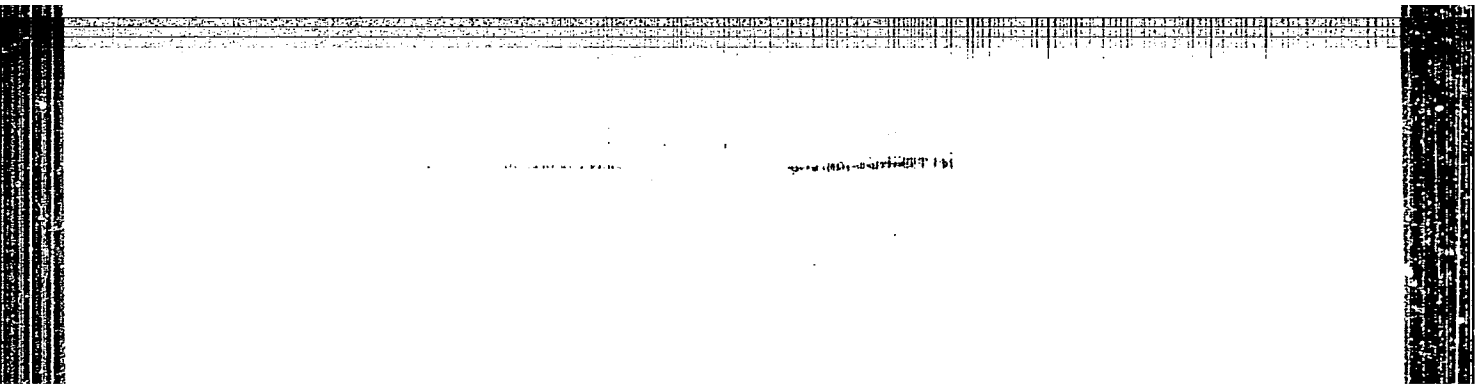

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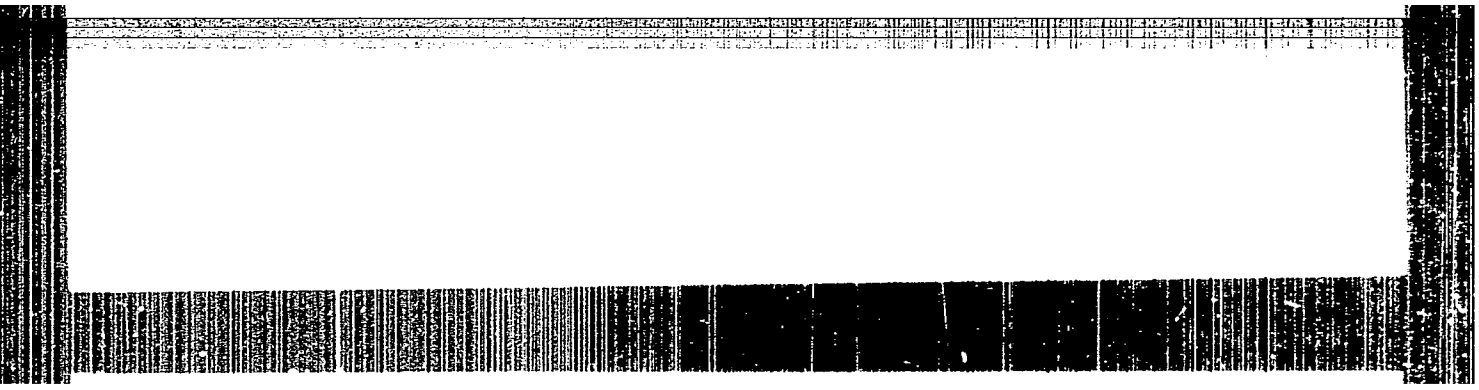

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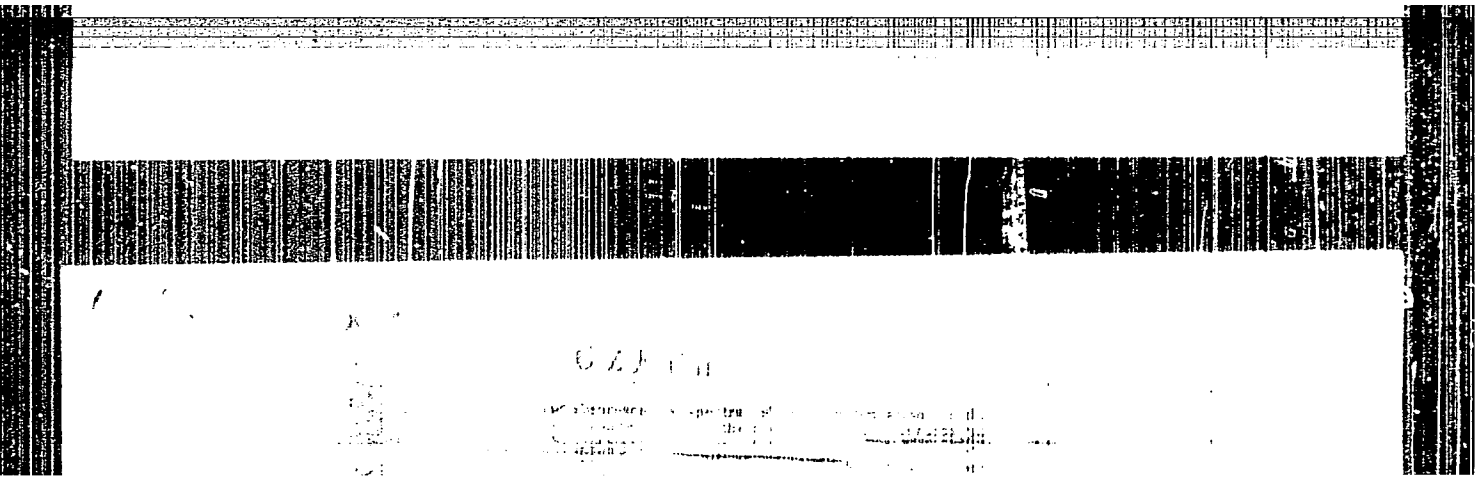

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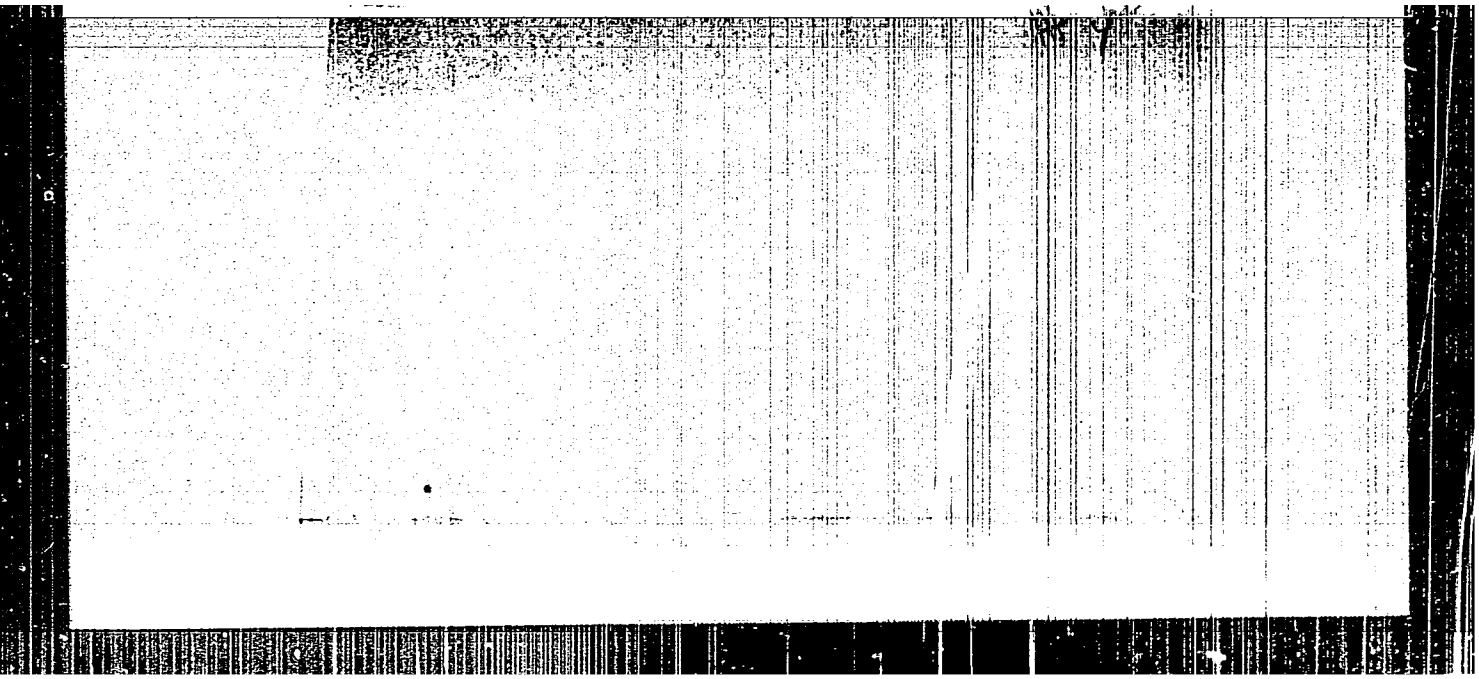

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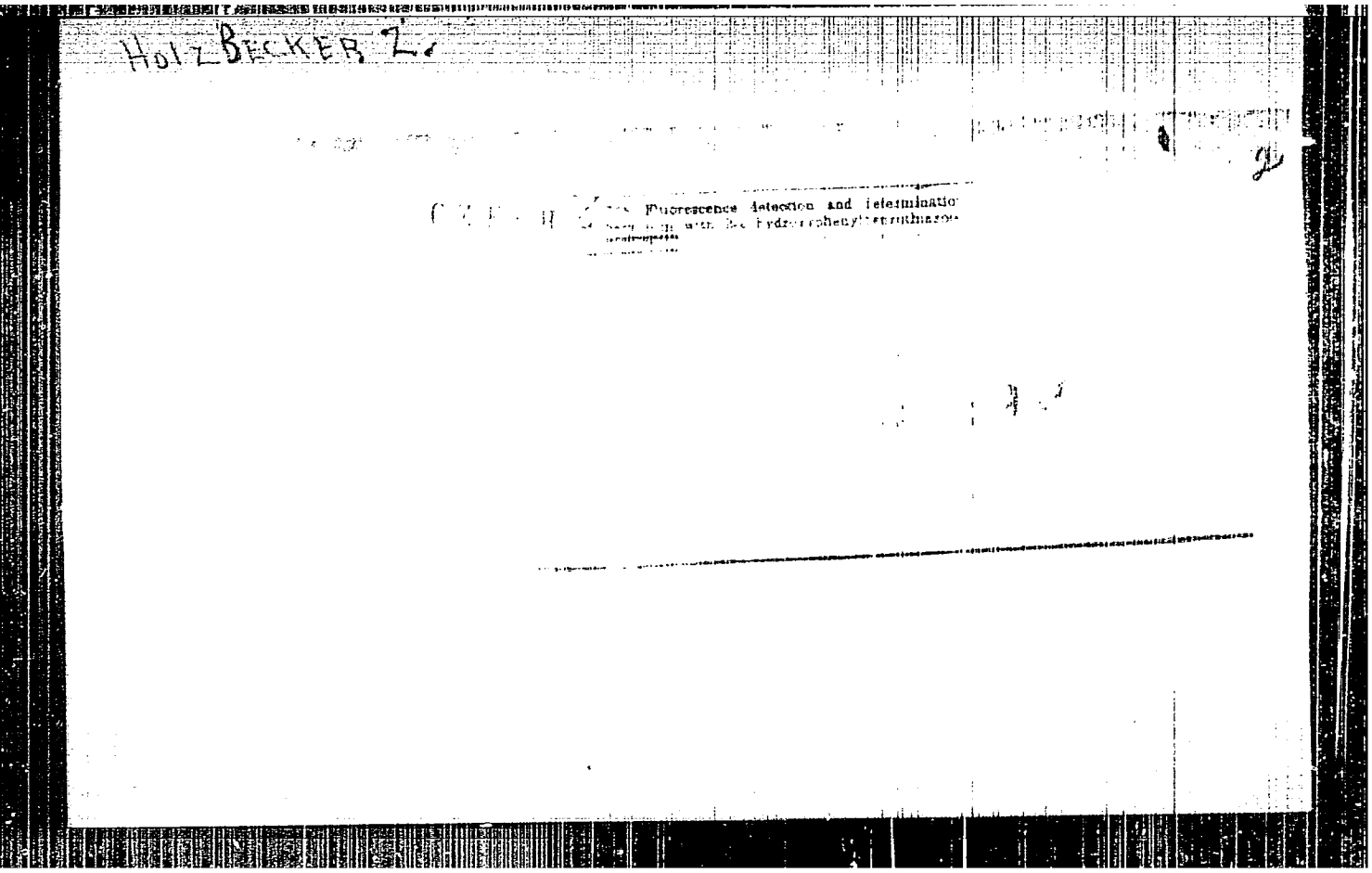


HOLZBECHER, Z.

CZECH

New detection and determination of zinc by means of fluorescence. Zdeněk Holzbecher (Vysoká škola chem.-technol., Prague). Chem. listy 49, 884-92(1955).—Semicarbazones and especially acetylhydrazone (I) of salicylaldehyde are suitable reagents for detection and detn. of Zn by means of fluorescence in ultraviolet light. The detn. is possible in the range of 5-800 γ Zn in 50 ml. soln. even in the presence of other elements. Li, Na, K, NH_4, Sr, and Ba do not interfere up to concns. 500 γ per 50 ml. Al and Pb must be screened by adding a 3% soln. of NaF. To det. Zn in $Zn(OAc)_2$, add to a 5-ml. sample contg. up to 1.3 mg. Zn 10 ml. 0.1M acetate buffer, 10 ml. EtOH, 0.5 ml. 0.01M I in EtOH, dil. to 50 ml., and measure the fluorescence.
M. Hudlický

CZECH

Fluorescence spectra of salicylaldehyde condensation products and their salts. III. Acetyl hydrazone, semicarbazone, and thiosemicarbazone of salicylaldehyde. Zdeněk Holzbecher (Vysoká škola chem.-technol., Pardubice). Chem. Listy 49, 1102-6(1955); cf. C.A. 49, 12971c. Fluorescence and absorption spectra of acetyl hydrazone (I), semicarbazone (II), and thiosemicarbazone (III) of salicylaldehyde are given in the range of 330–650 mμ for the reagents and their Zn and Al salts. From the effect of pH on the intensity of fluorescence the following dissocn. consts. were detd.: I 5×10^{-4}, II 3×10^{-4}, III 4×10^{-7}. The compn. of the salts of I–III in aq.-alc. solns., as detd. by the method of continuous variations, corresponds to the ratio 1 Zn: 1 mole of the reagent I–III. The ratio of Al [illegible] and to be 1:2. The inner-complex formulas for the [illegible]

M. Hadlicka

~~ZAVIS~~ HOLZBECHER, Zavis

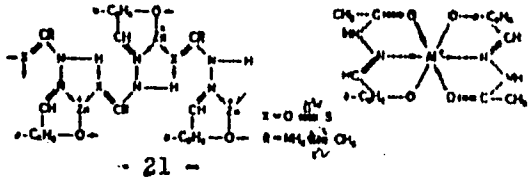
CZECHOSLOVAKIA / Physical Chemistry. Molecule. Chemical Bond. B-4

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 25771

Author : Zavis Holzbecher
Title : Fluorescence Spectra of Condensation Products of Salicylaldehyde and Its Salts. III. Acetylhydrazone, Semicarbazone and Thiosemicarbazone of Salicylaldehyde.

Orig Pub : Chem. listy, 1955, 49, No 8, 1162-1166; Sb. chekhosl. khim. rabot, 1955, 20, No 6, 1297-1301

Abstract : The fluorescence spectra (F) and the absorption spectra of aqueous-alcohol (70%) solutions of acetylhydrazone (I), semicarbazone (II) and thiosemicarbazone (III) of salicylaldehyde and their Zn and Al salts were studied in the range from 330 to 660 mμ. The dependence between the intensity of F



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CZECHOSLOVAKIA / Physical Chemistry. Molecule. Chemical Bond. B-4

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26771

Abstract : of the solutions in the visible spectrum part and the absorption intensity in the range from 360 to 370 mu was revealed. The maximum F is characteristic of alkaline solutions of I, II and III, and the minimum F is characteristic of acid solutions. The composition of Zn salts of I, II and III (1 : 1) and of Al salt of I (L Al atom : 2 I molecules) was established by measuring the F spectra. The composition of Al salts of II and III is assumed to be the same. Intracomplex chain polymeric cations are characteristic of Zn salts. The acidity constants of I, II and III were computed from the dependence of F on pH by the method described earlier (RZhKhim, 1955, 13388). I $(5 \pm 1).10^{-9}$, II $(3 \pm 1).10^{-9}$, III $(4 \pm 1).10^{-9}$.

For part II, see RZhKhim, 1956, 46031.

Card : 2/2 - 22 -

HOLZBECHER, Z.

"New fluorescent indicators. I. Neutralization titration. II. Volumetric determination of aluminum and zinc."

p. 425 (Chemicke Listy, Vol. 52, no. 3, 1958, Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, no. 9, September 1958

E-1

Country : Czechoslovakia
Category : Analytical Chemistry - General

19048

Abs. Jour. : Ref Zhur-Khimiya, No 6, 1959

Author : Holzbecher, Z AVIS
Institut. :
Title : New Fluorescent Indicators. I. Titrations by the Neutralization Method.

Orig Pub. : Chem. listy, 1958, 52, No 3, 425-429

Abstract : The authors have studied the products of condensation of salicylaldehydes (I): o-hydroxyphenyl-benzothiazole (II), o-hydroxyphenyl-benzoxazole (III), o-hydroxyphenyl-benzimidazole (IV), semicarbazone of I (V), acetyl-hydrazone of I (VI), thiosemicarbazone of I (VII), oxime of I (VIII), salicylidene-o-aminophenol (IX), salicylidene-m-aminophenol (X), salicylidene-p-aminophenol (XI), salicylidene-o-anisidine (XII), salicylidene-aniline (XIII) and salicylidene-semioxamazone (XIV) -- and have found that compounds which are suitable as fluorescent indicators, in titrations by the neutralization method in ultraviolet light, are only II, III, IV, V, VI and VII, which, in an alkaline medium, exhibit a

Card: 1/6

E-1

19048

Country : Czechoslovakia
Category : Analytical Chemistry - General

Abs. Jour. : Ref Zhur-Khimiya, No 6, 1959

Author :
Institut. :
Title

Orig. Pub. :

Abstract : relatively strong blue- or blue-violet fluorescence. Intensity and color of fluorescence (F) of 10^{-5} M solutions of all the derivatives of I under study were determined in citrate-, phosphate-, and borate-buffer solutions depending upon pH; changes in fluorescence of these derivatives were determined, and dissociation constants were calculated from photometric or titrimetric data. II, III, IV, V, VI, and VII, were utilized as indicators in titrimetric determinations of strong and weak acids with strong bases; titration of bases with acids is unsatisfactory because in an alkaline medium the F of indicators is decreased on

E-3

Card: 2/6

E-1

Country : Czechoslovakia
Category : Analytical Chemistry - General

19048

Abs. Jour. : Ref Zhur-Khimiya, No 6, 1959

Author :
Institut. :
Title :

Orig Pub. :

Abstract : irradiation with ultraviolet light. Intensity of F of the indicators used was determined by means of a Duboscq colorimeter and a PRK-4 mercury-quartz lamp (220 v) as the source of ultraviolet radiation (with a VG-4 black light-filter, maximum transmission at 3660 A). For individual indicators are listed the following: acid dissociation constants pK_k, as determined photometrically and by calculation; dissociation constants of bases pK_z; color of F in alkaline medium; maximum F-intensity of a 10^{-5} M solution of the reagent, expressed in % on the basis of F-intensity of 10^{-5} M solution of quinine sulfate in 0.1 N H_2SO_4 (blue light-filter, maximum transmission at 4450 A), which is taken

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E-1

Country : Czechoslovakia
Category : Analytical Chemistry - General

19048

Abs. Jour. : Ref Zhur-Khimiya, No 6, 1959

Author :
Institut. :
Title :

Orig. Pub. :

Abstract : as equal to 100% (in the case of II, III, IV, V, VI, VIII), or on the basis of F-intensity of 10^{-5} M solution of Na-salt of fluorescein in 0.1 N NaOH (light-filter 5250 A) taken as equal to 50% (in the case of VII, IX, X, XI, XII, XIII,XIV). These data are as follows: II 9.3, 10.10, >11, blue-green, 500; III 9.3, 11.05, >11, blue-violet, 170; IV not determined, 9.90, 9.05, blue-violet, 150; V 8.5, 9.25, >11, light-azure, 50; VI 8.3, 9.60, >11, greenish-blue, 100; VII 8.4, 9.20, >11, blue-green, 30; VIII 9.7, 9.65, >11, blue-green, 5; IX 7.8, 8.63, 9.45, yellow-green, 2.5; X 7.9, 8.75, 9.85, green, 2.0; XI 8.3, 8.85, 8.75, green, 2.5;

Card: 4/6

E-4

E-1

Country : Czechoslovakia
Category : Analytical Chemistry - General

19048

Abs. Jour. : Ref Zhur-Khimiya, No 6, 1959

Author :
Institut. :
Title :

Orig Pub. :

Abstract : XII 8.2, 8.60, 9.80, green, 2.5; XIII 7.9, 8.70, 4.25, yellow-green, 2.0; XIV 7.2, 9.35, >11, greenish-blue, 0.5. The lower values of photometrically determined pK_k are caused by partial decomposition of reagents in alkaline medium on ultraviolet irradiation, and quenching of F by some anions present in buffer solutions. On titrimetric determination of acids (HCl, H_2SO_4, HNO_3, CH_3COOH, H_3PO_4) a simple arrangement was used for lateral illumination of the solution being titrated and observation of fluorescence from above. To 25 ml of the solution were added 1-2 drops of 0.1% alcohol-solution of indicator (II, III, IV, V, VI, VII) after which titration was carried out with 0.1 N NaOH until

Card: 5/6

Country : Czechoslovakia E-1
Category : Analytical Chemistry - General
Abs. Jour. : Ref Zhur-Khimiya, No 6, 1959 19048
Author :
Institut. :
Title :

Orig. Pub. :

Abstract : a faint F developed; reaching of equivalence point was checked by comparison with control experiment solution. The results thus obtained are somewhat too high in comparison with those obtained using methyl orange or phenolphthalein, but are within the limits of permissible error (± 0.2%). For an accurate determination of CH_3COOH only II, III and IV can be used; for titration of 2nd H^+ of H_3PO_4 only III is suitable. -- J. Vanecek.

Card: 6/6

Country : Czechoslovakia E-2
Category : Analytical Chemistry - Analysis of Inorganic Substances
Abs. Jour. : Ref Zhur-Khimiya, No 6, 1959 19079

Author : Holzbecher, Z.
Institut. :
Title : New Fluorescent Indicators. II. Titrimetric Determination of Aluminum and Zinc.

Orig Pub. : Chem. listy, 1958, 52, No 3, 430-438

Abstract : Formation of the intensively fluorescent, in ultraviolet light, Al-salt of salicylidene-o-aminophenol (I) (green-yellowish fluorescence) and Zn-salt of acetyl-hydrazone of salicylaldehyde (II)(blue fluorescence), is utilized in the development of a new method of titrimetric determination of Al and Zn, singly and in admixtures with other numerous elements. Of the investigated titration agents best suited were found to be NaF for Al and Complexon III for Zn. In determining Al in $KAl(SO_4)_2$, there are added to 10 ml of solution to be analized (20-40 mg Al), at pH 4-5, 10 ml of acetate buffer solution of pH about 5.1 (1 volume

Card: 1/6

Country : Czechoslovakia E-2
Category : Analytical Chemistry - Analysis of Inorganic Substances
Abs. Jour. : Ref Zhur-Khimiya, No 6, 1959 19079

Author :
Institut. :
Title :

Orig. Pub. :

Abstract : of 1 M CH_3COOH + 2 volumes of 1 M CH_3COONa) and 2 ml 0.05% alcohol solution of indicator I (solutions of I are prepared anew every week) and titration is carried out with 0.6 M solution of NaF under ultraviolet light (communication 1, RZhKhim, 1959, 19048). For each sample at least two determinations are made and the 1st titrated solution is utilized as control in the second titration in which almost the entire required amount of NaF solution is added rapidly and at once, after which titration is completed under ultraviolet light. 1 ml of 0.6 M solution of NaF corresponds to 2.715±0.008 mg Al (average of 5 determinations). To secure

Card: 2/6

E-2

Country : Czechoslovakia
Category : Analytical Chemistry - Analysis of Inorganic Substances
Abs. Jour. : Ref Zhur-Khimiya, No 6, 1959 19079

Author :
Institut. :
Title :

Orig Pub. :

Abstract : correct results it is necessary to follow exactly the described procedure as concerns conditions of titration, volumes and concentrations of the solutions. 20-40 mg Al in 10 ml solution can be determined with a maximum error of ± 1%; with a concentration of about 26 mg Al in 10 ml the relative error of determination is ± 0.3%. Determination of Al is not interfered with by the presence of 100-350 mg Na^+, K^+, NH_4^+, Li^+, Tl^+, Ag^+, Cd^{2+}, Ni^{2+}, Co^{2+}, Zn^{2+} and Mn^{2+}, and also of 10-35 mg Pb(2+), Hg(2+), As(3+), P(5+), As(5+), U(6+) and Cr(3+). Lower results are obtained (due to quenching of fluorescence) in the presence of even

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E-2

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

19079

Author :
Institut. :
Title :

Orig. Pub. :

Abstract : small amounts of molybdates, tartrates, Fe^{3+}, and of large amounts of Cr^{3+} and U(6+). Titration of Al can not be carried out in the presence of Mg^{2+}, Ca^{2+}, Sr^{2+}, Ba^{2+}, Ti^{4+}, Ce^{3+}, Th^{4+}, Zr^{4+}, La^{3+}, Be^{2+}, Sb and Sn. By addition of 20% solution of $Na_2S_2O_3$, immediately before titration, it is possible to eliminate the interfering effect of small amounts of Bi, Cu and Pb. If a small amount of Fe^{3+} is present its interfering effect can be eliminated by reduction with thiosulfate in the presence of Cu^{2+}-salt which speeds up the reduction. On determining Zn in $ZnSO_4$, 10-20 ml of the almost neutral solution (6-170 mg Zn) are mixed with 10 ml

Card: 4/6

E-12

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

19079

Author :
Institut. :
Title :

Orig Pub. :

Abstract : acetate buffer solution and 2 ml 0.1% alcohol solution of indicator II (the solution of II is stable for one year), and titrated with 0.1 M solution of Complexon III to a quenching of the fluorescence in ultraviolet light; a control experiment is run concurrently. Relative error of determination of 30-160 mg Zn in 5-25 ml varies from - 0.16 to + 0.45%. Determination of Zn is not interfered with by the presence of 50-400 mg Na^+, K^+, NH_4^+, Li^+, Tl^+, Ag^+, Sr^{2+}, Ba^{2+}, and also of thiosulfates, fluorides, tartrates, small amounts of arsenites, arsenates, and phosphates. The presence of large amounts of phosphates, arsenates, and of Sb and Sn in the form of tartrate complexes, causes inaccurate results.

Card: 5/6

HOLZBECHER, Z.

COUNTRY : Czechoslovakia E-2
CATEGORY : Analytical Chemistry. Analysis of Inorganic Substances.
ABS. JOUR. : RZKhim., No. 19, 1959, No. 67724

AUTHOR : Holzbecher, Z.
INST. :
TITLE : New Fluorescent Indicators. III. Titrimetric Determination of Aluminum and Zinc in Alloys

ORIG. PUB. : Chem. listy, 1958, 52, No 9, 1824-1825

ABSTRACT : Description of a rapid titrimetric method for determining Al and Zn in Cu- and Mg-alloys, and also Al in Zn-alloys. The sample being analyzed is dissolved in dilute HNO_3 (in the case of Cu- and Mg-alloys) or in dilute HCl (in the case of Zn-alloys), the interfering components are removed and titration is carried out in ultraviolet light: Al^{3+} with 0.6 M solution of NaF to the fluorescent indicator salicylidene-o-aminophenol, and Zn^{2+} -- with 0.1 M solution of CrO_3, Trilon III, to the acetylhydrazone of salicylic aldehyde indicator, until the yellow-green and blue fluorescence, respectively, disappears. The titrated solution must be buffered with an acetate buffer solution (pH 5.5).

CARD: 1/4

COUNTRY : Czechoslovakia
CATEGORY :

ABS. JOUR. : RZKhim., No. 19, 1959, No. 67724

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : Titration of Al is interfered with by Sn, Cu, Fe, and by large amounts of Pb and Mg, while the titration of Zn, in addition of the above stated elements, is also interfered with by Al, and by large amounts of Mn and Ni. On analysing Cu-alloys (brass, bronze) Sn is removed as $SnO(OH)_2$ on dissolution of the sample in HNO_3, and the main part of Cu is removed electrolytically; the remaining Cu, together with with a small amount of Fe (or Pb) is masked by means of $Na_2S_2O_3$. Before the titration of Zn, Al is masked with an excess of NaF. In analyzing samples containing large amounts of Mn and Ni, Zn is separated beforehand as ZnS. In analyses of Mg-alloys the solution of

CARD: 2/4

E-2

COUNTRY : Czechoslovakia
CATEGORY :

ABS. JOUR. : RZKhim., No. 19 1959, No. 67724

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : [illegible] sample is evaporated [illegible] H_2SO_4 and the [illegible] is filtered off; Al is separated as [illegible] by means of hexamethylenetetramine, and the [illegible] portion of the solution) -- as and; the separated [illegible] precipitates are dissolved in HCl and Al, or Zn, are determined as described above. On determination of Al in alloys, which do not contain large amounts of Mg, the [illegible] separation of Al is not indispensable and it is [illegible] sufficient to mask Cu and Fe (or Fe) with [illegible] [illegible] of the sample is selected depending upon content [illegible] of the metals to be determined; with a content of less than [illegible] 5%, and above 20% of the elements, accuracy of determination [illegible]

CARD: 3/4

HOLZBECHER, Z.

"Ionic oquilibria in analytical chemistry" by H. Freiser, Q. Fernando. Reviewed by Z. Holzbecher. Chem listy 58 no.8:995-996 Ag '64

HOLZBECHER, Z.

Fluorescence of metallic salts of condensation products of salicylaldehyde. Coll Cz chem 25 no.12:3915-3919 '59.
(EEAI 9:6)

1. Institut fur analytische Chemie, Technische Hochschule fur Chemie, Prag.
(Fluorescence) (Salts) (Salicylaldehyde)

HOLZBECHER, Z.

Fluorescence of metal chelates of resorcylaldehyde and its derivatives. (EEAI 9:12)
Coll Cz Chem 25 no.4:977-982 Ap '60.

1. Institut fur analytische Chemie, Technische Hochschule fur Chemie, Prag.
(Fluorescence) (Chelatometry) (Resorcylaldehyde)

HOLZBECHER, Z.

Test of fluorescence of scandium, gallium and zirconium on paper-chromatograms by means of formylhydrazone of resorcyladehydes.
Coll Cz Chem 26 no.4:1204-1206 Ap '61.

1. Institut fur analytische Chemie, Technische Hochschule fur Chemie, Prag.

(Scandium) (Gallium) (Zirconium)

S/081/62/000/001/014/067
B156/B101

AUTHOR: Holzbecher, Z.

TITLE: Scandium, gallium and zirconium detected by fluorescence

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 1, 1962, 138, abstract 1D35 (Acta chim. Acad. scient. hung., v. 27, 1961, nos. 1-4, 413-416)

TEXT: Sc, Ga and Zr have been detected by means of the fluorescence in UV light exhibited by the complexes which they form with the products of condensation (CP) between salicylic or resorcylic aldehydes and aromatic amines or hydrazine derivatives. The relationship of intensity of fluorescence to the ratio between the cation charge and radius, and to the pH of the solution, has been studied for a series of complexes with several CP. Chromatographic recordings have been made of a mixture of Sc, Ga and Zr on Whatman paper no. 1 by means of a system of solvents ($n\text{-}C_4H_9OH$ - $CH_3COOC_2H_5$ - conc. HCl); the chromatograms are dried and treated with a

Card 1/2

S/081/62/000/001/014/067
B156/B101

Scandium, gallium and zirconium ...

0.01% ethanol solution of formylhydrazone of resorcyl aldehyde, and zones examined in UV-light (R_f Sc 0.10-0.19, Ga 0.70-0.97, Zr 0.0-0.1). If the chromatogram is treated with NH_3, zones of Al, Zn and Be are also revealed in UV-light. The method enables up to 0.04 γ Sc, 0.06 γ Ga and 0.5 γ Zr to be determined in the presence of almost all other cations. [Abstracter's note: Complete translation.]

Card 2/2

HOLZBECHER, Z.; PULKRAB, P.

Fluorometric determination of aluminum by means of formyl hydrazone of salicylaldehyde. Coll Cz Chem 27 no.5:1142-1149 My '62.

1. Institut fur analytische Chemie, Technische Hochschule fur Chemie, Prag.